# Unpredictable intermittent access exacerbates loss of control over ethanol drinking

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## Abstract

**Background:** Loss of control over drinking is a hallmark feature of alcohol use disorder (AUD) that is modeled preclinically through escalation of ethanol consumption and aversion-resistant drinking. Prior work with other reinforcers suggests that within-session unpredictable, intermittent access (uIntA) promotes loss of control over intake. However, the effect of uIntA on voluntary ethanol consumption is unknown.

**Methods:** Male and female Long-Evans rats (*n*=9-10/group) underwent seven weeks of daily voluntary ethanol (20% v/v) drinking sessions under either a continuous access (ContA) or uIntA schedule. Following four weeks of baseline, rats were rendered dependent using a two-week chronic intermittent ethanol vapor exposure procedure. Daily testing was maintained through one week into withdrawal from vapor exposure. On the final day of testing, ethanol was adulterated with quinine (30 mg/L) to assess aversion-resistant drinking.

**Results:** Rats drinking under ContA and uIntA exhibited similar levels of average daily ethanol consumption at baseline. However, uIntA elicited a more robust dependence-induced escalation of ethanol consumption compared to ContA, with uIntA sustaining escalation through early protracted withdrawal. Additionally, while rats with ContA to ethanol remained sensitive to quinine even after chronic ethanol vapor exposure, uIntA promoted aversion-resistant drinking in ethanol dependent rats.

**Conclusions:** These results demonstrate that, compared to ContA, uIntA maintains ethanol drinking and exacerbates AUD-related symptomatology while also providing researchers with the ability to capture additional measures of motivation and drinking patterns without increasing experimental burden. This work positions uIntA as a powerful tool to assess psychological and neurobiological factors underlying loss of control over drinking.

**Keywords:** dependence-induced escalation, aversion-resistant drinking, estimated blood ethanol concentration, continuous access, lick microstructure, discriminative stimulus, ethanol availability

53 **Introduction**

54 Alcohol use disorder (AUD) is a chronic, relapsing disorder characterized by several hallmark
55 symptoms, including loss of control over drinking and drinking despite negative consequences
56 (American Psychiatric Association, 2022; Koob, 2024; MacKillop et al., 2022). These symptoms
57 are often investigated preclinically using models of escalated ethanol intake (Becker, 2013;
58 Bowen et al., 2022) and aversion-resistant drinking, respectively (De Oliveira Sergio et al., 2023;
59 Hopf & Lesscher, 2014). These phenotypes are thought to reflect the transition from moderate to
60 intense, problematic intake characteristic of AUD and other substance use disorders (SUD)
61 (Edwards & Koob, 2013). In attempts to more accurately model patterns of human drug intake
62 and seeking to inform the development of SUD-related phenotypes, a bevy of prior work has
63 shown that variable, intermittent timing of reinforcer access can promote uncontrolled intake and
64 responding for both drug and non-drug reinforcers (Allain & Samaha, 2019; Becker, 2013; Clark
65 & Zack, 2023; Spear, 2020). With respect to ethanol, perhaps the most well-characterized effect
66 of schedule on drinking has been observed in the *ad libitum* two bottle choice (2BC) home cage
67 drinking paradigm, which consists of concurrent access to water and ethanol (Bowen et al., 2022;
68 Carnicella et al., 2014; Spear, 2020). Intermittent access 2BC (IA2BC), often defined as limiting
69 24 hr 2BC sessions to non-consecutive days of the week, can drive significantly higher intake and
70 promote a more robust binge drinking phenotype than continuous 2BC, defined as consecutive
71 24 hr 2BC sessions (Kimbrough et al., 2017; Lindell et al., 2017; Loi et al., 2010; Melendez, 2011;
72 Rosenwasser et al., 2013; Simms et al., 2008, 2010; Spoelder et al., 2015). Additionally, 2BC
73 home cage drinking causes a gradual increase in ethanol intake over the course of weeks, often
74 thought to reflect a clinically relevant binge drinking phenotype, which is augmented in IA2BC
75 compared to a continuous 2BC procedure (Lindell et al., 2017; Loi et al., 2010; Rosenwasser et
76 al., 2013; Simms et al., 2008, 2010; Spoelder et al., 2015). Importantly, these features increase

77 the translational relevance of IA2BC by reflecting cycles of binge and withdrawal observed in the
78 clinical population (Bowen et al., 2022; Carnicella et al., 2014; Spear, 2020).

79 While evidence suggests that IA2BC has superior face validity to continuous 2BC paradigms,
80 subjects in both paradigms typically retain *ad libitum* access to ethanol. Thus, while the access
81 schedule differs *between* drinking sessions, both paradigms have continuous access (ContA) to
82 ethanol *within* a session. While useful, this does not reflect the dynamic settings and associated
83 factors that can drive variable rates of within-session consumption, and related craving, in the
84 clinical population (Dvorak et al., 2014; Fischer et al., 2023; Fridberg et al., 2021; King et al.,
85 2025; Pelloux et al., 2019; Prignitz et al., 2024; Wray et al., 2014). Clinical research makes it
86 increasingly clear that the rate of ethanol consumption within a drinking session, not just the total
87 amount, has clinical utility for informing risk of AUD development and severity of AUD symptoms
88 (Carpenter et al., 2017, 2019; Gowin et al., 2017; Simons et al., 2015; Sloan et al., 2020). As
89 such, within-session intermittent access (IntA), defined as providing discrete reinforcer access
90 periods interspersed with periods of no reinforcer access within a given drinking session, may
91 serve to better model dynamic settings and drinking patterns associated with AUD that are
92 observed in clinical populations (Ardinger et al., 2022; Leeman et al., 2010).

93 While not studied extensively in the context of ethanol consumption, within-session IntA for
94 cocaine and opioids consistently elicits greater reward seeking, increases cue-induced
95 reinstatement, and heightens SUD-related phenotypes including escalation and aversion-
96 resistant intake compared to ContA schedules (often denoted as long access [LgA]) (Allain &
97 Samaha, 2019; Beasley et al., 2023; Calipari et al., 2013, 2015; Calipari & Jones, 2014; D'Ottavio
98 et al., 2023; Fragale et al., 2020; James et al., 2019; Nicolas et al., 2019; Rakowski et al., 2025;
99 Samson et al., 2022; Singer et al., 2018). This effect is thought to be driven, in large part, by
100 dynamic, fluctuating drug concentrations and full clearance of drug between intoxication sessions,
101 which mimic human patterns of binge intake (Allain & Samaha, 2019; Kawa et al., 2019; Zimmer

102 et al., 2011, 2012). These data suggest that within-session IntA may also be able to promote
103 increased ethanol consumption and exacerbate AUD-relevant phenotypes. However, this
104 possibility has not been widely assessed due to the fact that, unlike psychostimulants and opioids,
105 ethanol is metabolized at much slower rates (Wilson & Matschinsky, 2020), precluding the ability
106 of within-session IntA to drive dynamic, fluctuating blood ethanol concentrations (BECs) thought
107 to be required for these effects. However, recent work found that within-session IntA for non-drug
108 reinforcers engenders more robust reward seeking, cue-induced reinstatement, and higher
109 motivation than within-session ContA procedures (Beasley et al., 2022; Muñoz-Escobar et al.,
110 2019; M. J. F. Robinson et al., 2023). Interestingly, this effect was greater when periods of
111 reinforcer access and interval were unpredictable (M. J. F. Robinson et al., 2023). These data
112 imply that the effects of within-session IntA drug cannot be fully explained by reinforcer
113 pharmacokinetics, suggesting that these effects may in fact generalize to ethanol. In line with this,
114 two studies have shown that within-session IntA to ethanol promotes higher voluntary intake,
115 ethanol seeking, and aversion-resistant seeking compared to within-session ContA (Gage et al.,
116 2023; Tomie et al., 2006).

117 Altogether, these data imply that within-session IntA, and unpredictable IntA (uIntA) in particular,
118 to ethanol could exacerbate ethanol intake and AUD-related symptomatology to a greater degree
119 than within-session ContA paradigms. However, prior work has yet to examine the effect of uIntA
120 on ethanol consumption or AUD-related phenotypes associated with ethanol dependence,
121 including escalation of ethanol consumption and aversion-resistant drinking. As such, the present
122 study sought to examine voluntary ethanol consumption prior to and following the induction of
123 ethanol dependence under an uIntA schedule and directly compare this to a ContA schedule. We
124 hypothesized that uIntA would promote higher ethanol intake and patterns of consumption that
125 drove higher within-session BECs prior to the development of dependence than ContA.

126 Furthermore, we hypothesized that uIntA would exacerbate dependence-induced escalation and

127 aversion-resistant intake compared to ethanol-dependent rats drinking under a ContA schedule.

128

129 **Methods**

130 *Animals*

131 Adult male and female Long-Evans rats (Envigo, Indianapolis, IN) were utilized for all experiments
132 (n=24/sex). Rats were ~P60 on arrival and allowed one week of acclimation in the vivarium prior
133 to testing. Rats were singly housed in standard Plexiglas cages in a temperature-controlled room
134 under a 12:12 hr reverse light/dark cycle (lights on at 22:00). Rats were provided *ad libitum* access
135 to standard enrichment, chow (Teklad 7912, Envigo), and water throughout the duration of the
136 study. All experimental procedures were approved by the University of Illinois Chicago Institutional
137 Animal Care and Use Committee and adhered to the NIH Guidelines for the Care and Use of
138 Laboratory Animals.

139 *Schedules of ethanol access*

140 Rats were trained to drink ethanol (20% v/v) in 1 hour drinking sessions using a lickometer-
141 equipped apparatus (MED Associates). For the first session of drinking, all rats experienced a
142 continuous access (ContA) schedule. After the first drinking session, rats were randomly assigned
143 to either ContA or unpredictable intermittent access (uIntA) schedules and experienced the same
144 schedule for the remainder of testing. ContA consisted of 60 minutes of uninterrupted access to
145 the ethanol-containing sipper (**Fig. 1A**). uIntA consisted of sipper access spread across 26
146 epochs of variable duration (15s, 20s, 30s, 40s, 60s, 90s, 120s) and interval (30s, 60s, 2.5 min,
147 5 min, 10 min) (**Fig. 1B**). Sipper access in both schedules was accompanied by house light
148 illumination, which served as a discriminative stimulus (DS) signaling ethanol availability. For
149 uIntA sessions, DS and interval (or inter-trial interval [ITI]) durations occurred a fixed number of
150 times per session, as described in **Table 1**. Individual DS and ITI durations were pulled randomly
151 without replacement from the list of all possible durations within each session, leading to a

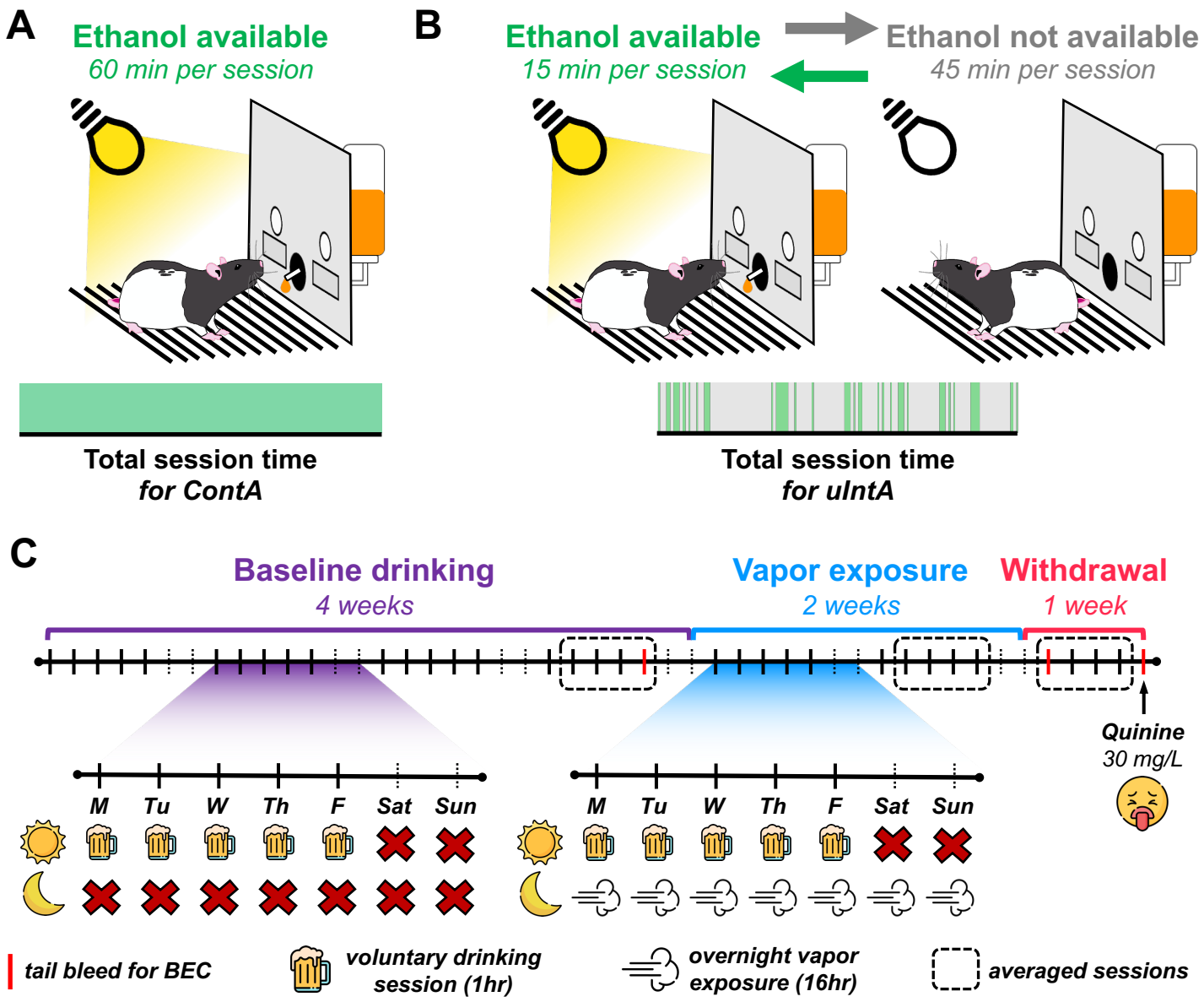


**Figure 1. Experimental design.** (**A**) Rats that underwent daily continuous access (ContA) sessions were allowed 60 min of uninterrupted ethanol access paired with house light illumination. (**B**) Rats that underwent daily unpredictable intermittent access (uIntA) sessions experienced variable periods of ethanol availability (amounting to 15 min) signaled by house light illumination. separated by variable periods without ethanol access (amounting to 45 min). **(C)** Rats underwent a total of seven weeks of voluntary drinking sessions. After a four-week baseline period, rats underwent two weeks of chronic intermittent ethanol or air vapor exposure during which drinking sessions continued Mon-Fri. Drinking sessions continued into withdrawal after completion of vapor exposure. On the final day of withdrawal testing, ethanol was adulterated with 30 mg/L quinine to assess aversion-resistant drinking. For each experimental timepoint, data was averaged across the final four sessions (indicated by dotted squares).

| | Duration (s) | # of occurrences | Total time (min) |
|---|---|---|---|
| **Discriminitive Stimulus (DS)** *(ethanol access)* | 15 | 10 | 2.5 |
| | 20 | 5 | 1.67 |
| | 30 | 2 | 1 |
| | 40 | 2 | 1.33 |
| | 60 | 5 | 5 |
| | 90 | 1 | 1.5 |
| | 120 | 1 | 2 |
| **Intertrial Interval (ITI)** *(no ethanol access)* | 30 | 11 | 5.5 |
| | 60 | 7 | 7 |
| | 150 | 3 | 7.5 |
| | 300 | 3 | 15 |
| | 600 | 1 | 10 |

**Table 1.** Discriminative stimulus (ethanol access) and intertrial interval (no ethanol access) periods within the uIntA schedule.

152 pseudorandom order of DS presentations (or ethanol access periods) that amount to 15 min per
153 session.

154 *Chronic intermittent ethanol vapor exposure*

155 After four weeks of daily ethanol drinking sessions, rats were rendered dependent using a
156 standard 14-day chronic intermittent ethanol vapor exposure procedure as previously described
157 (Glover et al., 2019, 2021; Przybysz et al., 2024; Ramirez et al., 2024). Rats experienced either
158 vaporized ethanol (EtOH-exposed group) or room air (Air-exposed group) for 14 hr/day (18:00-
159 8:00) for 14 consecutive days. Behavioral signs of intoxication were assessed daily in EtOH-
160 exposed rats using a previously published subjective rating scale (Glover et al., 2021; Ramirez et
161 al., 2024) ranging from 1 (no signs of intoxication) to a 5 (total loss of consciousness). Blood
162 samples (40 uL) from EtOH-exposed rats were extracted immediately upon removal from
163 chambers via tail vein nick on days 2, 6, 10, and 14 (±1 day) of the exposure period for the
164 measurement of blood ethanol concentration (BEC) as a result of ethanol vapor exposure. Air-
165 exposed counterparts were administered a tail pinch on the same schedule to mimic the
166 temporary discomfort evoked by blood collection experienced by intoxicated rats.

167 *Timeline of experiments*

168 A schematic describing the experimental timeline is shown in **Fig. 1C**. Voluntary ethanol drinking
169 sessions occurred daily, excluding weekends, throughout all experimental timepoints for a total
170 of seven weeks. Baseline (BL) data was collected during the first four weeks of testing. Daily
171 drinking sessions continued during the day while rats underwent vapor exposure overnight. This
172 was followed by one week of data collection during withdrawal (WD) after vapor exposure was
173 completed. On the final day of testing (WD day 5), ethanol was adulterated with quinine (30 mg/L)
174 to assess aversion-resistant drinking. Blood samples (40 uL) were collected from all rats
175 immediately following completion of the last baseline, first WD, and last WD drinking sessions to

176 measure [actual] blood ethanol concentration (aBEC) achieved as a result of voluntary ethanol
177 consumption.

178 *Blood ethanol concentration*

179 Upon collection, blood samples were immediately centrifuged (10,000 rcf, 10 min, 4°C). Plasma
180 supernatant (20 uL) was aliquoted into 0.5 mL microcentrifuge tubes and stored at -20°C. BECs
181 was measured using an Analox Alcohol Analyzer (Analox Instruments Ltd, United Kingdom) within
182 30 days of sample collection.

183 Estimated blood ethanol concentration (eBEC) was calculated at each experimental timepoint
184 using the Widmark equation (Widmark, 1981):

185 $$eBEC = \frac{A}{W * R} - (\beta * t)$$

186 where *A* is defined as the amount of ethanol (g) consumed, *W* indicates the weight (kg) of the rat,
187 *t* is defined as the amount of time (hr) since the start of drinking, *R* is defined as the Widmark
188 volume constant (L/kg) that informs the volume diffusion of ethanol in the body, and β is the linear
189 elimination rate (g/L/hr) for ethanol. The final eBEC output from the Widmark equation was
190 multiplied by 100 to convert from g/L to mg/dL (i.e. mg%) for all calculations. For these
191 experiments, *R* was set at 0.72 L/kg for males and 0.74 L/kg for females based on prior work in
192 Sprague-Dawley rats (Crippens et al., 1999). To individually define β for each rat, we identified
193 the final eBEC value corresponding to the three timepoints where aBEC was measured after
194 voluntary drinking. Final eBECs for these sessions were generated using a range of β elimination
195 values (0.1 g/L/hr to 1.5 g/L/hr) determined from prior work defining ethanol elimination rates in
196 Long Evans (Chung et al., 2008; Doherty & Gonzales, 2015; Kharbouche et al., 2010; Leasure &
197 Nixon, 2010; B. Webb et al., 2002) and Sprague-Dawley (Aull et al., 1956; Crippens et al., 1999;

198 Little et al., 1996; Varlinskaya & Spear, 2004) rats. Using these values, the β elimination rate that
199 produced the smallest residual between the final eBEC and the final aBEC measured for each rat
200 for each of the three sessions where aBEC was measured was identified. These three β
201 elimination rates (1 for each session) were then averaged to produce an individualized β
202 elimination rate for calculation of eBEC across all timepoints. For *A,* the total number of licks was
203 divided by the total ethanol intake (in g) for each session to obtain a "gperlick" [or "mgperlick"]
204 measurement that was used to calculate the total amount of ethanol consumed based on the
205 number of licks performed at any given timepoint within the session. eBEC curves throughout the
206 session were then calculated from the accumulation of ethanol intake via this "mgperlick"
207 measurement in 1 min bins.

208 *Lick microstructure analysis*

209 Lick microstructure analysis was utilized as described previously (Hou et al., 2024; Patwell et al.,
210 2021; Pitock et al., 2025; Wheeler et al., 2025). In brief, bouts within a session were defined as
211 three or more licks with an interlick interval of less than 1 second. Importantly, periods when
212 ethanol was not available were subtracted from uIntA analyses, allowing us to analyze lick
213 microstructure in a pseudo-consecutive 15-minute (900 sec) period of ethanol availability. Bout
214 probability for each analyzed session was defined by delineating bout "on" (1)/ bout "off" (0)
215 periods during ethanol availability at the sampling rate of our lickometer-equipped apparatus (100
216 Hz; 1 sample/10 ms). Bout probability timeseries were then averaged across the final four
217 sessions within each timepoint for each animal. To ensure the ability to perform direct
218 comparisons between ContA and uIntA schedules, bout probability timeseries for each animal
219 were binned so as to generate an equivalent number of datapoints (76 total datapoints for each
220 session; ContA [48 sec bins; amounting to 3600 sec of ethanol availability]; uIntA [12 sec bins;
221 amounting to 900 sec of ethanol availability]). A similar method was utilized for analyses of bout

222 probability across the time of a DS presentation by binning bout probability curves within each DS
223 presentation to 100 points (1% of DS presentation time per datapoint [ranging from 0.15s – 1.2s
224 of real time depending on total DS duration]).

225 *Statistical analysis*

226 Unless otherwise indicated, data from the final four voluntary drinking sessions at each timepoint
227 were averaged together for each rat for statistical analyses. Data were pooled across sexes for
228 all analyses due to insufficient power to determine significant effects of sex in the current
229 experiments. Rats exhibiting an average intake of <0.1 g/kg at baseline (n = 2-3/group) were
230 excluded due to insufficient ethanol consumption. Importantly, there was no significant difference
231 in the proportion of rats excluded in either schedule of access (Fisher's exact test, $p$>0.9999).
232 Upon collection of all experimental data, statistical outlier analyses (ROUT) were performed on
233 all datasets with a False Discovery Rate (Q) of 0.02%. Comparisons for group differences after
234 baseline were performed using omnibus multifactorial repeated measures (RM) ANOVAs with
235 time, schedule, and vapor exposure as primary independent variables. This was followed by two-
236 way RM ANOVAs to further identify effects of vapor and schedule on dependence-induced
237 escalation of ethanol consumption and aversion-resistant drinking. Upon detection of an
238 interaction, Tukey's or Šidàk's multiple comparisons test were utilized to identify simple main
239 effects as described. For traditional data structures not analyzed by two-way RM ANOVA,
240 unpaired t-test/Mann-Whitney test, Spearman's correlation, and Fisher's exact test were utilized
241 as appropriate. All analyses were conducted using Prism 10 (Graphpad) with the significance
242 threshold for all experiments set at $p < 0.05$. Data in **Table 2** presents the test statistics and
243 significance of all conventional statistical analyses that are not reported in-text. For all graphs,
244 ContA is depicted with solid lines and closed datapoints, whereas uIntA is depicted with dotted
245 lines and open datapoints, unless otherwise described. Circles indicate data from male rats and
246 triangles indicate data from female rats.

Functional linear mixed modeling (FLMM) was used to assess bout probability within DS presentations for rats drinking under the uIntA schedule. This approach allows for robust detection of trial-to-trial (i.e. DS presentation) level differences within a heavily nested experimental design that could be obscured during analysis using average or summary measures. To perform FLMM, the R package "fastFMM" (Loewinger et al., 2025) was utilized in custom R scripts (version 4.4.2) to model the functional fixed effects for subject *i* at trial *j* at time *s* (regression coefficients denoted by β(s)) of covariates (i.e. vapor exposure, experimental timepoint, etc.; denoted by $\boldsymbol{X}_{i,j}$) on functional outcomes (i.e. bout probability within a DS presentation; denoted by $\boldsymbol{Y}_{\boldsymbol{i,j}}(s)$). For all models, we included a subject-specific random intercept (denoted by $\boldsymbol{\gamma}_{0,i}(s)$) to account for subject-level variation associated with the nested nature of the data structure. We generated two models to uncover the effects of three primary covariates: 1) latency of DS onset from session start, 2) EtOH consumption (g/kg) during the prior DS presentation, 3) prior ITI duration, and 4) current DS duration, as well as their interaction with vapor exposure. For both models, the first DS presentation was excluded from the data structure due to an inability to properly interpret covariates associated with experience prior to the current DS presentation.

*Baseline Model (Fig. 8A-C)*: Data were pooled across vapor exposure groups to identify effects exhibited during baseline drinking sessions prior to vapor exposure. Effects of three primary variables on bout probability during DS presentations were modeled with:

$$\mathbb{E}\left[\boldsymbol{Y}_{\boldsymbol{i,j}}(s)\middle|\boldsymbol{X}_{i,j},\boldsymbol{\gamma}_i(s)\right] = \beta_0(s) + \gamma_{0,i}(s) + \beta_1(s)\mathrm{DSLatency}_{i,j} +$$

$$\beta_2(s)\mathrm{PriorEtOH}_{i,j} + \beta_3(s)\mathrm{PriorITI}_{i,j} + \beta_4(s)\mathrm{DSduration}_{i,j}$$

With the covariates defined as:

*DSlatency*: continuous variable denoting the onset of the DS presentation within the session, scaled 0 [indicating earliest DS presentation] to 1 [indicating latest DS presentation].

*PriorEtOH*: continuous variable denoting the amount of ethanol (g/kg) consumed in the prior DS presentation, z-scored to all trials from all subjects [0 = average g/kg intake within a DS]

*PriorITI*: continuous variable denoting the duration of ITI's experienced just prior to the current DS, scaled 0 [indicating shortest ITI duration] to 1 [indicating longest ITI duration]

*DSduration*: continuous variable denoting the current DS duration, scaled 0 [indicating shortest DS duration] to 1 [indicating longest DS duration]

*Vapor/Withdrawal Model (Fig 8E-I)*: Data were pooled across the final four voluntary drinking sessions during vapor exposure and withdrawal (eight sessions total) to capture the entire period where dependence-induced escalation was observed and compared between Air-exposed and EtOH-exposed groups. The interaction between ethanol dependence and our primary covariates on bout probability during DS presentations was modeled as follows:

$$\mathbb{E}\left[\boldsymbol{Y}_{\boldsymbol{i,j}}(s)\middle|\boldsymbol{X}_{i,j},\boldsymbol{\gamma}_i(s)\right] = \beta_0(s) + \gamma_{0,i}(s) + \beta_1(s)\mathrm{Vapor}_{i,j}^{(1)} + \beta_2(s)\mathrm{DSLatency}_{i,j} +$$

$$\beta_3(s)\mathrm{PriorEtOH}_{i,j} + \beta_4(s)\mathrm{PriorITI}_{i,j} + \beta_5(s)\mathrm{DSduration}_{i,j} + \beta_6(s)\mathrm{Vapor}_{i,j}^{(1)}\mathrm{DSLatency}_{i,j} +$$

$$\beta_7(s)\mathrm{Vapor}_{i,j}^{(1)}\mathrm{PriorEtOH}_{i,j} + \beta_8(s)\mathrm{Vapor}_{i,j}^{(1)}\mathrm{PriorITI}_{i,j} + \beta_9(s)\mathrm{Vapor}_{i,j}^{(1)}\mathrm{DSduration}_{i,j}$$

With additional covariates defined as:

*Vapor*: factor variable with 0 denoting Air-exposed and 1 denoting EtOH-exposed

Results from all FLMM related analyses are presented in **Table 3**.

288 **Results**

289 *Validation of estimated blood ethanol concentration (eBEC) analysis*

290 Prior work has shown that rate of ethanol consumption, and resultant pharmacokinetics, can
291 predict risk for binge drinking and development of AUD (Carpenter et al., 2017, 2019; Gowin et
292 al., 2017; Simons et al., 2015; Sloan et al., 2020). Clinical assessments often use eBECs to
293 identify how within-session pharmacokinetics relate to the subjective effects of ethanol, relative
294 intoxication, and expression of AUD symptomatology (Hultgren et al., 2025; Piasecki, 2019).
295 Surprisingly, eBEC analyses have not been widely adopted in preclinical assessments despite its
296 translational value and ability to provide a deeper understanding of how ethanol intake patterns,
297 and resultant eBEC dynamics, drive AUD-relevant symptomatology (Grahame, 2026). As such,
298 we sought to develop a rigorous eBEC analysis pipeline to allow for within-session estimation of
299 BECs across our experimental timepoints.

300 BECs measured from blood samples obtained at the termination of three separate drinking
301 sessions across the experimental timeline (**Fig. 1C**), individually defined β ethanol elimination
302 rates, and 'mgperlick' values were used in combination to calculate eBECs utilizing using the
303 Widmark equation. Individually defined β ethanol elimination rates were determined as the rate
304 that produced the smallest residual between final eBEC and aBEC of the drinking sessions (**Fig**
305 **2A-B**). Importantly, residuals ranged from -10 to +20 mg/dL (ave: +3.7 mg/dL ± 1.083 mg/dL) and
306 were not significantly different between groups (**Fig 2C**). Estimated β ethanol elimination rates
307 across sexes ranged from 0.15 g/L/hr to 1.1 g/L/hr (ave: 0.61 g/L/hr). Females tended to have a
308 higher average estimated β ethanol elimination rate (~0.68 g/L/hr) than males (~0.55 g/L/hr)
309 although this difference did not reach statistical significance ($t(35)=1.728$ $p=0.0928$). Importantly,
310 there was no significant effect of schedule on individually estimated β ethanol elimination rates
311 (**Fig 2D**). We also do not observe a significant effect of schedule on the average mg of EtOH

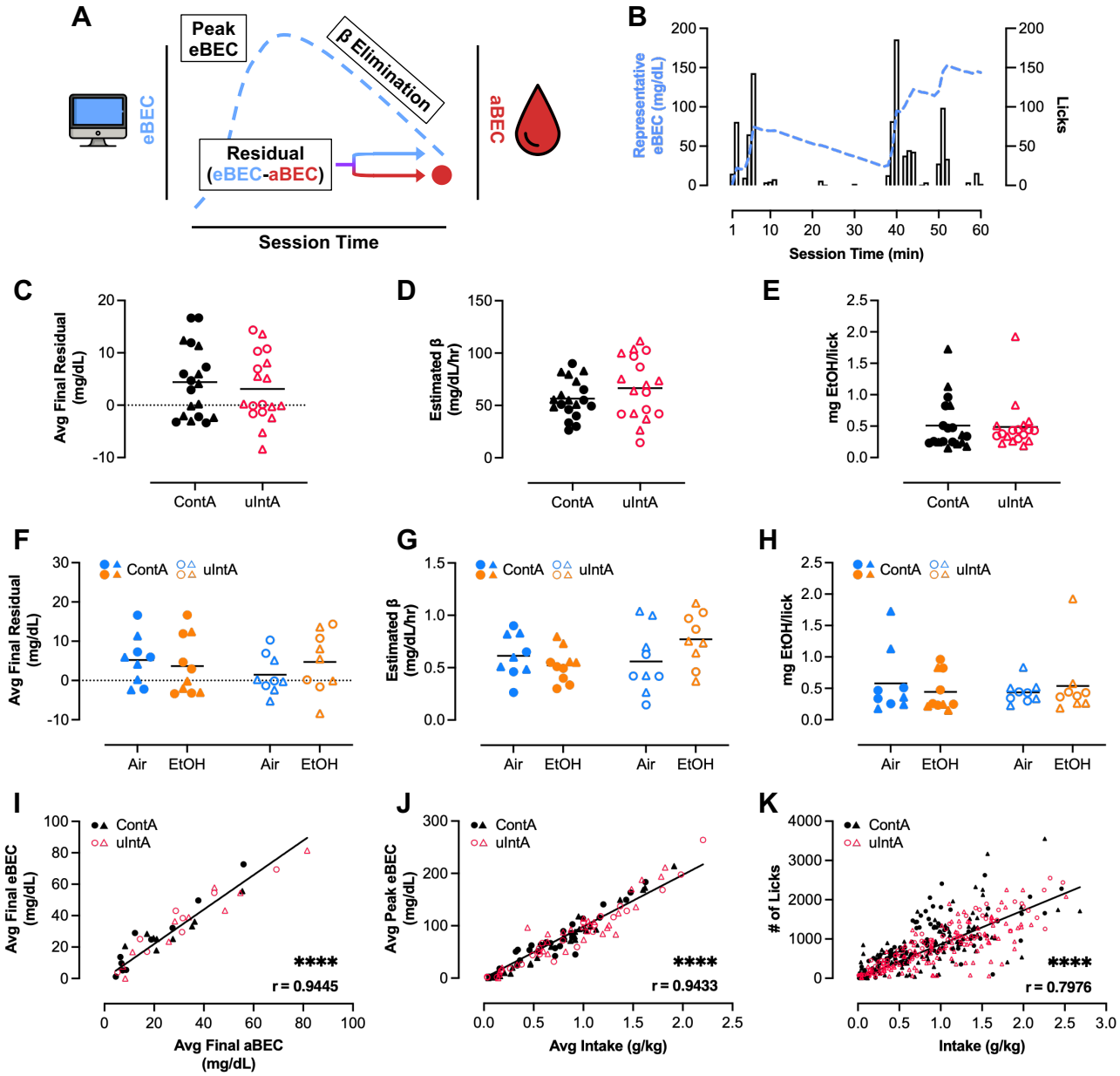


**Figure 2: Validation of estimated blood ethanol concentration (eBEC) analysis.** (**A**) eBECs were calculated using the Widmark equation and validated with end-of-session aBECs. (**B**) Representative eBEC curve (blue line) plotted with number of licks occurring within each minute of the session (black bars) to exemplify use of 'mgperlick' measurement in eBEC calculation. Average residual [final eBEC – final aBEC] (**C**), individually defined estimated β ethanol elimination rates (**D**), and mg of EtOH consumed per lick (**E**) for ContA and uIntA rats. (**F-H**) Identical parameters as displayed in **C-E** separated by schedule and vapor group assignment. (**I**) Correlation between average final eBEC and average final aBEC for drinking sessions where tail blood was collected. (**J**) Correlation between average peak eBEC and average ethanol intake across sessions within each experimental timepoint. (**K**) Correlation between total number of licks and total intake for all sessions.

312 consumed per lick [‘mgperlick’] (**Fig 2E**). In addition, no significant between group differences
313 were observed in the average residual (**Fig 2F**), estimated β ethanol elimination rate (**Fig 2G**), or
314 calculated mg of EtOH per lick (**Fig 2H**) when data were examined by ethanol vapor group in
315 addition to schedule. Spearman’s correlations examining the relationship between eBECs and
316 measured variables revealed a significant positive correlation between final (or “end-of-session”)
317 calculated eBECs and measured aBECs corresponding to the timepoints when tail blood was
318 collected (**Fig 2I**). As expected, we also observed a significant positive correlation between
319 average peak eBEC and average intake achieved at each experimental timepoint (**Fig 2J**). A
320 significant positive correlation was also observed between total number of licks and total intake
321 within each session (**Fig 2K**), confirming the fidelity of the lickometer-equipped apparatus to
322 accurately reflect intake throughout the session. Altogether, these data support the validity of the
323 current eBEC calculation to accurately reflect aBECs achieved as a result of voluntary ethanol
324 drinking throughout a session using a lickometer-equipped apparatus.

325 *Intoxication as a result of chronic intermittent ethanol vapor exposure*

326 Average intoxication scores during chronic intermittent ethanol vapor exposure were not
327 significantly different between schedules (ContA: 2.086±0.059, uIntA: 2.087±0.069,
328 t(17)=0.01755, $p$=0.9862). In addition, there was no significant effect of drinking schedule on
329 BECs achieved during ethanol vapor exposure (ContA: 259.9±16.63 mg/dL, uIntA: 254±21.71
330 mg/dL, t(17)=0.2206, $p$=0.8280). As expected, a significant positive correlation was observed
331 between intoxication score and BECs achieved as a result of vapor exposure (r=0.6914,
332 $p$<0.0001). Altogether, these data corroborate prior work (Glover et al., 2019, 2021; Przybysz et
333 al., 2024; Ramirez et al., 2024) and demonstrate a similar degree of intoxication during chronic
334 intermittent ethanol vapor exposure between rats experiencing ContA or uIntA.

335 *Schedule of access does not affect drinking dynamics prior to ethanol dependence*

336 To determine whether uIntA can increase ethanol consumption, and other relevant parameters,
337 compared to ContA, we compared overall intake between groups prior to ethanol dependence.
338 As shown in **Fig. 3**, rats that underwent uIntA drinking exhibited similar levels of ethanol
339 consumption at baseline as rats that underwent ContA drinking. Indeed, analysis of intake across
340 all pre-vapor sessions as well as average intake during the final four baseline sessions found no
341 significant main effect of schedule on intake (**Fig. 3A**). Moreover, aBECs captured after the final
342 baseline drinking session were not significantly different between schedules (**Table 2**). In
343 agreement with this, uIntA and ContA groups also exhibited similar within-session eBEC
344 dynamics (**Fig 3B**) and bout probability (**Fig 3C**) at baseline. Importantly, differences in these
345 measures remained nonsignificant when analyzed by future vapor group assignment (**Fig 3D-F;**
346 **Table 2**). Furthermore, the proportion of rats whose average baseline intake was classified as
347 light (<0.5 g/kg), moderate (0.5-1.0 g/kg), or heavy (>1 g/kg) did not differ between schedules or
348 vapor exposure groups (**Fig 3G-H**). Altogether, these data show that uIntA engenders moderate
349 levels of voluntary ethanol consumption to a similar degree as ContA.

350 *Dependence-induced escalation of ethanol consumption differs across schedules*

351 Although we expected that all rats exposed to chronic intermittent ethanol vapor would exhibit
352 escalated ethanol intake, we hypothesized that uIntA would exacerbate escalation relative to
353 ContA counterparts. To assess this, we performed omnibus multifactorial RM ANOVAs utilizing
354 time (continuous or categorical [i.e. timepoint]), schedule (ContA vs. uIntA), and vapor (Air vs.
355 EtOH) as independent variables across all relevant dependent variables. As denoted in **Table 2**,
356 several analyses indicate trending three-way interactions and significant two way-interactions of
357 schedule and vapor, suggesting non-independent effects of both factors on each dependent
358 measure. As such, we performed RM two-way ANOVAs to determine the effect of vapor within
359 each schedule (ContA Air- vs. EtOH-exposed; uIntA Air- vs. EtOH-exposed). Separate analyses

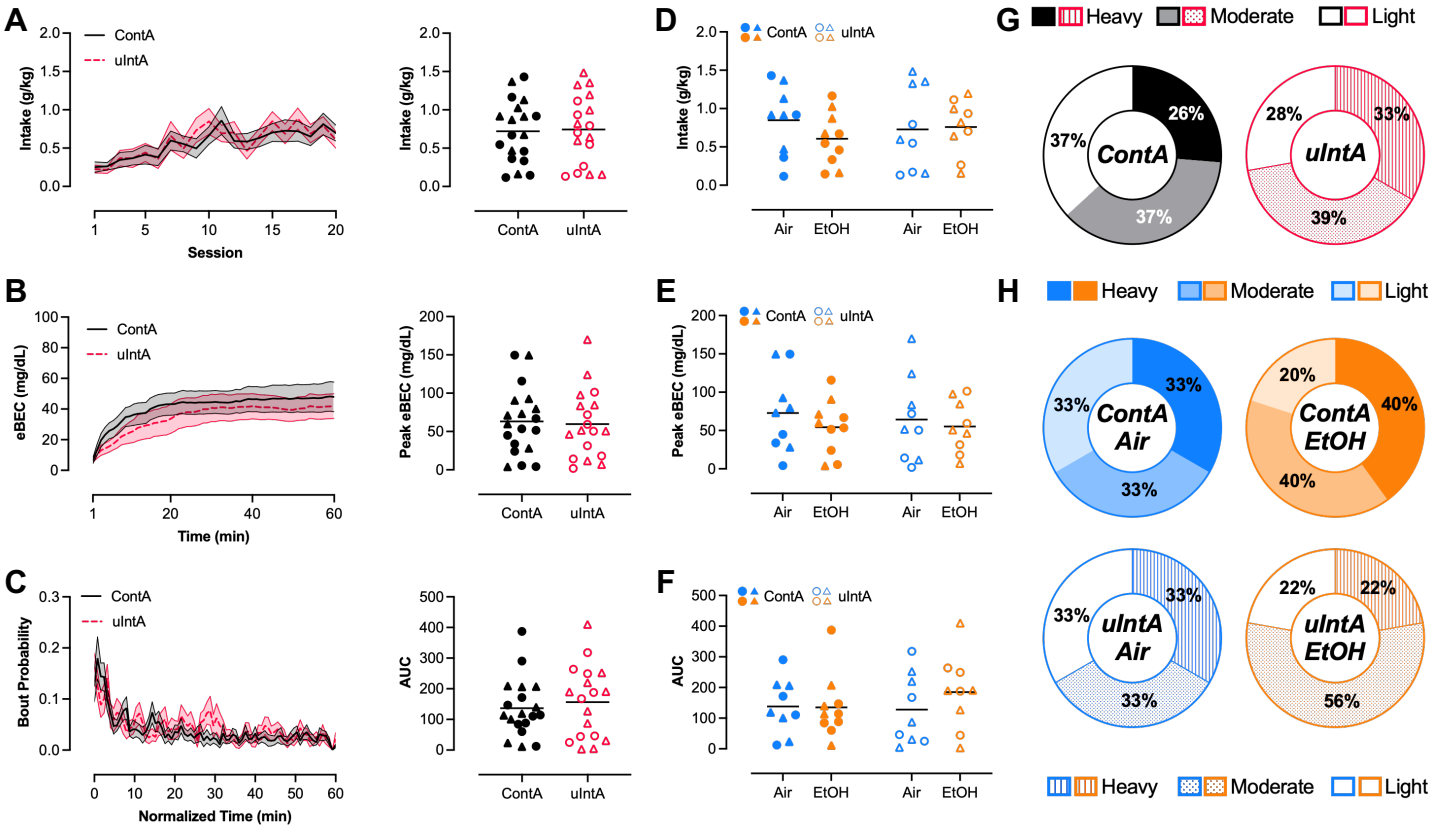


**Figure 3. Schedule of access does not affect ethanol consumption, eBEC dynamics, or drinking patterns at baseline.** (**A**) Daily ethanol intake across all baseline drinking sessions (left) and average intake from the final four sessions (right) of baseline prior to vapor exposure. **(B**) Average within-session eBECs (left) and average peak eBEC (right) at baseline. (**C**) Average within-session bout probability at baseline (left). Ethanol availability time was normalized to 60 min (from 15 min) for the uIntA group to enable direct comparison with the ContA group. Area under the curve (AUC) of baseline within-session bout probability (right). Average ethanol intake (**D**), peak eBEC achieved (**E**), and AUC of bout probability (**F**) at baseline separated by schedule and vapor group assignment. The proportion of rats classified as light (< 0.5 g/kg), moderate (0.5 g/kg – 1 g/kg), or heavy (> 1 g/kg) drinkers at baseline grouped by schedule only (**G**) and by schedule and vapor group assignment (**H**). Error bars indicate ± SEM. Solid lines and closed datapoints indicate ContA. Dashed lines and open datapoints indicate uIntA. Circles and triangles indicate males and females, respectively. n=4-6/sex/group.

360 were performed to determine the effect of schedule within ethanol dependent rats (ContA EtOH-
361 exposed vs. uIntA EtOH-exposed).

362 *Dependence-induced escalation is transient in ContA drinking rats*

363 When drinking is examined across sessions, no significant main effect of vapor or vapor by
364 timepoint interaction was identified in rats that drank ethanol under a ContA schedule (**Fig. 4A**).
365 However, a significant vapor by timepoint interaction was detected when intake was assessed
366 during the final four sessions of each timepoint (**Fig. 4B**). Tukey's posthoc comparisons indicate
367 that EtOH-exposed ContA rats drank significantly more ethanol during vapor exposure compared
368 to baseline ($p$=0.0199) and withdrawal ($p$=0.0346). Additionally, EtOH-exposed rats drank more
369 during vapor exposure than Air-exposed counterparts ($p$=0.0251). This difference was also
370 apparent when data were assessed in terms of change in intake relative to baseline (**Fig. 4C**).
371 Šidák's posthoc comparisons found that EtOH-exposed ContA rats increased their ethanol intake
372 to a greater degree during vapor exposure than did Air-exposed ContA rats ($p$=0.0049).
373 Furthermore, EtOH-exposed rats exhibited a greater increase in intake during vapor exposure
374 than during withdrawal ($p$=0.0024). In corroboration with average intake increasing during vapor
375 exposure, we also observed a significant main effect of vapor group on eBECs achieved during
376 daily drinking sessions occurring throughout the 14d vapor exposure paradigm (**Fig. 4D**).
377 However, this effect did not persist into withdrawal (**Fig. 4E**). This is corroborated by a significant
378 vapor by timepoint interaction on average peak eBEC achieved during the final four sessions at
379 each timepoint (**Fig. 4F**). Tukey's posthoc comparisons indicate the EtOH-exposed ContA rats
380 achieved higher peak eBECs during vapor exposure compared to baseline ($p$=0.0099) and
381 withdrawal ($p$=0.0227). Moreover, EtOH-exposed ContA rats achieved a higher average peak
382 eBEC than Air-exposed counterparts during drinking sessions occurring over the course of vapor
383 exposure ($p$=0.0078). In agreement with eBECs, aBECs were not significantly different between
384 Air- and EtOH-exposed rats at 24 hr withdrawal ($t(17)=2.026$, $p$=0.0587; Air: 25.63±8.57 mg/dL;

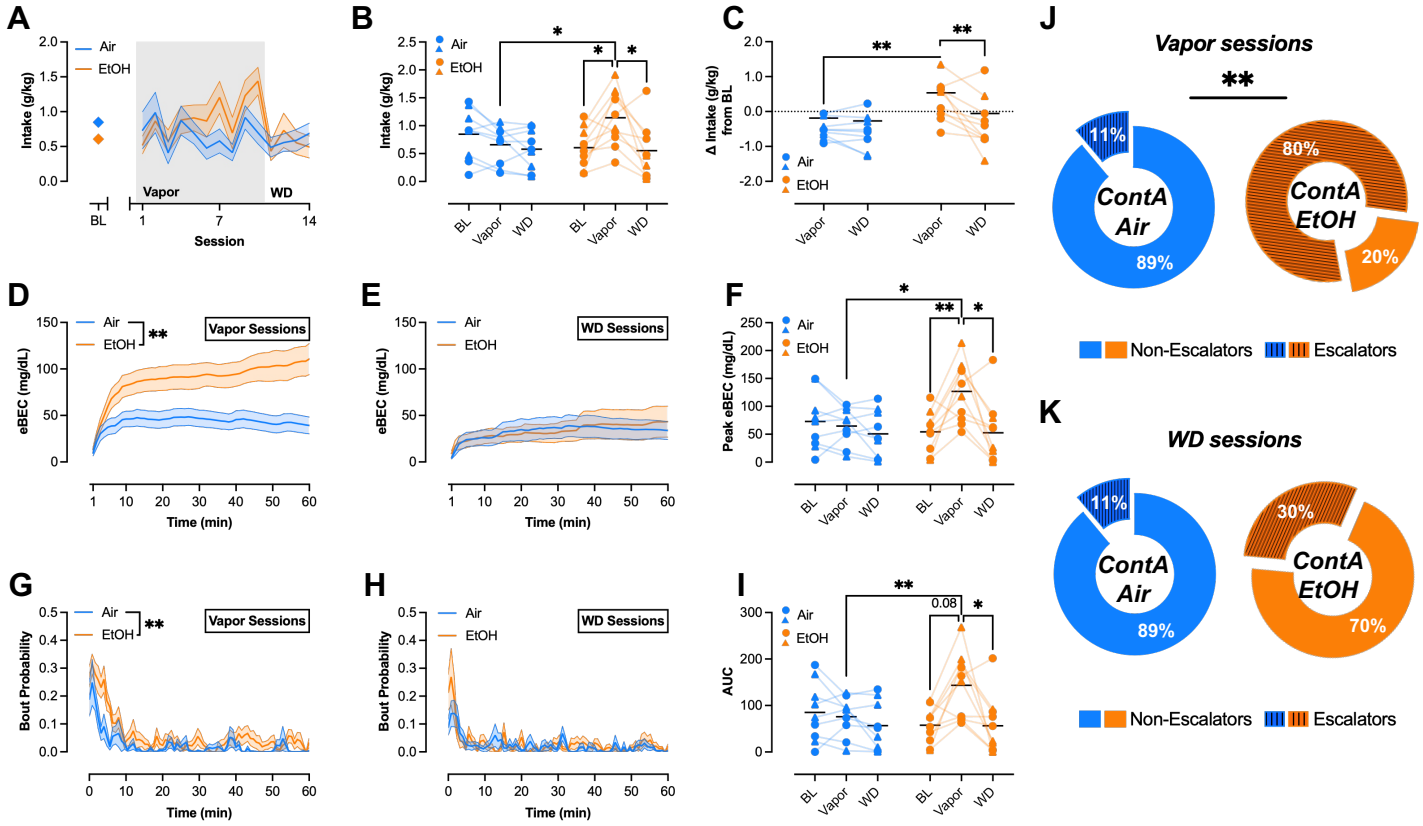


**Figure 4. Dependence promotes transient escalation of ethanol consumption in rats drinking under a ContA schedule.** (**A**) Daily ethanol intake during vapor exposure and withdrawal timepoints relative to average intake during the final four baseline sessions. (**B**) Average intake across all timepoints. (**C**) Change in intake from baseline during vapor exposure and withdrawal. (**D**) Average within-session eBECs achieved in drinking sessions that occurred during vapor exposure. (**E**) Average within-session eBECs achieved in drinking sessions during withdrawal. (**F**) Average peak eBEC achieved across all timepoints. (**G**) Average within-session bout probability during vapor exposure. (**H**) Average within-session bout probability during withdrawal. (**I**) Area under the curve of bout probability across all timepoints. Proportion of Air- and EtOH-exposed ContA rats defined as escalators (≥ 20% increase from baseline) or non-escalators during vapor exposure (**J**) and withdrawal sessions (**K**). Error bars indicate ± SEM. Solid lines and closed datapoints indicate ContA. Circles and triangles indicate males and females, respectively. n=4-6/sex/group.

385 EtOH: 8.640±2.02 mg/dL). This transient increase in intake and intoxication is further corroborated
386 by changes in bout probability, such that a main effect of vapor group was detected during drinking
387 sessions occurring during vapor exposure (**Fig. 4G**), but not during withdrawal (**Fig. 4H**). Analysis
388 of bout probability area under the curve (AUC) found a significant vapor by timepoint interaction
389 with Tukey's posthoc comparisons revealing that EtOH-exposed ContA rats had significantly
390 greater AUC during the vapor timepoint than the withdrawal timepoint (**Fig. 4I**; $p$=0.0445). While
391 not significant, EtOH-exposed ContA rats exhibited a trend for greater AUC during the vapor
392 exposure timepoint compared to baseline ($p$=0.08). Additionally, EtOH-exposed ContA rats
393 exhibited significantly greater AUC than Air-exposed counterparts during the vapor exposure
394 timepoint ($p$=0.0095). Finally, the proportion of rats defined as escalators (exhibiting ≥20%
395 increase in intake from baseline) was significantly higher in EtOH- than Air-exposed rats during
396 drinking sessions that occurred in parallel with vapor exposure (**Fig. 4J**; $p$=0.0027) but not during
397 withdrawal (**Fig. 4K**; $p$=0.3133). Altogether, these data indicate that ethanol-dependent rats under
398 a ContA schedule exhibit a transient escalation of ethanol intake observed only during chronic
399 intermittent ethanol vapor exposure.

400 *Dependence-induced escalation is sustained in uIntA drinking rats*

401 In rats that underwent uIntA drinking, a significant main effect of vapor was detected in per session
402 intake (**Fig. 5A**), indicating that EtOH-exposed uIntA rats drank more during all post-baseline
403 sessions compared to Air-exposed counterparts. This is reinforced by a significant vapor by
404 timepoint interaction observed in average intake during the final four sessions of each timepoint
405 (**Fig. 5B**). Tukey's posthoc comparisons indicate that EtOH-exposed uIntA rats exhibited
406 significantly higher intake during the vapor ($p$=0.0168) and withdrawal ($p$=0.0142) timepoints
407 compared to baseline. Moreover, EtOH-exposed uIntA rats drank significantly more than Air-
408 exposed counterparts during both vapor ($p$<0.0001) and withdrawal ($p$=0.0015) timepoints. This
409 is further supported by a significant main effect of vapor on change in intake from baseline

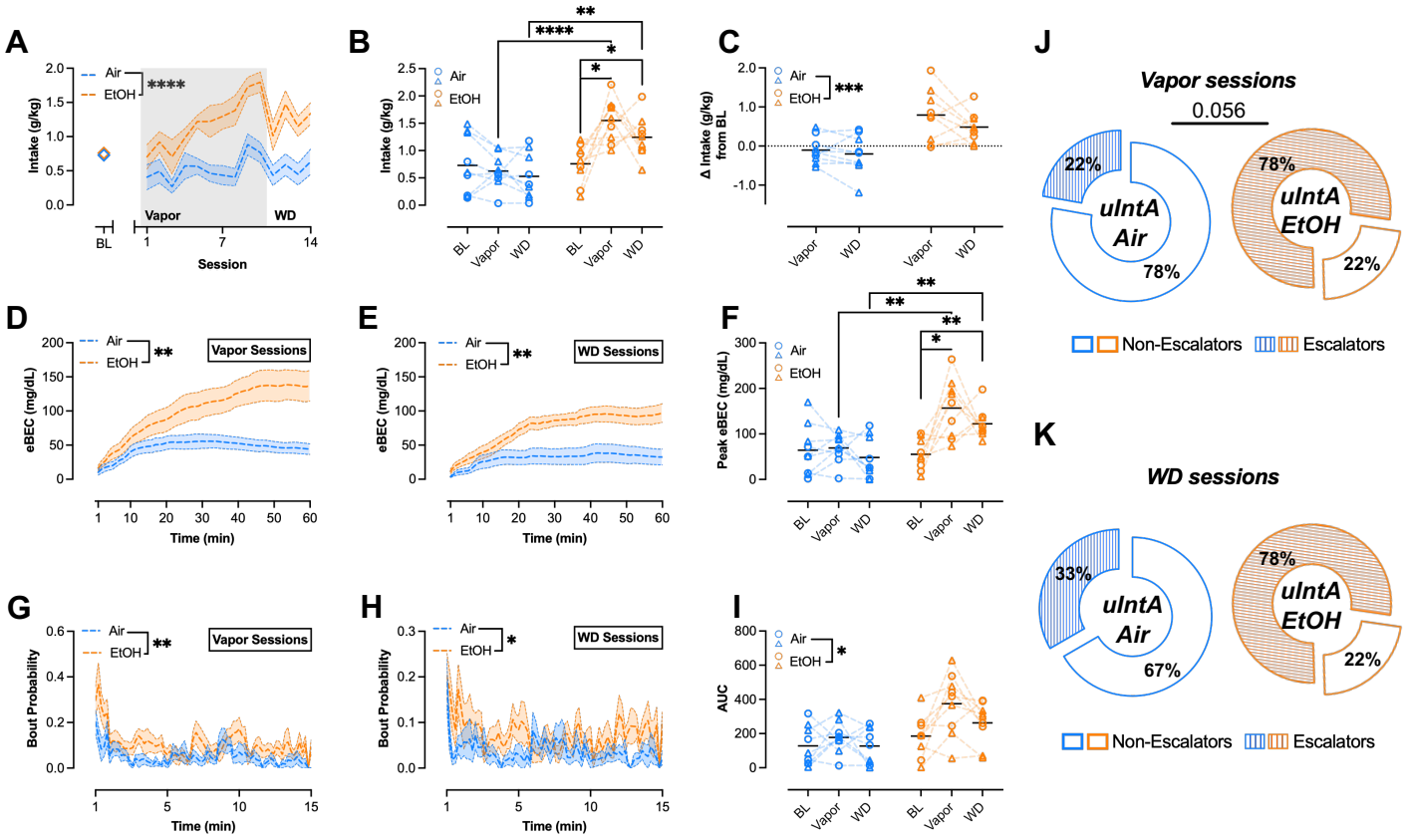


**Figure 5: Long-lasting dependence-induced escalation of ethanol consumption in rats drinking under an uIntA schedule. A**) Daily ethanol intake during vapor exposure and withdrawal timepoints relative to average intake at baseline. (**B**) Average intake across all timepoints. (**C**) Change in intake from baseline during vapor exposure and withdrawal. (**D**) Average within-session eBECs achieved during vapor exposure drinking sessions. (**E**) Average within-session eBECs achieved during withdrawal. (**F**) Average peak eBEC achieved across all timepoints (**G**) Average within-session bout probability during vapor exposure. (**H**) Average within-session bout probability during withdrawal. (**I**) Area under the curve for bout probability across all timepoints. Proportion of Air- and EtOH-exposed uIntA rats classified as escalators (≥ 20% increase from baseline) or non-escalators during vapor exposure (**J**) and withdrawal (**K**) sessions. Error bars indicate ± SEM. Dashed lines and open datapoints indicate uIntA. Circles and triangles indicate males and females, respectively. n=4-5/sex/group.

410 observed during the vapor and withdrawal timepoints (**Fig 5C**). Maintenance of dependence-
411 induced escalation was associated with a robust increase in eBECs. This was supported by a
412 significant main effect of vapor and a significant vapor by timepoint interaction for within-session
413 eBECs achieved during vapor exposure (**Fig. 5D**) and withdrawal (**Fig. 5E**). A significant main
414 effect of vapor and vapor by timepoint interaction was observed in average peak eBEC during the
415 final four sessions of each timepoint (**Fig. 5F**). Tukey's posthoc comparisons indicate that peak
416 eBEC was significantly higher in EtOH-exposed uIntA rats during the vapor ($p$=0.0179) and
417 withdrawal ($p$=0.0060) timepoints compared to baseline. Furthermore, EtOH-exposed uIntA rats
418 had higher peak eBECs compared to Air-exposed counterparts during vapor ($p$=0.0034) and
419 withdrawal ($p$=0.0013) timepoints. Notably, aBECs measured at the end of the 24 hr withdrawal
420 drinking session were not different between Air- and EtOH-exposed rats (t(16)=0.9582, $p$=0.3522,
421 Air: 29.21±11.41 mg/dL, EtOH: 48.04±16.01 mg/dL). Nevertheless, a similar sustained elevation
422 in bout probability was also observed in uIntA rats such that there was a main effect of vapor
423 exposure on within-session bout probability for drinking sessions occurring during both vapor (**Fig.**
424 **5G**) and withdrawal (**Fig. 5H**) timepoints. Additionally, a main effect of vapor exposure was
425 observed for bout probability AUC during the final four sessions of each timepoint (**Fig. 5I**). While
426 not significant, a trend for a higher proportion of rats defined as escalators (≥20% increase in
427 intake from baseline) was apparent in EtOH- compared to Air-exposed rats during vapor exposure
428 (**Fig 5J**; $p$=0.0567). This trend persisted albeit to a somewhat diminished degree, during
429 withdrawal (**Fig 5K**; $p$=0.1534). Altogether, these data indicate that uIntA facilitates robust
430 dependence-induced escalation of ethanol consumption that emerges during vapor exposure and
431 is maintained at least four days into withdrawal.

432 *Dependence-induced escalation of ethanol intake is greater in rats drinking on an uIntA schedule*

433 Because we hypothesized *a priori*, that uIntA would facilitate greater dependence-induced
434 escalation of ethanol intake than ContA, we performed an additional set of analyses examining

435 the effect of schedule on dependent measures in only those rats that were exposed to ethanol
436 vapor. This analysis detected a main effect of schedule on intake across drinking sessions (**Fig.**
437 **6A**) indicating that uIntA rats drank significantly more than ContA rats in all post-baseline drinking
438 sessions. This is further corroborated by a significant main effect of schedule on intake averaged
439 across the final four sessions at each timepoint (**Fig. 6B**). While not significant, there was a
440 trending main effect of schedule on change in intake from baseline during vapor and withdrawal
441 timepoints (**Fig. 6C**). A significant schedule by time interaction was detected in within-session
442 eBEC dynamics observed during the final four vapor exposure drinking sessions (**Fig. 6D**).
443 However, Šidák's posthoc comparisons did not indicate any significant simple main effects. A
444 significant main effect of schedule and schedule by time interaction were identified in within-
445 session eBEC dynamics during withdrawal (**Fig. 6E**). Šidák's posthoc comparisons found that
446 uIntA rats achieved higher eBECs during minutes 22-35 of the drinking session compared to
447 ContA rats. The ability of uIntA to promote higher levels of intoxication was further supported by
448 a significant main effect of schedule on average peak eBECs across timepoints (**Fig. 6F**). In
449 agreement, EtOH-exposed uIntA rats exhibited significantly higher aBECs at 24 hr withdrawal
450 compared to EtOH-exposed ContA counterparts ($t(17)=2.578$, $p=0.0195$, ContA; 8.64±2.02
451 mg/dL, uIntA: 48.04±16.01 mg/dL). Similar results were observed with respect to bout probability
452 with a significant main effect of schedule found when within-session bout probability was
453 assessed during the final four vapor drinking sessions (**Fig. 6G**). A significant main effect of
454 schedule was also observed for within-session bout probability during withdrawal (**Fig. 6H**). This
455 was further supported by a significant main effect of schedule on bout probability AUC assessed
456 across all timepoints (**Fig. 6I**). Finally, the proportion of rats defined as escalators (≥20% increase
457 in intake from baseline) was not significantly different between ContA and uIntA rats in drinking
458 sessions that occurred during vapor exposure (**Fig 6J;** $p>0.9999$). However, a trending increase
459 in the proportion of rats defined as escalators was observed in the uIntA group compared to the

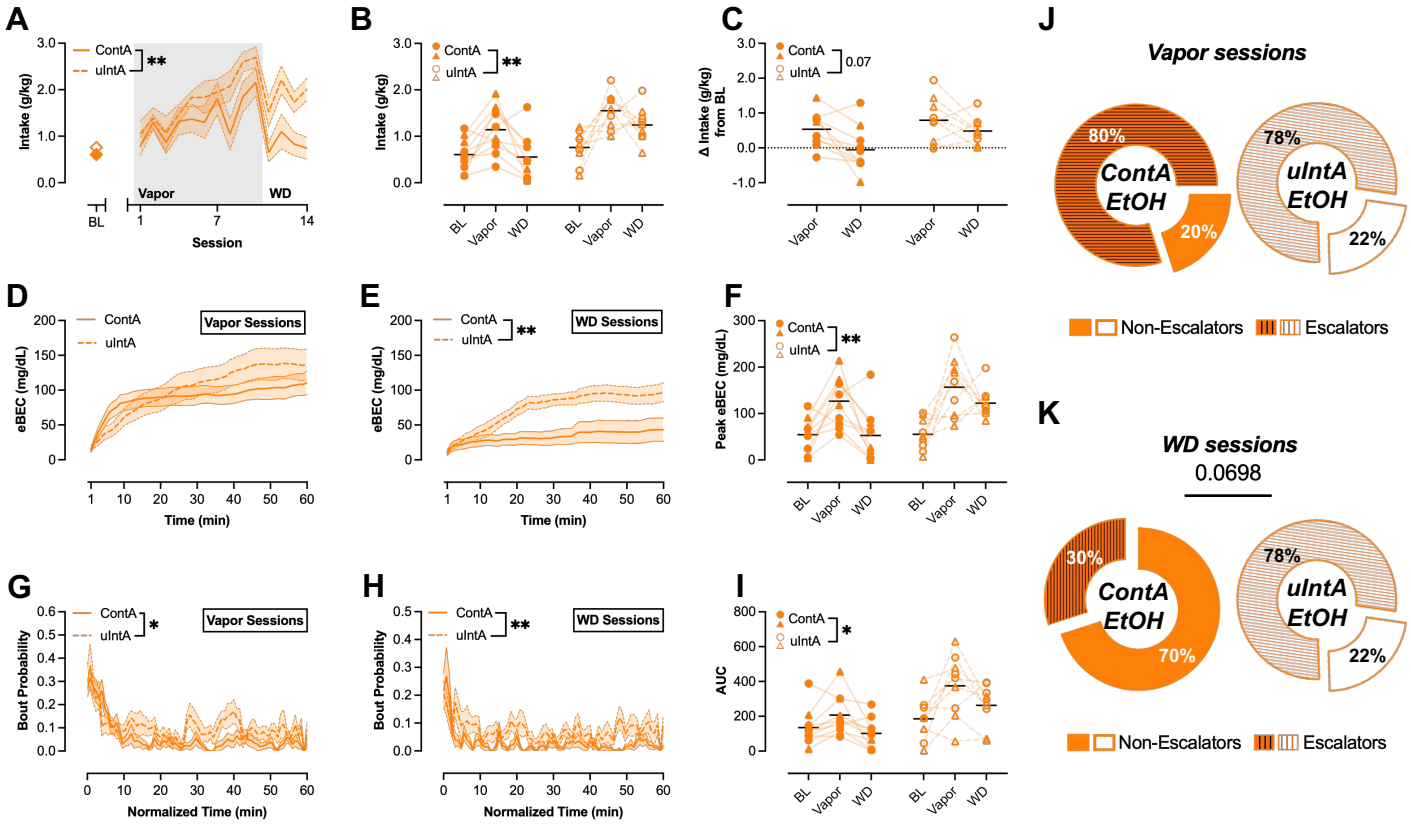


**Figure 6: uIntA exacerbates dependence-induced escalation of ethanol consumption relative to ContA. A**) Daily ethanol intake during vapor exposure and withdrawal timepoints relative to average intake at baseline. (**B**) Average intake across all timepoints. (**C**) Change in intake from baseline during vapor exposure and withdrawal. (**D**) Average within-session eBECs achieved during vapor exposure drinking sessions. (**E**) Average within-session eBECs achieved during withdrawal. (**F**) Average peak eBEC achieved across all timepoints (**G**) Average within-session bout probability during vapor exposure drinking sessions. (**H**) Average within-session bout probability during withdrawal. (**I**) Area under the curve for bout probability across all timepoints. Proportion of EtOH-exposed ContA and EtOH-exposed uIntA animals defined as escalators (≥ 20% increase from baseline) or non-escalators during vapor exposure (**J**) and withdrawal (**K**) sessions. Error bars indicate ± SEM. Solid lines and closed datapoints indicate ContA while dashed lines and open datapoints indicate uIntA. Circles and triangles indicate males and females, respectively. n=4-6/sex/group.

460 ContA group during withdrawal (**Fig 6K**; *p*=0.0698). Altogether, these data show that the uIntA
461 schedule elicits a more robust and sustained dependence-induced escalation of ethanol
462 consumption compared to the ContA schedule.

463 *uIntA affords additional opportunities to assess motivation and drinking strategies*

464 Motivation to consume ethanol is often extrapolated by measuring effort to perform an operant
465 response required to gain ethanol access. However, prior research has shown that an animal's
466 willingness to a perform an operant response is not necessarily linked to reinforcer consumption
467 (Blegen et al., 2018; Patwell et al., 2021; Pitock et al., 2025; Puaud et al., 2018). Separately, a
468 bevy of literature has demonstrated that motivation to consume liquid reinforcers can be
469 extrapolated from lick microstructure (Dwyer, 2012; Johnson, 2018; Naneix et al., 2020; Spector,
470 2000). This work has linked parameters related to the frequency and timing of drinking bouts (i.e.,
471 latency to 1$^{st}$ bout) with incentive to consume, whereas parameters related to bout duration (i.e.,
472 seconds; number of licks) and lick timing (i.e., interlick interval) with palatability of the reinforcer.
473 In combination with the discrete ethanol access periods inherent to uIntA, these measures permit
474 assessment of relative engagement during ethanol access periods that can be leveraged to
475 evaluate motivation. With this in mind, we analyzed how drinking microstructure was affected by
476 vapor exposure within uIntA rats.

477 As expected, the number of drinking bouts per DS presentation was significantly different between
478 Air- and EtOH-exposed uIntA rats as evidenced by a significant main effect of vapor group (**Fig.**
479 **7A**). The percent of DS presentations where rats engaged (i.e., performed ≥2 bouts) was used
480 as an indirect measure of bout frequency. This analysis revealed a significant vapor by timepoint
481 interaction (**Fig. 7B**), with Tukey's posthoc comparisons indicating that EtOH-exposed uIntA rats
482 exhibit higher percent DS engagement in drinking sessions during vapor exposure compared to
483 baseline (*p*=0.0498). Percent DS engagement was also greater in EtOH- than Air-exposed

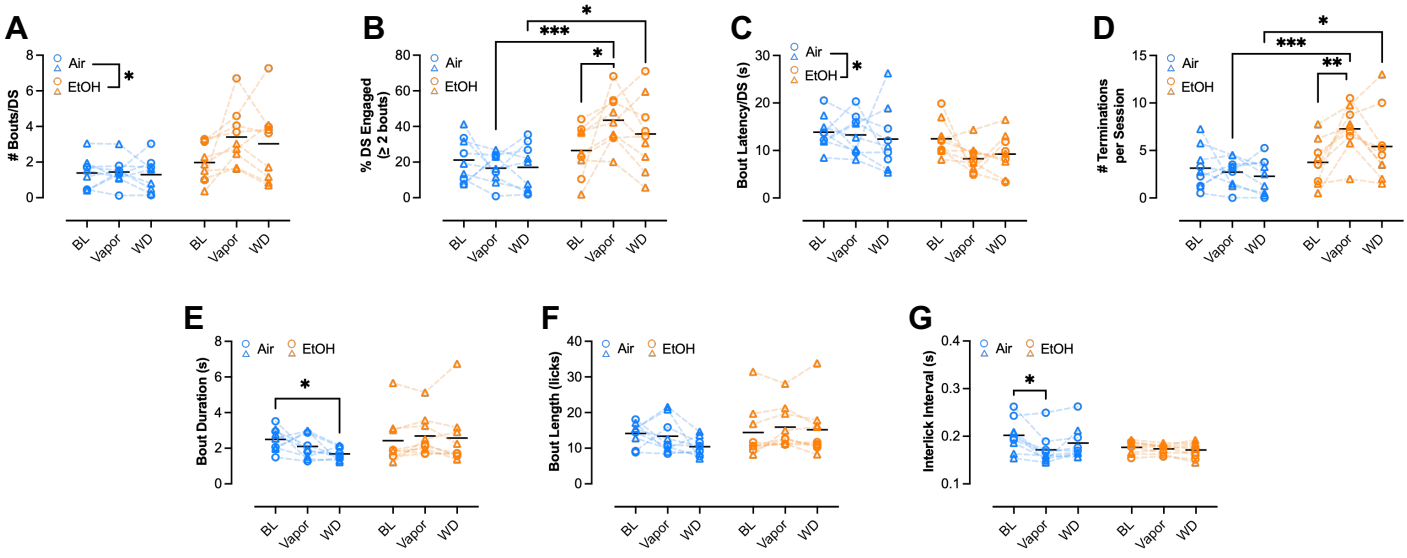


**Figure 7: Ethanol dependence increases motivation to consume ethanol in rats drinking under an uIntA schedule.** (**A**) Average number of bouts per DS presentation across all timepoints. (**B**) Percent of DS presentations engaged (≥ 2 bouts within the DS) across all timepoints. (**C**) Average bout latency from DS onset across all timepoints. (**D**) Average number of bouts terminated by DS offset across all timepoints. (**E**) Average bout duration across all timepoints. (**F**) Average bout length across all timepoints. (**G**) Average interlick interval across all timepoints. Circles and triangles indicate males and females, respectively. n=4-5/sex/group.

484 counterparts during both vapor ($p$=0.0003) and withdrawal ($p$=0.0390) timepoints. Furthermore,
485 we observed a significant main effect of vapor on latency to first bout within each DS presentation
486 (**Fig. 7C**). Due to the unpredictable nature of DS duration, we next considered the number of
487 drinking bouts terminated by the end of a DS presentation, defined by performing the last lick of
488 a drinking bout within 0.5s of DS offset (**Fig. 7D**). This analysis revealed a significant vapor by
489 timepoint interaction with Tukey's post hoc comparisons showing that EtOH-exposed uIntA rats
490 exhibit more terminations during the vapor timepoint compared to baseline ($p$=0.0079). Moreover,
491 EtOH-exposed uIntA rats exhibit more terminations than Air-exposed counterparts during both
492 vapor ($p$=0.0004) and withdrawal ($p$=0.0454) timepoints. On the other hand, we observed a
493 significant vapor by timepoint interaction on bout duration (**Fig. 7E**) with Tukey's multiple
494 comparisons indicating that bout duration was shorter in Air-exposed rats during withdrawal
495 compared to baseline ($p$=0.0488). However, we did not observe an effect of vapor exposure or
496 timepoint in bout length (**Fig. 7F**). Finally, we observed a significant vapor by timepoint interaction
497 on interlick interval (**Fig. 7G**), with Tukey's multiple comparisons tests indicating that Air-exposed
498 rats exhibited a shorter interlick interval during the vapor timepoint than at baseline ($p$=0.0216).
499 Altogether, these data suggest that dependence-induced escalation observed in EtOH-exposed
500 animals is driven by increased incentive for ethanol, with the palatability of ethanol remaining
501 stable in EtOH-exposed rats throughout the testing period.

502 Due to the unpredictable nature of DS and ITI duration and timing within the uIntA schedule, we
503 next performed a series of analyses to determine whether DS order (i.e. earlier vs. later in a
504 session), amount of ethanol consumed during the prior DS, duration of the prior ITI period, or
505 duration of the current DS presentation affected drinking patterns. Using FLMM, we found that at
506 baseline (**Fig. 8A-D**), there was a modest effect of DS order on current DS bout probability such
507 that rats exhibited higher bout probability during early than late DS presentations (**Fig. 8A**).
508 Moreover, there was a robust effect of the amount of ethanol consumed in the prior DS

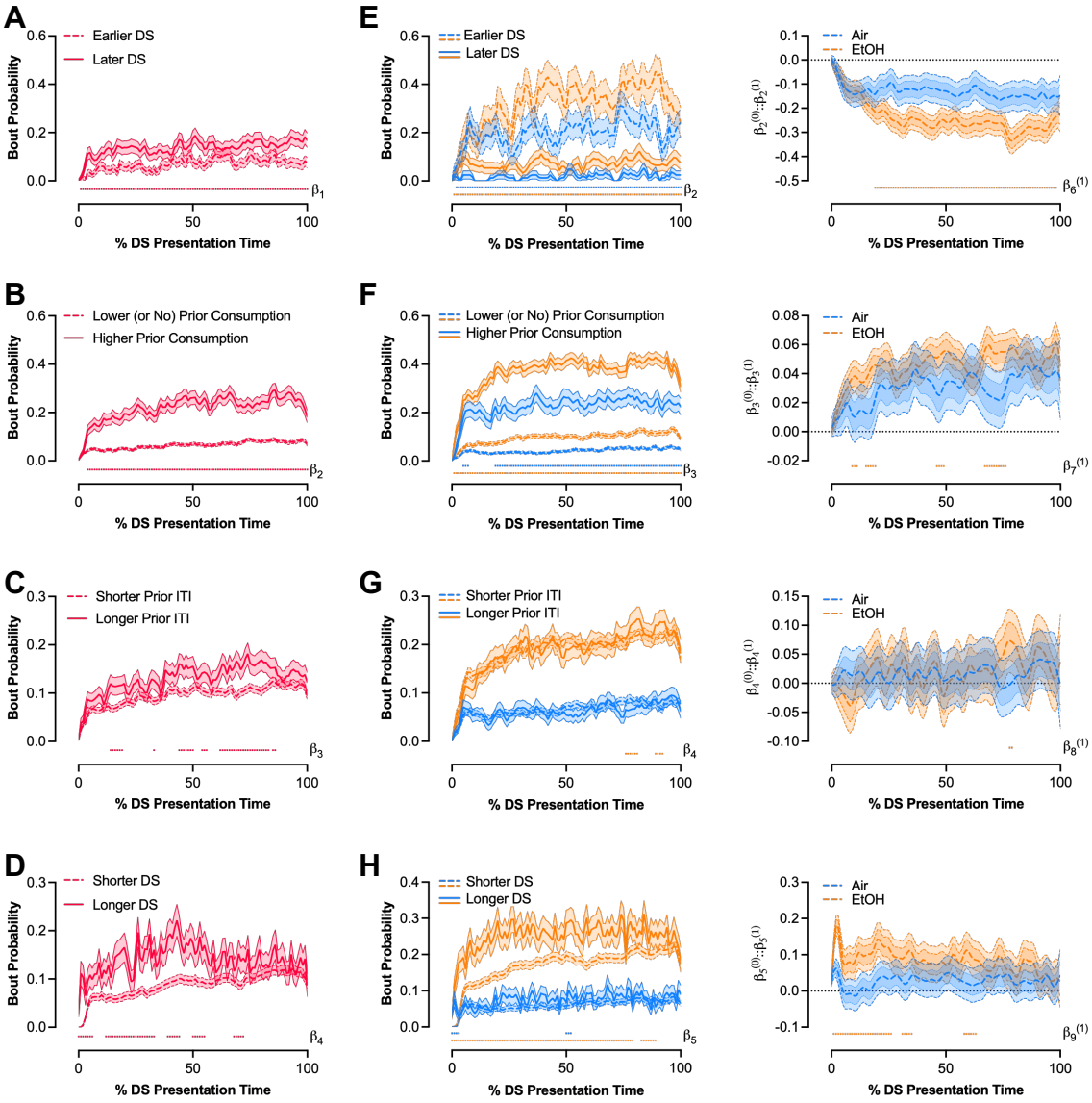


**Figure 8: Factors affecting bout probability during DS presentations under the uIntA schedule of ethanol drinking.** FLMM analysis of bout probability at baseline as a function of latency of DS onset (**A**), EtOH consumption in the prior DS period (**B**), prior ITI duration (**C**), and prior DS duration (**D**). Significance is delineated by a dotted line along the x axis representing significant joint confidence intervals associated with the beta coefficients $\beta_{1-4}$ described in the *Baseline Model*. (**E-H**) Comparison of bout probability across vapor exposure groups during post-baseline drinking sessions (left) and visualization of beta coefficients corresponding to effects (right) as a function of latency of DS onset (**E**), EtOH consumption in the prior DS period (**F**), prior ITI duration (**G**), and prior DS duration (**H**). For E-H (left), significance is delineated by a dotted line along the x axis representing significant joint confidence intervals associated with $\beta_{2-5}^{(0-1)}$ coefficients described in the *Vapor and Withdrawal Model* with the blue dotted line corresponding to Air-exposed rats ($\beta_{2-5}^{(0)}$) and the orange dotted line corresponding to EtOH-exposed rats ($\beta_{2-5}^{(1)}$). For all aforementioned subfigures, error bars indicate ± SEM. For E-H (right), data depicts the difference within each group in dashed and solid lines shown on left. Coefficients are expressed as estimates ± pointwise 95% confidence intervals (dark shade) and joint 95% confidence intervals (light shade) accounted for multiple comparisons. Significance is delineated by a dotted line along the x axis representing joint confidence intervals associated with the beta coefficients $\beta_{6-9}^{(1)}$ described in the *Vapor and Withdrawal Model*. n=4-5/sex/group.

presentation period on current DS bout probability such that rats exhibited higher bout probability in the current DS when they drank more in the prior DS compared to when they drank less (or not at all) (**Fig. 8B**). We also found a modest effect of prior ITI duration on current DS bout probability such that rats exhibited a higher bout probability in the current DS when the prior ITI was long compared to when it was short (**Fig. 8C**). Notably, this effect was largely restricted to the last half of the DS presentation period. Finally, we identified a modest effect of DS duration such that rats have a higher bout probability during longer DS presentations than shorter DS presentations (**Fig. 8D**). This effect was largely restricted to the first half of the DS presentation period.

Subsequent analyses were designed to determine whether ethanol dependence alters these drinking strategies by examining bout probability during the vapor and withdrawal timepoints (pooled data) (**Fig. 8E-H**). This analysis found that, similar to our observations at baseline, bout probability is higher during earlier than later DS presentations in both Air- and EtOH-exposed rats. Interestingly, this effect is exacerbated in EtOH-exposed rats, such that the difference in bout probability between earlier and later DS presentations is larger in this group than Air-exposed controls (**Fig. 8E**). Similarly, both Air- and EtOH-exposed rats drink more ethanol in a given DS presentation period when they drank higher amounts during the prior DS presentation period compared to DS presentation periods when they drank less (or not all). Although EtOH-exposed rats had a higher bout probability in both conditions, the degree to which bout probability is affected by ethanol consumption in the prior DS was similar between Air- and EtOH-exposed groups (**Fig. 8F**). We also saw no effect of prior ITI duration on post-baseline drinking during the current DS presentation in either Air- or EtOH-exposed groups. In line with this, vapor exposure had no significant effect on this measure (**Fig. 8G**). Finally, we found that during the vapor and withdrawal timepoints EtOH-exposed animals exhibit higher bout probability during longer DS presentations compared to shorter DS presentations, whereas Air-exposed animals no longer exhibit this difference. In line with this, the effect of DS duration on bout probability is significantly

534 exacerbated in EtOH-exposed rats compared to Air-exposed rats (**Fig. 8H**). This effect was
535 largely restricted to the first half of the DS presentation time. Altogether, these data suggest that
536 ethanol dependence exacerbates front-loading of ethanol consumption and facilitates
537 capitalization of longer DS durations – factors that likely contribute to the emergence of escalated
538 ethanol intake.

539 *uIntA promotes aversion-resistant drinking in ethanol-dependent rats*

540 Finally, to determine whether uIntA promotes aversion-resistant drinking compared to ContA, we
541 next assessed intake of ethanol adulterated with quinine (30 mg/L). There was a significant vapor
542 by schedule interaction in intake observed during the quinine drinking session (**Fig. 9A**). Šidák's
543 multiple comparisons indicate that ethanol intake was higher in EtOH-exposed uIntA rats
544 compared to Air-exposed uIntA ($p$=0.0324) and EtOH-exposed ContA ($p$=0.0066) rats. When
545 intake was analyzed in terms of change from baseline, we observed a significant schedule by
546 vapor interaction (**Fig. 9B**). Šidák's multiple comparisons indicate that ethanol intake was
547 significantly greater (i.e., more positive change) in EtOH-exposed uIntA rats compared to Air-
548 exposed counterparts ($p$=0.0488) and EtOH-exposed ContA rats ($p$=0.0471). Surprisingly,
549 despite EtOH-exposed uIntA rats achieving relatively higher aBECs by the end of the quinine-
550 adulterated drinking session, this difference did not achieve statistical significance (**Fig. 9C**).
551 However, a multifactorial RM ANOVA of eBEC dynamics during the quinine drinking session
552 identified a significant three-way interaction between vapor, schedule, and time (**Table 2**). As
553 such, we performed separate two-way RM ANOVAs to assess the effect of vapor exposure on
554 eBECs during the quinine drinking session. Within the ContA schedule, there was no effect of
555 vapor exposure on eBECs (**Fig. 9D**). On the other hand, we observed a significant effect of vapor
556 within the uIntA rats (**Fig. 9E**). This is corroborated by a significant vapor by schedule interaction
557 in peak eBECs achieved during this session (**Fig. 9F**). Šidák's multiple comparisons indicate that
558 EtOH-exposed uIntA rats achieved a significantly higher peak eBEC than Air-exposed uIntA

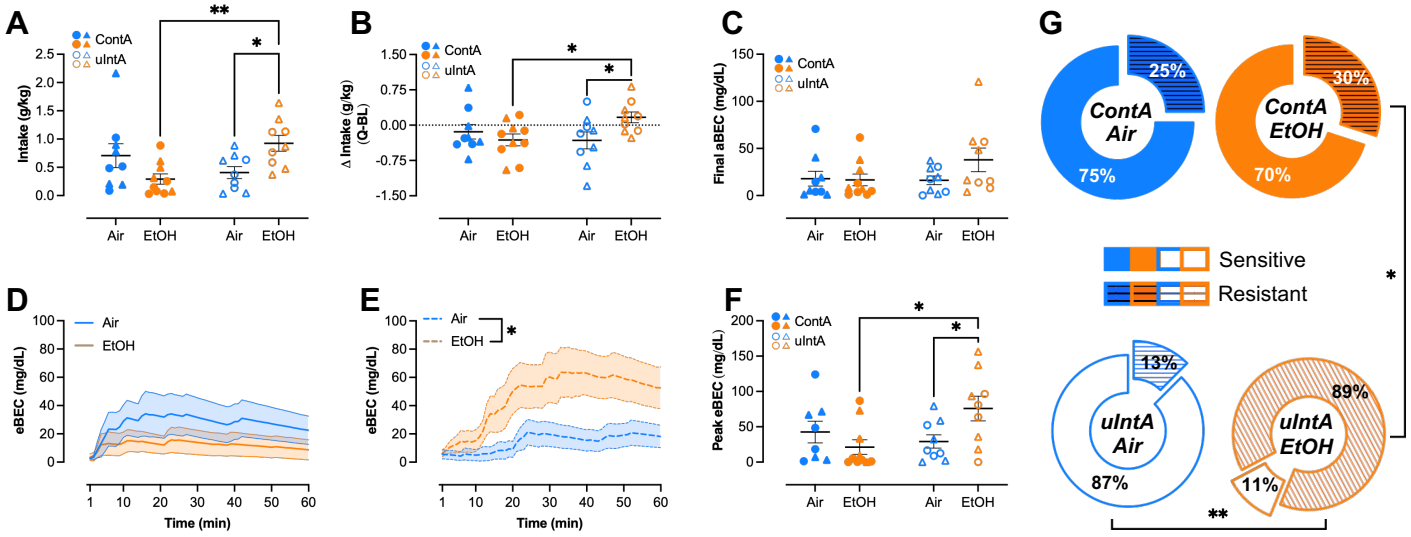


**Figure 9: uIntA promotes dependence-induced aversion-resistant drinking.** (**A**) Intake of quinine-adulterated ethanol on the final day of testing. (**B**) Change in intake of quinine-adulterated ethanol from average baseline (BL) intake. (**C**) End-of-session aBEC following quinine-adulterated ethanol consumption. eBEC for ContA (**D**) and uIntA (**E**) rats across vapor groups throughout the 60-min quinine-adulterated drinking session. (**F**) Peak eBEC achieved during the quinine-adulterated drinking session. (**G**) Proportion of rats within each group classified as aversion-sensitive or -resistant (≤20% decrease from baseline). Error bars indicate ± SEM. Solid lines and closed datapoints indicate ContA and dashed lines and open datapoints indicate uIntA. Circles indicate males and triangles indicate females. n = 4-6/sex/group.

559 ($p$=0.0372) and EtOH-exposed ContA ($p$=0.0110) rats. Finally, we performed Fisher's exact tests
560 to compare the proportion of rats classified as aversion-resistant (≤20% decrease in intake from
561 baseline) between groups. Two outliers were identified using ROUT outlier detection ($n$ = 1
562 Air/ContA, $n$ = 1 Air/uIntA) and were excluded from this analysis (**Fig. 9G**). We found a greater
563 proportion of aversion-resistant rats in the EtOH-exposed uIntA group compared to Air-exposed
564 counterparts ($p$=0.0034). The proportion of rats defined as aversion-resistant was also
565 significantly greater in EtOH-exposed uIntA rats compared to EtOH-exposed ContA rats
566 ($p$=0.0198) (**Fig 9G**). Importantly, there were no significant differences in the proportion of
567 aversion-resistant vs -sensitive rats between ContA Air-exposed and EtOH-exposed groups
568 ($p$>0.9999) or between the ContA Air-exposed and uIntA Air-exposed groups ($p$>0.9999).
569 Altogether, these data suggest that uIntA promotes aversion-resistant drinking exclusively in
570 ethanol dependent rats, unlike the ContA schedule.

571 **Discussion**

572 Here, we present a novel uIntA schedule of voluntary ethanol intake that more closely models the
573 unpredictable and intermittent nature of drinking episodes in humans compared to traditional
574 within-session ContA procedures. Our findings demonstrate that uIntA engenders similar levels
575 of ethanol intake prior to ethanol dependence to a ContA procedure, despite significantly shorter
576 total duration of ethanol access (15 min vs. 60 min, respectively). Excitingly, uIntA exacerbates
577 dependence-induced escalation and aversion-resistant drinking compared to a ContA procedure,
578 suggesting it may serve as a more suitable model of AUD-relevant symptomatology. In addition,
579 analysis of lick microstructure as well as parameters associated with the discrete ethanol access
580 periods inherent to the uIntA paradigm permits rigorous delineation of motivation to consume
581 ethanol and variable within-session drinking patterns without the need for an operant response
582 requirement. Importantly, all of this is achieved in the uIntA procedure with no greater
583 experimental burden than a ContA procedure. Altogether, this work highlights uIntA as a powerful
584 tool, particularly when used in combination with estimated BEC analyses, to elucidate
585 psychological and neurobiological factors contributing to loss of control over drinking within AUD.

586 While eBECs are used extensively in clinical studies of voluntary ethanol consumption (Hultgren
587 et al., 2025; Piasecki, 2019), their use is not widespread in preclinical work. To our knowledge,
588 the present study is the first to provide within-session estimates of BEC that can be used to
589 support claims related to drinking patterns and overall ethanol intake. Variability in drug
590 pharmacokinetics can dynamically modify intake, motivated responding, and SUD-related
591 symptomatology across drug classes (Allain et al., 2015; Kawa et al., 2019; Spear, 2020; Zimmer
592 et al., 2011). Thus, estimation of within-session BECs achieved by rodents during voluntary
593 drinking sessions provides a critical translational stepping stone that enables researchers to
594 evaluate the applicability of reported levels of intake to clinical manifestations of AUD, as was
595 recently emphasized by Grahame (2026). As such, a rigorous approach to define within-session

596 eBECs is critical in the assessment of factors that may underlie the development of loss of control
597 over drinking. For the current analyses, we utilized the commonly described Widmark formula
598 paired with a zero-order kinetic model of ethanol elimination (Widmark, 1981). We validated our
599 eBEC pipeline using aBECs captured during voluntary ethanol consumption on three separate
600 occasions throughout the experiment, as well as pharmacokinetic data previously established in
601 Long-Evans and Sprague Dawley rats (Aull et al., 1956; Chung et al., 2008; Crippens et al., 1999;
602 Doherty & Gonzales, 2015; Kharbouche et al., 2010; Leasure & Nixon, 2010; Little et al., 1996;
603 Varlinskaya & Spear, 2004; B. Webb et al., 2002). While the fidelity of this approach is supported
604 by our ability to accurately predict aBECs within a range of -10 to +20 mg/dL (ave: +3.7 mg/dL),
605 sex and strain differences in ethanol metabolism have been established in the literature (Denucci
606 et al., 2010; Glover et al., 2021; Quintanilla et al., 2007). Additionally, pharmacokinetic data that
607 was used for the basis of our eBEC analyses was largely examined in males. With this in mind,
608 the field would benefit from additional studies to more rigorously define pharmacokinetic
609 properties of ethanol across sexes and other rat strains commonly used in alcohol research in
610 order to determine sex- and strain-specific estimates of the volume diffusion constant (Widmark
611 *R*), as well as the effect of chronic ethanol exposure on ethanol elimination rates.

612 Findings from the present study underscore the utility of eBECs in preclinical drinking studies.
613 Within-session time course data reveal the approximate time point at which subjects reach peak
614 intoxication across each phase of the study. These estimates provide further evidence for front-
615 loading and often capture maximal intoxication that is missed when blood samples are obtained
616 at the end of a drinking session. This is readily apparent in the discrepancy between peak eBECs
617 and end-of-session aBECs as a result of voluntary ethanol drinking at 24 hr withdrawal and the
618 quinine drinking session. While not examined in this study, it is of note that eBEC analyses
619 identified a subset of rats across drinking schedules that were able to achieve clinically relevant
620 levels of intoxication as measured via eBEC prior to the induction of dependence. As such,

621 examination of rats exhibiting high baseline intake, and resultant high eBECs, early in drinking
622 may be worthwhile in identifying ethanol intake patterns informing risk for development of AUD-
623 relevant symptomatology (Baker et al., 2014, 2017; Grant et al., 2008). Moreover, using eBECs,
624 we also show that while non-dependent rats maintained peak eBECs of ~50-60 mg/dL, ethanol-
625 dependent rats were able to achieve eBECs well above the criteria for binge drinking ((NIAAA,
626 2025), >80 mg/dL). In some cases, peak eBECs far exceeded this criterion reaching values >200
627 mg/dL. Our data also show that ethanol-dependent uIntA rats achieved significantly higher eBECs
628 than ethanol-dependent ContA rats during and after vapor exposure despite having a shorter
629 duration of ethanol access. These results confirm the clinical relevance of the drinking and
630 intoxication levels captured using the uIntA paradigm. Future work applying the same approach
631 to calculate within-session eBECs will provide important perspective on the translational
632 relevance of the model(s) used and outcomes observed (Grahame, 2026), which can provide
633 valuable information regarding therapeutic interventions for AUD. This approach also has the
634 potential to allow researchers to isolate measurements and/or manipulations to the ascending or
635 descending limb of the BEC curve and/or correlate behavioral and neurobiological endpoints with
636 eBEC dynamics in real-time.

637 Prior work has shown that within-session IntA can elicit higher ethanol intake compared to ContA
638 (Gage et al., 2023; Tomie et al., 2006). Additional work found that unpredictability of non-drug
639 reinforcer access further enhances reward seeking (M. J. F. Robinson et al., 2023). As such, it
640 was surprising that we did not observe greater ethanol intake in uIntA compared to ContA rats at
641 baseline in the present study. Of note, in Gage et al. (2023) rats were trained to lever press for
642 ethanol under a ContA schedule for four weeks in 24 hr drinking sessions after which they
643 transitioned to an IntA schedule where access to ethanol was progressively reduced from 40 to 2
644 min per hr within 24 hr drinking sessions. Although (Tomie et al., 2006) did not require an operant
645 response in their drinking paradigm, ethanol access in this study was limited to only 10 s at a time

646 during a 30 min drinking session, with ethanol concentration increasing over time. In contrast, rats
647 in the present study had no operant response requirement, drank the same concentration of
648 ethanol throughout testing, and experienced variable durations of ethanol access spanning 15-
649 120 s. As such, it is possible that simple methodological differences play a role in these discordant
650 results. Furthermore, while (Gage et al., 2023) found that IntA increased seeking for ethanol (i.e.,
651 lever pressing) in male rats, this was not associated with a concurrent increase in ethanol
652 consumption. Other work showing enhanced seeking for non-drug reinforcers using an IntA/uIntA
653 schedule compared to a ContA schedule did not directly measure reinforcer consumption
654 (Beasley et al., 2022; Muñoz-Escobar et al., 2019; M. J. F. Robinson et al., 2023). Given prior
655 work showing that seeking is not necessarily reflective of consumption (Blegen et al., 2018;
656 Patwell et al., 2021; Pitock et al., 2025; Puaud et al., 2018), it is possible that uIntA increases the
657 motivation to obtain access to ethanol (i.e. seeking) in the absence of heightened ethanol
658 consumption compared to ContA in non-dependent animals. We found that uIntA rats drink to a
659 similar degree to ContA rats prior to ethanol dependence despite significantly less time with
660 access to ethanol suggesting that uIntA rats, who have to adapt their drinking patterns to these
661 unpredictable ethanol access periods, may be more motivated to obtain ethanol prior to ethanol
662 dependence. Future work could incorporate an operant requirement to the uIntA schedule
663 developed in the present study to discriminate the effect of schedule on lever pressing versus
664 drinking in this paradigm.

665 Our findings show that uIntA exacerbates dependence-induced escalation of ethanol
666 consumption relative to ContA. Interestingly, while ContA rats exhibited escalated intake in
667 parallel with vapor exposure, the magnitude of escalation was lower than uIntA rats and transient,
668 returning to baseline levels once vapor exposure ended. In contrast, escalated intake was
669 sustained into acute withdrawal in uIntA rats. uIntA also promoted aversion-resistant drinking
670 during withdrawal over ContA. Prior work examining IntA/uIntA to non-drug reinforcers (Beasley

671 et al., 2022; Muñoz-Escobar et al., 2019; M. J. F. Robinson et al., 2023) has posited that enhanced
672 seeking resulting from intermittent reward access is due to processes related to incentive
673 salience, defined as the motivational property of 'wanting' a reinforcer, which is separable from
674 'liking' (Olney et al., 2018). Inherent to IntA and uIntA paradigms, rats are presented with
675 numerous opportunities to pair a previously neutral stimulus with reinforcer availability, likely
676 resulting in a robust association between DS presentation and reinforcer availability. The strength
677 of this association may imbue the DS with greater motivational salience in uIntA rats compared
678 to ContA. Importantly, compared to ContA, the unpredictable and intermittent nature of DS
679 presentation inherent to uIntA more closely reflects the variable cue dynamics experienced by
680 humans (i.e. friends, music, physical setting, etc.), which are paired with and modulate drinking
681 (Dvorak et al., 2014; Fischer et al., 2023; Fridberg et al., 2021; King et al., 2025; Pelloux et al.,
682 2019; Prignitz et al., 2024; Wray et al., 2014). Like in uIntA, these cues are often repeatedly paired
683 with ethanol availability, and may, over an extended alcohol history, be sufficient to drive
684 motivated seeking for ethanol (Cofresí et al., 2019). As such, repeated stimulus pairings, and
685 willingness to engage/consume during these pairings in the context of ethanol dependence, may
686 elicit incentive sensitization (T. E. Robinson & Berridge, 2025). In studies using highly potent
687 reinforcers like cocaine and opioids, the neurobiological processes underlying incentive
688 sensitization may be more easily engaged, thereby allowing IntA to drive higher seeking and
689 escalation of consumption in the absence of physical dependence (Allain & Samaha, 2019;
690 Beasley et al., 2023; Ramborger et al., 2026). In contrast, in the context of ethanol, a less rapidly
691 potent reinforcer relative to other addictive drugs, we found that the ability of uIntA to drive
692 heightened intake is not apparent in non-dependent rats. However, uIntA is sufficient to augment
693 escalation of ethanol consumption that emerges as dependence develops. Furthermore, uIntA
694 promoted aversion-resistant drinking exclusively in ethanol-dependent rats, whereas all other
695 groups remained aversion-sensitive. These data suggest that uIntA alone is not sufficient to drive
696 incentive sensitization for ethanol-associated cues but, rather, capitalizes upon dependence-

697 induced neurobiological plasticity (Cofresí et al., 2019), leading to an exacerbation of loss of
698 control over drinking. Of note, it is also possible that escalation observed in ethanol-dependent
699 rats is driven in small part by metabolic tolerance, such that more ethanol is required to reach a
700 similar intoxication level experienced prior to vapor exposure (Elvig et al., 2021). While metabolic
701 tolerance as a result of vapor exposure on its own is not likely using the 14-day chronic intermittent
702 ethanol vapor exposure procedure in the current study (Glover et al., 2021), ethanol-dependent
703 uIntA rats who experienced the highest amount of ethanol exposure as a function of both vapor
704 exposure and voluntary drinking showed a trending increase in individually estimated ethanol
705 elimination rates. In support of increased ethanol metabolism, this group of rats shows a slight,
706 albeit not significant, decrease in consumption at withdrawal, possibly reflecting the portion of
707 dependence-induced escalation driven by metabolic tolerance. Future work can use this uIntA
708 ethanol drinking model to further parse out the precise neurobiological plasticity mechanisms
709 associated with ethanol dependence that drive loss of control over ethanol drinking.

710 Prior literature has identified that lick microstructural analysis can extrapolate measures of
711 incentive value and reinforcer palatability (Dwyer, 2012; Johnson, 2018; Naneix et al., 2020;
712 Spector, 2000). In addition, the multiple discrete ethanol access periods associated with uIntA
713 affords researchers more opportunities to assess measures related to incentive within and across
714 sessions (i.e. bout frequency as a function of bouts per DS presentation and latency to first bout).
715 Using lick microstructural analyses, we found that EtOH-exposed uIntA rats had more bouts per
716 DS and decreased latency to first drinking bout with no change in bout duration, bout length, and
717 interlick interval. This suggests that dependence-induced escalation of ethanol consumption
718 observed in uIntA rats is due to a change in the incentive value of ethanol as a reinforcer as
719 opposed to a change in the palatability of ethanol. In addition, assessing the degree to which a
720 rat engages (or not) when presented with ethanol access has the potential to serve as a
721 translationally relevant outcome associated with an individual's perceived loss of control over

722 consumption when alcohol is freely available (Leeman et al., 2009; Patock-Peckham & Corbin,
723 2023; Remmerswaal et al., 2019; Waddell et al., 2025), such that rats experiencing a higher
724 motivation to consume exhibit more consumption across multiple DS presentations. This measure
725 may also provide an avenue to further assess the motivational potency of an ethanol-associated
726 cue to drive consumption (Sayette, 2016; Vafaie & Kober, 2022). On the other hand, terminated
727 drinking bouts further elaborates upon the intensity of drinking occurring within each DS
728 presentation similar to latency to first bout. With this in mind, rats exhibiting a higher number of
729 terminations are motivated to maximize their drinking time within DS presentations by continuing
730 to drink right up until the access period ends. In line with this, EtOH-exposed uIntA rats had
731 greater DS engagement and a higher number of terminated drinking bouts per session
732 concomitant with dependence-induced escalation.

733 Our findings suggest that uIntA may serve to better elicit maladaptive drinking patterns as the
734 introduction of limited ethanol access periods has the potential to promote behavioral strategies
735 that seek to maximize ethanol intake within a limited amount of time (i.e. binge) (Jeanblanc et al.,
736 2019). This may be driven, at least in part, by the perception of scarcity of ethanol access as a
737 result of these unpredictable periods. Intuitively, adaptive processes in mammals seek to
738 maximize the reinforcing value of food and motivation for food-seeking in uncertain conditions
739 (Anselme & Güntürkün, 2019; Crandall & Temple, 2018; J. Webb et al., 2025), suggesting that
740 introduction of unpredictability for drug reinforcers may impinge upon these adaptive processes
741 to drive maladaptive intake. As such, we were particularly interested in quantifying a maladaptive
742 front-loading consumption phenotype, which is thought to be driven by and enhance the rewarding
743 effects of intoxication (Ardinger et al., 2022). However, criteria to define front-loading and its
744 analysis in preclinical assessments is often ambiguous and variable (Ardinger et al., 2022),
745 delineating a need in the field to better identify and isolate this phenotype. Parameters associated
746 with the discrete ethanol access periods within the uIntA schedule, such as latency of DS onset,

747 prior DS ethanol consumption, and current DS duration, can be leveraged to identify drinking
748 strategies that could be exploited to drive maladaptive intake in ethanol-dependent animals,
749 including a functionally relevant front-loading phenotype. Notably, analysis of DS onset with
750 FLMM allowed us to continuously model the effect of time on current DS bout probability sampled
751 *throughout* the 60-min drinking session, as opposed to conventional summary statistics, which
752 have the potential to obscure effects by using averages in combination with pre-defined and often
753 arbitrary cutoffs (i.e. first 25-75% of session time). Utilizing FLMM, we found that uIntA rats
754 exhibited higher bout probability at earlier DS presentations and when they drank larger quantities
755 of ethanol in the preceding DS presentation. Rats also exhibited higher bout probability during
756 longer DS presentations than shorter DS presentations. These parameters point to a significant
757 concentration of drinking in earlier portions of the session and capitalization of longer DS
758 durations, highlighting a front-loading strategy that seek to maximize the rewarding properties of
759 ethanol in non-dependent animals. Importantly, effects related to DS timing within the session
760 and DS duration were significantly exacerbated in ethanol-dependent animals at the time when
761 dependence-induced escalation was observed. Together, these results suggest that parameters
762 associated with uIntA elicit behavioral strategies that seek to maximize ethanol intake, including
763 front-loading consumption, that are leveraged in ethanol-dependent rats to exacerbate
764 dependence-induced escalation. Further, this work highlights a functionally relevant front-loading
765 phenotype that is heightened by ethanol dependence, providing an avenue to rigorously examine
766 the relevance of this phenotype to clinical manifestations of AUD.

767 In conclusion, our newly developed uIntA ethanol drinking paradigm more faithfully models the
768 often unpredictable nature of access to alcohol experienced by humans and significantly
769 exacerbates clinically relevant AUD symptomatology. uIntA also affords researchers the ability to
770 assess incentive salience, motivation, and drinking patterns without increasing experimental
771 burden compared to traditional within-session ContA procedures. In combination with estimated

772 measures of intoxication, this model represents a powerful tool that can be used to further our
773 understanding of psychological and neurobiological factors driving loss of control over drinking.

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1150 **Figure legends**

1151 **Figure 1. Experimental design.** (**A**) Rats that underwent daily continuous access (ContA)
1152 sessions were allowed 60 min of uninterrupted ethanol access paired with house light illumination.
1153 (**B**) Rats that underwent daily unpredictable intermittent access (uIntA) sessions experienced
1154 variable periods of ethanol availability (amounting to 15 min) signaled by house light illumination.
1155 separated by variable periods without ethanol access (amounting to 45 min). **(C)** Rats underwent
1156 a total of seven weeks of voluntary drinking sessions. After a four-week baseline period, rats
1157 underwent two weeks of chronic intermittent ethanol or air vapor exposure during which drinking
1158 sessions continued Mon-Fri. Drinking sessions continued into withdrawal after completion of
1159 vapor exposure. On the final day of withdrawal testing, ethanol was adulterated with 30 mg/L
1160 quinine to assess aversion-resistant drinking. For each experimental timepoint, data was
1161 averaged across the final four sessions (indicated by dotted squares).

1162 **Figure 2: Validation of estimated blood ethanol concentration (eBEC) analysis.** (**A**) eBECs
1163 were calculated using the Widmark equation and validated with end-of-session aBECs. (**B**)
1164 Representative eBEC curve (blue line) plotted with number of licks occurring within each minute
1165 of the session (black bars) to exemplify use of 'mgperlick' measurement in eBEC calculation.
1166 Average residual [final eBEC – final aBEC] (**C**), individually defined estimated β ethanol
1167 elimination rates (**D**), and mg of EtOH consumed per lick (**E**) for ContA and uIntA rats. (**F-H**)
1168 Identical parameters as displayed in **C-E** separated by schedule and vapor group assignment. (**I**)
1169 Correlation between average final eBEC and average final aBEC for drinking sessions where tail
1170 blood was collected. (**J**) Correlation between average peak eBEC and average ethanol intake
1171 across sessions within each experimental timepoint. (**K**) Correlation between total number of licks
1172 and total intake for all sessions.

1173 **Figure 3. Schedule of access does not affect ethanol consumption, eBEC dynamics, or**
1174 **drinking patterns at baseline.** (**A**) Daily ethanol intake across all baseline drinking sessions (left)
1175 and average intake from the final four sessions (right) of baseline prior to vapor exposure. **(B**)
1176 Average within-session eBECs (left) and average peak eBEC (right) at baseline. (**C**) Average
1177 within-session bout probability at baseline (left). Ethanol availability time was normalized to 60
1178 min (from 15 min) for the uIntA group to enable direct comparison with the ContA group. Area
1179 under the curve (AUC) of baseline within-session bout probability (right). Average ethanol intake
1180 (**D**), peak eBEC achieved (**E**), and AUC of bout probability (**F**) at baseline separated by schedule
1181 and vapor group assignment. The proportion of rats classified as light (< 0.5 g/kg), moderate (0.5
1182 g/kg – 1 g/kg), or heavy (> 1 g/kg) drinkers at baseline grouped by schedule only (**G**) and by
1183 schedule and vapor group assignment (**H**). Error bars indicate ± SEM. Solid lines and closed
1184 datapoints indicate ContA. Dashed lines and open datapoints indicate uIntA. Circles and triangles
1185 indicate males and females, respectively. n=4-6/sex/group.

1186 **Figure 4. Dependence promotes transient escalation of ethanol consumption in rats**
1187 **drinking under a ContA schedule.** (**A**) Daily ethanol intake during vapor exposure and
1188 withdrawal timepoints relative to average intake during the final four baseline sessions. (**B**)
1189 Average intake across all timepoints. (**C**) Change in intake from baseline during vapor exposure
1190 and withdrawal. (**D**) Average within-session eBECs achieved in drinking sessions that occurred
1191 during vapor exposure. (**E**) Average within-session eBECs achieved in drinking sessions during
1192 withdrawal. (**F**) Average peak eBEC achieved across all timepoints. (**G**) Average within-session
1193 bout probability during vapor exposure. (**H**) Average within-session bout probability during
1194 withdrawal. (**I**) Area under the curve of bout probability across all timepoints. Proportion of Air-
1195 and EtOH-exposed ContA rats defined as escalators (≥ 20% increase from baseline) or non-
1196 escalators during vapor exposure (**J**) and withdrawal sessions (**K**). Error bars indicate ± SEM.

1197 Solid lines and closed datapoints indicate ContA. Circles and triangles indicate males and
1198 females, respectively. n=4-6/sex/group.

1199 **Figure 5: Long-lasting dependence-induced escalation of ethanol consumption in rats**
1200 **drinking under an uIntA schedule. A**) Daily ethanol intake during vapor exposure and
1201 withdrawal timepoints relative to average intake at baseline. (**B**) Average intake across all
1202 timepoints. (**C**) Change in intake from baseline during vapor exposure and withdrawal. (**D**)
1203 Average within-session eBECs achieved during vapor exposure drinking sessions. (**E**) Average
1204 within-session eBECs achieved during withdrawal. (**F**) Average peak eBEC achieved across all
1205 timepoints (**G**) Average within-session bout probability during vapor exposure. (**H**) Average within-
1206 session bout probability during withdrawal. (**I**) Area under the curve for bout probability across all
1207 timepoints. Proportion of Air- and EtOH-exposed uIntA rats classified as escalators (≥ 20%
1208 increase from baseline) or non-escalators during vapor exposure (**J**) and withdrawal (**K**) sessions.
1209 Error bars indicate ± SEM. Dashed lines and open datapoints indicate uIntA. Circles and triangles
1210 indicate males and females, respectively. n=4-5/sex/group.

1211 **Figure 6: uIntA exacerbates dependence-induced escalation of ethanol consumption**
1212 **relative to ContA. A**) Daily ethanol intake during vapor exposure and withdrawal timepoints
1213 relative to average intake at baseline. (**B**) Average intake across all timepoints. (**C**) Change in
1214 intake from baseline during vapor exposure and withdrawal. (**D**) Average within-session eBECs
1215 achieved during vapor exposure drinking sessions. (**E**) Average within-session eBECs achieved
1216 during withdrawal. (**F**) Average peak eBEC achieved across all timepoints (**G**) Average within-
1217 session bout probability during vapor exposure drinking sessions. (**H**) Average within-session
1218 bout probability during withdrawal. (**I**) Area under the curve for bout probability across all
1219 timepoints. Proportion of EtOH-exposed ContA and EtOH-exposed uIntA animals defined as
1220 escalators (≥ 20% increase from baseline) or non-escalators during vapor exposure (**J**) and
1221 withdrawal (**K**) sessions. Error bars indicate ± SEM. Solid lines and closed datapoints indicate

1222 ContA while dashed lines and open datapoints indicate uIntA. Circles and triangles indicate males
1223 and females, respectively. n=4-6/sex/group.

1224 **Figure 7: Ethanol dependence increases motivation to consume ethanol in rats drinking**
1225 **under an uIntA schedule.** (**A**) Average number of bouts per DS presentation across all
1226 timepoints. (**B**) Percent of DS presentations engaged (≥ 2 bouts within the DS) across all
1227 timepoints. (**C**) Average bout latency from DS onset across all timepoints. (**D**) Average number of
1228 bouts terminated by DS offset across all timepoints. (**E**) Average bout duration across all
1229 timepoints. (**F**) Average bout length across all timepoints. (**G**) Average interlick interval across all
1230 timepoints. Circles and triangles indicate males and females, respectively. n=4-5/sex/group.

1231 **Figure 8: Factors affecting bout probability during DS presentations under the uIntA**
1232 **schedule of ethanol drinking.** FLMM analysis of bout probability at baseline as a function of
1233 latency of DS onset (**A**), EtOH consumption in the prior DS period (**B**), prior ITI duration (**C**), and
1234 prior DS duration (**D**). Significance is delineated by a dotted line along the x axis representing
1235 significant joint confidence intervals associated with the beta coefficients $\beta_{1-4}$ described in the
1236 *Baseline Model*. (**E-H**) Comparison of bout probability across vapor exposure groups during post-
1237 baseline drinking sessions (left) and visualization of beta coefficients corresponding to effects
1238 (right) as a function of latency of DS onset (**E**), EtOH consumption in the prior DS period (**F**), prior
1239 ITI duration (**G**), and prior DS duration (**H**). For E-H (left), significance is delineated by a dotted
1240 line along the x axis representing significant joint confidence intervals associated with $\beta_{2-5}^{(0-1)}$
1241 coefficients described in the *Vapor and Withdrawal Model* with the blue dotted line corresponding
1242 to Air-exposed rats ($\beta_{2-5}^{(0)}$) and the orange dotted line corresponding to EtOH-exposed rats ($\beta_{2-5}^{(1)}$).
1243 For all aforementioned subfigures, error bars indicate ± SEM. For E-H (right), data depicts the
1244 difference within each group in dashed and solid lines shown on left. Coefficients are expressed
1245 as estimates ± pointwise 95% confidence intervals (dark shade) and joint 95% confidence

1246 intervals (light shade) accounted for multiple comparisons. Significance is delineated by a dotted
1247 line along the x axis representing joint confidence intervals associated with the beta coefficients
1248 $\beta_{6-9}^{(1)}$ described in the *Vapor and Withdrawal Model*. n=4-5/sex/group.

1249 **Figure 9: uIntA promotes dependence-induced aversion-resistant drinking.** (**A**) Intake of
1250 quinine-adulterated ethanol on the final day of testing. (**B**) Change in intake of quinine-adulterated
1251 ethanol from average baseline (BL) intake. (**C**) End-of-session aBEC following quinine-
1252 adulterated ethanol consumption. eBEC for ContA (**D**) and uIntA (**E**) rats across vapor groups
1253 throughout the 60-min quinine-adulterated drinking session. (**F**) Peak eBEC achieved during the
1254 quinine-adulterated drinking session. (**G**) Proportion of rats within each group classified as
1255 aversion-sensitive or -resistant (≤20% decrease from baseline). Error bars indicate ± SEM. Solid
1256 lines and closed datapoints indicate ContA and dashed lines and open datapoints indicate uIntA.
1257 Circles indicate males and triangles indicate females. n = 4-6/sex/group.

1258 **Table 1:** Discriminative stimulus (or ethanol access) and intertrial intervals (no ethanol access)
1259 periods within the uIntA schedule.

1260 **Table 2:** Results of all conventional statistical analyses.

1261 **Table 3**: Results of functional linear mixed modeling (FLMM) analyses.

**Table 2:** Results of all conventional statistical analyses

| Figure | Analysis | Dependent Variable | Independent Variables | Effect | Test Stats | P-value | Summary |
|---|---|---|---|---|---|---|---|
| 4-6 *(Not Shown)* | Mixed Effects Analysis | Per Session Intake (g/kg) | Session, Vapor, Schedule | Session | F (5.830, 190.2) = 6.914 | **<0.0001** | **** |
| | | | | Schedule | F (1, 33) = 1.739 | 0.1964 | ns |
| | | | | Vapor | F (1, 33) = 16.77 | **0.0003** | *** |
| | | | | Session X Schedule | F (5.830, 190.2) = 1.692 | 0.127 | ns |
| | | | | Session X Vapor | F (5.830, 190.2) = 2.490 | **0.0255** | * |
| | | | | Schedule X Vapor | F (1, 33) = 6.200 | **0.018** | * |
| | | | | Session X Schedule X Vapor | F (5.830, 190.2) = 0.4483 | 0.8408 | ns |
| 4-6 *(Not Shown)* | Multifactorial RM ANOVA | eBEC (mg/dL); Vapor Sessions | Time, Vapor, Schedule | Time | F (2.181, 71.97) = 41.02 | **<0.0001** | **** |
| | | | | Schedule | F (1, 33) = 0.4048 | 0.529 | ns |
| | | | | Vapor | F (1, 33) = 18.10 | **0.0002** | *** |
| | | | | Time x Schedule | F (2.181, 71.97) = 6.652 | **0.0017** | ** |
| | | | | Time x Vapor | F (2.181, 71.97) = 16.74 | **<0.0001** | **** |
| | | | | Schedule x Vapor | F (1, 33) = 0.1411 | 0.7096 | ns |
| | | | | Time x Schedule x Vapor | F (2.181, 71.97) = 2.553 | *0.0802* | *ns(trend)* |
| 4-6 *(Not Shown)* | Multifactorial RM ANOVA | eBEC (mg/dL); WD Sessions | Time, Vapor, Schedule | Time | F (1.662, 54.84) = 22.70 | **<0.0001** | **** |
| | | | | Schedule | F (1, 33) = 3.741 | *0.0617* | *ns(trend)* |
| | | | | Vapor | F (1, 33) = 4.834 | **0.035** | * |
| | | | | Time x Schedule | F (1.662, 54.84) = 4.483 | **0.0212** | * |
| | | | | Time x Vapor | F (1.662, 54.84) = 4.166 | **0.027** | * |
| | | | | Schedule x Vapor | F (1, 33) = 4.574 | **0.0399** | * |
| | | | | Time x Schedule x Vapor | F (1.662, 54.84) = 3.347 | *0.051* | *ns (trend)* |
| 4-6 *(Not Shown)* | Multifactorial RM ANOVA | Bout Probability; Vapor Sessions | Time, Vapor, Schedule | Time | F (12.01, 396.3) = 11.81 | **<0.0001** | **** |
| | | | | Schedule | F (1, 33) = 11.13 | **0.0021** | ** |
| | | | | Vapor | F (1, 33) = 17.23 | **0.0002** | *** |
| | | | | Time x Schedule | F (12.01, 396.3) = 1.486 | 0.1264 | ns |
| | | | | Time x Vapor | F (12.01, 396.3) = 1.631 | *0.0805* | *ns(trend)* |
| | | | | Schedule x Vapor | F (1, 33) = 1.024 | 0.3189 | ns |
| | | | | Time x Schedule x Vapor | F (12.01, 396.3) = 0.9072 | 0.5398 | ns |
| 4-6 *(Not Shown)* | Multifactorial RM ANOVA | Bout Probability; WD Sessions | Time, Vapor, Schedule | Time | F (10.49, 346.3) = 5.475 | **<0.0001** | **** |
| | | | | Schedule | F (1, 33) = 10.40 | **0.0028** | ** |
| | | | | Vapor | F (1, 33) = 6.042 | **0.0194** | * |
| | | | | Time x Schedule | F (10.49, 346.3) = 1.469 | 0.1451 | ns |
| | | | | Time x Vapor | F (10.49, 346.3) = 1.232 | 0.2666 | ns |
| | | | | Schedule x Vapor | F (1, 33) = 3.225 | *0.0817* | *ns(trend)* |
| | | | | Time x Schedule x Vapor | F (10.49, 346.3) = 0.9357 | 0.5031 | ns |
| 4-6 *(Not Shown)* | Multifactorial RM ANOVA | Average Intake (g/kg) | Timepoint, Vapor, Schedule | Timepoint | F (1.978, 65.26) = 7.073 | **0.0017** | ** |
| | | | | Schedule | F (1, 33) = 3.090 | *0.088* | *ns(trend)* |
| | | | | Vapor | F (1, 33) = 9.949 | **0.0034** | ** |
| | | | | Timepoint x Schedule | F (1.978, 65.26) = 1.758 | 0.1808 | ns |
| | | | | Timepoint x Vapor | F (1.978, 65.26) = 12.60 | **<0.0001** | **** |
| | | | | Schedule x Vapor | F (1, 33) = 5.965 | **0.0201** | * |
| | | | | Timepoint x Schedule x Vapor | F (1.978, 65.26) = 1.097 | 0.3396 | ns |
| 4-6 *(Not Shown)* | Multifactorial RM ANOVA | Change in Raw Intake (g/kg) | Timepoint, Vapor, Schedule | Timepoint | F (1, 33) = 10.44 | **0.0028** | ** |
| | | | | Schedule | F (1, 33) = 3.016 | *0.0918* | *ns(trend)* |
| | | | | Vapor | F (1, 33) = 21.34 | **<0.0001** | **** |
| | | | | Timepoint x Schedule | F (1, 33) = 0.6254 | 0.4347 | ns |
| | | | | Timepoint x Vapor | F (1, 33) = 4.735 | **0.0368** | * |
| | | | | Schedule x Vapor | F (1, 33) = 1.403 | 0.2447 | ns |
| | | | | Timepoint x Schedule x Vapor | F (1, 33) = 0.8204 | 0.3716 | ns |
| 4-6 *(Not Shown)* | Multifactorial RM ANOVA | Average Peak eBEC (mg/dL) | Timepoint, Vapor, Schedule | Timepoint | F (1.975, 65.18) = 11.28 | **<0.0001** | **** |
| | | | | Schedule | F (1, 33) = 2.337 | 0.1359 | ns |
| | | | | Vapor | F (1, 33) = 10.33 | **0.0029** | ** |
| | | | | Timepoint x Schedule | F (1.975, 65.18) = 1.881 | 0.161 | ns |
| | | | | Timepoint x Vapor | F (1.975, 65.18) = 10.63 | **0.0001** | *** |
| | | | | Schedule x Vapor | F (1, 33) = 3.035 | *0.0908* | *ns(trend)* |
| | | | | Timepoint x Schedule x Vapor | F (1.975, 65.18) = 1.414 | 0.2506 | ns |
| 4-6 *(Not Shown)* | Multifactorial RM ANOVA | AUC (Bout Probability) | Timepoint, Vapor, Schedule | Timepoint | F (1.581, 52.18) = 8.892 | **0.0011** | ** |
| | | | | Schedule | F (1, 33) = 8.628 | **0.006** | ** |
| | | | | Vapor | F (1, 33) = 9.441 | **0.0042** | ** |
| | | | | Timepoint x Schedule | F (1.581, 52.18) = 4.896 | **0.0171** | * |
| | | | | Timepoint x Vapor | F (1.581, 52.18) = 6.624 | **0.0051** | ** |
| | | | | Schedule x Vapor | F (1, 33) = 2.222 | 0.1456 | ns |
| | | | | Timepoint x Schedule x Vapor | F (1.581, 52.18) = 0.3303 | 0.6692 | ns |
| 9 *(Not Shown)* | Multifactorial RM ANOVA | eBEC (mg/dL); Quinine Sessions | Time, Vapor, Schedule | Time | F (3.007, 96.24) = 8.951 | **<0.0001** | **** |
| | | | | Schedule | F (1, 32) = 1.267 | 0.2687 | ns |
| | | | | Vapor | F (1, 32) = 0.8283 | 0.3696 | ns |
| | | | | Time x Schedule | F (3.007, 96.24) = 5.120 | **0.0025** | ** |
| | | | | Time x Vapor | F (3.007, 96.24) = 1.192 | 0.317 | ns |
| | | | | Schedule x Vapor | F (1, 32) = 6.229 | **0.0179** | * |
| | | | | Time x Schedule x Vapor | F (3.007, 96.24) = 3.192 | **0.027** | * |
| 2C | Unpaired t-test | Residual (mg/dL) | Schedule | Schedule | t=0.6047, df=35 | 0.5493 | ns |
| 2D | Unpaired t-test | Estimated β (mg/dL/hr) | Schedule | Schedule | t=1.246, df=35 | 0.2209 | ns |
| 2E | Unpaired t-test | mg EtOH/lick | Schedule | Schedule | t=0.1573, df=35 | 0.8759 | ns |
| 2F | Two-way ANOVA | Residual (mg/dL) | Schedule, Vapor | Schedule X Vapor | F (1, 33) = 1.161 | 0.2891 | ns |
| | | | | Vapor | F (1, 33) = 0.1462 | 0.7046 | ns |
| | | | | Schedule | F (1, 33) = 0.3800 | 0.5419 | ns |
| 2G | Two-way ANOVA | Estimated β (mg/dL/hr) | Schedule, Vapor | Schedule X Vapor | F (1, 33) = 3.786 | *0.0603* | *ns(trend)* |
| | | | | Vapor | F (1, 33) = 0.6020 | 0.4434 | ns |
| | | | | Schedule | F (1, 33) = 1.575 | 0.2182 | ns |

| Figure | Analysis | Dependent Variable | Independent Variables | Effect | Test Stats | P-value | Summary |
|---|---|---|---|---|---|---|---|
| 2H | Two-way ANOVA | mg EtOH/lick | Schedule, Vapor | Schedule X Vapor | F (1, 33) = 0.7527 | 0.3919 | ns |
| | | | | Vapor | F (1, 33) = 0.01684 | 0.8976 | ns |
| | | | | Schedule | F (1, 33) = 0.03264 | 0.8577 | ns |
| 2I | Spearman's Correlation | N/A | N/A | Average Final aBEC vs. Average Final eBEC | r = 0.9445<br>95% CI:0.8920 to 0.9718 | **<0.0001** | **** |
| 2J | Spearman's Correlation | N/A | N/A | Average Peak eBEC vs. Average Intake (g/kg) | r = 0.9433<br>95% CI:0.9175 to 0.9612 | **<0.0001** | **** |
| 2K | Spearman's Correlation | N/A | N/A | Licks vs. Intake (g/kg) | r = 0.7976<br>95% CI:0.7594 to 0.8303 | **<0.0001** | **** |
| 3A [*left*] | Mixed Effects Analysis | Intake (g/kg) | Session, Schedule | Session | F (8.446, 294.3) = 8.646 | **<0.0001** | **** |
| | | | | Schedule | F (1, 35) = 0.03212 | 0.8588 | ns |
| | | | | Session X Schedule | F (8.446, 294.3) = 0.6513 | 0.7426 | ns |
| 3A [*right*] | Unpaired t-test | Average Intake (g/kg) | Schedule | Schedule | t=0.1676, df=35 | 0.8679 | ns |
| 3B [*left*] | 2-way RM ANOVA | eBEC (mg/dL) | Time, Schedule | Time X Schedule | F (2.164, 75.73) = 0.3830 | 0.6994 | ns |
| | | | | Time | F (2.164, 75.73) = 19.01 | **<0.0001** | **** |
| | | | | Schedule | F (1, 35) = 0.4153 | 0.5235 | ns |
| | | | | Subject | F (35, 2065) = 374.0 | **<0.0001** | **** |
| 3B [*right*] | Unpaired t-test | Peak eBEC (mg/dL) | Schedule | Schedule | t=0.2302, df=35 | 0.8193 | ns |
| 3C [*left*] | 2-way RM ANOVA | Bout Probability | Time, Schedule | Time X Schedule | F (13.38, 468.2) = 1.174 | 0.2938 | ns |
| | | | | Time | F (13.38, 468.2) = 7.205 | **<0.0001** | **** |
| | | | | Schedule | F (1, 35) = 0.3475 | 0.5593 | ns |
| | | | | Subject | F (35, 2625) = 16.95 | **<0.0001** | **** |
| 3C [*right*] | Unpaired t-test | AUC (Bout Probability) | Schedule | Schedule | t=0.5642, df=35 | 0.5762 | ns |
| 3D | 2-way ANOVA | Avg Intake (g/kg) | Vapor, Schedule | Vapor X Schedule | F (1, 33) = 0.9195 | 0.3446 | ns |
| | | | | Vapor | F (1, 33) = 0.5620 | 0.4588 | ns |
| | | | | Schedule | F (1, 33) = 0.01473 | 0.9041 | ns |
| 3E | 2-way ANOVA | Peak eBEC (mg/dL) | Vapor, Schedule | Vapor X Schedule | F (1, 33) = 0.1015 | 0.7521 | ns |
| | | | | Vapor | F (1, 33) = 0.8857 | 0.3535 | ns |
| | | | | Schedule | F (1, 33) = 0.06753 | 0.7966 | ns |
| 3F | 2-way ANOVA | AUC (Bout Probability) | Vapor, Schedule | Vapor X Schedule | F (1, 33) = 0.7144 | 0.4041 | ns |
| | | | | Vapor | F (1, 33) = 0.5881 | 0.4486 | ns |
| | | | | Schedule | F (1, 33) = 0.3090 | 0.5821 | ns |
| 3G | Fisher's Exact Test | N/A | Vapor | Proportion of Drinking Phenotypes at Baseline | N/A | 0.8446 | ns |
| 3H | Fisher's Exact Test | N/A | Vapor | Proportion of Drinking Phenotypes at Baseline within ContA schedule | N/A | >0.9999 | ns |
| 3H | Fisher's Exact Test | N/A | Vapor | Proportion of Drinking Phenotypes at Baseline within uIntA schedule | N/A | 0.7121 | ns |
| 3 (*Not Shown*) | 2-way ANOVA | aBEC (mg/dL) | Vapor, Schedule | Vapor X Schedule | F (1, 33) = 1.831 | 0.1852 | ns |
| | | | | Vapor | F (1, 33) = 1.487 | 0.2314 | ns |
| | | | | Schedule | F (1, 33) = 0.03124 | 0.8608 | ns |
| 4A | Mixed Effects Analysis | Intake (g/kg) | Session, Vapor | Session | F (5.139, 86.57) = 3.645 | **0.0045** | ** |
| | | | | Vapor | F (1, 17) = 1.036 | 0.3231 | ns |
| | | | | Session X Vapor | F (5.139, 86.57) = 1.799 | 0.1195 | ns |
| 4B | 2-way RM ANOVA | Average Intake (g/kg) | Timepoint, Vapor | Timepoint x Vapor | F (1.772, 30.12) = 5.660 | **0.0103** | * |
| | | | | Timepoint | F (1.772, 30.12) = 4.552 | **0.0222** | * |
| | | | | Vapor | F (1, 17) = 0.2359 | 0.6334 | ns |
| | | | | Subject | F (17, 34) = 2.610 | **0.0084** | ** |
| 4C | 2-way RM ANOVA | Change in Average Intake (g/kg) | Timepoint, Vapor | Timepoint x Vapor | F (1, 17) = 5.355 | **0.0334** | * |
| | | | | Timepoint | F (1, 17) = 9.121 | **0.0077** | ** |
| | | | | Vapor | F (1, 17) = 5.964 | **0.0258** | * |
| | | | | Subject | F (17, 17) = 3.013 | **0.0143** | * |
| 4D | 2-way RM ANOVA | eBEC (mg/dL); Vapor Sessions | Time, Vapor | Time x Vapor | F (2.405, 40.88) = 5.549 | **0.0048** | ** |
| | | | | Time | F (2.405, 40.88) = 14.35 | **<0.0001** | **** |
| | | | | Vapor | F (1, 17) = 9.434 | **0.0069** | ** |
| | | | | Subject | F (17, 1003) = 355.8 | **<0.0001** | **** |
| 4E | 2-way RM ANOVA | eBEC (mg/dL); WD Sessions | Time, Vapor | Time x Vapor | F (1.319, 22.42) = 0.4959 | 0.5391 | ns |
| | | | | Time | F (1.319, 22.42) = 4.188 | **0.0429** | * |
| | | | | Vapor | F (1, 17) = 0.001607 | 0.9685 | ns |
| | | | | Subject | F (17, 1003) = 315.3 | **<0.0001** | **** |
| 4F | 2-way RM ANOVA | Peak eBEC (mg/dL) | Timepoint, Vapor | Timepoint x Vapor | F (1.811, 30.78) = 5.217 | **0.0133** | * |
| | | | | Timepoint | F (1.811, 30.78) = 6.184 | **0.0068** | ** |
| | | | | Vapor | F (1, 17) = 0.9873 | 0.3343 | ns |
| | | | | Subject | F (17, 34) = 2.057 | **0.0361** | * |
| 4G | 2-way RM ANOVA | Bout Probability; Vapor Sessions | Time, Vapor | Time x Vapor | F (8.118, 138.0) = 1.558 | 0.1418 | ns |
| | | | | Time | F (8.118, 138.0) = 12.62 | **<0.0001** | **** |
| | | | | Vapor | F (1, 17) = 9.071 | **0.0079** | ** |
| | | | | Subject | F (17, 1275) = 9.828 | **<0.0001** | **** |
| 4H | 2-way RM ANOVA | Bout Probability; Withdrawal Sessions | Time, Vapor | Time x Vapor | F (4.036, 68.61) = 1.287 | 0.2834 | ns |
| | | | | Time | F (4.036, 68.61) = 6.110 | **0.0003** | *** |
| | | | | Vapor | F (1, 17) = 0.3537 | 0.5599 | ns |
| | | | | Subject | F (17, 1275) = 10.17 | **<0.0001** | **** |
| 4I | 2-way RM ANOVA | AUC (Bout Probability) | Timepoint, Vapor | Timepoint x Vapor | F (1.955, 33.24) = 5.867 | **0.0069** | ** |
| | | | | Timepoint | F (1.955, 33.24) = 4.530 | **0.0188** | * |
| | | | | Vapor | F (1, 17) = 1.800 | 0.1973 | ns |
| | | | | Subject | F (17, 34) = 4.609 | **<0.0001** | **** |
| 4J | Fisher's Exact Test | N/A | Vapor | Proportion of Escalators at Vapor Sessions | N/A | **0.0055** | ** |
| 4K | Fisher's Exact Test | N/A | Vapor | Proportion of Escalators at Withdrawal Sessions | N/A | 0.5820 | ns |

| Figure | Analysis | Dependent Variable | Independent Variables | Effect | Test Stats | P-value | Summary |
|---|---|---|---|---|---|---|---|
| 5A | Mixed Effects Analysis | Intake (g/kg) | Session, Vapor | Session | F (4.600, 72.53) = 5.038 | **0.0007** | *** |
| | | | | Vapor | F (1, 16) = 30.01 | **<0.0001** | **** |
| | | | | Session X Vapor | F (4.600, 72.53) = 1.115 | 0.3589 | ns |
| 5B | 2-way RM ANOVA | Average Intake (g/kg) | Timepoint, Vapor | Timepoint x Vapor | F (1.924, 30.78) = 7.860 | **0.0019** | ** |
| | | | | Timepoint | F (1.924, 30.78) = 4.277 | **0.0242** | * |
| | | | | Vapor | F (1, 16) = 17.13 | **0.0008** | *** |
| | | | | Subject | F (16, 32) = 1.944 | *0.0536* | *ns(trend)* |
| 5C | 2-way RM ANOVA | Change in Average Intake (g/kg) | Timepoint, Vapor | Timepoint x Vapor | F (1, 16) = 0.7181 | 0.4093 | ns |
| | | | | Timepoint | F (1, 16) = 2.650 | 0.1231 | ns |
| | | | | Vapor | F (1, 16) = 16.69 | **0.0009** | *** |
| | | | | Subject | F (16, 16) = 2.426 | **0.0429** | * |
| 5D | 2-way RM ANOVA | eBEC (mg/dL); Vapor Sessions | Time, Vapor | Time x Vapor | F (1.993, 31.89) = 11.71 | **0.0002** | *** |
| | | | | Time | F (1.993, 31.89) = 28.57 | **<0.0001** | **** |
| | | | | Vapor | F (1, 16) = 8.764 | **0.0092** | ** |
| | | | | Subject | F (16, 944) = 303.4 | **<0.0001** | **** |
| 5E | 2-way RM ANOVA | eBEC (mg/dL); WD Sessions | Time, Vapor | Time x Vapor | F (2.034, 32.55) = 6.438 | **0.0042** | ** |
| | | | | Time | F (2.034, 32.55) = 21.30 | **<0.0001** | **** |
| | | | | Vapor | F (1, 16) = 10.82 | **0.0046** | ** |
| | | | | Subject | F (16, 944) = 204.2 | **<0.0001** | **** |
| 5F | 2-way RM ANOVA | Peak eBEC (mg/dL) | Timepoint, Vapor | Timepoint x Vapor | F (1.667, 26.67) = 6.626 | **0.0068** | ** |
| | | | | Timepoint | F (1.667, 26.67) = 6.850 | **0.0059** | ** |
| | | | | Vapor | F (1, 16) = 13.81 | **0.0019** | ** |
| | | | | Subject | F (16, 32) = 1.352 | 0.2271 | ns |
| 5G | 2-way RM ANOVA | Bout Probability; Vapor Sessions | Time, Vapor | Time x Vapor | F (8.261, 132.2) = 1.097 | 0.3696 | ns |
| | | | | Time | F (8.261, 132.2) = 3.617 | **0.0007** | *** |
| | | | | Vapor | F (1, 16) = 8.837 | **0.0090** | ** |
| | | | | Subject | F (16, 1200) = 13.03 | **<0.0001** | **** |
| 5H | 2-way RM ANOVA | Bout Probability; Vapor Sessions | Time, Vapor | Time x Vapor | F (8.523, 136.4) = 0.9447 | 0.4858 | ns |
| | | | | Time | F (8.523, 136.4) = 1.903 | *0.0599* | *ns(trend)* |
| | | | | Vapor | F (1, 16) = 6.362 | **0.0226** | * |
| | | | | Subject | F (16, 1200) = 13.20 | **<0.0001** | **** |
| 5I | 2-way RM ANOVA | AUC (Bout Probability) | Timepoint, Vapor | Timepoint x Vapor | F (1.346, 21.53) = 2.476 | 0.1226 | ns |
| | | | | Timepoint | F (1.346, 21.53) = 7.540 | **0.0073** | ** |
| | | | | Vapor | F (1, 16) = 7.781 | **0.0131** | * |
| | | | | Subject | F (16, 32) = 3.284 | **0.0020** | ** |
| 5J | Fisher's Exact Test | N/A | Vapor | Proportion of Escalators at Vapor Sessions | N/A | *0.0567* | *ns(trend)* |
| 5K | Fisher's Exact Test | N/A | Vapor | Proportion of Escalators at Withdrawal Sessions | N/A | 0.1534 | ns |
| 6A | Mixed Effects Analysis | Intake (g/kg) | Session, Schedule | Session | F (4.809, 80.65) = 5.679 | **0.0002** | *** |
| | | | | Schedule | F (1, 17) = 9.694 | **0.0063** | ** |
| | | | | Session X Schedule | F (4.809, 80.65) = 1.212 | 0.3112 | ns |
| 6B | 2-way RM ANOVA | Average Intake (g/kg) | Timepoint, Schedule | Timepoint x Schedule | F (1.927, 32.76) = 2.000 | 0.1529 | ns |
| | | | | Timepoint | F (1.927, 32.76) = 12.62 | **0.0001** | *** |
| | | | | Schedule | F (1, 17) = 13.87 | **0.0017** | ** |
| | | | | Subject | F (17, 34) = 1.040 | 0.4441 | ns |
| 6C | 2-way RM ANOVA | Change in Average Intake (g/kg) | Timepoint, Schedule | Timepoint x Schedule | F (1, 17) = 0.9248 | 0.3497 | ns |
| | | | | Timepoint | F (1, 17) = 9.394 | **0.0070** | ** |
| | | | | Schedule | F (1, 17) = 3.545 | *0.0770* | *ns(trend)* |
| | | | | Subject | F (17, 17) = 2.089 | *0.0694* | *ns(trend)* |
| 6D | 2-way RM ANOVA | eBEC (mg/dL); Vapor Sessions | Time, Schedule | Time x Schedule | F (1.990, 33.83) = 5.720 | **0.0073** | ** |
| | | | | Time | F (1.990, 33.83) = 36.33 | **<0.0001** | **** |
| | | | | Schedule | F (1, 17) = 0.3442 | 0.5651 | ns |
| | | | | Subject | F (17, 1003) = 333.8 | **<0.0001** | **** |
| 6E | 2-way RM ANOVA | eBEC (mg/dL); WD Sessions | Time, Schedule | Time x Schedule | F (1.428, 24.27) = 5.067 | **0.0230** | * |
| | | | | Time | F (1.428, 24.27) = 14.87 | **0.0002** | *** |
| | | | | Schedule | F (1, 17) = 8.771 | **0.0087** | ** |
| | | | | Subject | F (17, 1003) = 162.7 | **<0.0001** | **** |
| 6F | 2-way RM ANOVA | Peak eBEC (mg/dL) | Timepoint, Schedule | Timepoint x Schedule | F (1.884, 32.03) = 2.233 | 0.1262 | ns |
| | | | | Timepoint | F (1.884, 32.03) = 14.53 | **<0.0001** | **** |
| | | | | Schedule | F (1, 17) = 8.919 | **0.0083** | ** |
| | | | | Subject | F (17, 34) = 0.7102 | 0.7712 | ns |
| 6G | 2-way RM ANOVA | Bout Probability; Vapor Sessions | Time, Schedule | Time x Schedule | F (8.370, 142.3) = 1.261 | 0.2663 | ns |
| | | | | Time | F (8.370, 142.3) = 8.432 | **<0.0001** | **** |
| | | | | Schedule | F (1, 17) = 6.065 | **0.0248** | * |
| | | | | Subject | F (17, 1275) = 15.88 | **<0.0001** | **** |
| 6H | 2-way RM ANOVA | Bout Probability; Vapor Sessions | Time, Schedule | Time x Schedule | F (7.307, 124.2) = 1.074 | 0.3845 | ns |
| | | | | Time | F (7.307, 124.2) = 3.825 | **0.0007** | *** |
| | | | | Schedule | F (1, 17) = 10.95 | **0.0041** | ** |
| | | | | Subject | F (17, 1275) = 10.92 | **<0.0001** | **** |
| 6I | 2-way RM ANOVA | AUC (Bout Probability) | Timepoint, Schedule | Timepoint x Schedule | F (1.520, 25.84) = 2.736 | 0.0957 | ns |
| | | | | Timepoint | F (1.520, 25.84) = 12.21 | **0.0005** | *** |
| | | | | Schedule | F (1, 17) = 7.468 | **0.0142** | * |
| | | | | Subject | F (17, 34) = 3.984 | **0.0003** | *** |
| 6J | Fisher's Exact Test | N/A | Schedule | Proportion of Escalators at Vapor Sessions | N/A | >0.9999 | ns |
| 6K | Fisher's Exact Test | N/A | Schedule | Proportion of Escalators at Withdrawal Sessions | N/A | *0.0698* | *ns(trend)* |
| 7A | 2-way RM ANOVA | Bouts per DS | Timepoint, Vapor | Timepoint x Vapor | F (1.985, 31.76) = 2.799 | *0.0763* | *ns(trend)* |
| | | | | Timepoint | F (1.985, 31.76) = 2.889 | *0.0707* | *ns(trend)* |
| | | | | Vapor | F (1, 16) = 7.894 | **0.0126** | * |
| | | | | Subject | F (16, 32) = 3.992 | **0.0004** | *** |

| Figure | Analysis | Dependent Variable | Independent Variables | Effect | Test Stats | P-value | Summary |
|---|---|---|---|---|---|---|---|
| 7B | 2-way RM ANOVA | % DS Engaged | Timepoint, Vapor | Timepoint x Vapor | F (1.892, 30.28) = 4.413 | **0.0224** | * |
| | | | | Timepoint | F (1.892, 30.28) = 1.440 | 0.2525 | ns |
| | | | | Vapor | F (1, 16) = 10.41 | **0.0053** | ** |
| | | | | Subject | F (16, 32) = 3.093 | **0.0032** | ** |
| 7C | 2-way RM ANOVA | Bout Latency per DS (sec) | Timepoint, Vapor | Timepoint x Vapor | F (1.828, 29.24) = 1.064 | 0.3526 | ns |
| | | | | Timepoint | F (1.828, 29.24) = 2.417 | 0.1109 | ns |
| | | | | Vapor | F (1, 16) = 4.583 | **0.0480** | * |
| | | | | Subject | F (16, 32) = 2.153 | **0.0317** | * |
| 7D | 2-way RM ANOVA | Average # of Terminations per Session | Timepoint, Vapor | Timepoint x Vapor | F (1.800, 28.80) = 5.440 | **0.0119** | * |
| | | | | Timepoint | F (1.800, 28.80) = 3.552 | **0.0461** | * |
| | | | | Vapor | F (1, 16) = 8.859 | **0.0089** | ** |
| | | | | Subject | F (16, 32) = 3.536 | **0.0011** | ** |
| 7E | 2-way RM ANOVA | Bout Duration (sec) | Timepoint, Vapor | Timepoint x Vapor | F (1.964, 31.43) = 3.578 | **0.0405** | * |
| | | | | Timepoint | F (1.964, 31.43) = 1.800 | 0.1824 | ns |
| | | | | Vapor | F (1, 16) = 1.031 | 0.3251 | ns |
| | | | | Subject | F (16, 32) = 9.526 | **<0.0001** | **** |
| 7F | 2-way RM ANOVA | Bout Length (licks) | Timepoint, Vapor | Timepoint x Vapor | F (1.945, 31.12) = 2.611 | *0.0908* | *ns(trend)* |
| | | | | Timepoint | F (1.945, 31.12) = 1.948 | 0.1605 | ns |
| | | | | Vapor | F (1, 16) = 1.088 | 0.3124 | ns |
| | | | | Subject | F (16, 32) = 9.053 | **<0.0001** | **** |
| 7G | 2-way RM ANOVA | Interlick Interval (sec) | Timepoint, Vapor | Timepoint x Vapor | F (1.731, 27.70) = 4.439 | **0.0256** | * |
| | | | | Timepoint | F (1.731, 27.70) = 6.973 | **0.0049** | ** |
| | | | | Vapor | F (1, 16) = 1.339 | 0.2641 | ns |
| | | | | Subject | F (16, 32) = 8.485 | **<0.0001** | **** |
| 9A | 2-way ANOVA | Intake (g/kg) | Vapor, Schedule | Vapor X Schedule | F (1, 33) = 10.63 | **0.0026** | ** |
| | | | | Vapor | F (1, 33) = 0.1330 | 0.7177 | ns |
| | | | | Schedule | F (1, 33) = 1.353 | 0.2531 | ns |
| 9B | 2-way ANOVA | Change in Intake from BL (g/kg) | Vapor, Schedule | Vapor X Schedule | F (1, 33) = 5.193 | **0.0293** | * |
| | | | | Vapor | F (1, 33) = 1.191 | 0.2830 | ns |
| | | | | Schedule | F (1, 33) = 1.058 | 0.3112 | ns |
| 9C | 2-way ANOVA | aBEC (mg/dL) | Vapor, Schedule | Vapor X Schedule | F (1, 33) = 1.932 | 0.1738 | ns |
| | | | | Vapor | F (1, 33) = 1.521 | 0.2262 | ns |
| | | | | Schedule | F (1, 33) = 1.403 | 0.2446 | ns |
| 9D | 2-way RM ANOVA | eBEC (mg/dL); ContA only | Time, Vapor | Time x Vapor | F (3.375, 54.00) = 0.9506 | 0.4309 | ns |
| | | | | Time | F (3.375, 54.00) = 3.161 | **0.0271** | * |
| | | | | Vapor | F (1, 16) = 1.318 | 0.2678 | ns |
| | | | | Subject | F (16, 944) = 425.1 | <0.0001 | **** |
| 9E | 2-way RM ANOVA | eBEC (mg/dL); uIntA only | Time, Vapor | Time x Vapor | F (2.521, 40.34) = 2.648 | 0.0711 | ns |
| | | | | Time | F (2.521, 40.34) = 8.459 | **0.0004** | *** |
| | | | | Vapor | F (1, 16) = 5.546 | **0.0316** | * |
| | | | | Subject | F (16, 944) = 167.8 | **<0.0001** | **** |
| 9F | 2-way ANOVA | Peak eBEC (mg/dL) | Vapor, Schedule | Vapor X Schedule | F (1, 32) = 6.485 | **0.0159** | * |
| | | | | Vapor | F (1, 32) = 0.8906 | 0.3524 | ns |
| | | | | Schedule | F (1, 32) = 2.376 | 0.1330 | ns |
| 9G | Fisher's Exact Test | N/A | Vapor | Proportion Aversion-Resistant in ContA rats | N/A | >0.9999 | ns |
| 9G | Fisher's Exact Test | N/A | Vapor | Proportion Aversion-Resistant in uIntA rats | N/A | **0.0034** | ** |
| 9G | Fisher's Exact Test | N/A | Schedule | Proportion Aversion-Resistant in Air-Exposed rats | N/A | >0.9999 | ns |
| 9G | Fisher's Exact Test | N/A | Schedule | Proportion Aversion-Resistant in EtOH-exposed rats | N/A | **0.0198** | * |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Baseline | 8A | N/A | DSLatency | 1 | 1 | -0.00604 | -0.0157621 | 0.003678 | -0.022716 | 0.0106315 | ns |
| Baseline | 8A | N/A | DSLatency | 1 | 2 | -0.03009 | -0.0453623 | -0.0148259 | -0.056285 | -0.0039033 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 3 | -0.05177 | -0.0695639 | -0.0339855 | -0.08229 | -0.0212594 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 4 | -0.06846 | -0.0882207 | -0.0486895 | -0.102361 | -0.0345496 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 5 | -0.07896 | -0.1005413 | -0.057381 | -0.115979 | -0.0419429 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 6 | -0.08474 | -0.1077353 | -0.0617363 | -0.124189 | -0.0452829 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 7 | -0.0883 | -0.1123083 | -0.0642819 | -0.129487 | -0.0471033 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 8 | -0.09047 | -0.1147596 | -0.066176 | -0.132138 | -0.0487981 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 9 | -0.09013 | -0.1149258 | -0.0653267 | -0.132667 | -0.0475856 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 10 | -0.0869 | -0.1120063 | -0.0617868 | -0.129969 | -0.0438237 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 11 | -0.08283 | -0.1080482 | -0.0576174 | -0.126087 | -0.0395788 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 12 | -0.08036 | -0.1052554 | -0.0554649 | -0.123065 | -0.0376553 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 13 | -0.07941 | -0.1042952 | -0.0545176 | -0.1221 | -0.0367126 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 14 | -0.07792 | -0.1029007 | -0.0529452 | -0.120769 | -0.0350766 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 15 | -0.07489 | -0.1001093 | -0.049664 | -0.118153 | -0.0316202 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 16 | -0.0715 | -0.0966564 | -0.0463507 | -0.11465 | -0.0283568 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 17 | -0.06974 | -0.094976 | -0.044512 | -0.113027 | -0.0264614 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 18 | -0.07113 | -0.0966018 | -0.0456555 | -0.114825 | -0.0274325 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 19 | -0.0765 | -0.1024962 | -0.0505098 | -0.121091 | -0.0319147 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 20 | -0.08456 | -0.110906 | -0.0582195 | -0.129751 | -0.039374 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 21 | -0.09022 | -0.1167953 | -0.0636383 | -0.135809 | -0.0446245 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 22 | -0.08778 | -0.1140661 | -0.061492 | -0.132871 | -0.0426868 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 23 | -0.07847 | -0.1044022 | -0.0525361 | -0.122954 | -0.0339841 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 24 | -0.07247 | -0.0981251 | -0.0468207 | -0.116476 | -0.0284696 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 25 | -0.07927 | -0.1053054 | -0.0532366 | -0.12393 | -0.0346121 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 26 | -0.09572 | -0.1225718 | -0.068876 | -0.141778 | -0.0496695 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 27 | -0.10759 | -0.1353999 | -0.0797734 | -0.155297 | -0.0598764 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 28 | -0.10474 | -0.1328657 | -0.0766077 | -0.152989 | -0.0564847 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 29 | -0.09241 | -0.1204236 | -0.0643891 | -0.140467 | -0.0443461 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 30 | -0.08496 | -0.112676 | -0.0572503 | -0.132501 | -0.037425 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 31 | -0.09012 | -0.1181257 | -0.0621069 | -0.138163 | -0.0420695 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 32 | -0.10187 | -0.1304436 | -0.073297 | -0.150884 | -0.0528562 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 33 | -0.10834 | -0.137201 | -0.0794881 | -0.157844 | -0.0588448 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 34 | -0.1037 | -0.1320692 | -0.0753264 | -0.152366 | -0.0550301 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 35 | -0.0919 | -0.119951 | -0.063851 | -0.140017 | -0.0437846 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 36 | -0.08138 | -0.1094523 | -0.0533104 | -0.129534 | -0.0332289 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 37 | -0.07788 | -0.1062771 | -0.0494883 | -0.12659 | -0.0291755 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 38 | -0.08155 | -0.1102231 | -0.0528842 | -0.130733 | -0.0323746 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 39 | -0.08873 | -0.1178728 | -0.0595854 | -0.138722 | -0.0387365 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 40 | -0.09537 | -0.1248309 | -0.065902 | -0.145909 | -0.0448237 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 41 | -0.09909 | -0.1288315 | -0.0693568 | -0.150105 | -0.0480833 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 42 | -0.09924 | -0.1288904 | -0.0695921 | -0.150101 | -0.0483817 | * |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Baseline | 8A | N/A | DSLatency | 1 | 43 | -0.09651 | -0.1260862 | -0.0669375 | -0.147243 | -0.0457805 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 44 | -0.09332 | -0.1226509 | -0.0639805 | -0.143637 | -0.0429946 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 45 | -0.09325 | -0.1225328 | -0.063967 | -0.143481 | -0.0430186 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 46 | -0.09848 | -0.1276757 | -0.0692758 | -0.148565 | -0.0483867 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 47 | -0.10733 | -0.1366823 | -0.0779698 | -0.157683 | -0.0569689 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 48 | -0.11551 | -0.1448167 | -0.0862014 | -0.165783 | -0.0652353 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 49 | -0.11989 | -0.1492738 | -0.0904983 | -0.170297 | -0.0694748 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 50 | -0.12023 | -0.1496592 | -0.0908068 | -0.17071 | -0.0697558 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 51 | -0.11753 | -0.1471581 | -0.0879076 | -0.168351 | -0.0667142 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 52 | -0.11241 | -0.1419504 | -0.0828634 | -0.163085 | -0.0617285 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 53 | -0.10618 | -0.1357545 | -0.0766022 | -0.156913 | -0.055444 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 54 | -0.10182 | -0.1313405 | -0.0723085 | -0.152456 | -0.0511933 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 55 | -0.10173 | -0.1313212 | -0.072143 | -0.152489 | -0.0509755 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 56 | -0.10466 | -0.1339409 | -0.0753692 | -0.154891 | -0.0544187 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 57 | -0.1067 | -0.1355673 | -0.0778248 | -0.156221 | -0.0571709 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 58 | -0.10612 | -0.1344581 | -0.077772 | -0.154734 | -0.0574959 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 59 | -0.10623 | -0.1345554 | -0.0779089 | -0.154817 | -0.057647 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 60 | -0.1123 | -0.1408352 | -0.0837642 | -0.161249 | -0.0633505 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 61 | -0.12497 | -0.1539472 | -0.0960009 | -0.174674 | -0.075274 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 62 | -0.13727 | -0.1664272 | -0.1081143 | -0.187285 | -0.0872564 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 63 | -0.13939 | -0.1688168 | -0.1099637 | -0.189868 | -0.0889125 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 64 | -0.1283 | -0.1577788 | -0.098831 | -0.178864 | -0.0777459 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 65 | -0.11264 | -0.1423334 | -0.0829419 | -0.163577 | -0.061698 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 66 | -0.10573 | -0.1355322 | -0.0759324 | -0.156851 | -0.054614 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 67 | -0.11197 | -0.1420341 | -0.081904 | -0.163542 | -0.0603961 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 68 | -0.12132 | -0.1513685 | -0.0912664 | -0.172866 | -0.0697685 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 69 | -0.12032 | -0.1503976 | -0.0902358 | -0.171917 | -0.0687165 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 70 | -0.10842 | -0.1383301 | -0.0785014 | -0.15973 | -0.0571013 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 71 | -0.10027 | -0.1301643 | -0.0703833 | -0.151547 | -0.0490001 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 72 | -0.11019 | -0.1398449 | -0.0805344 | -0.16106 | -0.0593196 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 73 | -0.13627 | -0.1660541 | -0.1064866 | -0.187361 | -0.0851798 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 74 | -0.16204 | -0.1921222 | -0.1319644 | -0.21364 | -0.1104466 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 75 | -0.1723 | -0.2029502 | -0.1416537 | -0.224875 | -0.1197285 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 76 | -0.16505 | -0.1957831 | -0.1343231 | -0.217767 | -0.1123394 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 77 | -0.14914 | -0.1798101 | -0.1184669 | -0.201752 | -0.096525 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 78 | -0.13402 | -0.1642764 | -0.1037641 | -0.185921 | -0.0821194 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 79 | -0.12334 | -0.1534795 | -0.0931911 | -0.175044 | -0.0716265 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 80 | -0.11588 | -0.1459068 | -0.0858631 | -0.167384 | -0.064386 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 81 | -0.11012 | -0.1404578 | -0.0797876 | -0.162159 | -0.0580865 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 82 | -0.10741 | -0.1380474 | -0.0767799 | -0.159962 | -0.054865 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 83 | -0.11143 | -0.1426204 | -0.0802414 | -0.164933 | -0.057929 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 84 | -0.12363 | -0.1550448 | -0.0922199 | -0.177517 | -0.0697481 | * |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Baseline | 8A | N/A | DSLatency | 1 | 85 | -0.13886 | -0.1707286 | -0.106995 | -0.193526 | -0.084198 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 86 | -0.14714 | -0.179015 | -0.1152739 | -0.201815 | -0.0924743 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 87 | -0.14217 | -0.1739921 | -0.1103524 | -0.196755 | -0.087589 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 88 | -0.12821 | -0.1595611 | -0.0968553 | -0.18199 | -0.074426 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 89 | -0.1171 | -0.1484104 | -0.0857985 | -0.170806 | -0.0634027 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 90 | -0.11773 | -0.1488909 | -0.0865766 | -0.17118 | -0.0642874 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 91 | -0.12844 | -0.1596423 | -0.0972338 | -0.181965 | -0.0749108 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 92 | -0.13912 | -0.1698728 | -0.1083677 | -0.191873 | -0.0863679 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 93 | -0.13975 | -0.170519 | -0.108987 | -0.192529 | -0.0869775 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 94 | -0.12806 | -0.1585171 | -0.0975993 | -0.180307 | -0.0758097 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 95 | -0.11172 | -0.1423168 | -0.0811273 | -0.164204 | -0.0592404 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 96 | -0.10352 | -0.1337412 | -0.07329 | -0.155364 | -0.0516672 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 97 | -0.11082 | -0.1415284 | -0.080105 | -0.163499 | -0.0581344 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 98 | -0.12698 | -0.1573769 | -0.0965917 | -0.179119 | -0.0748493 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 99 | -0.13467 | -0.1662157 | -0.1031305 | -0.188781 | -0.0805655 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 100 | -0.12134 | -0.1509962 | -0.0916768 | -0.172214 | -0.0704588 | * |
| Baseline | 8A | N/A | DSLatency | 1 | 101 | -0.09147 | -0.1327477 | -0.0501871 | -0.162279 | -0.020656 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 1 | -0.00193 | -0.0069872 | 0.00311738 | -0.010206 | 0.0063361 | ns |
| Baseline | 8B | N/A | PriorEtOH | 2 | 2 | -0.00089 | -0.0074099 | 0.00563027 | -0.011564 | 0.0097842 | ns |
| Baseline | 8B | N/A | PriorEtOH | 2 | 3 | 0.002594 | -0.0045465 | 0.00973508 | -0.009096 | 0.0142844 | ns |
| Baseline | 8B | N/A | PriorEtOH | 2 | 4 | 0.00979 | 0.00228958 | 0.01729118 | -0.002489 | 0.0220699 | ns |
| Baseline | 8B | N/A | PriorEtOH | 2 | 5 | 0.019631 | 0.01181437 | 0.02744722 | 0.0068346 | 0.032427 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 6 | 0.029463 | 0.0213047 | 0.03762035 | 0.0161074 | 0.0428176 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 7 | 0.037155 | 0.02854981 | 0.04576067 | 0.0230674 | 0.0512431 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 8 | 0.042466 | 0.03336194 | 0.05157088 | 0.0275616 | 0.0573712 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 9 | 0.046236 | 0.03649839 | 0.05597311 | 0.0302948 | 0.0621767 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 10 | 0.048433 | 0.03823498 | 0.05863048 | 0.0317381 | 0.0651274 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 11 | 0.047844 | 0.03766866 | 0.05801934 | 0.0311861 | 0.0645019 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 12 | 0.044292 | 0.03454677 | 0.05403684 | 0.0283383 | 0.0602453 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 13 | 0.040358 | 0.03101753 | 0.04969927 | 0.0250666 | 0.0556502 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 14 | 0.039472 | 0.03025431 | 0.04868897 | 0.024382 | 0.0545612 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 15 | 0.042193 | 0.03286527 | 0.05152118 | 0.0269225 | 0.0574639 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 16 | 0.045653 | 0.03619516 | 0.05511071 | 0.0301697 | 0.0611362 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 17 | 0.047025 | 0.03745687 | 0.05659269 | 0.0313613 | 0.0626883 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 18 | 0.046391 | 0.03667353 | 0.05610854 | 0.0304826 | 0.0622995 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 19 | 0.045661 | 0.03574781 | 0.05557398 | 0.0294323 | 0.0618895 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 20 | 0.046014 | 0.03593683 | 0.05609195 | 0.0295165 | 0.0625122 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 21 | 0.047492 | 0.03737426 | 0.05760983 | 0.0309283 | 0.0640558 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 22 | 0.050046 | 0.04011082 | 0.0599815 | 0.0337811 | 0.0663112 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 23 | 0.053511 | 0.04385022 | 0.06317157 | 0.0376955 | 0.0693263 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 24 | 0.056917 | 0.04738739 | 0.06644712 | 0.041316 | 0.0725185 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 25 | 0.059042 | 0.04930518 | 0.06877923 | 0.0431018 | 0.0749826 | * |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Baseline | 8B | N/A | PriorEtOH | 2 | 26 | 0.059493 | 0.04927316 | 0.0697137 | 0.0427619 | 0.0762249 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 27 | 0.058525 | 0.04781062 | 0.06923856 | 0.0409849 | 0.0760643 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 28 | 0.056409 | 0.04546707 | 0.06735123 | 0.038496 | 0.0743223 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 29 | 0.054032 | 0.04307125 | 0.06499339 | 0.0360881 | 0.0719766 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 30 | 0.053303 | 0.04225511 | 0.06435108 | 0.0352166 | 0.0713896 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 31 | 0.055303 | 0.04384668 | 0.06675899 | 0.0365481 | 0.0740576 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 32 | 0.058293 | 0.04625474 | 0.07033154 | 0.0385852 | 0.0780011 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 33 | 0.059346 | 0.04703336 | 0.0716579 | 0.0391893 | 0.0795019 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 34 | 0.058149 | 0.04609203 | 0.07020673 | 0.0384104 | 0.0778883 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 35 | 0.057541 | 0.04592134 | 0.06916042 | 0.0385187 | 0.0765631 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 36 | 0.059744 | 0.04838277 | 0.07110487 | 0.0411448 | 0.0783429 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 37 | 0.063576 | 0.05225641 | 0.07489659 | 0.0450445 | 0.0821085 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 38 | 0.066148 | 0.05475636 | 0.07753956 | 0.0474989 | 0.084797 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 39 | 0.06606 | 0.0545806 | 0.07754025 | 0.0472669 | 0.0848539 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 40 | 0.064046 | 0.05257436 | 0.07551733 | 0.045266 | 0.0828257 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 41 | 0.061534 | 0.0501859 | 0.07288276 | 0.0429559 | 0.0801127 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 42 | 0.059677 | 0.04857177 | 0.07078241 | 0.0414967 | 0.0778575 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 43 | 0.058988 | 0.04819545 | 0.06978039 | 0.0413197 | 0.0766562 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 44 | 0.058774 | 0.04825817 | 0.06929079 | 0.0415584 | 0.0759906 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 45 | 0.057305 | 0.04690674 | 0.06770394 | 0.0402819 | 0.0743288 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 46 | 0.053555 | 0.04315007 | 0.06396039 | 0.0365211 | 0.0705894 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 47 | 0.048762 | 0.03828461 | 0.05923883 | 0.0316098 | 0.0659137 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 48 | 0.045731 | 0.03522113 | 0.05623991 | 0.0285257 | 0.0629353 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 49 | 0.046729 | 0.03625705 | 0.05720113 | 0.0295854 | 0.0638728 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 50 | 0.052198 | 0.04181412 | 0.06258282 | 0.0351984 | 0.0691986 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 51 | 0.060774 | 0.05042188 | 0.07112574 | 0.0438268 | 0.0777208 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 52 | 0.069851 | 0.05944546 | 0.08025666 | 0.0528162 | 0.086886 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 53 | 0.076607 | 0.06602744 | 0.08718677 | 0.0592872 | 0.093927 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 54 | 0.079378 | 0.06856466 | 0.09019123 | 0.0616756 | 0.0970803 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 55 | 0.078277 | 0.067312 | 0.08924275 | 0.0603261 | 0.0962287 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 56 | 0.074523 | 0.06369437 | 0.08535137 | 0.0567956 | 0.0922501 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 57 | 0.069621 | 0.05915892 | 0.08008382 | 0.0524934 | 0.0867493 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 58 | 0.065153 | 0.05502661 | 0.07528009 | 0.048575 | 0.0817317 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 59 | 0.062215 | 0.05217433 | 0.07225597 | 0.0457774 | 0.0786529 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 60 | 0.060352 | 0.05017308 | 0.07053183 | 0.0436879 | 0.077017 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 61 | 0.057841 | 0.04743026 | 0.06825153 | 0.0407978 | 0.074884 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 62 | 0.053848 | 0.04331099 | 0.06438461 | 0.0365981 | 0.0710975 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 63 | 0.049698 | 0.03916024 | 0.06023508 | 0.032447 | 0.0669484 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 64 | 0.047238 | 0.03674798 | 0.05772793 | 0.0300649 | 0.064411 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 65 | 0.046694 | 0.03618036 | 0.0572085 | 0.029482 | 0.0639069 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 66 | 0.047129 | 0.03650499 | 0.0577523 | 0.0297368 | 0.0645205 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 67 | 0.048289 | 0.03744429 | 0.05913465 | 0.0305349 | 0.066044 | * |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Baseline | 8B | N/A | PriorEtOH | 2 | 68 | 0.050644 | 0.03953263 | 0.06175481 | 0.0324539 | 0.0688336 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 69 | 0.053872 | 0.0425385 | 0.06520648 | 0.0353177 | 0.0724272 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 70 | 0.056693 | 0.04529828 | 0.06808823 | 0.0380387 | 0.0753478 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 71 | 0.058233 | 0.04696402 | 0.06950206 | 0.0397846 | 0.0766814 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 72 | 0.058545 | 0.04752581 | 0.06956476 | 0.0405054 | 0.0765851 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 73 | 0.057822 | 0.04694856 | 0.06869535 | 0.0400212 | 0.0756227 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 74 | 0.05619 | 0.04525702 | 0.06712335 | 0.0382916 | 0.0740888 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 75 | 0.054293 | 0.04318207 | 0.06540458 | 0.0361032 | 0.0724834 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 76 | 0.052901 | 0.0417042 | 0.06409758 | 0.0345709 | 0.0712309 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 77 | 0.051771 | 0.04064585 | 0.06289669 | 0.033558 | 0.0699846 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 78 | 0.050036 | 0.03913754 | 0.06093532 | 0.032194 | 0.0678789 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 79 | 0.047965 | 0.03728052 | 0.05864912 | 0.0304737 | 0.065456 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 80 | 0.04712 | 0.03650294 | 0.0577369 | 0.029739 | 0.0645009 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 81 | 0.048219 | 0.0374192 | 0.05901906 | 0.0305387 | 0.0658996 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 82 | 0.049896 | 0.03875406 | 0.06103877 | 0.0316554 | 0.0681374 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 83 | 0.050346 | 0.03884986 | 0.06184219 | 0.0315258 | 0.0691663 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 84 | 0.049465 | 0.03776122 | 0.06116856 | 0.0303049 | 0.0686248 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 85 | 0.048747 | 0.03695285 | 0.06054124 | 0.0294389 | 0.0680552 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 86 | 0.049755 | 0.03797133 | 0.06153826 | 0.0304642 | 0.0690454 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 87 | 0.053258 | 0.04150867 | 0.0650074 | 0.0340233 | 0.0724928 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 88 | 0.059013 | 0.04730746 | 0.0707191 | 0.0398498 | 0.0781768 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 89 | 0.065454 | 0.05373129 | 0.07717634 | 0.046263 | 0.0846446 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 90 | 0.070173 | 0.05843107 | 0.08191424 | 0.0509506 | 0.0893947 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 91 | 0.071772 | 0.06008821 | 0.08345611 | 0.0526445 | 0.0908998 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 92 | 0.071076 | 0.05958798 | 0.08256303 | 0.0522694 | 0.0898816 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 93 | 0.069738 | 0.05845822 | 0.08101846 | 0.0512718 | 0.0882049 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 94 | 0.067911 | 0.05687652 | 0.07894582 | 0.0498465 | 0.0859759 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 95 | 0.064215 | 0.05338302 | 0.07504604 | 0.0464824 | 0.0819467 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 96 | 0.058059 | 0.0473781 | 0.06873901 | 0.0405737 | 0.0755434 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 97 | 0.051071 | 0.04032744 | 0.06181386 | 0.0334831 | 0.0686582 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 98 | 0.045807 | 0.03495557 | 0.05665839 | 0.0280423 | 0.0635717 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 99 | 0.043552 | 0.03270151 | 0.05440247 | 0.0257888 | 0.0613152 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 100 | 0.043721 | 0.03309848 | 0.05434433 | 0.0263307 | 0.0611121 | * |
| Baseline | 8B | N/A | PriorEtOH | 2 | 101 | 0.044965 | 0.03096479 | 0.05896601 | 0.0220451 | 0.0678857 | * |
| Baseline | 8B | N/A | PriorITI | 3 | 1 | -0.00036 | -0.0091561 | 0.0084404 | -0.015494 | 0.0147786 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 2 | 0.005481 | -0.0087633 | 0.01972552 | -0.019025 | 0.0299872 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 3 | 0.0127 | -0.0042922 | 0.02969285 | -0.016534 | 0.0419342 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 4 | 0.01948 | 0.00020483 | 0.03875525 | -0.013681 | 0.0526411 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 5 | 0.022306 | 0.00089979 | 0.04371151 | -0.014521 | 0.0591322 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 6 | 0.02168 | -0.0012717 | 0.04463255 | -0.017806 | 0.0611672 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 7 | 0.023471 | -0.000417 | 0.04735835 | -0.017626 | 0.064567 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 8 | 0.03142 | 0.00757349 | 0.05526612 | -0.009605 | 0.0724449 | ns |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Baseline | 8C | N/A | PriorITI | 3 | 9 | 0.039858 | 0.01594436 | 0.0637718 | -0.001283 | 0.0809992 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 10 | 0.038752 | 0.01497012 | 0.06253307 | -0.002162 | 0.0796652 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 11 | 0.0273 | 0.00332136 | 0.05127887 | -0.013953 | 0.0685531 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 12 | 0.017896 | -0.0061856 | 0.04197775 | -0.023534 | 0.0593261 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 13 | 0.022716 | -0.0018149 | 0.04724612 | -0.019487 | 0.0649178 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 14 | 0.038959 | 0.01427181 | 0.06364679 | -0.003513 | 0.0814316 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 15 | 0.052098 | 0.02729791 | 0.07689837 | 0.0094319 | 0.0947644 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 16 | 0.053116 | 0.02857479 | 0.07765732 | 0.0108953 | 0.0953368 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 17 | 0.047641 | 0.02300098 | 0.07228039 | 0.0052506 | 0.0900308 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 18 | 0.046374 | 0.0214922 | 0.07125524 | 0.0035676 | 0.0891798 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 19 | 0.050544 | 0.02515073 | 0.07593697 | 0.0068576 | 0.0942301 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 20 | 0.051055 | 0.02542674 | 0.07668384 | 0.006964 | 0.0951466 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 21 | 0.041334 | 0.01547306 | 0.06719404 | -0.003157 | 0.0858239 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 22 | 0.026797 | 0.0011418 | 0.05245234 | -0.01734 | 0.0709343 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 23 | 0.018935 | -0.0065716 | 0.04444151 | -0.024946 | 0.0628164 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 24 | 0.021694 | -0.0035918 | 0.04697953 | -0.021808 | 0.0651953 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 25 | 0.027504 | 0.00189343 | 0.05311393 | -0.016556 | 0.0715635 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 26 | 0.027418 | 0.00124437 | 0.05359206 | -0.017611 | 0.0724476 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 27 | 0.021123 | -0.0058057 | 0.04805077 | -0.025205 | 0.0674498 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 28 | 0.013999 | -0.0131626 | 0.04115974 | -0.032729 | 0.0607266 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 29 | 0.008391 | -0.0187815 | 0.0355627 | -0.038356 | 0.0551374 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 30 | 0.004087 | -0.0227315 | 0.03090576 | -0.042052 | 0.0502258 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 31 | 0.00549 | -0.0213158 | 0.03229557 | -0.040627 | 0.0516063 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 32 | 0.018981 | -0.0077912 | 0.04575416 | -0.027078 | 0.0650411 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 33 | 0.04009 | 0.01327252 | 0.06690807 | -0.006047 | 0.0862275 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 34 | 0.051898 | 0.02532433 | 0.07847134 | 0.0061809 | 0.0976148 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 35 | 0.043759 | 0.01701953 | 0.07049783 | -0.002243 | 0.0897606 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 36 | 0.026719 | -0.0002356 | 0.05367398 | -0.019654 | 0.0730921 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 37 | 0.021552 | -0.005778 | 0.04888248 | -0.025467 | 0.0685711 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 38 | 0.033135 | 0.0055726 | 0.06069658 | -0.014283 | 0.0805522 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 39 | 0.045318 | 0.01720183 | 0.07343465 | -0.003053 | 0.0936896 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 40 | 0.042131 | 0.01360291 | 0.07065857 | -0.006948 | 0.0912099 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 41 | 0.026328 | -0.0026417 | 0.0552986 | -0.023512 | 0.0761686 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 42 | 0.013887 | -0.0151269 | 0.04290008 | -0.036028 | 0.0638013 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 43 | 0.016064 | -0.0131435 | 0.04527218 | -0.034185 | 0.0663134 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 44 | 0.031028 | 0.00189298 | 0.06016228 | -0.019096 | 0.0811508 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 45 | 0.04905 | 0.0198919 | 0.07820711 | -0.001113 | 0.0992122 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 46 | 0.06129 | 0.03228379 | 0.09029551 | 0.011388 | 0.1111913 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 47 | 0.065094 | 0.0359585 | 0.09422966 | 0.0149693 | 0.1152189 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 48 | 0.064015 | 0.03500353 | 0.09302578 | 0.014104 | 0.1139253 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 49 | 0.062383 | 0.03322927 | 0.09153751 | 0.0122267 | 0.1125401 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 50 | 0.059415 | 0.03012313 | 0.08870727 | 0.0090212 | 0.1098092 | * |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Baseline | 8C | N/A | PriorITI | 3 | 51 | 0.051187 | 0.02157441 | 0.0807995 | 0.0002416 | 0.1021323 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 52 | 0.039228 | 0.00976181 | 0.06869503 | -0.011466 | 0.0899227 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 53 | 0.03274 | 0.00335904 | 0.06212013 | -0.017807 | 0.0832858 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 54 | 0.038512 | 0.00944121 | 0.06758323 | -0.011501 | 0.0885259 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 55 | 0.051188 | 0.02218762 | 0.0801887 | 0.0012957 | 0.1010806 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 56 | 0.057905 | 0.02918979 | 0.0866193 | 0.0085038 | 0.1073053 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 57 | 0.051954 | 0.02338471 | 0.08052302 | 0.0028036 | 0.1011042 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 58 | 0.038435 | 0.01023275 | 0.06663699 | -0.010084 | 0.0869537 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 59 | 0.027026 | -0.0012204 | 0.05527199 | -0.021569 | 0.0756205 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 60 | 0.023315 | -0.0050247 | 0.05165385 | -0.02544 | 0.0720694 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 61 | 0.028036 | -0.0006293 | 0.05670161 | -0.02128 | 0.0773521 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 62 | 0.040163 | 0.01137285 | 0.06895273 | -0.009367 | 0.0896929 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 63 | 0.056429 | 0.0272323 | 0.08562631 | 0.0061989 | 0.1066598 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 64 | 0.069473 | 0.0401756 | 0.09877092 | 0.0190696 | 0.1198769 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 65 | 0.072169 | 0.04260605 | 0.10173265 | 0.0213087 | 0.12303 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 66 | 0.066508 | 0.03689938 | 0.09611698 | 0.0155693 | 0.1174471 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 67 | 0.064321 | 0.03450913 | 0.09413354 | 0.0130325 | 0.1156102 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 68 | 0.074049 | 0.04449124 | 0.10360667 | 0.0231979 | 0.1249 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 69 | 0.088298 | 0.05890555 | 0.1176909 | 0.0377311 | 0.1388653 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 70 | 0.091274 | 0.06218425 | 0.12036355 | 0.0412281 | 0.1413197 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 71 | 0.079824 | 0.05061623 | 0.10903217 | 0.0295749 | 0.1300735 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 72 | 0.069411 | 0.04026315 | 0.09855791 | 0.0192655 | 0.1195556 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 73 | 0.074201 | 0.04473337 | 0.10366809 | 0.0235052 | 0.1248963 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 74 | 0.088087 | 0.05833273 | 0.1178414 | 0.0368978 | 0.1392763 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 75 | 0.093802 | 0.06348708 | 0.12411615 | 0.0416486 | 0.1459547 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 76 | 0.086356 | 0.05605812 | 0.11665296 | 0.0342319 | 0.1384791 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 77 | 0.076921 | 0.04664753 | 0.10719529 | 0.0248383 | 0.1290045 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 78 | 0.075 | 0.04507002 | 0.10492936 | 0.0235088 | 0.1264906 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 79 | 0.078141 | 0.04811547 | 0.10816581 | 0.0264854 | 0.1297959 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 80 | 0.080701 | 0.05076526 | 0.11063685 | 0.0291996 | 0.1322025 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 81 | 0.081404 | 0.0512145 | 0.11159442 | 0.0294657 | 0.1333432 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 82 | 0.078429 | 0.04819906 | 0.10865898 | 0.0264215 | 0.1304366 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 83 | 0.068033 | 0.03738209 | 0.09868482 | 0.0153009 | 0.120766 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 84 | 0.054107 | 0.02333809 | 0.08487672 | 0.001172 | 0.1070429 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 85 | 0.048687 | 0.01733653 | 0.08003694 | -0.005248 | 0.1026215 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 86 | 0.054691 | 0.02332248 | 0.08606028 | 0.0007244 | 0.1086584 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 87 | 0.057492 | 0.02614603 | 0.08883776 | 0.0035646 | 0.1114192 | * |
| Baseline | 8C | N/A | PriorITI | 3 | 88 | 0.04415 | 0.01341005 | 0.0748904 | -0.008735 | 0.0970355 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 89 | 0.023448 | -0.0072424 | 0.05413865 | -0.029352 | 0.076248 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 90 | 0.014508 | -0.0159492 | 0.04496579 | -0.037891 | 0.0669073 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 91 | 0.021001 | -0.0095911 | 0.05159271 | -0.031629 | 0.0736311 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 92 | 0.030262 | 0.00012216 | 0.06040102 | -0.02159 | 0.0821134 | ns |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Baseline | 8C | N/A | PriorITI | 3 | 93 | 0.034727 | 0.00439827 | 0.0650552 | -0.01745 | 0.0869038 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 94 | 0.039016 | 0.00891106 | 0.06912057 | -0.012776 | 0.090808 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 95 | 0.04525 | 0.01476745 | 0.07573246 | -0.007192 | 0.097692 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 96 | 0.046457 | 0.01636694 | 0.07654765 | -0.00531 | 0.0982247 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 97 | 0.039354 | 0.00866172 | 0.07004628 | -0.013449 | 0.0921569 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 98 | 0.031774 | 0.00164977 | 0.06189922 | -0.020052 | 0.083601 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 99 | 0.031397 | -0.000122 | 0.06291567 | -0.022828 | 0.0856217 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 100 | 0.036203 | 0.00666182 | 0.06574421 | -0.01462 | 0.0870256 | ns |
| Baseline | 8C | N/A | PriorITI | 3 | 101 | 0.041269 | -0.0001961 | 0.08273442 | -0.030068 | 0.1126059 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 1 | 0.034185 | 0.02591594 | 0.04245311 | 0.020065 | 0.048304 | * |
| Baseline | 8D | N/A | DSduration | 4 | 2 | 0.089329 | 0.07632552 | 0.10233262 | 0.0671241 | 0.111534 | * |
| Baseline | 8D | N/A | DSduration | 4 | 3 | 0.108563 | 0.09278782 | 0.12433885 | 0.081625 | 0.1355017 | * |
| Baseline | 8D | N/A | DSduration | 4 | 4 | 0.087933 | 0.0701203 | 0.10574538 | 0.057516 | 0.1183496 | * |
| Baseline | 8D | N/A | DSduration | 4 | 5 | 0.056784 | 0.03700853 | 0.07655877 | 0.0230156 | 0.0905517 | * |
| Baseline | 8D | N/A | DSduration | 4 | 6 | 0.04061 | 0.01940276 | 0.06181667 | 0.0043966 | 0.0768228 | * |
| Baseline | 8D | N/A | DSduration | 4 | 7 | 0.038172 | 0.01610935 | 0.06023392 | 0.000498 | 0.0758453 | * |
| Baseline | 8D | N/A | DSduration | 4 | 8 | 0.035944 | 0.01389132 | 0.05799752 | -0.001714 | 0.0736024 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 9 | 0.02932 | 0.0072166 | 0.05142384 | -0.008424 | 0.0670645 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 10 | 0.024182 | 0.00217403 | 0.04619043 | -0.013399 | 0.0617635 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 11 | 0.026849 | 0.00468137 | 0.04901716 | -0.011005 | 0.0647033 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 12 | 0.037525 | 0.01525297 | 0.05979681 | -0.000507 | 0.0755565 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 13 | 0.049584 | 0.02692773 | 0.07223996 | 0.0108962 | 0.0882715 | * |
| Baseline | 8D | N/A | DSduration | 4 | 14 | 0.054594 | 0.03177732 | 0.07741068 | 0.0156321 | 0.0935559 | * |
| Baseline | 8D | N/A | DSduration | 4 | 15 | 0.051798 | 0.02889326 | 0.07470304 | 0.0126856 | 0.0909107 | * |
| Baseline | 8D | N/A | DSduration | 4 | 16 | 0.050489 | 0.02780017 | 0.07317847 | 0.0117452 | 0.0892334 | * |
| Baseline | 8D | N/A | DSduration | 4 | 17 | 0.058069 | 0.03530592 | 0.08083263 | 0.0191985 | 0.0969401 | * |
| Baseline | 8D | N/A | DSduration | 4 | 18 | 0.06958 | 0.04657846 | 0.09258137 | 0.0303025 | 0.1088573 | * |
| Baseline | 8D | N/A | DSduration | 4 | 19 | 0.075659 | 0.05219975 | 0.0991179 | 0.0356 | 0.1157177 | * |
| Baseline | 8D | N/A | DSduration | 4 | 20 | 0.075802 | 0.05210412 | 0.09949923 | 0.0353356 | 0.1162677 | * |
| Baseline | 8D | N/A | DSduration | 4 | 21 | 0.074484 | 0.05059048 | 0.09837781 | 0.0336832 | 0.1152851 | * |
| Baseline | 8D | N/A | DSduration | 4 | 22 | 0.069429 | 0.04571094 | 0.09314722 | 0.0289279 | 0.1099303 | * |
| Baseline | 8D | N/A | DSduration | 4 | 23 | 0.056761 | 0.03320421 | 0.08031809 | 0.0165352 | 0.0969871 | * |
| Baseline | 8D | N/A | DSduration | 4 | 24 | 0.044908 | 0.02153948 | 0.06827584 | 0.005004 | 0.0848113 | * |
| Baseline | 8D | N/A | DSduration | 4 | 25 | 0.047676 | 0.02402053 | 0.07133117 | 0.0072819 | 0.0880698 | * |
| Baseline | 8D | N/A | DSduration | 4 | 26 | 0.062251 | 0.03805282 | 0.08644974 | 0.0209299 | 0.1035727 | * |
| Baseline | 8D | N/A | DSduration | 4 | 27 | 0.069879 | 0.04499414 | 0.09476479 | 0.0273852 | 0.1123738 | * |
| Baseline | 8D | N/A | DSduration | 4 | 28 | 0.063054 | 0.03793301 | 0.08817469 | 0.0201574 | 0.1059503 | * |
| Baseline | 8D | N/A | DSduration | 4 | 29 | 0.056688 | 0.03157737 | 0.08179923 | 0.0138088 | 0.0995679 | * |
| Baseline | 8D | N/A | DSduration | 4 | 30 | 0.064061 | 0.03925703 | 0.08886477 | 0.0217057 | 0.1064161 | * |
| Baseline | 8D | N/A | DSduration | 4 | 31 | 0.075487 | 0.0507069 | 0.10026774 | 0.0331721 | 0.1178025 | * |
| Baseline | 8D | N/A | DSduration | 4 | 32 | 0.073031 | 0.04825283 | 0.09780944 | 0.0307196 | 0.1153427 | * |
| Baseline | 8D | N/A | DSduration | 4 | 33 | 0.056659 | 0.03185224 | 0.08146601 | 0.0142988 | 0.0990195 | * |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Baseline | 8D | N/A | DSduration | 4 | 34 | 0.042114 | 0.01751898 | 0.0667097 | 0.0001152 | 0.0841135 | * |
| Baseline | 8D | N/A | DSduration | 4 | 35 | 0.038186 | 0.0134684 | 0.06290402 | -0.004022 | 0.0803945 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 36 | 0.039336 | 0.01440928 | 0.06426248 | -0.003229 | 0.0819007 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 37 | 0.039127 | 0.01386922 | 0.06438403 | -0.004003 | 0.0822563 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 38 | 0.039114 | 0.01362099 | 0.06460649 | -0.004418 | 0.0826453 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 39 | 0.042803 | 0.01681644 | 0.06878984 | -0.001572 | 0.0871782 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 40 | 0.049341 | 0.02295767 | 0.07572365 | 0.0042889 | 0.0943924 | * |
| Baseline | 8D | N/A | DSduration | 4 | 41 | 0.055857 | 0.02908732 | 0.08262669 | 0.010145 | 0.1015691 | * |
| Baseline | 8D | N/A | DSduration | 4 | 42 | 0.060632 | 0.03380435 | 0.08746018 | 0.0148208 | 0.1064438 | * |
| Baseline | 8D | N/A | DSduration | 4 | 43 | 0.061932 | 0.03495179 | 0.0889132 | 0.0158601 | 0.1080049 | * |
| Baseline | 8D | N/A | DSduration | 4 | 44 | 0.057578 | 0.03065147 | 0.08450443 | 0.0115982 | 0.1035577 | * |
| Baseline | 8D | N/A | DSduration | 4 | 45 | 0.047577 | 0.02065013 | 0.07450421 | 0.0015964 | 0.0935579 | * |
| Baseline | 8D | N/A | DSduration | 4 | 46 | 0.035598 | 0.00878982 | 0.06240536 | -0.01018 | 0.0813747 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 47 | 0.027352 | 0.0004464 | 0.05425755 | -0.018592 | 0.0732961 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 48 | 0.027474 | 0.0006608 | 0.05428734 | -0.018312 | 0.0732606 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 49 | 0.035708 | 0.00878141 | 0.0626352 | -0.010272 | 0.0816888 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 50 | 0.045487 | 0.01841648 | 0.07255783 | -0.000739 | 0.0917132 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 51 | 0.049691 | 0.02234785 | 0.07703326 | 0.003 | 0.0963811 | * |
| Baseline | 8D | N/A | DSduration | 4 | 52 | 0.048957 | 0.0217253 | 0.07618819 | 0.0024562 | 0.0954573 | * |
| Baseline | 8D | N/A | DSduration | 4 | 53 | 0.049934 | 0.02279978 | 0.07706881 | 0.0035993 | 0.0962693 | * |
| Baseline | 8D | N/A | DSduration | 4 | 54 | 0.054103 | 0.02723005 | 0.08097686 | 0.0082143 | 0.0999926 | * |
| Baseline | 8D | N/A | DSduration | 4 | 55 | 0.054822 | 0.02803163 | 0.08161207 | 0.0090747 | 0.100569 | * |
| Baseline | 8D | N/A | DSduration | 4 | 56 | 0.04861 | 0.02206622 | 0.07515358 | 0.0032838 | 0.093936 | * |
| Baseline | 8D | N/A | DSduration | 4 | 57 | 0.041909 | 0.01552829 | 0.06828971 | -0.003139 | 0.0869568 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 58 | 0.040942 | 0.01488423 | 0.06700075 | -0.003555 | 0.0854397 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 59 | 0.041887 | 0.01580941 | 0.06796508 | -0.002643 | 0.0864179 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 60 | 0.038749 | 0.01256427 | 0.06493323 | -0.005964 | 0.0834615 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 61 | 0.034697 | 0.00822676 | 0.06116693 | -0.010504 | 0.0798973 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 62 | 0.035943 | 0.00933251 | 0.06255337 | -0.009497 | 0.081383 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 63 | 0.039194 | 0.01223299 | 0.06615483 | -0.006845 | 0.0852325 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 64 | 0.036521 | 0.00944476 | 0.06359724 | -0.009715 | 0.0827565 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 65 | 0.030133 | 0.00283274 | 0.05743405 | -0.016485 | 0.0767521 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 66 | 0.030263 | 0.00289694 | 0.05762919 | -0.016467 | 0.0769936 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 67 | 0.038657 | 0.01112607 | 0.06618878 | -0.008355 | 0.0856701 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 68 | 0.046292 | 0.01896804 | 0.0736156 | -0.000366 | 0.09295 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 69 | 0.04909 | 0.02193659 | 0.07624349 | 0.0027227 | 0.0954574 | * |
| Baseline | 8D | N/A | DSduration | 4 | 70 | 0.05348 | 0.02658177 | 0.08037887 | 0.0075482 | 0.0994124 | * |
| Baseline | 8D | N/A | DSduration | 4 | 71 | 0.062024 | 0.03504603 | 0.08900184 | 0.0159563 | 0.1080915 | * |
| Baseline | 8D | N/A | DSduration | 4 | 72 | 0.065504 | 0.038561 | 0.09244646 | 0.0194962 | 0.1115113 | * |
| Baseline | 8D | N/A | DSduration | 4 | 73 | 0.057054 | 0.0298413 | 0.08426643 | 0.0105855 | 0.1035222 | * |
| Baseline | 8D | N/A | DSduration | 4 | 74 | 0.04488 | 0.0173767 | 0.07238403 | -0.002085 | 0.0918458 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 75 | 0.041369 | 0.01337394 | 0.06936391 | -0.006435 | 0.0891733 | ns |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Baseline | 8D | N/A | DSduration | 4 | 76 | 0.045611 | 0.01760242 | 0.0736198 | -0.002217 | 0.0934389 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 77 | 0.046537 | 0.01857689 | 0.07449725 | -0.001208 | 0.094282 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 78 | 0.039792 | 0.01212538 | 0.06745925 | -0.007452 | 0.0870365 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 79 | 0.031675 | 0.00395516 | 0.05939573 | -0.01566 | 0.0790107 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 80 | 0.027348 | -0.0003164 | 0.05501161 | -0.019892 | 0.0745868 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 81 | 0.024461 | -0.0034113 | 0.05233425 | -0.023134 | 0.0720572 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 82 | 0.020372 | -0.0075739 | 0.04831879 | -0.027349 | 0.0680938 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 83 | 0.018212 | -0.0100967 | 0.04652023 | -0.030128 | 0.0665514 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 84 | 0.021622 | -0.0068352 | 0.05007908 | -0.026972 | 0.0702155 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 85 | 0.027636 | -0.0013205 | 0.05659196 | -0.02181 | 0.0770815 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 86 | 0.029187 | 0.0001808 | 0.0581929 | -0.020344 | 0.0787177 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 87 | 0.023442 | -0.0055084 | 0.05239206 | -0.025994 | 0.0728774 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 88 | 0.014621 | -0.0138091 | 0.04305066 | -0.033926 | 0.0631678 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 89 | 0.008591 | -0.0197557 | 0.03693675 | -0.039814 | 0.0569947 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 90 | 0.006773 | -0.0213945 | 0.03494084 | -0.041326 | 0.0548724 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 91 | 0.006309 | -0.0219385 | 0.03455671 | -0.041927 | 0.0545449 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 92 | 0.004845 | -0.0230304 | 0.03272117 | -0.042755 | 0.0524462 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 93 | 0.003027 | -0.024971 | 0.03102501 | -0.044783 | 0.0508366 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 94 | 0.002206 | -0.0256346 | 0.03004685 | -0.045335 | 0.0497471 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 95 | 0.00247 | -0.025655 | 0.03059514 | -0.045556 | 0.0504966 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 96 | 0.004676 | -0.0231613 | 0.03251293 | -0.042859 | 0.0522106 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 97 | 0.011454 | -0.0168454 | 0.03975412 | -0.03687 | 0.0597792 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 98 | 0.02221 | -0.0057486 | 0.0501681 | -0.025532 | 0.0699516 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 99 | 0.028949 | -0.0001717 | 0.05807029 | -0.020778 | 0.0786765 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 100 | 0.022845 | -0.0045048 | 0.05019444 | -0.023858 | 0.0695472 | ns |
| Baseline | 8D | N/A | DSduration | 4 | 101 | 0.005365 | -0.0334063 | 0.04413634 | -0.060841 | 0.0715711 | ns |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 1 | 0.003515 | -0.0053144 | 0.0123443 | -0.011691 | 0.0187206 | ns |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 2 | -0.0121 | -0.0278805 | 0.00367046 | -0.039273 | 0.0150631 | ns |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 3 | -0.03189 | -0.0501045 | -0.0136761 | -0.063258 | -0.0005222 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 4 | -0.05793 | -0.0799869 | -0.035876 | -0.095915 | -0.0199482 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 5 | -0.0862 | -0.1109954 | -0.0613983 | -0.128904 | -0.0434895 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 6 | -0.10825 | -0.1356182 | -0.0808816 | -0.155383 | -0.0611169 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 7 | -0.11991 | -0.1490196 | -0.0908075 | -0.170039 | -0.0697879 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 8 | -0.12598 | -0.1557276 | -0.0962292 | -0.177212 | -0.0747451 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 9 | -0.13312 | -0.1633394 | -0.1028968 | -0.185164 | -0.0810718 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 10 | -0.14066 | -0.1707431 | -0.1105731 | -0.19247 | -0.0888465 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 11 | -0.14316 | -0.1735551 | -0.1127563 | -0.195509 | -0.0908027 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 12 | -0.14027 | -0.1706301 | -0.1099144 | -0.192554 | -0.0879908 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 13 | -0.13741 | -0.1681042 | -0.10671 | -0.190273 | -0.0845414 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 14 | -0.13619 | -0.166872 | -0.1055045 | -0.189031 | -0.0833455 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 15 | -0.1319 | -0.1627939 | -0.1010154 | -0.185101 | -0.078708 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 16 | -0.12375 | -0.1543222 | -0.0931685 | -0.176404 | -0.0710868 | * |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8E [left] | Air | DSLatency | 2 | 17 | -0.12045 | -0.1510506 | -0.0898536 | -0.173148 | -0.0677561 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 18 | -0.1289 | -0.1594682 | -0.0983252 | -0.181546 | -0.0762473 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 19 | -0.14129 | -0.1724122 | -0.110174 | -0.194886 | -0.0877006 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 20 | -0.1425 | -0.1739191 | -0.111089 | -0.196606 | -0.0884019 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 21 | -0.12967 | -0.161514 | -0.0978164 | -0.184514 | -0.0748161 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 22 | -0.11618 | -0.1480319 | -0.0843309 | -0.171033 | -0.0613294 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 23 | -0.11355 | -0.145705 | -0.0813955 | -0.168926 | -0.0581743 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 24 | -0.1165 | -0.1486812 | -0.084327 | -0.171919 | -0.0610897 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 25 | -0.11214 | -0.1446579 | -0.0796162 | -0.168144 | -0.0561305 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 26 | -0.09951 | -0.1320758 | -0.0669491 | -0.155592 | -0.0434327 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 27 | -0.09228 | -0.1251112 | -0.0594418 | -0.148823 | -0.0357295 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 28 | -0.10118 | -0.133917 | -0.0684427 | -0.157559 | -0.0448008 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 29 | -0.12019 | -0.1531528 | -0.0872197 | -0.17696 | -0.0634121 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 30 | -0.1335 | -0.1663887 | -0.1006034 | -0.190143 | -0.0768493 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 31 | -0.1332 | -0.1662783 | -0.100117 | -0.190168 | -0.0762271 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 32 | -0.12563 | -0.158499 | -0.0927686 | -0.182233 | -0.0690342 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 33 | -0.12103 | -0.1540178 | -0.0880384 | -0.177842 | -0.0642142 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 34 | -0.12156 | -0.1545138 | -0.0885968 | -0.178316 | -0.064795 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 35 | -0.12226 | -0.1555959 | -0.0889331 | -0.179667 | -0.0648621 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 36 | -0.12074 | -0.1541509 | -0.0873335 | -0.178278 | -0.0632067 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 37 | -0.12055 | -0.1542793 | -0.0868254 | -0.178636 | -0.0624688 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 38 | -0.1241 | -0.1576769 | -0.0905317 | -0.181922 | -0.0662865 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 39 | -0.12689 | -0.1604836 | -0.0932988 | -0.184743 | -0.0690392 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 40 | -0.12309 | -0.1563968 | -0.0897905 | -0.180447 | -0.0657398 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 41 | -0.11477 | -0.1482192 | -0.0813283 | -0.172373 | -0.0571749 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 42 | -0.11027 | -0.1436977 | -0.0768324 | -0.167842 | -0.0526883 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 43 | -0.1132 | -0.1470452 | -0.0793646 | -0.171484 | -0.0549261 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 44 | -0.11825 | -0.1521639 | -0.0843331 | -0.176657 | -0.0598403 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 45 | -0.11958 | -0.1537218 | -0.0854307 | -0.178381 | -0.0607717 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 46 | -0.11885 | -0.1527037 | -0.0849866 | -0.177155 | -0.0605349 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 47 | -0.12095 | -0.154732 | -0.0871587 | -0.179132 | -0.0627589 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 48 | -0.1256 | -0.1591228 | -0.0920834 | -0.18333 | -0.0678764 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 49 | -0.12842 | -0.1622118 | -0.0946276 | -0.186616 | -0.0702239 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 50 | -0.12841 | -0.1623334 | -0.0944896 | -0.186831 | -0.0699921 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 51 | -0.12914 | -0.1635444 | -0.0947412 | -0.188388 | -0.0698973 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 52 | -0.13282 | -0.1672586 | -0.0983731 | -0.192132 | -0.0734996 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 53 | -0.13815 | -0.1728193 | -0.103483 | -0.197856 | -0.0784467 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 54 | -0.14401 | -0.1784757 | -0.1095437 | -0.203366 | -0.0846533 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 55 | -0.14987 | -0.1843843 | -0.1153588 | -0.209308 | -0.0904347 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 56 | -0.15239 | -0.1865227 | -0.1182608 | -0.211171 | -0.0936123 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 57 | -0.14768 | -0.1817513 | -0.1136179 | -0.206353 | -0.0890159 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 58 | -0.13878 | -0.1725371 | -0.1050242 | -0.196915 | -0.0806463 | * |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8E [left] | Air | DSLatency | 2 | 59 | -0.13416 | -0.1679809 | -0.1003407 | -0.192405 | -0.0759168 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 60 | -0.13541 | -0.1690501 | -0.1017735 | -0.193343 | -0.0774808 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 61 | -0.13315 | -0.1671533 | -0.0991527 | -0.191707 | -0.0745986 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 62 | -0.12097 | -0.1551101 | -0.08682 | -0.179769 | -0.0621613 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 63 | -0.10724 | -0.1418002 | -0.0726711 | -0.166762 | -0.0477096 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 64 | -0.10497 | -0.1395008 | -0.0704478 | -0.164435 | -0.0455137 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 65 | -0.11402 | -0.148762 | -0.0792781 | -0.173852 | -0.0541884 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 66 | -0.12303 | -0.1575482 | -0.0885079 | -0.182478 | -0.0635784 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 67 | -0.12698 | -0.1616466 | -0.0923226 | -0.186679 | -0.0672906 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 68 | -0.13169 | -0.1661999 | -0.0971874 | -0.191119 | -0.0722679 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 69 | -0.14019 | -0.17491 | -0.1054775 | -0.199981 | -0.0804064 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 70 | -0.14649 | -0.1809518 | -0.112023 | -0.205841 | -0.0871337 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 71 | -0.1472 | -0.1817448 | -0.112652 | -0.206693 | -0.0877036 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 72 | -0.14901 | -0.1833581 | -0.1146625 | -0.208163 | -0.0898574 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 73 | -0.15732 | -0.191946 | -0.1226922 | -0.216953 | -0.0976855 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 74 | -0.16574 | -0.2002461 | -0.1312303 | -0.225167 | -0.1063096 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 75 | -0.16555 | -0.2002992 | -0.1307962 | -0.225396 | -0.1056997 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 76 | -0.15933 | -0.1939417 | -0.1247236 | -0.218935 | -0.09973 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 77 | -0.15574 | -0.1907466 | -0.1207315 | -0.216028 | -0.0954501 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 78 | -0.15539 | -0.1904406 | -0.1203328 | -0.215756 | -0.0950179 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 79 | -0.1525 | -0.1879975 | -0.117007 | -0.213631 | -0.0913734 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 80 | -0.14767 | -0.1830286 | -0.112311 | -0.208564 | -0.0867758 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 81 | -0.14752 | -0.1831079 | -0.1119229 | -0.208812 | -0.0862189 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 82 | -0.15202 | -0.1874033 | -0.1166338 | -0.212957 | -0.0910799 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 83 | -0.15328 | -0.1890338 | -0.1175224 | -0.214856 | -0.0917006 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 84 | -0.14861 | -0.1841881 | -0.1130371 | -0.20988 | -0.0873455 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 85 | -0.14465 | -0.1803709 | -0.1089366 | -0.206165 | -0.0831426 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 86 | -0.1458 | -0.1809985 | -0.110601 | -0.206418 | -0.0851814 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 87 | -0.14864 | -0.1839811 | -0.1132976 | -0.209504 | -0.0877748 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 88 | -0.15116 | -0.1863931 | -0.1159307 | -0.211836 | -0.0904878 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 89 | -0.15656 | -0.1924632 | -0.1206514 | -0.218393 | -0.0947211 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 90 | -0.16259 | -0.1983215 | -0.1268671 | -0.224123 | -0.1010659 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 91 | -0.15899 | -0.1948718 | -0.1231099 | -0.220784 | -0.0971977 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 92 | -0.1442 | -0.1794455 | -0.1089508 | -0.2049 | -0.0834961 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 93 | -0.13417 | -0.1697877 | -0.098548 | -0.195511 | -0.0728244 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 94 | -0.14227 | -0.1775874 | -0.1069528 | -0.203093 | -0.0814476 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 95 | -0.15853 | -0.194562 | -0.1224882 | -0.220587 | -0.0964633 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 96 | -0.16297 | -0.1985153 | -0.1274191 | -0.224187 | -0.1017473 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 97 | -0.1541 | -0.1905308 | -0.1176725 | -0.216839 | -0.0913644 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 98 | -0.14794 | -0.183234 | -0.1126394 | -0.208725 | -0.0871486 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 99 | -0.15119 | -0.1880068 | -0.1143748 | -0.214594 | -0.0877873 | * |
| VaporWD | 8E [left] | Air | DSLatency | 2 | 100 | -0.15347 | -0.188115 | -0.1188316 | -0.213132 | -0.0938144 | * |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8E [left] | Air | DSLatency | 2 | 101 | -0.14805 | -0.1965503 | -0.0995403 | -0.231579 | -0.0645114 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 1 | -0.00393 | -0.0121543 | 0.0042919 | -0.01794 | 0.0100773 | ns |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 2 | -0.02416 | -0.0367744 | -0.0115381 | -0.045652 | -0.0026605 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 3 | -0.04037 | -0.0564589 | -0.0242846 | -0.067777 | -0.0129664 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 4 | -0.0529 | -0.0718136 | -0.0339797 | -0.085123 | -0.0206706 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 5 | -0.06751 | -0.0889148 | -0.0460959 | -0.103978 | -0.0310331 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 6 | -0.08891 | -0.1124923 | -0.0653264 | -0.129084 | -0.0487345 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 7 | -0.11319 | -0.1382928 | -0.0880923 | -0.155952 | -0.0704328 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 8 | -0.13016 | -0.1559079 | -0.1044199 | -0.17402 | -0.0863075 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 9 | -0.13447 | -0.1605152 | -0.1084224 | -0.17884 | -0.0900972 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 10 | -0.13109 | -0.1571136 | -0.1050607 | -0.175425 | -0.0867496 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 11 | -0.12823 | -0.1544073 | -0.1020483 | -0.172826 | -0.0836296 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 12 | -0.129 | -0.1552576 | -0.1027378 | -0.173733 | -0.0842625 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 13 | -0.13314 | -0.1595926 | -0.1066973 | -0.1782 | -0.0880899 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 14 | -0.14228 | -0.1687899 | -0.1157634 | -0.187444 | -0.0971098 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 15 | -0.15747 | -0.1840502 | -0.1308993 | -0.202748 | -0.112202 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 16 | -0.17431 | -0.2007234 | -0.1478939 | -0.219308 | -0.1293096 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 17 | -0.1867 | -0.2130539 | -0.1603507 | -0.231594 | -0.1418108 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 18 | -0.19508 | -0.2214945 | -0.1686691 | -0.240077 | -0.1500863 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 19 | -0.20463 | -0.231416 | -0.1778537 | -0.250258 | -0.1590117 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 20 | -0.21535 | -0.2424751 | -0.1882171 | -0.261562 | -0.1691302 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 21 | -0.22021 | -0.2476372 | -0.1927749 | -0.266937 | -0.1734755 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 22 | -0.21553 | -0.2430628 | -0.1880008 | -0.262432 | -0.1686311 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 23 | -0.20794 | -0.2356206 | -0.1802519 | -0.255098 | -0.1607744 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 24 | -0.20766 | -0.2354507 | -0.179879 | -0.255 | -0.16033 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 25 | -0.21788 | -0.2458831 | -0.189878 | -0.265584 | -0.1701766 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 26 | -0.23295 | -0.2610873 | -0.2048055 | -0.280886 | -0.1850068 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 27 | -0.24502 | -0.2733035 | -0.2167352 | -0.293203 | -0.1968356 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 28 | -0.25063 | -0.2789182 | -0.2223375 | -0.298822 | -0.2024335 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 29 | -0.25287 | -0.2812599 | -0.2244851 | -0.301232 | -0.204513 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 30 | -0.25822 | -0.2866389 | -0.2298059 | -0.306632 | -0.2098133 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 31 | -0.26878 | -0.2972566 | -0.2402982 | -0.317293 | -0.2202615 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 32 | -0.27735 | -0.3057383 | -0.2489576 | -0.325713 | -0.2289833 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 33 | -0.27397 | -0.3023756 | -0.2455656 | -0.32236 | -0.225581 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 34 | -0.25858 | -0.2870451 | -0.2301101 | -0.307074 | -0.2100816 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 35 | -0.24294 | -0.2716432 | -0.2142431 | -0.291835 | -0.1940509 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 36 | -0.23762 | -0.2664911 | -0.2087576 | -0.2868 | -0.1884482 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 37 | -0.2411 | -0.2701413 | -0.2120593 | -0.290573 | -0.1916273 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 38 | -0.24525 | -0.2742441 | -0.2162477 | -0.294646 | -0.1958458 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 39 | -0.24741 | -0.276329 | -0.218482 | -0.296678 | -0.1981327 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 40 | -0.25158 | -0.2803494 | -0.2228016 | -0.300594 | -0.2025575 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 41 | -0.25984 | -0.2886384 | -0.2310323 | -0.308903 | -0.2107676 | * |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 42 | -0.26887 | -0.2977554 | -0.2399847 | -0.318078 | -0.2196623 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 43 | -0.27542 | -0.3045591 | -0.2462885 | -0.325057 | -0.2257901 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 44 | -0.27999 | -0.3092847 | -0.2506994 | -0.329894 | -0.2300903 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 45 | -0.28305 | -0.3124507 | -0.2536571 | -0.333133 | -0.2329747 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 46 | -0.28145 | -0.3106967 | -0.2522074 | -0.331272 | -0.2316321 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 47 | -0.27202 | -0.3011141 | -0.2429353 | -0.32158 | -0.2224693 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 48 | -0.25783 | -0.2867855 | -0.2288687 | -0.307159 | -0.2084948 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 49 | -0.24775 | -0.2768448 | -0.2186457 | -0.297318 | -0.1981725 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 50 | -0.24834 | -0.2776437 | -0.2190298 | -0.298263 | -0.1984107 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 51 | -0.25637 | -0.285983 | -0.2267575 | -0.306817 | -0.2059233 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 52 | -0.26107 | -0.2908176 | -0.2313228 | -0.311747 | -0.2103938 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 53 | -0.25534 | -0.2851901 | -0.2254837 | -0.306194 | -0.2044803 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 54 | -0.24411 | -0.2739 | -0.2143242 | -0.294858 | -0.1933666 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 55 | -0.23931 | -0.269027 | -0.2095866 | -0.289937 | -0.1886767 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 56 | -0.24644 | -0.2759267 | -0.2169616 | -0.296669 | -0.1962189 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 57 | -0.25943 | -0.2887501 | -0.2301082 | -0.309379 | -0.2094793 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 58 | -0.26929 | -0.2984342 | -0.2401413 | -0.31894 | -0.2196351 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 59 | -0.27378 | -0.3028755 | -0.2446758 | -0.323349 | -0.2242024 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 60 | -0.27545 | -0.3045045 | -0.2463981 | -0.324945 | -0.2259575 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 61 | -0.27456 | -0.3038166 | -0.2452963 | -0.324403 | -0.2247101 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 62 | -0.26958 | -0.2990699 | -0.2400928 | -0.319817 | -0.2193459 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 63 | -0.26319 | -0.2929484 | -0.2334385 | -0.313883 | -0.2125041 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 64 | -0.2612 | -0.2910317 | -0.231365 | -0.312021 | -0.2103755 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 65 | -0.26452 | -0.2944236 | -0.23461 | -0.315465 | -0.2135688 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 66 | -0.26711 | -0.2969358 | -0.2372879 | -0.317919 | -0.216305 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 67 | -0.26392 | -0.2937632 | -0.2340841 | -0.314757 | -0.2130903 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 68 | -0.25722 | -0.2870355 | -0.2274029 | -0.308013 | -0.2064254 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 69 | -0.25293 | -0.2828052 | -0.2230477 | -0.303827 | -0.2020262 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 70 | -0.25365 | -0.2834243 | -0.2238826 | -0.30437 | -0.2029371 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 71 | -0.25755 | -0.287273 | -0.2278186 | -0.308188 | -0.2069038 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 72 | -0.26146 | -0.2911311 | -0.2317899 | -0.312006 | -0.2109149 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 73 | -0.26292 | -0.2927101 | -0.2331295 | -0.313669 | -0.2121703 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 74 | -0.26138 | -0.291185 | -0.2315691 | -0.312157 | -0.2105975 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 75 | -0.26059 | -0.2904807 | -0.2306937 | -0.311513 | -0.2096618 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 76 | -0.26793 | -0.2978354 | -0.2380231 | -0.318876 | -0.2169824 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 77 | -0.28743 | -0.3175545 | -0.257298 | -0.338751 | -0.2361011 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 78 | -0.31311 | -0.3434157 | -0.2828119 | -0.364735 | -0.2614928 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 79 | -0.33221 | -0.3627527 | -0.3016753 | -0.384238 | -0.2801895 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 80 | -0.33629 | -0.3668464 | -0.3057392 | -0.388343 | -0.284243 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 81 | -0.32823 | -0.3588528 | -0.2976022 | -0.380399 | -0.2760556 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 82 | -0.31759 | -0.3481981 | -0.2869803 | -0.369733 | -0.2654452 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 83 | -0.31036 | -0.341137 | -0.2795906 | -0.362788 | -0.2579399 | * |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 84 | -0.3045 | -0.3352523 | -0.2737491 | -0.356888 | -0.2521136 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 85 | -0.29535 | -0.3260584 | -0.264638 | -0.347665 | -0.2430316 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 86 | -0.2837 | -0.3141369 | -0.253256 | -0.335554 | -0.2318394 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 87 | -0.27622 | -0.3066354 | -0.2458127 | -0.328032 | -0.2244166 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 88 | -0.27737 | -0.3078523 | -0.2468816 | -0.329301 | -0.2254333 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 89 | -0.28304 | -0.3138935 | -0.2521797 | -0.335603 | -0.2304702 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 90 | -0.28527 | -0.3161653 | -0.2543751 | -0.337902 | -0.2326386 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 91 | -0.28247 | -0.3133139 | -0.2516305 | -0.335013 | -0.2299316 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 92 | -0.28126 | -0.3117854 | -0.2507258 | -0.333265 | -0.2292463 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 93 | -0.2866 | -0.3171953 | -0.2560069 | -0.33872 | -0.2344822 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 94 | -0.29348 | -0.3240817 | -0.2628839 | -0.34561 | -0.2413558 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 95 | -0.29174 | -0.3226529 | -0.2608198 | -0.344404 | -0.2390683 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 96 | -0.27802 | -0.3088906 | -0.247146 | -0.330611 | -0.2254255 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 97 | -0.25938 | -0.2905741 | -0.2281874 | -0.31252 | -0.2062411 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 98 | -0.24474 | -0.2758984 | -0.2135775 | -0.297822 | -0.1916543 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 99 | -0.23601 | -0.2677014 | -0.20431 | -0.290001 | -0.1820102 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 100 | -0.22919 | -0.2596551 | -0.1987181 | -0.281091 | -0.1772817 | * |
| VaporWD | 8E [left] | EtOH | DSLatency | 2 | 101 | -0.22144 | -0.2659613 | -0.1769167 | -0.297285 | -0.1455927 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 1 | -0.00757 | -0.019401 | 0.00427041 | -0.027861 | 0.0127303 | ns |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 2 | -0.01226 | -0.0316685 | 0.00714709 | -0.045541 | 0.0210193 | ns |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 3 | -0.00828 | -0.0322914 | 0.01572274 | -0.049451 | 0.0328824 | ns |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 4 | 0.005746 | -0.022639 | 0.03413201 | -0.042928 | 0.0544213 | ns |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 5 | 0.019201 | -0.0129617 | 0.05136345 | -0.035951 | 0.0743525 | ns |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 6 | 0.018995 | -0.0164546 | 0.05444486 | -0.041793 | 0.0797835 | ns |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 7 | 0.005888 | -0.0318453 | 0.04362173 | -0.058816 | 0.0705928 | ns |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 8 | -0.00464 | -0.0432939 | 0.03400558 | -0.07092 | 0.0616315 | ns |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 9 | -0.00132 | -0.0404745 | 0.03784347 | -0.068464 | 0.0658334 | ns |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 10 | 0.00954 | -0.0295426 | 0.04862181 | -0.057478 | 0.0765569 | ns |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 11 | 0.014796 | -0.0245739 | 0.05416684 | -0.052715 | 0.0823079 | ns |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 12 | 0.011645 | -0.0277951 | 0.0510849 | -0.055986 | 0.0792757 | ns |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 13 | 0.005018 | -0.0347527 | 0.04478938 | -0.06318 | 0.0732168 | ns |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 14 | -0.00604 | -0.045879 | 0.03380318 | -0.074356 | 0.0622807 | ns |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 15 | -0.02646 | -0.0664496 | 0.01352118 | -0.09503 | 0.0421018 | ns |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 16 | -0.0509 | -0.0905867 | -0.0112039 | -0.118957 | 0.0171666 | ns |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 17 | -0.06497 | -0.1045901 | -0.0253458 | -0.132911 | 0.0029753 | ns |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 18 | -0.06482 | -0.104492 | -0.0251406 | -0.132851 | 0.0032186 | ns |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 19 | -0.06413 | -0.1044069 | -0.0238571 | -0.133194 | 0.0049304 | ns |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 20 | -0.07522 | -0.1159852 | -0.0344627 | -0.14512 | -0.0053275 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 21 | -0.09156 | -0.1328058 | -0.0503184 | -0.162286 | -0.0208383 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 22 | -0.09784 | -0.1391964 | -0.056488 | -0.168755 | -0.026929 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 23 | -0.0926 | -0.1342364 | -0.0509648 | -0.163997 | -0.0212045 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 24 | -0.09138 | -0.1331392 | -0.049622 | -0.162987 | -0.0197739 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 25 | -0.10713 | -0.1492446 | -0.0650155 | -0.179347 | -0.034913 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 26 | -0.1337 | -0.1759786 | -0.0914262 | -0.206197 | -0.0612082 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 27 | -0.1516 | -0.1941229 | -0.109074 | -0.224518 | -0.0786785 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 28 | -0.14855 | -0.1910455 | -0.1060556 | -0.22142 | -0.0756812 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 29 | -0.13293 | -0.1756125 | -0.0902468 | -0.206121 | -0.059738 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 30 | -0.12538 | -0.1680697 | -0.0826889 | -0.198584 | -0.0521748 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 31 | -0.13597 | -0.1787929 | -0.0931397 | -0.209404 | -0.0625283 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 32 | -0.1521 | -0.1947553 | -0.1094504 | -0.225242 | -0.0789634 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 33 | -0.15348 | -0.1961907 | -0.1107686 | -0.22672 | -0.0802398 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 34 | -0.13708 | -0.1798533 | -0.0943127 | -0.210425 | -0.0637415 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 35 | -0.11987 | -0.1630219 | -0.0767093 | -0.193869 | -0.0458622 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 36 | -0.11586 | -0.1592295 | -0.0724972 | -0.190227 | -0.0415 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 37 | -0.12032 | -0.1639861 | -0.0766458 | -0.195201 | -0.0454314 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 38 | -0.12184 | -0.1654062 | -0.0782689 | -0.196548 | -0.047127 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 39 | -0.12135 | -0.1648423 | -0.0778621 | -0.195928 | -0.0467763 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 40 | -0.12863 | -0.171855 | -0.0854104 | -0.202749 | -0.0545161 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 41 | -0.14444 | -0.1877435 | -0.1011342 | -0.218697 | -0.070181 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 42 | -0.15788 | -0.2012795 | -0.1144899 | -0.232297 | -0.0834723 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 43 | -0.1621 | -0.2059198 | -0.1182837 | -0.23724 | -0.0869636 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 44 | -0.16221 | -0.2062311 | -0.1181876 | -0.237697 | -0.0867218 | * |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 45 | -0.16398 | -0.2081968 | -0.1197652 | -0.239801 | -0.0881607 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 46 | -0.16291 | -0.206854 | -0.1189686 | -0.238263 | -0.0875594 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 47 | -0.15132 | -0.195061 | -0.107584 | -0.226324 | -0.0763207 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 48 | -0.13217 | -0.1756635 | -0.088671 | -0.206754 | -0.0575809 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 49 | -0.11851 | -0.1622596 | -0.0747677 | -0.193528 | -0.0434991 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 50 | -0.11891 | -0.1629338 | -0.0748857 | -0.194401 | -0.0434183 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 51 | -0.1274 | -0.1719365 | -0.0828679 | -0.203769 | -0.0510357 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 52 | -0.1297 | -0.1744014 | -0.0850019 | -0.206352 | -0.0530515 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 53 | -0.11799 | -0.1628864 | -0.0731019 | -0.194974 | -0.041014 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 54 | -0.09906 | -0.1438099 | -0.0543179 | -0.175793 | -0.0223345 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 55 | -0.08812 | -0.1328076 | -0.0434354 | -0.164748 | -0.0114949 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 56 | -0.09444 | -0.138727 | -0.0501467 | -0.170385 | -0.0184892 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 57 | -0.11293 | -0.1570164 | -0.0688393 | -0.18853 | -0.0373258 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 58 | -0.13024 | -0.1740284 | -0.0864492 | -0.205328 | -0.0551493 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 59 | -0.13834 | -0.1821044 | -0.094585 | -0.213383 | -0.0633066 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 60 | -0.1404 | -0.1840394 | -0.096752 | -0.215235 | -0.0655564 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 61 | -0.14353 | -0.1875307 | -0.0995304 | -0.218981 | -0.06808 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 62 | -0.14937 | -0.1936756 | -0.1050625 | -0.225345 | -0.0733932 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 63 | -0.15386 | -0.1986108 | -0.1091167 | -0.230595 | -0.0771325 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 64 | -0.15411 | -0.1989275 | -0.1092862 | -0.230964 | -0.0772494 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 65 | -0.15117 | -0.1961468 | -0.1061923 | -0.228295 | -0.0740436 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 66 | -0.14611 | -0.1909131 | -0.1012996 | -0.22294 | -0.0692728 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 67 | -0.13729 | -0.1821561 | -0.0924165 | -0.214228 | -0.0603446 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 68 | -0.12436 | -0.1691494 | -0.0795731 | -0.201163 | -0.0475596 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 69 | -0.11239 | -0.1573237 | -0.0674634 | -0.189439 | -0.0353483 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 70 | -0.10784 | -0.1525588 | -0.0631126 | -0.184526 | -0.0311455 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 71 | -0.11023 | -0.154935 | -0.0655311 | -0.186887 | -0.0335792 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 72 | -0.11162 | -0.1561885 | -0.0670472 | -0.188047 | -0.0351892 | * |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 73 | -0.10602 | -0.1508165 | -0.0612152 | -0.182839 | -0.0291927 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 74 | -0.09722 | -0.1419957 | -0.0524379 | -0.174003 | -0.0204309 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 75 | -0.09516 | -0.1401204 | -0.0502063 | -0.172255 | -0.018072 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 76 | -0.10651 | -0.151425 | -0.061587 | -0.183532 | -0.0294799 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 77 | -0.13017 | -0.1754707 | -0.0848642 | -0.207852 | -0.0524825 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 78 | -0.15888 | -0.2043941 | -0.1133655 | -0.236927 | -0.0808329 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 79 | -0.18175 | -0.2276876 | -0.1358191 | -0.26052 | -0.1029864 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 80 | -0.18886 | -0.2347687 | -0.1429606 | -0.26758 | -0.1101495 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 81 | -0.17951 | -0.2255743 | -0.1334522 | -0.258498 | -0.1005289 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 82 | -0.16508 | -0.2110404 | -0.1191115 | -0.243895 | -0.0862572 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 83 | -0.15771 | -0.203989 | -0.1114377 | -0.237066 | -0.078361 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 84 | -0.15642 | -0.2026135 | -0.1102321 | -0.23563 | -0.0772161 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 85 | -0.15066 | -0.1968546 | -0.1044653 | -0.229874 | -0.0714463 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 86 | -0.1376 | -0.1833092 | -0.0918883 | -0.215982 | -0.0592155 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 87 | -0.12682 | -0.1725465 | -0.0810931 | -0.205231 | -0.0484087 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 88 | -0.12513 | -0.1709013 | -0.0793545 | -0.203619 | -0.0466367 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 89 | -0.12668 | -0.1731111 | -0.0802487 | -0.206299 | -0.0470607 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 90 | -0.12487 | -0.171287 | -0.0784595 | -0.204462 | -0.045284 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 91 | -0.12513 | -0.1715351 | -0.0787205 | -0.204706 | -0.0455497 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 92 | -0.13533 | -0.1811654 | -0.0895019 | -0.213925 | -0.0567424 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 93 | -0.14911 | -0.195151 | -0.1030777 | -0.228057 | -0.0701718 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 94 | -0.15093 | -0.1968585 | -0.1049988 | -0.229688 | -0.0721692 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 95 | -0.13656 | -0.1830975 | -0.0900237 | -0.216361 | -0.0567602 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 96 | -0.11738 | -0.1636824 | -0.0710701 | -0.196781 | -0.0379716 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 97 | -0.10364 | -0.1505864 | -0.056684 | -0.184146 | -0.0231243 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 98 | -0.09422 | -0.1405772 | -0.0478544 | -0.173715 | -0.0147164 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 99 | -0.08508 | -0.1328669 | -0.0372924 | -0.167024 | -0.0031352 | * |
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 100 | -0.07742 | -0.1226274 | -0.0322211 | -0.154938 | 8.91E-05 | ns |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8E [right] | Air + EtOH | Vapor X DSlatency | 6 | 101 | -0.07276 | -0.1380838 | -0.0074266 | -0.184779 | 0.0392688 | ns |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 1 | 0.002861 | -0.0007466 | 0.00646846 | -0.003289 | 0.0090105 | ns |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 2 | 0.005886 | 0.00065046 | 0.01112089 | -0.003039 | 0.01481 | ns |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 3 | 0.007966 | 0.00182165 | 0.01410949 | -0.002508 | 0.0184389 | ns |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 4 | 0.009326 | 0.00214822 | 0.016503 | -0.002909 | 0.0215607 | ns |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 5 | 0.011554 | 0.00342221 | 0.01968521 | -0.002308 | 0.0254152 | ns |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 6 | 0.015576 | 0.00667765 | 0.02447513 | 0.000407 | 0.0307458 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 7 | 0.019499 | 0.01005864 | 0.02893863 | 0.0034066 | 0.0355907 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 8 | 0.019906 | 0.01018369 | 0.02962748 | 0.003333 | 0.0364782 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 9 | 0.016041 | 0.00609564 | 0.02598574 | -0.000912 | 0.0329937 | ns |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 10 | 0.011395 | 0.00132199 | 0.02146886 | -0.005776 | 0.0285673 | ns |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 11 | 0.009962 | -0.0002682 | 0.02019218 | -0.007477 | 0.027401 | ns |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 12 | 0.011904 | 0.0015725 | 0.02223506 | -0.005708 | 0.0295152 | ns |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 13 | 0.01424 | 0.00375896 | 0.02472069 | -0.003627 | 0.0321062 | ns |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 14 | 0.014828 | 0.00424448 | 0.02541129 | -0.003213 | 0.032869 | ns |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 15 | 0.01396 | 0.0033607 | 0.02455928 | -0.004108 | 0.0320282 | ns |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 16 | 0.012727 | 0.00227273 | 0.02318129 | -0.005094 | 0.030548 | ns |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 17 | 0.011962 | 0.00165377 | 0.02226941 | -0.00561 | 0.029533 | ns |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 18 | 0.012877 | 0.00263486 | 0.02312007 | -0.004583 | 0.0303377 | ns |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 19 | 0.016743 | 0.00641265 | 0.0270737 | -0.000867 | 0.0343533 | ns |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 20 | 0.023065 | 0.01262821 | 0.0335027 | 0.0052735 | 0.0408575 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 21 | 0.029203 | 0.01864181 | 0.0397646 | 0.0111996 | 0.0472068 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 22 | 0.032506 | 0.02182223 | 0.04318913 | 0.014294 | 0.0507174 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 23 | 0.0324 | 0.02152929 | 0.04327074 | 0.0138691 | 0.050931 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 24 | 0.030426 | 0.01943568 | 0.04141611 | 0.0116913 | 0.0491605 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 25 | 0.028927 | 0.01790642 | 0.03994815 | 0.0101404 | 0.0477142 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 26 | 0.029423 | 0.01846444 | 0.04038139 | 0.0107424 | 0.0481034 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 27 | 0.031261 | 0.0203409 | 0.04218119 | 0.0126459 | 0.0498762 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 28 | 0.032144 | 0.02125506 | 0.04303249 | 0.0135822 | 0.0507054 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 29 | 0.030993 | 0.02007818 | 0.04190861 | 0.0123866 | 0.0496002 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 30 | 0.029676 | 0.01874094 | 0.04061119 | 0.0110353 | 0.0483168 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 31 | 0.030391 | 0.01941026 | 0.0413715 | 0.0116726 | 0.0491092 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 32 | 0.032164 | 0.02118709 | 0.04314066 | 0.0134521 | 0.0508756 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 33 | 0.032372 | 0.02136644 | 0.04337855 | 0.0136109 | 0.0511341 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 34 | 0.031485 | 0.02044023 | 0.0425306 | 0.0126571 | 0.0503138 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 35 | 0.033082 | 0.02196666 | 0.0441983 | 0.0141337 | 0.0520312 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 36 | 0.038197 | 0.02704207 | 0.0493515 | 0.0191817 | 0.0572118 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 37 | 0.042759 | 0.0315561 | 0.05396265 | 0.0236615 | 0.0618572 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 38 | 0.042752 | 0.03157862 | 0.05392525 | 0.0237052 | 0.0617987 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 39 | 0.039488 | 0.02836656 | 0.05060967 | 0.0205296 | 0.0584466 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 40 | 0.037188 | 0.02612002 | 0.0482564 | 0.0183207 | 0.0560558 | * |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 41 | 0.037134 | 0.02600788 | 0.04825944 | 0.0181679 | 0.0560994 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 42 | 0.037234 | 0.02598187 | 0.04848579 | 0.018053 | 0.0564146 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 43 | 0.036211 | 0.02476032 | 0.04766141 | 0.0166915 | 0.0557302 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 44 | 0.034813 | 0.02324964 | 0.04637566 | 0.0151016 | 0.0545237 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 45 | 0.033106 | 0.021553 | 0.0446584 | 0.0134122 | 0.0527992 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 46 | 0.029982 | 0.01859511 | 0.04136907 | 0.0105711 | 0.0493931 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 47 | 0.026162 | 0.01495735 | 0.03736671 | 0.0070618 | 0.0452623 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 48 | 0.024786 | 0.01371953 | 0.03585197 | 0.0059216 | 0.0436499 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 49 | 0.027478 | 0.01638558 | 0.03856956 | 0.0085694 | 0.0463857 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 50 | 0.031843 | 0.02062004 | 0.043066 | 0.0127116 | 0.0509744 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 51 | 0.034471 | 0.02303663 | 0.04590455 | 0.0149795 | 0.0539617 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 52 | 0.034853 | 0.02329859 | 0.04640748 | 0.0151566 | 0.0545495 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 53 | 0.03467 | 0.02309304 | 0.04624666 | 0.0149353 | 0.0544044 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 54 | 0.034505 | 0.02302017 | 0.04598992 | 0.0149272 | 0.0540829 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 55 | 0.03342 | 0.02202553 | 0.04481447 | 0.0139962 | 0.0528437 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 56 | 0.031386 | 0.02011265 | 0.04266034 | 0.0121684 | 0.0506046 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 57 | 0.030182 | 0.0189906 | 0.04137323 | 0.0111045 | 0.0492594 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 58 | 0.0314 | 0.02029126 | 0.04250937 | 0.0124631 | 0.0503375 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 59 | 0.034656 | 0.02356376 | 0.04574789 | 0.0157476 | 0.0535641 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 60 | 0.03817 | 0.02705976 | 0.04927974 | 0.0192309 | 0.0571086 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 61 | 0.040442 | 0.02920365 | 0.05168067 | 0.0212843 | 0.0596001 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 62 | 0.04103 | 0.02964823 | 0.05241204 | 0.0216278 | 0.0604325 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 63 | 0.040241 | 0.02871051 | 0.05177111 | 0.0205855 | 0.0598961 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 64 | 0.038546 | 0.0269496 | 0.05014183 | 0.0187782 | 0.0583132 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 65 | 0.036236 | 0.02460848 | 0.04786374 | 0.0164149 | 0.0560573 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 66 | 0.033472 | 0.02190216 | 0.04504084 | 0.0137497 | 0.0531934 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 67 | 0.03055 | 0.01904064 | 0.04205951 | 0.0109303 | 0.0501698 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 68 | 0.027944 | 0.0165122 | 0.03937517 | 0.0084568 | 0.0474305 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 69 | 0.025986 | 0.0145796 | 0.03739279 | 0.0065418 | 0.0454306 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 70 | 0.024683 | 0.0133279 | 0.03603756 | 0.0053265 | 0.0440389 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 71 | 0.023847 | 0.01250831 | 0.03518552 | 0.0045184 | 0.0431754 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 72 | 0.0232 | 0.0118885 | 0.0345121 | 0.0039175 | 0.0424831 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 73 | 0.022423 | 0.01108204 | 0.0337632 | 0.0030907 | 0.0417545 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 74 | 0.021621 | 0.0102754 | 0.03296605 | 0.0022807 | 0.0409607 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 75 | 0.021854 | 0.01046916 | 0.03323979 | 0.0024463 | 0.0412626 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 76 | 0.024523 | 0.01311641 | 0.03593028 | 0.0050783 | 0.0439683 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 77 | 0.029705 | 0.01818539 | 0.04122434 | 0.010068 | 0.0493417 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 78 | 0.035434 | 0.02378175 | 0.04708717 | 0.0155705 | 0.0552984 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 79 | 0.039148 | 0.02732553 | 0.05097042 | 0.0189947 | 0.0593013 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 80 | 0.039811 | 0.0279297 | 0.05169219 | 0.0195574 | 0.0600645 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 81 | 0.038551 | 0.02667743 | 0.05042471 | 0.0183105 | 0.0587917 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 82 | 0.037577 | 0.02579189 | 0.0493612 | 0.0174876 | 0.0576654 | * |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 83 | 0.038599 | 0.02681971 | 0.05037845 | 0.0185192 | 0.058679 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 84 | 0.041621 | 0.02987032 | 0.05337248 | 0.0215898 | 0.061653 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 85 | 0.044722 | 0.03300957 | 0.05643422 | 0.0247563 | 0.0646875 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 86 | 0.045581 | 0.03398972 | 0.0571717 | 0.025822 | 0.0653395 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 87 | 0.04394 | 0.03232947 | 0.05555066 | 0.0241479 | 0.0637322 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 88 | 0.042156 | 0.0304135 | 0.05389895 | 0.0221388 | 0.0621736 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 89 | 0.042531 | 0.03053126 | 0.05453072 | 0.0220755 | 0.0629865 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 90 | 0.044473 | 0.03235801 | 0.05658821 | 0.0238209 | 0.0651253 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 91 | 0.045312 | 0.03320619 | 0.05741754 | 0.0246757 | 0.065948 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 92 | 0.043707 | 0.03176139 | 0.05565349 | 0.0233434 | 0.0640714 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 93 | 0.040995 | 0.02908793 | 0.05290278 | 0.0206972 | 0.0612935 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 94 | 0.039031 | 0.02718036 | 0.05088198 | 0.0188295 | 0.0592328 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 95 | 0.03816 | 0.02627464 | 0.05004544 | 0.0178994 | 0.0584207 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 96 | 0.038006 | 0.02620085 | 0.04981061 | 0.0178824 | 0.0581291 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 97 | 0.038838 | 0.02696749 | 0.0507084 | 0.0186028 | 0.0590731 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 98 | 0.040683 | 0.02887408 | 0.05249102 | 0.0205531 | 0.060812 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 99 | 0.041862 | 0.02992957 | 0.05379453 | 0.0215212 | 0.0622029 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 100 | 0.040265 | 0.02883316 | 0.05169663 | 0.0207776 | 0.0597522 | * |
| VaporWD | 8F [left] | Air | PriorEtOH | 3 | 101 | 0.0361 | 0.01979337 | 0.05240579 | 0.008303 | 0.0638962 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 1 | 0.000712 | -0.0012813 | 0.00270448 | -0.002701 | 0.0041242 | ns |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 2 | 0.00586 | 0.00266343 | 0.00905742 | 0.000386 | 0.0113349 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 3 | 0.011139 | 0.0071148 | 0.01516297 | 0.0042481 | 0.0180297 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 4 | 0.016452 | 0.01170691 | 0.02119627 | 0.0083269 | 0.0245763 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 5 | 0.021265 | 0.01588976 | 0.02664078 | 0.0120603 | 0.0304702 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 6 | 0.025006 | 0.01907975 | 0.0309324 | 0.0148579 | 0.0351542 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 7 | 0.027876 | 0.02156684 | 0.03418544 | 0.0170722 | 0.0386801 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 8 | 0.030842 | 0.02437763 | 0.0373068 | 0.0197724 | 0.0419121 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 9 | 0.03435 | 0.02780843 | 0.0408922 | 0.0231481 | 0.0455525 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 10 | 0.037368 | 0.03084035 | 0.0438951 | 0.0261904 | 0.0485451 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 11 | 0.038355 | 0.03178687 | 0.04492302 | 0.0271079 | 0.049602 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 12 | 0.03712 | 0.03053846 | 0.04370088 | 0.0258501 | 0.0483892 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 13 | 0.035109 | 0.02847885 | 0.04173939 | 0.0237556 | 0.0464627 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 14 | 0.033923 | 0.02728149 | 0.04056354 | 0.0225506 | 0.0452945 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 15 | 0.034234 | 0.02757206 | 0.04089548 | 0.0228264 | 0.0456412 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 16 | 0.036133 | 0.02951313 | 0.04275204 | 0.0247976 | 0.0474676 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 17 | 0.039434 | 0.03282394 | 0.04604469 | 0.0281148 | 0.0507538 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 18 | 0.043139 | 0.03651348 | 0.04976358 | 0.0317939 | 0.0544831 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 19 | 0.04554 | 0.03881631 | 0.05226352 | 0.0340265 | 0.0570533 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 20 | 0.045832 | 0.03902324 | 0.05264048 | 0.0341729 | 0.0574908 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 21 | 0.045173 | 0.03828602 | 0.0520601 | 0.0333798 | 0.0569663 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 22 | 0.04539 | 0.03848438 | 0.05229523 | 0.0335651 | 0.0572145 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 23 | 0.046937 | 0.03999311 | 0.05388101 | 0.0350464 | 0.0588277 | * |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 24 | 0.048717 | 0.04175342 | 0.05568059 | 0.0367927 | 0.0606413 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 25 | 0.049339 | 0.04231649 | 0.05636229 | 0.0373135 | 0.0613653 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 26 | 0.047815 | 0.04075704 | 0.05487227 | 0.0357293 | 0.0599 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 27 | 0.043818 | 0.03671818 | 0.05091802 | 0.0316603 | 0.0559759 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 28 | 0.038606 | 0.03150711 | 0.0457047 | 0.0264501 | 0.0507618 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 29 | 0.03514 | 0.02801252 | 0.04226734 | 0.0229351 | 0.0473448 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 30 | 0.035572 | 0.02844092 | 0.04270312 | 0.0233609 | 0.0477832 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 31 | 0.038572 | 0.03142238 | 0.04572252 | 0.0263288 | 0.0508161 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 32 | 0.040799 | 0.03367633 | 0.04792205 | 0.0286021 | 0.0529962 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 33 | 0.0412 | 0.03407049 | 0.04832858 | 0.0289919 | 0.0534072 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 34 | 0.04197 | 0.03482926 | 0.04911115 | 0.0297422 | 0.0541982 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 35 | 0.044649 | 0.03744536 | 0.05185236 | 0.0323137 | 0.056984 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 36 | 0.047376 | 0.04013304 | 0.05461801 | 0.0349736 | 0.0597774 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 37 | 0.047554 | 0.04026317 | 0.05484475 | 0.0350693 | 0.0600386 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 38 | 0.045668 | 0.03839104 | 0.05294495 | 0.0332071 | 0.0581289 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 39 | 0.044521 | 0.03725878 | 0.05178308 | 0.0320854 | 0.0569565 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 40 | 0.045567 | 0.0383469 | 0.05278788 | 0.0332032 | 0.0579316 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 41 | 0.047873 | 0.04064334 | 0.05510304 | 0.0354929 | 0.0602535 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 42 | 0.050164 | 0.04291973 | 0.0574078 | 0.0377592 | 0.0625683 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 43 | 0.051971 | 0.0446635 | 0.05927865 | 0.0394577 | 0.0644844 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 44 | 0.052863 | 0.0455212 | 0.06020555 | 0.0402908 | 0.065436 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 45 | 0.052393 | 0.04501899 | 0.05976643 | 0.0397661 | 0.0650193 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 46 | 0.051204 | 0.04386919 | 0.05853937 | 0.0386438 | 0.0637647 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 47 | 0.05084 | 0.04353662 | 0.05814263 | 0.0383341 | 0.0633452 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 48 | 0.051991 | 0.04472194 | 0.05925981 | 0.0395437 | 0.0644381 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 49 | 0.053871 | 0.04656248 | 0.06118038 | 0.0413557 | 0.0663871 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 50 | 0.055395 | 0.04803883 | 0.06275108 | 0.0427985 | 0.0679915 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 51 | 0.05596 | 0.0485258 | 0.06339432 | 0.0432298 | 0.0686903 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 52 | 0.05515 | 0.04768772 | 0.06261193 | 0.0423719 | 0.0679278 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 53 | 0.052988 | 0.04549531 | 0.06048039 | 0.0401578 | 0.0658179 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 54 | 0.05066 | 0.04318537 | 0.05813366 | 0.0378609 | 0.0634581 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 55 | 0.049634 | 0.04217066 | 0.05709729 | 0.0368539 | 0.062414 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 56 | 0.049709 | 0.04230811 | 0.05710983 | 0.0370359 | 0.0623821 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 57 | 0.049131 | 0.04176615 | 0.05649564 | 0.0365196 | 0.0617421 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 58 | 0.046965 | 0.03964734 | 0.05428361 | 0.034434 | 0.0594969 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 59 | 0.04408 | 0.03676948 | 0.05138988 | 0.0315618 | 0.0565975 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 60 | 0.041477 | 0.03418376 | 0.04876951 | 0.0289885 | 0.0539648 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 61 | 0.039192 | 0.03184415 | 0.04653891 | 0.02661 | 0.051773 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 62 | 0.037449 | 0.03004975 | 0.04484866 | 0.0247785 | 0.0501199 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 63 | 0.037336 | 0.02986718 | 0.04480427 | 0.0245467 | 0.0501247 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 64 | 0.039336 | 0.03185347 | 0.04681913 | 0.0265228 | 0.0521498 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 65 | 0.042534 | 0.03502875 | 0.05003963 | 0.029682 | 0.0553864 | * |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 66 | 0.046232 | 0.03875041 | 0.05371273 | 0.033421 | 0.0590422 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 67 | 0.050901 | 0.0434095 | 0.05839166 | 0.038073 | 0.0637282 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 68 | 0.056234 | 0.04875082 | 0.06371755 | 0.0434198 | 0.0690486 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 69 | 0.059759 | 0.05225333 | 0.0672639 | 0.0469067 | 0.0726105 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 70 | 0.059343 | 0.05186832 | 0.06681682 | 0.0465438 | 0.0721413 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 71 | 0.056275 | 0.04880784 | 0.06374238 | 0.0434883 | 0.0690619 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 72 | 0.05394 | 0.04649148 | 0.06138936 | 0.041185 | 0.0666959 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 73 | 0.053853 | 0.04636891 | 0.06133768 | 0.0410372 | 0.0666694 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 74 | 0.054725 | 0.04724106 | 0.06220983 | 0.0419093 | 0.0675416 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 75 | 0.055097 | 0.04758719 | 0.0626075 | 0.0422371 | 0.0679576 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 76 | 0.055028 | 0.04752063 | 0.06253544 | 0.0421725 | 0.0678836 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 77 | 0.055148 | 0.04758103 | 0.0627152 | 0.0421904 | 0.0681059 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 78 | 0.055707 | 0.04810302 | 0.06331061 | 0.0426862 | 0.0687274 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 79 | 0.056748 | 0.04908186 | 0.06441468 | 0.0436204 | 0.0698761 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 80 | 0.057811 | 0.05014802 | 0.06547437 | 0.0446889 | 0.0709335 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 81 | 0.057449 | 0.04976208 | 0.06513622 | 0.044286 | 0.0706123 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 82 | 0.054704 | 0.04702425 | 0.06238282 | 0.0415537 | 0.0678534 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 83 | 0.051232 | 0.04350262 | 0.05896059 | 0.0379966 | 0.0644666 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 84 | 0.050136 | 0.04241721 | 0.05785552 | 0.0369182 | 0.0633545 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 85 | 0.052084 | 0.04436844 | 0.05979977 | 0.0388719 | 0.0652963 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 86 | 0.054241 | 0.04659934 | 0.06188189 | 0.0411558 | 0.0673254 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 87 | 0.053794 | 0.04615568 | 0.06143285 | 0.0407141 | 0.0668744 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 88 | 0.050903 | 0.04325558 | 0.0585505 | 0.0378077 | 0.0639984 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 89 | 0.047309 | 0.0395626 | 0.05505491 | 0.0340444 | 0.0605731 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 90 | 0.043968 | 0.03622278 | 0.05171308 | 0.0307053 | 0.0572306 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 91 | 0.041608 | 0.03386927 | 0.04934603 | 0.0283566 | 0.0548587 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 92 | 0.041843 | 0.03419161 | 0.0494944 | 0.0287409 | 0.0549451 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 93 | 0.045286 | 0.0376061 | 0.05296585 | 0.0321351 | 0.0584368 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 94 | 0.049412 | 0.04174003 | 0.05708462 | 0.0362744 | 0.0625502 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 95 | 0.05103 | 0.04326232 | 0.05879715 | 0.037729 | 0.0643305 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 96 | 0.050881 | 0.04313824 | 0.05862452 | 0.0376222 | 0.0641406 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 97 | 0.052988 | 0.04514867 | 0.060827 | 0.0395642 | 0.0664115 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 98 | 0.058308 | 0.05052836 | 0.06608706 | 0.0449865 | 0.0716289 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 99 | 0.061575 | 0.05359242 | 0.06955841 | 0.0479055 | 0.0752453 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 100 | 0.056915 | 0.04932322 | 0.06450579 | 0.0439153 | 0.0699137 | * |
| VaporWD | 8F [left] | EtOH | PriorEtOH | 3 | 101 | 0.045263 | 0.03422042 | 0.05630495 | 0.0263541 | 0.0641713 | * |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 1 | -0.00215 | -0.0062674 | 0.00196658 | -0.009149 | 0.0048481 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 2 | -1.32E-05 | -0.0061001 | 0.0060737 | -0.01036 | 0.010334 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 3 | 0.00319 | -0.0041156 | 0.01049595 | -0.009229 | 0.0156093 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 4 | 0.007125 | -0.0014305 | 0.01567981 | -0.007418 | 0.0216676 | ns |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 5 | 0.00968 | -1.08E-05 | 0.01937145 | -0.006794 | 0.0261543 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 6 | 0.009401 | -0.0012262 | 0.0200283 | -0.008664 | 0.0274663 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 7 | 0.008398 | -0.0028867 | 0.01968353 | -0.010785 | 0.027582 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 8 | 0.010995 | -0.0006114 | 0.0226011 | -0.008735 | 0.0307243 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 9 | 0.018331 | 0.00649723 | 0.03016398 | -0.001785 | 0.0384462 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 10 | 0.025915 | 0.01397862 | 0.03785093 | 0.0056245 | 0.0462051 | * |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 11 | 0.02831 | 0.01622262 | 0.04039814 | 0.0077624 | 0.0488584 | * |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 12 | 0.025186 | 0.01300499 | 0.03736792 | 0.0044792 | 0.0458938 | * |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 13 | 0.0209 | 0.00856746 | 0.03323207 | -6.40E-05 | 0.0418635 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 14 | 0.019141 | 0.00671423 | 0.03156828 | -0.001983 | 0.040266 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 15 | 0.020323 | 0.00787328 | 0.03277237 | -0.00084 | 0.0414858 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 16 | 0.023464 | 0.01115801 | 0.03576926 | 0.0025453 | 0.044382 | * |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 17 | 0.0275 | 0.01532483 | 0.03967493 | 0.0068035 | 0.0481963 | * |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 18 | 0.030203 | 0.01807424 | 0.04233235 | 0.0095851 | 0.0508215 | * |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 19 | 0.028691 | 0.01643678 | 0.0409444 | 0.0078603 | 0.0495209 | * |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 20 | 0.022723 | 0.01033376 | 0.03511312 | 0.0016622 | 0.0437847 | * |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 21 | 0.016033 | 0.00349854 | 0.02856687 | -0.005274 | 0.0373396 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 22 | 0.012976 | 0.00032764 | 0.02562452 | -0.008525 | 0.0344772 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 23 | 0.014577 | 0.00175112 | 0.02740367 | -0.007226 | 0.0363808 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 24 | 0.018274 | 0.00533391 | 0.03121321 | -0.003723 | 0.0402697 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 25 | 0.020344 | 0.00734967 | 0.03333907 | -0.001745 | 0.0424341 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 26 | 0.018272 | 0.00531102 | 0.03123231 | -0.00376 | 0.0403035 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 27 | 0.012462 | -0.0004871 | 0.02541095 | -0.00955 | 0.034474 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 28 | 0.006528 | -0.0063953 | 0.01945206 | -0.015441 | 0.0284974 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 29 | 0.004359 | -0.008601 | 0.01731858 | -0.017672 | 0.0263892 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 30 | 0.006022 | -0.0069577 | 0.01900188 | -0.016042 | 0.0280865 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 31 | 0.008065 | -0.0049618 | 0.02109139 | -0.014079 | 0.0302088 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 32 | 0.008447 | -0.0045638 | 0.02145728 | -0.01367 | 0.0305634 | ns |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 33 | 0.008841 | -0.0041965 | 0.02187815 | -0.013321 | 0.031003 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 34 | 0.010671 | -0.0024068 | 0.02374915 | -0.01156 | 0.0329025 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 35 | 0.011635 | -0.001534 | 0.02480399 | -0.010751 | 0.034021 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 36 | 0.009017 | -0.0042062 | 0.02224104 | -0.013461 | 0.0314963 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 37 | 0.004624 | -0.0086647 | 0.01791263 | -0.017965 | 0.0272134 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 38 | 0.002946 | -0.0103111 | 0.01620405 | -0.01959 | 0.0254831 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 39 | 0.005185 | -0.0080194 | 0.01838992 | -0.017261 | 0.0276319 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 40 | 0.008462 | -0.0046774 | 0.02160048 | -0.013873 | 0.0307965 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 41 | 0.010722 | -0.0024694 | 0.02391251 | -0.011702 | 0.0331449 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 42 | 0.012896 | -0.0004101 | 0.02620293 | -0.009723 | 0.0355162 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 43 | 0.015725 | 0.00221866 | 0.02923227 | -0.007235 | 0.0386857 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 44 | 0.017983 | 0.00436119 | 0.03160462 | -0.005173 | 0.0411385 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 45 | 0.019234 | 0.00560637 | 0.03286184 | -0.003932 | 0.0423999 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 46 | 0.021261 | 0.00779272 | 0.03472964 | -0.001634 | 0.0441563 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 47 | 0.02478 | 0.01148377 | 0.0380763 | 0.0021777 | 0.0473824 | * |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 48 | 0.027272 | 0.01410873 | 0.04043445 | 0.004896 | 0.0496472 | * |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 49 | 0.026387 | 0.0131823 | 0.0395907 | 0.0039406 | 0.0488324 | * |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 50 | 0.0235 | 0.01015952 | 0.0368414 | 0.0008222 | 0.0461788 | * |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 51 | 0.021417 | 0.00785828 | 0.0349762 | -0.001632 | 0.0444662 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 52 | 0.020234 | 0.00655726 | 0.03391151 | -0.003015 | 0.0434842 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 53 | 0.01833 | 0.00461987 | 0.03204065 | -0.004976 | 0.0416366 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 54 | 0.016251 | 0.00262674 | 0.02987512 | -0.006909 | 0.0394107 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 55 | 0.016288 | 0.00274788 | 0.02982907 | -0.006729 | 0.0393062 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 56 | 0.018286 | 0.00487876 | 0.03169411 | -0.004505 | 0.0410782 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 57 | 0.018867 | 0.00554877 | 0.03218434 | -0.003772 | 0.0415055 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 58 | 0.015546 | 0.00232127 | 0.02877131 | -0.006935 | 0.0380275 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 59 | 0.009451 | -0.0037543 | 0.02265553 | -0.012996 | 0.0318977 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 60 | 0.003296 | -0.0099166 | 0.01650852 | -0.019164 | 0.025756 | ns |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 61 | -0.00128 | -0.0146263 | 0.01206999 | -0.023969 | 0.0214124 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 62 | -0.00355 | -0.0170453 | 0.00995049 | -0.026492 | 0.0193977 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 63 | -0.00284 | -0.0165017 | 0.01081434 | -0.026061 | 0.0203736 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 64 | 0.000789 | -0.0129342 | 0.01451133 | -0.022539 | 0.0241159 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 65 | 0.006271 | -0.0074891 | 0.0200304 | -0.01712 | 0.0296609 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 66 | 0.012819 | -0.0008805 | 0.0265184 | -0.010469 | 0.0361067 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 67 | 0.020446 | 0.00679371 | 0.03409859 | -0.002762 | 0.043654 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 68 | 0.028244 | 0.0146597 | 0.04182775 | 0.0051522 | 0.0513353 | * |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 69 | 0.033576 | 0.0200029 | 0.04714863 | 0.0105032 | 0.0566483 | * |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 70 | 0.034538 | 0.02102352 | 0.04805289 | 0.0115645 | 0.0575119 | * |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 71 | 0.032519 | 0.0190234 | 0.04601535 | 0.0095775 | 0.0554612 | * |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 72 | 0.030901 | 0.01743591 | 0.04436657 | 0.0080115 | 0.053791 | * |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 73 | 0.031468 | 0.01796176 | 0.04497449 | 0.0085086 | 0.0544276 | * |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 74 | 0.033034 | 0.01952185 | 0.04654606 | 0.0100647 | 0.0560032 | * |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 75 | 0.033197 | 0.01963896 | 0.04675445 | 0.0101499 | 0.0562436 | * |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 76 | 0.030522 | 0.01694591 | 0.04409868 | 0.0074438 | 0.0536008 | * |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 77 | 0.025483 | 0.01178213 | 0.0391833 | 0.002193 | 0.0487724 | * |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 78 | 0.020317 | 0.00648246 | 0.03415066 | -0.0032 | 0.0438332 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 79 | 0.01762 | 0.0036116 | 0.03162867 | -0.006193 | 0.0414333 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 80 | 0.017923 | 0.0038637 | 0.03198153 | -0.005976 | 0.0418214 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 81 | 0.018746 | 0.00468334 | 0.03280907 | -0.005159 | 0.0426517 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 82 | 0.017083 | 0.00309717 | 0.03106811 | -0.006691 | 0.0408566 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 83 | 0.0128 | -0.0012046 | 0.02680509 | -0.011007 | 0.0366071 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 84 | 0.00872 | -0.0052581 | 0.02269852 | -0.015042 | 0.032482 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 85 | 0.007363 | -0.0065786 | 0.02130463 | -0.016336 | 0.0310624 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 86 | 0.008484 | -0.0053183 | 0.02228626 | -0.014979 | 0.0319465 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 87 | 0.009729 | -0.0040856 | 0.02354408 | -0.013755 | 0.0332131 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 88 | 0.008753 | -0.0051806 | 0.02268673 | -0.014933 | 0.032439 | ns |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 89 | 0.004798 | -0.0094012 | 0.01899809 | -0.01934 | 0.0289365 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 90 | -0.00051 | -0.0148053 | 0.01379439 | -0.024814 | 0.0238029 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 91 | -0.00362 | -0.0179015 | 0.01066902 | -0.0279 | 0.0206673 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 92 | -0.00171 | -0.0158166 | 0.01239937 | -0.025691 | 0.0222736 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 93 | 0.004292 | -0.0097947 | 0.01837813 | -0.019654 | 0.0282372 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 94 | 0.01016 | -0.0038786 | 0.02419902 | -0.013704 | 0.0340248 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 95 | 0.012726 | -0.0013875 | 0.02683885 | -0.011265 | 0.0367167 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 96 | 0.013086 | -0.0009527 | 0.02712379 | -0.010778 | 0.0369492 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 97 | 0.014496 | 0.00035671 | 0.02863462 | -0.009539 | 0.0385305 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 98 | 0.01761 | 0.00353441 | 0.03168473 | -0.006317 | 0.041536 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 99 | 0.019265 | 0.00500146 | 0.03352936 | -0.004982 | 0.0435127 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 100 | 0.016339 | 0.00267524 | 0.03000227 | -0.006888 | 0.0395654 | ns |
| VaporWD | 8F [right] | Air + EtOH | Vapor X PriorEtOH | 7 | 101 | 0.009588 | -0.0100433 | 0.02921947 | -0.023783 | 0.0429595 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 1 | -0.00334 | -0.0112545 | 0.00456767 | -0.016789 | 0.0101021 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 2 | -0.00285 | -0.0147164 | 0.00902617 | -0.023021 | 0.0173311 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 3 | 0.000526 | -0.015005 | 0.01605718 | -0.02587 | 0.0269225 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 4 | 0.007843 | -0.0104401 | 0.02612711 | -0.023231 | 0.0389181 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 5 | 0.016556 | -0.004104 | 0.03721684 | -0.018558 | 0.0516706 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 6 | 0.022105 | -0.0006572 | 0.04486695 | -0.016581 | 0.0607909 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 7 | 0.022123 | -0.0021116 | 0.04635736 | -0.019066 | 0.0633114 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 8 | 0.018454 | -0.0064013 | 0.04330944 | -0.02379 | 0.0606979 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 9 | 0.014747 | -0.010344 | 0.03983828 | -0.027897 | 0.0573917 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 10 | 0.013192 | -0.0118373 | 0.03822206 | -0.029348 | 0.0557324 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 11 | 0.014136 | -0.0109838 | 0.03925585 | -0.028557 | 0.0568293 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 12 | 0.017071 | -0.0081055 | 0.04224773 | -0.025719 | 0.0598609 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 13 | 0.020215 | -0.0050975 | 0.04552672 | -0.022806 | 0.0632347 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 14 | 0.020263 | -0.0050877 | 0.04561391 | -0.022823 | 0.063349 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 15 | 0.01503 | -0.0103725 | 0.04043212 | -0.028144 | 0.0582032 | ns |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8G [left] | Air | PriorITI | 4 | 16 | 0.006614 | -0.0186817 | 0.0319094 | -0.036378 | 0.0496058 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 17 | 0.000432 | -0.0248493 | 0.02571289 | -0.042536 | 0.0433992 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 18 | 0.000553 | -0.0248345 | 0.02594106 | -0.042595 | 0.043702 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 19 | 0.006482 | -0.0192729 | 0.03223704 | -0.037291 | 0.0502548 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 20 | 0.014118 | -0.0119892 | 0.04022596 | -0.030254 | 0.0584904 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 21 | 0.018898 | -0.0074887 | 0.04528459 | -0.025948 | 0.0637443 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 22 | 0.018387 | -0.0080709 | 0.04484393 | -0.02658 | 0.0633531 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 23 | 0.013292 | -0.0132499 | 0.03983305 | -0.031818 | 0.0584011 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 24 | 0.006596 | -0.0200177 | 0.03320927 | -0.038636 | 0.0518277 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 25 | 0.001443 | -0.0253929 | 0.02827826 | -0.044167 | 0.047052 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 26 | -0.00026 | -0.0272864 | 0.02676539 | -0.046193 | 0.0456723 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 27 | 0.002317 | -0.0248786 | 0.02951259 | -0.043904 | 0.0485382 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 28 | 0.008965 | -0.0182613 | 0.03619204 | -0.037309 | 0.0552394 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 29 | 0.017551 | -0.009765 | 0.04486624 | -0.028875 | 0.0639759 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 30 | 0.024369 | -0.0029785 | 0.05171668 | -0.02211 | 0.0708487 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 31 | 0.02666 | -0.0007289 | 0.05404876 | -0.01989 | 0.0732096 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 32 | 0.024256 | -0.0030444 | 0.05155674 | -0.022144 | 0.0706558 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 33 | 0.018503 | -0.0087941 | 0.04580049 | -0.027891 | 0.0648973 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 34 | 0.011335 | -0.016024 | 0.03869427 | -0.035164 | 0.0578343 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 35 | 0.006267 | -0.0213149 | 0.03384803 | -0.040611 | 0.0531436 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 36 | 0.00747 | -0.0202911 | 0.0352307 | -0.039712 | 0.0546518 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 37 | 0.014969 | -0.0129582 | 0.04289567 | -0.032495 | 0.0624329 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 38 | 0.022373 | -0.005528 | 0.05027332 | -0.025047 | 0.0697922 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 39 | 0.022791 | -0.0050394 | 0.05062221 | -0.024509 | 0.0700922 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 40 | 0.016564 | -0.0111308 | 0.04425813 | -0.030505 | 0.0636328 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 41 | 0.01035 | -0.0173434 | 0.03804425 | -0.036718 | 0.0574184 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 42 | 0.009244 | -0.0184973 | 0.03698452 | -0.037904 | 0.0563916 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 43 | 0.012896 | -0.0150311 | 0.04082407 | -0.034569 | 0.0603618 | ns |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8G [left] | Air | PriorITI | 4 | 44 | 0.018697 | -0.0093676 | 0.04676096 | -0.029001 | 0.0663943 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 45 | 0.024419 | -0.0037575 | 0.05259556 | -0.023469 | 0.0723074 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 46 | 0.027075 | -0.0010115 | 0.05516098 | -0.02066 | 0.0748097 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 47 | 0.023584 | -0.0043991 | 0.05156681 | -0.023976 | 0.0711433 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 48 | 0.014953 | -0.0129504 | 0.04285729 | -0.032472 | 0.0623784 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 49 | 0.006877 | -0.021165 | 0.03491905 | -0.040783 | 0.0545368 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 50 | 0.003953 | -0.0242744 | 0.0321813 | -0.044022 | 0.0519291 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 51 | 0.005456 | -0.0230166 | 0.03392887 | -0.042936 | 0.053848 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 52 | 0.008276 | -0.0203066 | 0.03685923 | -0.040303 | 0.0568554 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 53 | 0.011082 | -0.0176014 | 0.03976612 | -0.037668 | 0.0598329 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 54 | 0.013294 | -0.0153642 | 0.04195261 | -0.035413 | 0.0620016 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 55 | 0.012974 | -0.0156362 | 0.04158442 | -0.035652 | 0.0615998 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 56 | 0.009358 | -0.0190463 | 0.03776255 | -0.038918 | 0.0576339 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 57 | 0.005871 | -0.0223783 | 0.03411994 | -0.042141 | 0.0538826 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 58 | 0.006995 | -0.0211003 | 0.03508951 | -0.040755 | 0.0547443 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 59 | 0.012552 | -0.0154883 | 0.04059222 | -0.035105 | 0.0602088 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 60 | 0.017881 | -0.0101111 | 0.04587276 | -0.029694 | 0.0654555 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 61 | 0.019496 | -0.0086643 | 0.0476561 | -0.028365 | 0.0673566 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 62 | 0.018302 | -0.0100621 | 0.04666554 | -0.029905 | 0.0665084 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 63 | 0.017448 | -0.0111428 | 0.04603922 | -0.031145 | 0.0660411 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 64 | 0.019138 | -0.0095234 | 0.04779977 | -0.029575 | 0.067851 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 65 | 0.023438 | -0.0052828 | 0.05215887 | -0.025375 | 0.0722515 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 66 | 0.028374 | -0.0002896 | 0.05703803 | -0.020342 | 0.0770908 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 67 | 0.031279 | 0.00258187 | 0.0599768 | -0.017494 | 0.0800531 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 68 | 0.031464 | 0.00275079 | 0.06017787 | -0.017337 | 0.0802654 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 69 | 0.030945 | 0.0021623 | 0.05972701 | -0.017973 | 0.0798627 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 70 | 0.030915 | 0.00222116 | 0.05960943 | -0.017853 | 0.0796834 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 71 | 0.028627 | -1.59E-05 | 0.05727088 | -0.020054 | 0.0773094 | ns |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8G [left] | Air | PriorITI | 4 | 72 | 0.020412 | -0.0081891 | 0.04901382 | -0.028198 | 0.069023 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 73 | 0.007496 | -0.0212146 | 0.0362076 | -0.0413 | 0.0562935 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 74 | -0.00397 | -0.0327065 | 0.02477301 | -0.052812 | 0.0448789 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 75 | -0.00918 | -0.0379877 | 0.01963002 | -0.058142 | 0.0397843 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 76 | -0.00886 | -0.037689 | 0.01996545 | -0.057856 | 0.0401325 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 77 | -0.00666 | -0.0356806 | 0.02235261 | -0.05598 | 0.0426522 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 78 | -0.00456 | -0.0337248 | 0.0246084 | -0.054129 | 0.0450129 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 79 | -0.00186 | -0.031209 | 0.02748644 | -0.05174 | 0.0480177 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 80 | 0.002601 | -0.0267524 | 0.03195471 | -0.047288 | 0.05249 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 81 | 0.008394 | -0.0210314 | 0.03781989 | -0.041617 | 0.0584056 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 82 | 0.013046 | -0.0164137 | 0.04250483 | -0.037023 | 0.0631141 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 83 | 0.01389 | -0.0157408 | 0.04352016 | -0.03647 | 0.0642492 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 84 | 0.011386 | -0.0182453 | 0.04101768 | -0.038975 | 0.0617474 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 85 | 0.010027 | -0.0195595 | 0.03961418 | -0.040258 | 0.0603127 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 86 | 0.014084 | -0.0152674 | 0.04343619 | -0.035802 | 0.0639703 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 87 | 0.022585 | -0.0067124 | 0.0518817 | -0.027208 | 0.0723775 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 88 | 0.030491 | 0.00115063 | 0.05983172 | -0.019376 | 0.0803579 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 89 | 0.034808 | 0.00518187 | 0.06443396 | -0.015544 | 0.0851599 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 90 | 0.03709 | 0.00745216 | 0.06672705 | -0.013282 | 0.087461 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 91 | 0.039503 | 0.00993929 | 0.06906681 | -0.010743 | 0.0897492 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 92 | 0.041275 | 0.01196923 | 0.07058079 | -0.008533 | 0.0910827 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 93 | 0.040689 | 0.01131876 | 0.07005913 | -0.009228 | 0.0906061 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 94 | 0.038515 | 0.00908826 | 0.06794133 | -0.011498 | 0.0885277 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 95 | 0.037252 | 0.00751473 | 0.06698874 | -0.013289 | 0.0877923 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 96 | 0.037767 | 0.00800743 | 0.06752685 | -0.012812 | 0.0883463 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 97 | 0.03816 | 0.00808073 | 0.0682395 | -0.012962 | 0.0892826 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 98 | 0.035402 | 0.00519579 | 0.06560826 | -0.015936 | 0.0867401 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 99 | 0.027233 | -0.0033005 | 0.05776653 | -0.024661 | 0.0791273 | ns |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8G [left] | Air | PriorITI | 4 | 100 | 0.013394 | -0.0163108 | 0.04309845 | -0.037092 | 0.0638794 | ns |
| VaporWD | 8G [left] | Air | PriorITI | 4 | 101 | -0.00393 | -0.0476024 | 0.03974894 | -0.078157 | 0.0703038 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 1 | 0.001586 | -0.0063325 | 0.00950534 | -0.011964 | 0.0151373 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 2 | 0.000243 | -0.0135224 | 0.01400861 | -0.023313 | 0.0237987 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 3 | -0.0024 | -0.0191248 | 0.01432924 | -0.031021 | 0.0262256 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 4 | -0.00683 | -0.0267868 | 0.01312413 | -0.040979 | 0.0273166 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 5 | -0.01231 | -0.0348676 | 0.01024041 | -0.050908 | 0.026281 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 6 | -0.01832 | -0.0432272 | 0.00658355 | -0.06094 | 0.0242964 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 7 | -0.0257 | -0.0522297 | 0.00082098 | -0.071095 | 0.0196859 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 8 | -0.03417 | -0.0612919 | -0.0070493 | -0.080581 | 0.0122395 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 9 | -0.03899 | -0.066446 | -0.0115317 | -0.085974 | 0.007996 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 10 | -0.034 | -0.0612936 | -0.0066999 | -0.080707 | 0.0127138 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 11 | -0.01969 | -0.0471853 | 0.00780959 | -0.066742 | 0.0273659 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 12 | -0.0049 | -0.0323785 | 0.02258852 | -0.051925 | 0.042135 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 13 | 0.002605 | -0.0251096 | 0.03031918 | -0.04482 | 0.0500298 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 14 | 0.004583 | -0.0230994 | 0.03226467 | -0.042787 | 0.0519523 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 15 | 0.008093 | -0.0197326 | 0.0359184 | -0.039522 | 0.055708 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 16 | 0.015359 | -0.0122727 | 0.04299119 | -0.031925 | 0.0626432 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 17 | 0.022814 | -0.0048684 | 0.05049733 | -0.024557 | 0.0701855 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 18 | 0.028782 | 0.00105338 | 0.05650978 | -0.018667 | 0.0762302 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 19 | 0.035746 | 0.00754409 | 0.06394792 | -0.012513 | 0.0840053 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 20 | 0.043405 | 0.01487889 | 0.0719307 | -0.005409 | 0.0922185 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 21 | 0.044993 | 0.0160985 | 0.07388842 | -0.004452 | 0.0944387 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 22 | 0.034926 | 0.00602953 | 0.06382278 | -0.014522 | 0.0843742 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 23 | 0.018023 | -0.0110326 | 0.04707885 | -0.031697 | 0.0677434 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 24 | 0.007092 | -0.02197 | 0.03615494 | -0.042639 | 0.0568243 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 25 | 0.010571 | -0.0188046 | 0.03994727 | -0.039697 | 0.0608396 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 26 | 0.023855 | -0.0056673 | 0.05337644 | -0.026663 | 0.0743726 | ns |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 27 | 0.03347 | 0.00369529 | 0.06324477 | -0.017481 | 0.0844207 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 28 | 0.030314 | 0.00058245 | 0.06004567 | -0.020563 | 0.0811909 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 29 | 0.019447 | -0.0104534 | 0.04934766 | -0.031719 | 0.0706131 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 30 | 0.015686 | -0.0141846 | 0.045556 | -0.035429 | 0.0667999 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 31 | 0.027104 | -0.0028872 | 0.0570956 | -0.024217 | 0.0784257 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 32 | 0.043511 | 0.01368984 | 0.07333181 | -0.007519 | 0.0945407 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 33 | 0.045554 | 0.01567182 | 0.07543586 | -0.00558 | 0.0966881 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 34 | 0.027138 | -0.0027445 | 0.05702073 | -0.023997 | 0.0782734 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 35 | 0.004482 | -0.0257142 | 0.03467798 | -0.04719 | 0.0561536 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 36 | -0.0018 | -0.0321201 | 0.02852359 | -0.053685 | 0.0500887 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 37 | 0.00889 | -0.0216858 | 0.03946548 | -0.043431 | 0.061211 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 38 | 0.017288 | -0.0131881 | 0.04776444 | -0.034863 | 0.0694393 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 39 | 0.009478 | -0.0209907 | 0.03994589 | -0.04266 | 0.0616151 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 40 | -0.00569 | -0.0359401 | 0.02455865 | -0.057454 | 0.0460722 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 41 | -0.00939 | -0.0397051 | 0.02093488 | -0.061269 | 0.0424986 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 42 | 0.002905 | -0.0273962 | 0.03320558 | -0.048946 | 0.0547557 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 43 | 0.018798 | -0.011777 | 0.04937296 | -0.033522 | 0.0711181 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 44 | 0.028438 | -0.0022171 | 0.05909265 | -0.024019 | 0.0808946 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 45 | 0.034545 | 0.00369244 | 0.06539821 | -0.01825 | 0.0873409 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 46 | 0.039425 | 0.00874151 | 0.07010763 | -0.01308 | 0.0919296 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 47 | 0.034152 | 0.00351711 | 0.06478668 | -0.018271 | 0.0865743 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 48 | 0.011966 | -0.0185113 | 0.04244314 | -0.040187 | 0.0641187 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 49 | -0.01445 | -0.0451487 | 0.01625484 | -0.066984 | 0.0380901 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 50 | -0.02356 | -0.0543924 | 0.0072769 | -0.076322 | 0.0292067 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 51 | -0.01215 | -0.0433221 | 0.01902586 | -0.065493 | 0.041197 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 52 | 0.001905 | -0.0293105 | 0.03312 | -0.051511 | 0.0553205 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 53 | 0.006164 | -0.0252322 | 0.03756098 | -0.047562 | 0.0598904 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 54 | 0.008176 | -0.0231207 | 0.03947354 | -0.045379 | 0.0617322 | ns |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 55 | 0.016714 | -0.0146114 | 0.04803904 | -0.03689 | 0.0703177 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 56 | 0.023333 | -0.0076914 | 0.05435785 | -0.029756 | 0.0764227 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 57 | 0.016335 | -0.0145927 | 0.0472625 | -0.036589 | 0.0692584 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 58 | 0.003381 | -0.0273149 | 0.03407728 | -0.049146 | 0.0559085 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 59 | 0.003194 | -0.0275188 | 0.03390728 | -0.049362 | 0.0557506 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 60 | 0.018106 | -0.0124693 | 0.04868066 | -0.034214 | 0.0704258 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 61 | 0.031118 | 0.000282 | 0.06195317 | -0.021648 | 0.0838836 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 62 | 0.030768 | -0.0002185 | 0.0617554 | -0.022257 | 0.0837935 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 63 | 0.023906 | -0.007402 | 0.05521453 | -0.029669 | 0.0774811 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 64 | 0.020603 | -0.0106998 | 0.05190636 | -0.032963 | 0.0741693 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 65 | 0.020498 | -0.0109502 | 0.05194686 | -0.033317 | 0.0743132 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 66 | 0.020114 | -0.0111876 | 0.05141617 | -0.03345 | 0.0736782 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 67 | 0.021431 | -0.0099869 | 0.05284922 | -0.032332 | 0.0751939 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 68 | 0.025074 | -0.006285 | 0.05643261 | -0.028588 | 0.0787352 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 69 | 0.024913 | -0.0066107 | 0.05643675 | -0.029031 | 0.0788566 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 70 | 0.018446 | -0.0128957 | 0.04978861 | -0.035186 | 0.0720793 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 71 | 0.014515 | -0.0168491 | 0.04587815 | -0.039155 | 0.0681841 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 72 | 0.021279 | -0.0099564 | 0.05251341 | -0.032171 | 0.0747278 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 73 | 0.033217 | 0.0017674 | 0.0646657 | -0.020599 | 0.0870325 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 74 | 0.04 | 0.00860719 | 0.07139198 | -0.013719 | 0.0937184 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 75 | 0.042707 | 0.01115258 | 0.07426228 | -0.011289 | 0.0967043 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 76 | 0.050213 | 0.01873862 | 0.08168834 | -0.003646 | 0.1040734 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 77 | 0.063032 | 0.03125287 | 0.09481106 | 0.0086514 | 0.1174125 | * |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 78 | 0.07223 | 0.04038217 | 0.10407787 | 0.0177318 | 0.1267282 | * |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 79 | 0.073299 | 0.041152 | 0.10544533 | 0.0182891 | 0.1283082 | * |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 80 | 0.070473 | 0.03842771 | 0.10251755 | 0.0156372 | 0.1253081 | * |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 81 | 0.066763 | 0.03453956 | 0.09898718 | 0.0116218 | 0.1219049 | * |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 82 | 0.059394 | 0.02724299 | 0.09154457 | 0.0043772 | 0.1144104 | * |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 83 | 0.046995 | 0.01453939 | 0.07945154 | -0.008544 | 0.1025345 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 84 | 0.0332 | 0.00085154 | 0.06554765 | -0.022155 | 0.0885538 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 85 | 0.021102 | -0.0113147 | 0.05351791 | -0.034369 | 0.0765726 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 86 | 0.011507 | -0.0205279 | 0.04354248 | -0.043311 | 0.0663261 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 87 | 0.008314 | -0.0237784 | 0.04040672 | -0.046603 | 0.0632311 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 88 | 0.017485 | -0.0145235 | 0.04949252 | -0.037288 | 0.0722568 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 89 | 0.03715 | 0.00467145 | 0.06962799 | -0.018427 | 0.0927267 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 90 | 0.055559 | 0.02321475 | 0.08790238 | 0.0002116 | 0.1109055 | * |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 91 | 0.063135 | 0.03072511 | 0.09554574 | 0.0076747 | 0.1185961 | * |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 92 | 0.061503 | 0.02955277 | 0.09345403 | 0.0068293 | 0.1161775 | * |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 93 | 0.057171 | 0.02495893 | 0.08938283 | 0.0020496 | 0.1122921 | * |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 94 | 0.051687 | 0.01962007 | 0.08375353 | -0.003186 | 0.1065596 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 95 | 0.042507 | 0.00986224 | 0.07515209 | -0.013355 | 0.0983693 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 96 | 0.029587 | -0.002793 | 0.06196696 | -0.025822 | 0.0849958 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 97 | 0.016673 | -0.0163471 | 0.049694 | -0.039831 | 0.0731784 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 98 | 0.008484 | -0.023802 | 0.04076921 | -0.046764 | 0.0637309 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 99 | 0.009299 | -0.0242933 | 0.04289093 | -0.048184 | 0.0667818 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 100 | 0.021161 | -0.010443 | 0.05276436 | -0.03292 | 0.0752411 | ns |
| VaporWD | 8G [left] | EtOH | PriorITI | 4 | 101 | 0.040703 | -0.0045093 | 0.08591488 | -0.036664 | 0.11807 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 1 | 0.004571 | -0.0064894 | 0.01563111 | -0.014305 | 0.0234465 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 2 | 0.003318 | -0.0146559 | 0.02129231 | -0.027357 | 0.0339933 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 3 | -0.00237 | -0.0252115 | 0.02047483 | -0.041353 | 0.0366164 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 4 | -0.01431 | -0.0412629 | 0.01263958 | -0.060307 | 0.031684 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 5 | -0.02918 | -0.0597078 | 0.0013502 | -0.08128 | 0.0229227 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 6 | -0.04136 | -0.0750434 | -0.0076679 | -0.098848 | 0.0161367 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 7 | -0.04864 | -0.0845169 | -0.0127549 | -0.109871 | 0.0125995 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 8 | -0.05248 | -0.0892251 | -0.0157369 | -0.115189 | 0.0102274 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 9 | -0.05262 | -0.0897604 | -0.0154891 | -0.116001 | 0.0107518 | ns |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 10 | -0.04607 | -0.0830535 | -0.0090802 | -0.109189 | 0.0170555 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 11 | -0.03366 | -0.0708391 | 0.00351616 | -0.09711 | 0.0297868 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 12 | -0.02274 | -0.0599604 | 0.01448053 | -0.086261 | 0.0407814 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 13 | -0.01848 | -0.0559464 | 0.01898434 | -0.08242 | 0.0454583 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 14 | -0.01606 | -0.0535434 | 0.02142266 | -0.08003 | 0.0479091 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 15 | -0.00695 | -0.0445569 | 0.03065627 | -0.071131 | 0.05723 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 16 | 0.008898 | -0.028508 | 0.04630379 | -0.05494 | 0.0727357 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 17 | 0.022932 | -0.0144845 | 0.06034838 | -0.040924 | 0.0867877 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 18 | 0.029243 | -0.0082933 | 0.06677978 | -0.034818 | 0.093304 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 19 | 0.029949 | -0.0081715 | 0.06806939 | -0.035108 | 0.0950062 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 20 | 0.02864 | -0.009974 | 0.06725312 | -0.037259 | 0.0945384 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 21 | 0.024342 | -0.0147175 | 0.06340174 | -0.042318 | 0.0910022 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 22 | 0.015259 | -0.0238641 | 0.05438164 | -0.051509 | 0.0820268 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 23 | 0.005188 | -0.0340925 | 0.04446874 | -0.061849 | 0.0722254 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 24 | 0.002198 | -0.037151 | 0.04154666 | -0.064956 | 0.0693515 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 25 | 0.010386 | -0.0293292 | 0.05010117 | -0.057393 | 0.0781649 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 26 | 0.023843 | -0.016124 | 0.06380998 | -0.044366 | 0.0920516 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 27 | 0.029867 | -0.0103861 | 0.07011934 | -0.03883 | 0.0985629 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 28 | 0.020552 | -0.0197054 | 0.06080847 | -0.048152 | 0.089255 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 29 | 0.002605 | -0.0378208 | 0.04303026 | -0.066386 | 0.0715959 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 30 | -0.00709 | -0.0475286 | 0.03335237 | -0.076105 | 0.0619286 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 31 | 0.000969 | -0.0395722 | 0.04151056 | -0.06822 | 0.0701581 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 32 | 0.017471 | -0.0228996 | 0.05784188 | -0.051427 | 0.0863688 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 33 | 0.02443 | -0.0159669 | 0.06482712 | -0.044512 | 0.0933726 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 34 | 0.015485 | -0.0249698 | 0.0559396 | -0.053556 | 0.0845259 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 35 | 0.001145 | -0.0396763 | 0.04196641 | -0.068522 | 0.0708118 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 36 | -0.00621 | -0.0472658 | 0.03483807 | -0.076274 | 0.0638464 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 37 | -0.00659 | -0.0479245 | 0.03474735 | -0.077133 | 0.0639563 | ns |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 38 | -0.00854 | -0.0498048 | 0.03271564 | -0.07896 | 0.0618711 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 39 | -0.01546 | -0.0566514 | 0.02572909 | -0.085757 | 0.0548351 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 40 | -0.02084 | -0.0617916 | 0.02011096 | -0.090729 | 0.0490481 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 41 | -0.01719 | -0.0581806 | 0.02379246 | -0.087143 | 0.0527546 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 42 | -0.00576 | -0.0467795 | 0.03526101 | -0.075765 | 0.0642469 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 43 | 0.005074 | -0.0362598 | 0.04640695 | -0.065467 | 0.0756141 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 44 | 0.009783 | -0.0317184 | 0.05128442 | -0.061044 | 0.0806103 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 45 | 0.010662 | -0.0310453 | 0.05236987 | -0.060517 | 0.0818415 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 46 | 0.011132 | -0.0304041 | 0.05266864 | -0.059755 | 0.0820193 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 47 | 0.008038 | -0.0333754 | 0.04945183 | -0.062639 | 0.0787157 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 48 | -0.0035 | -0.0447575 | 0.03776054 | -0.073912 | 0.0669152 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 49 | -0.01871 | -0.060214 | 0.02279042 | -0.08954 | 0.0521169 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 50 | -0.025 | -0.0667443 | 0.01674169 | -0.096241 | 0.0462383 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 51 | -0.01806 | -0.0602013 | 0.02408523 | -0.089981 | 0.0538647 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 52 | -0.0082 | -0.0504683 | 0.03406197 | -0.080334 | 0.0639276 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 53 | -0.0051 | -0.0475521 | 0.03734898 | -0.077549 | 0.0673456 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 54 | -0.0041 | -0.0464792 | 0.03827422 | -0.076424 | 0.0682186 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 55 | 0.0033 | -0.0390479 | 0.04564748 | -0.068972 | 0.0755714 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 56 | 0.01219 | -0.0298128 | 0.05419219 | -0.059493 | 0.0838722 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 57 | 0.010276 | -0.0315325 | 0.05208438 | -0.061075 | 0.0816273 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 58 | -0.00139 | -0.0429348 | 0.04016414 | -0.072295 | 0.069524 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 59 | -0.00764 | -0.0491476 | 0.03386753 | -0.078478 | 0.0631978 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 60 | -0.00083 | -0.0422162 | 0.04056362 | -0.071463 | 0.0698107 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 61 | 0.009467 | -0.0322119 | 0.05114627 | -0.061663 | 0.0805978 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 62 | 0.011987 | -0.0299595 | 0.05393412 | -0.0596 | 0.0835748 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 63 | 0.007626 | -0.0346948 | 0.04994679 | -0.0646 | 0.0798517 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 64 | 0.002319 | -0.0400639 | 0.04470097 | -0.070012 | 0.0746494 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 65 | -0.00305 | -0.0455629 | 0.03945992 | -0.075603 | 0.0694995 | ns |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 66 | -0.00846 | -0.050845 | 0.03391956 | -0.080793 | 0.0638679 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 67 | -0.00985 | -0.0523178 | 0.03262647 | -0.08233 | 0.0626383 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 68 | -0.00667 | -0.0491309 | 0.03578502 | -0.079133 | 0.0657868 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 69 | -0.0064 | -0.0490123 | 0.03620294 | -0.07912 | 0.0663105 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 70 | -0.01226 | -0.0546929 | 0.03017153 | -0.084677 | 0.0601552 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 71 | -0.01369 | -0.0560809 | 0.02870715 | -0.086038 | 0.0586638 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 72 | 0.000534 | -0.0417552 | 0.04282397 | -0.071638 | 0.0727068 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 73 | 0.024951 | -0.0175513 | 0.0674534 | -0.047585 | 0.0974866 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 74 | 0.044143 | 0.00164293 | 0.08664305 | -0.028389 | 0.1166746 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 75 | 0.053105 | 0.01045974 | 0.09575088 | -0.019675 | 0.1258853 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 76 | 0.059738 | 0.01711817 | 0.10235744 | -0.012998 | 0.1324735 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 77 | 0.06897 | 0.02601955 | 0.11192136 | -0.004331 | 0.1422715 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 78 | 0.075906 | 0.03278007 | 0.11903129 | 0.0023064 | 0.1495049 | * |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 79 | 0.07541 | 0.03196396 | 0.11885663 | 0.0012637 | 0.1495569 | * |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 80 | 0.068643 | 0.02524532 | 0.11204059 | -0.005421 | 0.1427064 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 81 | 0.058285 | 0.0147302 | 0.10183925 | -0.016047 | 0.132616 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 82 | 0.045386 | 0.0018386 | 0.0889334 | -0.028933 | 0.1197051 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 83 | 0.0324 | -0.0114639 | 0.07626488 | -0.04246 | 0.1072605 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 84 | 0.02195 | -0.0218604 | 0.06576106 | -0.052818 | 0.0967188 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 85 | 0.011684 | -0.0321205 | 0.05548867 | -0.063074 | 0.0864421 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 86 | -0.0019 | -0.0452867 | 0.04149206 | -0.075947 | 0.0721521 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 87 | -0.01365 | -0.0570174 | 0.02971533 | -0.087661 | 0.0603591 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 88 | -0.01274 | -0.0561038 | 0.03062244 | -0.086745 | 0.0612639 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 89 | 0.001955 | -0.0419186 | 0.04582921 | -0.072921 | 0.0768316 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 90 | 0.01772 | -0.0260949 | 0.06153523 | -0.057056 | 0.092496 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 91 | 0.023174 | -0.0206059 | 0.06695304 | -0.051542 | 0.0978887 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 92 | 0.020256 | -0.0230446 | 0.06355592 | -0.053642 | 0.0941529 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 93 | 0.016657 | -0.0268398 | 0.06015417 | -0.057576 | 0.0908902 | ns |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 94 | 0.013259 | -0.0302127 | 0.05673147 | -0.060931 | 0.0874499 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 95 | 0.005312 | -0.038749 | 0.04937219 | -0.069883 | 0.0805065 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 96 | -0.00815 | -0.0520941 | 0.03578935 | -0.083144 | 0.0668396 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 97 | -0.02155 | -0.0660718 | 0.02297047 | -0.097532 | 0.0544302 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 98 | -0.02693 | -0.071102 | 0.01723812 | -0.102314 | 0.0484498 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 99 | -0.01774 | -0.0631389 | 0.02765802 | -0.095219 | 0.0597377 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 100 | 0.007941 | -0.035208 | 0.05108981 | -0.065698 | 0.0815799 | ns |
| VaporWD | 8G [right] | Air + EtOH | Vapor X PriorITI | 8 | 101 | 0.0444 | -0.018496 | 0.10729536 | -0.06294 | 0.151739 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 1 | 0.02949 | 0.0220094 | 0.03697047 | 0.0167139 | 0.042266 | * |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 2 | 0.054396 | 0.04288227 | 0.06591054 | 0.0347314 | 0.0740614 | * |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 3 | 0.063114 | 0.04816934 | 0.0780596 | 0.0375897 | 0.0886393 | * |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 4 | 0.049173 | 0.0315825 | 0.06676438 | 0.0191298 | 0.079217 | * |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 5 | 0.022248 | 0.00234891 | 0.04214629 | -0.011737 | 0.0562326 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 6 | -0.00059 | -0.0225312 | 0.02134281 | -0.03806 | 0.0368721 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 7 | -0.00977 | -0.0331255 | 0.01359319 | -0.049662 | 0.0301293 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 8 | -0.00882 | -0.0327671 | 0.01512717 | -0.049719 | 0.0320794 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 9 | -0.00725 | -0.0314369 | 0.01692935 | -0.048556 | 0.0340486 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 10 | -0.00997 | -0.0340837 | 0.01414629 | -0.051155 | 0.0312173 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 11 | -0.01377 | -0.0379819 | 0.01044556 | -0.055123 | 0.0275865 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 12 | -0.01235 | -0.0366096 | 0.0119156 | -0.053785 | 0.0290911 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 13 | -0.00375 | -0.0281519 | 0.02065239 | -0.045426 | 0.0379267 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 14 | 0.006672 | -0.0177617 | 0.03110628 | -0.035059 | 0.0484031 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 15 | 0.010922 | -0.0135695 | 0.03541407 | -0.030907 | 0.0527518 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 16 | 0.006813 | -0.0175667 | 0.03119287 | -0.034825 | 0.0484514 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 17 | 0.001028 | -0.0233412 | 0.02539621 | -0.040592 | 0.0426468 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 18 | 0.00213 | -0.0223332 | 0.02659386 | -0.039651 | 0.0439116 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 19 | 0.011351 | -0.0134727 | 0.0361752 | -0.031046 | 0.0537481 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 20 | 0.022657 | -0.0025018 | 0.04781635 | -0.020312 | 0.0656265 | ns |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8H [left] | Air | DSDuration | 5 | 21 | 0.030987 | 0.00555329 | 0.05642098 | -0.012451 | 0.0744256 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 22 | 0.036431 | 0.01093457 | 0.06192659 | -0.007114 | 0.0799753 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 23 | 0.039938 | 0.01435311 | 0.06552218 | -0.003758 | 0.0836335 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 24 | 0.039911 | 0.01426232 | 0.06555952 | -0.003894 | 0.0837162 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 25 | 0.035947 | 0.01007879 | 0.0618156 | -0.008234 | 0.0801279 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 26 | 0.03229 | 0.0062445 | 0.05833498 | -0.012193 | 0.0767724 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 27 | 0.033571 | 0.0073583 | 0.0597845 | -0.011198 | 0.0783408 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 28 | 0.038787 | 0.01255203 | 0.06502224 | -0.00602 | 0.0835941 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 29 | 0.042515 | 0.01618795 | 0.06884177 | -0.002449 | 0.0874786 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 30 | 0.040802 | 0.01444948 | 0.06715465 | -0.004206 | 0.0858097 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 31 | 0.033736 | 0.00733606 | 0.0601351 | -0.011352 | 0.0788234 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 32 | 0.024489 | -0.0018193 | 0.05079641 | -0.020443 | 0.0694198 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 33 | 0.018551 | -0.0077587 | 0.04486129 | -0.026384 | 0.0634862 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 34 | 0.021206 | -0.0051586 | 0.04756982 | -0.023822 | 0.0662331 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 35 | 0.031762 | 0.00517676 | 0.05834648 | -0.013643 | 0.077166 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 36 | 0.041999 | 0.01524759 | 0.06875105 | -0.00369 | 0.0876886 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 37 | 0.04427 | 0.01735224 | 0.07118845 | -0.001703 | 0.0902438 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 38 | 0.039765 | 0.0128792 | 0.06665165 | -0.006154 | 0.0856845 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 39 | 0.035057 | 0.0082335 | 0.06188125 | -0.010755 | 0.0808699 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 40 | 0.032652 | 0.00596588 | 0.05933787 | -0.012925 | 0.0782289 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 41 | 0.030191 | 0.00349928 | 0.0568837 | -0.015396 | 0.0757792 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 42 | 0.027493 | 0.00075999 | 0.05422622 | -0.018164 | 0.0731506 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 43 | 0.027676 | 0.000755 | 0.05459737 | -0.018303 | 0.0736549 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 44 | 0.030636 | 0.00358779 | 0.05768435 | -0.01556 | 0.0768319 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 45 | 0.031682 | 0.00451903 | 0.05884429 | -0.014709 | 0.0780728 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 46 | 0.028866 | 0.00179915 | 0.05593366 | -0.017362 | 0.0750946 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 47 | 0.026622 | -0.0003479 | 0.05359251 | -0.01944 | 0.0726848 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 48 | 0.029499 | 0.00261331 | 0.05638531 | -0.016419 | 0.0754179 | ns |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8H [left] | Air | DSDuration | 5 | 49 | 0.036389 | 0.00936316 | 0.06341402 | -0.009768 | 0.0825454 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 50 | 0.043352 | 0.016152 | 0.07055185 | -0.003103 | 0.0898067 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 51 | 0.048297 | 0.02085329 | 0.07574149 | 0.0014256 | 0.0951692 | * |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 52 | 0.050358 | 0.02281388 | 0.07790267 | 0.0033152 | 0.0974014 | * |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 53 | 0.048423 | 0.0207756 | 0.07607037 | 0.001204 | 0.095642 | * |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 54 | 0.043271 | 0.0156554 | 0.07088703 | -0.003894 | 0.0904363 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 55 | 0.038201 | 0.01062525 | 0.06577648 | -0.008896 | 0.0852973 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 56 | 0.034967 | 0.00759706 | 0.06233607 | -0.011778 | 0.081711 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 57 | 0.031837 | 0.00461217 | 0.05906268 | -0.014661 | 0.0783355 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 58 | 0.027578 | 0.00050654 | 0.05464927 | -0.018657 | 0.0738131 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 59 | 0.023867 | -0.0031587 | 0.05089172 | -0.02229 | 0.0700229 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 60 | 0.02164 | -0.0053315 | 0.0486106 | -0.024424 | 0.0677034 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 61 | 0.019074 | -0.0080668 | 0.04621519 | -0.02728 | 0.0654283 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 62 | 0.015886 | -0.011447 | 0.04321898 | -0.030796 | 0.062568 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 63 | 0.01526 | -0.0122992 | 0.04281922 | -0.031808 | 0.0623285 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 64 | 0.018202 | -0.0094188 | 0.04582229 | -0.028971 | 0.0653749 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 65 | 0.020732 | -0.0069522 | 0.04841703 | -0.02655 | 0.068015 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 66 | 0.020967 | -0.0066548 | 0.04858801 | -0.026208 | 0.0681413 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 67 | 0.023832 | -0.0038278 | 0.05149101 | -0.023408 | 0.0710711 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 68 | 0.032776 | 0.00510862 | 0.06044384 | -0.014477 | 0.0800298 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 69 | 0.041499 | 0.01375704 | 0.06924004 | -0.005881 | 0.0888783 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 70 | 0.041777 | 0.01412874 | 0.06942578 | -0.005444 | 0.0889982 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 71 | 0.036361 | 0.00875562 | 0.06396647 | -0.010786 | 0.0835084 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 72 | 0.035117 | 0.00755956 | 0.0626751 | -0.011949 | 0.0821833 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 73 | 0.039847 | 0.01217474 | 0.06751885 | -0.007414 | 0.0871079 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 74 | 0.042718 | 0.01502602 | 0.07041038 | -0.004577 | 0.0900137 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 75 | 0.040414 | 0.01264757 | 0.06817948 | -0.007008 | 0.087835 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 76 | 0.03952 | 0.01174559 | 0.06729498 | -0.007916 | 0.0869567 | ns |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8H [left] | Air | DSDuration | 5 | 77 | 0.044191 | 0.01622465 | 0.07215764 | -0.003573 | 0.0919552 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 78 | 0.04753 | 0.01942557 | 0.07563452 | -0.00047 | 0.0955297 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 79 | 0.041445 | 0.01315559 | 0.06973435 | -0.006871 | 0.0897604 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 80 | 0.028781 | 0.0004946 | 0.05706641 | -0.019529 | 0.0770901 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 81 | 0.019157 | -0.0092062 | 0.04751993 | -0.029285 | 0.0675982 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 82 | 0.017062 | -0.0113225 | 0.04544649 | -0.031416 | 0.0655399 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 83 | 0.019962 | -0.0085973 | 0.04852184 | -0.028815 | 0.0687392 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 84 | 0.024434 | -0.0041173 | 0.05298496 | -0.024329 | 0.0731963 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 85 | 0.027921 | -0.0005967 | 0.05643878 | -0.020784 | 0.0766265 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 86 | 0.027341 | -0.0009375 | 0.05562041 | -0.020956 | 0.0756391 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 87 | 0.022576 | -0.0056599 | 0.05081223 | -0.025648 | 0.0708006 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 88 | 0.019574 | -0.0086947 | 0.04784208 | -0.028706 | 0.0678533 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 89 | 0.02346 | -0.0051015 | 0.05202138 | -0.02532 | 0.0722401 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 90 | 0.029788 | 0.00122646 | 0.05834931 | -0.018992 | 0.078568 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 91 | 0.029809 | 0.00130698 | 0.05831199 | -0.01887 | 0.078489 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 92 | 0.024337 | -0.0038987 | 0.0525731 | -0.023887 | 0.0725613 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 93 | 0.024099 | -0.0042148 | 0.05241376 | -0.024258 | 0.0724575 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 94 | 0.033613 | 0.00526324 | 0.06196184 | -0.014805 | 0.0820304 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 95 | 0.04242 | 0.01375002 | 0.07108978 | -0.006545 | 0.0913852 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 96 | 0.038148 | 0.00948395 | 0.0668121 | -0.010807 | 0.0871035 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 97 | 0.023298 | -0.0056806 | 0.05227698 | -0.026195 | 0.0727911 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 98 | 0.012315 | -0.0166899 | 0.04131986 | -0.037222 | 0.0618524 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 99 | 0.014555 | -0.0149225 | 0.04403299 | -0.03579 | 0.0649003 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 100 | 0.026964 | -0.0014661 | 0.05539369 | -0.021592 | 0.0755192 | ns |
| VaporWD | 8H [left] | Air | DSDuration | 5 | 101 | 0.042552 | 0.00082366 | 0.08428017 | -0.028716 | 0.1138197 | ns |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 1 | 0.025998 | 0.01852053 | 0.03347583 | 0.0131678 | 0.0388286 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 2 | 0.123948 | 0.11105283 | 0.13684331 | 0.101822 | 0.1460741 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 3 | 0.180957 | 0.16518775 | 0.19672646 | 0.1538996 | 0.2080146 | * |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 4 | 0.174213 | 0.15543709 | 0.19298827 | 0.1419969 | 0.2064284 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 5 | 0.123908 | 0.10267348 | 0.14514312 | 0.0874729 | 0.1603437 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 6 | 0.079005 | 0.05555991 | 0.10245077 | 0.0387769 | 0.1192337 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 7 | 0.068755 | 0.04378352 | 0.09372631 | 0.0259082 | 0.1116016 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 8 | 0.0782 | 0.05266272 | 0.10373812 | 0.034382 | 0.1220188 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 9 | 0.079636 | 0.05378766 | 0.10548477 | 0.0352845 | 0.123988 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 10 | 0.073141 | 0.04743545 | 0.09884585 | 0.0290349 | 0.1172464 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 11 | 0.077992 | 0.05210571 | 0.103879 | 0.0335753 | 0.1224095 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 12 | 0.09556 | 0.06968 | 0.1214405 | 0.0511541 | 0.1399664 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 13 | 0.106288 | 0.08019661 | 0.13237887 | 0.0615198 | 0.1510557 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 14 | 0.101818 | 0.07574972 | 0.12788566 | 0.0570895 | 0.1465459 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 15 | 0.09571 | 0.06951485 | 0.12190613 | 0.0507632 | 0.1406578 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 16 | 0.098077 | 0.07205794 | 0.12409596 | 0.0534327 | 0.1427212 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 17 | 0.101704 | 0.07564444 | 0.12776328 | 0.0569903 | 0.1464174 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 18 | 0.101526 | 0.07541806 | 0.12763366 | 0.0567293 | 0.1463224 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 19 | 0.107586 | 0.08103877 | 0.13413384 | 0.0620352 | 0.1531374 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 20 | 0.125841 | 0.09898223 | 0.15269911 | 0.0797561 | 0.1719252 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 21 | 0.14217 | 0.11497016 | 0.16937027 | 0.0954995 | 0.1888409 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 22 | 0.140938 | 0.11372903 | 0.16814644 | 0.0942522 | 0.1876233 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 23 | 0.128278 | 0.10092445 | 0.15563119 | 0.0813441 | 0.1752116 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 24 | 0.121356 | 0.09398963 | 0.1487233 | 0.0743996 | 0.1683133 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 25 | 0.122359 | 0.09470332 | 0.15001377 | 0.0749069 | 0.1698102 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 26 | 0.119118 | 0.09132046 | 0.14691564 | 0.0714221 | 0.166814 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 27 | 0.107326 | 0.07929672 | 0.13535434 | 0.0592328 | 0.1554182 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 28 | 0.096339 | 0.06834382 | 0.12433321 | 0.0483043 | 0.1443727 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 29 | 0.092891 | 0.06474331 | 0.12103771 | 0.0445947 | 0.1411863 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 30 | 0.092468 | 0.06434323 | 0.12059311 | 0.0442105 | 0.1407258 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 31 | 0.08995 | 0.06171772 | 0.11818239 | 0.0415081 | 0.138392 | * |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 32 | 0.088692 | 0.06061361 | 0.1167706 | 0.0405141 | 0.1368701 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 33 | 0.094219 | 0.06608942 | 0.12234921 | 0.0459532 | 0.1424855 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 34 | 0.10466 | 0.07652311 | 0.13279675 | 0.0563819 | 0.152938 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 35 | 0.111436 | 0.08301075 | 0.13986195 | 0.0626628 | 0.1602099 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 36 | 0.107311 | 0.07876104 | 0.1358619 | 0.0583238 | 0.1562992 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 37 | 0.093139 | 0.0643564 | 0.12192217 | 0.0437527 | 0.1425259 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 38 | 0.07851 | 0.04981399 | 0.1072053 | 0.0292727 | 0.1277465 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 39 | 0.074035 | 0.04535408 | 0.10271682 | 0.0248231 | 0.1232478 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 40 | 0.080191 | 0.05170993 | 0.10867268 | 0.0313221 | 0.1290605 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 41 | 0.086359 | 0.05781763 | 0.11490081 | 0.0373867 | 0.1353318 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 42 | 0.084109 | 0.0555778 | 0.1126395 | 0.0351545 | 0.1330628 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 43 | 0.077269 | 0.04848547 | 0.10605265 | 0.0278813 | 0.1266568 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 44 | 0.074045 | 0.04517943 | 0.10291116 | 0.0245163 | 0.1235743 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 45 | 0.074435 | 0.04539018 | 0.10348059 | 0.0245987 | 0.1242721 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 46 | 0.073375 | 0.04448381 | 0.1022654 | 0.0238029 | 0.1229463 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 47 | 0.072075 | 0.04323661 | 0.10091247 | 0.0225935 | 0.1215556 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 48 | 0.075569 | 0.04687403 | 0.10426442 | 0.0263331 | 0.1248053 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 49 | 0.080627 | 0.05172739 | 0.10952702 | 0.03104 | 0.1302144 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 50 | 0.078299 | 0.04926721 | 0.10733142 | 0.0284851 | 0.1281135 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 51 | 0.070368 | 0.04102231 | 0.0997145 | 0.0200155 | 0.1207213 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 52 | 0.070948 | 0.04155506 | 0.10034045 | 0.0205149 | 0.1213807 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 53 | 0.085794 | 0.05623749 | 0.11535075 | 0.0350799 | 0.1365083 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 54 | 0.100402 | 0.0709327 | 0.12987069 | 0.0498379 | 0.1509655 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 55 | 0.097955 | 0.06846758 | 0.127443 | 0.0473594 | 0.1485512 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 56 | 0.082674 | 0.05346309 | 0.11188543 | 0.0325528 | 0.1327957 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 57 | 0.074931 | 0.0458183 | 0.10404385 | 0.0249785 | 0.1248837 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 58 | 0.085475 | 0.05657465 | 0.11437604 | 0.0358866 | 0.1350641 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 59 | 0.103833 | 0.07492367 | 0.13274276 | 0.0542293 | 0.1534371 | * |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 60 | 0.11292 | 0.08413255 | 0.14170697 | 0.0635258 | 0.1623138 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 61 | 0.107616 | 0.07858992 | 0.13664211 | 0.0578121 | 0.1574199 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 62 | 0.096127 | 0.06695118 | 0.12530332 | 0.046066 | 0.1461885 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 63 | 0.088118 | 0.05864539 | 0.11758991 | 0.0375482 | 0.1386871 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 64 | 0.085623 | 0.05614766 | 0.11509784 | 0.0350485 | 0.136197 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 65 | 0.083996 | 0.05439122 | 0.11360065 | 0.0331992 | 0.1347926 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 66 | 0.078648 | 0.04917386 | 0.10812173 | 0.0280755 | 0.1292201 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 67 | 0.069893 | 0.04031787 | 0.09946865 | 0.0191469 | 0.1206396 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 68 | 0.061584 | 0.03205776 | 0.09111043 | 0.0109219 | 0.1122463 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 69 | 0.05626 | 0.0265871 | 0.0859338 | 0.005346 | 0.1071749 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 70 | 0.053882 | 0.02437165 | 0.08339156 | 0.0032475 | 0.1045157 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 71 | 0.055632 | 0.02610896 | 0.08515441 | 0.0049757 | 0.1062877 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 72 | 0.065091 | 0.03568236 | 0.09450056 | 0.0146304 | 0.1155525 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 73 | 0.081838 | 0.05223526 | 0.11144004 | 0.0310449 | 0.1326303 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 74 | 0.096093 | 0.06653606 | 0.12565024 | 0.0453782 | 0.1468081 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 75 | 0.095765 | 0.06606352 | 0.12546743 | 0.0448019 | 0.146729 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 76 | 0.080451 | 0.0508157 | 0.11008685 | 0.0296016 | 0.1313009 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 77 | 0.063703 | 0.03378941 | 0.09361633 | 0.0123764 | 0.1150293 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 78 | 0.057718 | 0.02773043 | 0.08770578 | 0.0062643 | 0.1091719 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 79 | 0.059059 | 0.02879804 | 0.0893194 | 0.0071365 | 0.1109809 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 80 | 0.055057 | 0.02488241 | 0.08523233 | 0.0032822 | 0.1068325 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 81 | 0.043324 | 0.01299049 | 0.07365789 | -0.008723 | 0.0953717 | ns |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 82 | 0.037454 | 0.00718035 | 0.06772851 | -0.014491 | 0.0893996 | ns |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 83 | 0.049519 | 0.01896801 | 0.08006954 | -0.002901 | 0.1019387 | ns |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 84 | 0.072525 | 0.04206575 | 0.10298406 | 0.0202621 | 0.1247877 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 85 | 0.08776 | 0.0572477 | 0.11827293 | 0.0354058 | 0.1401148 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 86 | 0.087688 | 0.05752375 | 0.11785205 | 0.0359313 | 0.1394445 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 87 | 0.082581 | 0.05237345 | 0.11278798 | 0.0307502 | 0.1344113 | * |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 88 | 0.082275 | 0.05213412 | 0.11241525 | 0.0305586 | 0.1339908 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 89 | 0.08081 | 0.0502389 | 0.11138132 | 0.0283551 | 0.1332651 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 90 | 0.067109 | 0.03665042 | 0.09756782 | 0.0148471 | 0.1193711 | * |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 91 | 0.045182 | 0.01467392 | 0.07568913 | -0.007164 | 0.0975274 | ns |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 92 | 0.032372 | 0.00228254 | 0.06246127 | -0.019256 | 0.0840002 | ns |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 93 | 0.036902 | 0.00658339 | 0.06722017 | -0.015119 | 0.088923 | ns |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 94 | 0.046936 | 0.01673667 | 0.07713571 | -0.004881 | 0.0987535 | ns |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 95 | 0.046491 | 0.01576862 | 0.07721425 | -0.006224 | 0.0992066 | ns |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 96 | 0.03535 | 0.0048518 | 0.06584814 | -0.01698 | 0.0876797 | ns |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 97 | 0.026655 | -0.0044144 | 0.05772526 | -0.026655 | 0.079966 | ns |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 98 | 0.028345 | -0.0020895 | 0.05877994 | -0.023876 | 0.0805661 | ns |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 99 | 0.034291 | 0.00266366 | 0.06591917 | -0.019976 | 0.0885593 | ns |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 100 | 0.034271 | 0.004499 | 0.0640435 | -0.016813 | 0.0853554 | ns |
| VaporWD | 8H [left] | EtOH | DSDuration | 5 | 101 | 0.026903 | -0.0158116 | 0.06961814 | -0.046388 | 0.1001948 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 1 | 0.00488 | -0.0055976 | 0.01535752 | -0.012832 | 0.0225915 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 2 | 0.066353 | 0.05031872 | 0.08238633 | 0.0392486 | 0.0934565 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 3 | 0.108746 | 0.08789356 | 0.12959924 | 0.0734962 | 0.1439966 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 4 | 0.119438 | 0.09489455 | 0.14398243 | 0.0779488 | 0.1609282 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 5 | 0.104982 | 0.07722479 | 0.13273981 | 0.0580603 | 0.1519043 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 6 | 0.087234 | 0.05663753 | 0.11783127 | 0.0355127 | 0.1389561 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 7 | 0.081446 | 0.04886575 | 0.11402534 | 0.0263718 | 0.1365193 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 8 | 0.083554 | 0.05015092 | 0.11695689 | 0.0270886 | 0.1400192 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 9 | 0.083942 | 0.05021319 | 0.11767141 | 0.0269258 | 0.1409589 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 10 | 0.08508 | 0.05144272 | 0.11871653 | 0.0282189 | 0.1419403 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 11 | 0.094501 | 0.06073037 | 0.12827151 | 0.0374143 | 0.1515876 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 12 | 0.106595 | 0.07275432 | 0.14043581 | 0.0493898 | 0.1638003 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 13 | 0.10703 | 0.07299743 | 0.14106212 | 0.0495006 | 0.1645589 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 14 | 0.095139 | 0.06106041 | 0.12921754 | 0.0375317 | 0.1527463 | * |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 15 | 0.086786 | 0.05262964 | 0.12094245 | 0.0290472 | 0.1445249 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 16 | 0.091258 | 0.05725455 | 0.12526112 | 0.0337778 | 0.1487379 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 17 | 0.099239 | 0.06525213 | 0.13322574 | 0.0417868 | 0.1566911 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 18 | 0.10025 | 0.06612771 | 0.13437135 | 0.0425691 | 0.1579299 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 19 | 0.09885 | 0.06422759 | 0.13347228 | 0.0403234 | 0.1573764 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 20 | 0.103183 | 0.06809188 | 0.13827479 | 0.0438638 | 0.1625028 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 21 | 0.108009 | 0.07253665 | 0.1434821 | 0.0480454 | 0.1679734 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 22 | 0.102728 | 0.06716623 | 0.13828909 | 0.0426137 | 0.1628416 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 23 | 0.090261 | 0.05457894 | 0.12594344 | 0.029943 | 0.1505794 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 24 | 0.083661 | 0.04788725 | 0.11943403 | 0.0231884 | 0.1441329 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 25 | 0.085661 | 0.04958314 | 0.12173922 | 0.0246739 | 0.1466484 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 26 | 0.084872 | 0.04854534 | 0.12119936 | 0.0234642 | 0.1462805 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 27 | 0.07375 | 0.03719001 | 0.11030936 | 0.0119483 | 0.1355511 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 28 | 0.058992 | 0.02239902 | 0.09558514 | -0.002866 | 0.1208499 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 29 | 0.050703 | 0.01398382 | 0.08742186 | -0.011368 | 0.1127736 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 30 | 0.050697 | 0.0139399 | 0.08745313 | -0.011438 | 0.1128308 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 31 | 0.055967 | 0.01914757 | 0.09278679 | -0.006274 | 0.118208 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 32 | 0.065409 | 0.02871511 | 0.1021031 | 0.0033806 | 0.1274376 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 33 | 0.076839 | 0.04014405 | 0.11353426 | 0.0148088 | 0.1388695 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 34 | 0.083079 | 0.04630645 | 0.11985163 | 0.0209177 | 0.1452404 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 35 | 0.077884 | 0.04080584 | 0.11496222 | 0.0152061 | 0.140562 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 36 | 0.063628 | 0.02631538 | 0.10094147 | 0.0005535 | 0.1267034 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 37 | 0.04895 | 0.01140732 | 0.08649319 | -0.014513 | 0.1124138 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 38 | 0.040745 | 0.00324387 | 0.07824528 | -0.022648 | 0.1041367 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 39 | 0.040886 | 0.0034741 | 0.07829812 | -0.022356 | 0.1041283 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 40 | 0.047231 | 0.01000946 | 0.08445324 | -0.015689 | 0.1101522 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 41 | 0.054255 | 0.01702636 | 0.09148277 | -0.008677 | 0.1171861 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 42 | 0.05569 | 0.01840342 | 0.09297697 | -0.00734 | 0.1187207 | ns |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 43 | 0.050457 | 0.01291075 | 0.08800334 | -0.013012 | 0.1139263 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 44 | 0.044179 | 0.00645397 | 0.08190432 | -0.019592 | 0.1079508 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 45 | 0.042324 | 0.00444183 | 0.08020701 | -0.021713 | 0.1063621 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 46 | 0.044321 | 0.00656881 | 0.08207368 | -0.019496 | 0.1081389 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 47 | 0.046412 | 0.00879624 | 0.08402858 | -0.017175 | 0.1099998 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 48 | 0.046345 | 0.00884399 | 0.08384688 | -0.017048 | 0.1097388 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 49 | 0.042479 | 0.00478477 | 0.08017237 | -0.02124 | 0.1061971 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 50 | 0.033485 | -0.0044535 | 0.07142406 | -0.030647 | 0.097618 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 51 | 0.023758 | -0.0145185 | 0.06203463 | -0.040946 | 0.0884617 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 52 | 0.023751 | -0.0146674 | 0.0621694 | -0.041193 | 0.0886945 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 53 | 0.037523 | -0.0010373 | 0.0760829 | -0.02766 | 0.1027058 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 54 | 0.053566 | 0.01504745 | 0.09208455 | -0.011547 | 0.1186787 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 55 | 0.056945 | 0.01848485 | 0.09540563 | -0.008069 | 0.1219597 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 56 | 0.049208 | 0.01103254 | 0.08738354 | -0.015325 | 0.1137409 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 57 | 0.046892 | 0.00891966 | 0.08486449 | -0.017297 | 0.1110816 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 58 | 0.059487 | 0.02172733 | 0.09724653 | -0.004343 | 0.1233167 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 59 | 0.078077 | 0.0403845 | 0.1157705 | 0.0143603 | 0.1417947 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 60 | 0.088608 | 0.05098815 | 0.12622814 | 0.0250143 | 0.1522019 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 61 | 0.087827 | 0.04997248 | 0.1256812 | 0.0238369 | 0.1518168 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 62 | 0.081495 | 0.0433718 | 0.11961912 | 0.0170502 | 0.1459407 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 63 | 0.07428 | 0.03584329 | 0.11271678 | 0.0093056 | 0.1392545 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 64 | 0.067669 | 0.02914437 | 0.10619339 | 0.0025461 | 0.1327917 | * |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 65 | 0.062482 | 0.02387012 | 0.10109314 | -0.002788 | 0.1277515 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 66 | 0.05691 | 0.01838352 | 0.09543583 | -0.008216 | 0.1220353 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 67 | 0.045966 | 0.00738855 | 0.08454303 | -0.019246 | 0.1111777 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 68 | 0.029044 | -0.0095477 | 0.06763473 | -0.036192 | 0.0942791 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 69 | 0.01476 | -0.0239321 | 0.05345137 | -0.050646 | 0.0801651 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 70 | 0.012218 | -0.026347 | 0.05078251 | -0.052973 | 0.0774086 | ns |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 71 | 0.020313 | -0.0181895 | 0.0588157 | -0.044773 | 0.0853989 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 72 | 0.031463 | -0.006976 | 0.06990119 | -0.033515 | 0.0964402 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 73 | 0.042009 | 0.00341408 | 0.08060428 | -0.023233 | 0.1072513 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 74 | 0.051108 | 0.01248178 | 0.08973329 | -0.014186 | 0.1164015 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 75 | 0.052912 | 0.01418629 | 0.09163859 | -0.012551 | 0.1183761 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 76 | 0.041175 | 0.0024339 | 0.07991666 | -0.024314 | 0.1066647 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 77 | 0.022154 | -0.0168522 | 0.0611593 | -0.043783 | 0.0880899 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 78 | 0.011753 | -0.0274477 | 0.05095326 | -0.054513 | 0.0780183 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 79 | 0.015967 | -0.0234877 | 0.05542189 | -0.050728 | 0.0826625 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 80 | 0.023736 | -0.015717 | 0.06318912 | -0.042956 | 0.0904285 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 81 | 0.024517 | -0.0150407 | 0.06407537 | -0.042353 | 0.0913872 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 82 | 0.023569 | -0.0160225 | 0.06316094 | -0.043358 | 0.0904961 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 83 | 0.031523 | -0.0083095 | 0.07135552 | -0.035811 | 0.0988569 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 84 | 0.046397 | 0.0065731 | 0.08622098 | -0.020922 | 0.1137164 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 85 | 0.057041 | 0.01726696 | 0.0968151 | -0.010194 | 0.1242761 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 86 | 0.060245 | 0.02079963 | 0.09969 | -0.006434 | 0.126924 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 87 | 0.062128 | 0.0227465 | 0.10151028 | -0.004444 | 0.1287006 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 88 | 0.063207 | 0.02377643 | 0.10263702 | -0.003447 | 0.1298607 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 89 | 0.054994 | 0.01516054 | 0.09482648 | -0.012341 | 0.1223282 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 90 | 0.035484 | -0.004353 | 0.07532048 | -0.031857 | 0.1028248 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 91 | 0.017049 | -0.0227012 | 0.05679947 | -0.050146 | 0.0842441 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 92 | 0.011306 | -0.0280786 | 0.05069055 | -0.055271 | 0.0778827 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 93 | 0.013487 | -0.0260008 | 0.05297578 | -0.053265 | 0.0802395 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 94 | 0.010785 | -0.0287592 | 0.05032841 | -0.056061 | 0.0776305 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 95 | 0.001821 | -0.0381629 | 0.04180461 | -0.065769 | 0.0694104 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 96 | -0.00207 | -0.0420557 | 0.03791426 | -0.069662 | 0.0655209 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 97 | 0.005643 | -0.0347769 | 0.04606352 | -0.062684 | 0.0739707 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 98 | 0.016766 | -0.0237235 | 0.05725567 | -0.051679 | 0.0852107 | ns |

**Table 3:** Results of functional linear mixed modeling analyses

| Model | Figure | Vapor Group | Covariate Effect | Beta Coeff | % DS Time | Beta Hat | CI Pointwise (Lower) | CI Pointwise (Upper) | CI Joint (Lower) | CI Joint (Upper) | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 99 | 0.018268 | -0.0228303 | 0.05936724 | -0.051206 | 0.0877429 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 100 | 0.005964 | -0.0337495 | 0.04567677 | -0.061169 | 0.0730957 | ns |
| VaporWD | 8H [right] | Air + EtOH | Vapor X DSDuration | 9 | 101 | -0.01451 | -0.0728247 | 0.0438124 | -0.113089 | 0.084077 | ns |