**Feline tooth resorption findings from a questionnaire survey on 8115 Finnish cats and a case-control study for a more defined population**

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**Supplementary Table S1.** Factors with their answer options selected from the health and behavioral internet

survey of Finnish cats into the study of Risk and protective factors of feline tooth resorption in 8115 Finnish

cats. Data collected 12/2012-2/2015.

| **Factors** | **Options** | | | | |
| --- | --- | --- | --- | --- | --- |
| **Charasteristics of the cat** |  |  | |  |  |
| Breed | Breed selected from the list of breeds | | | | |
| Age | Difference between the date of birth and the date of response. Categorised into age groups. | | | | |
| Gender | Female=2, male=1 | | | | |
| **Diets and availability of food** |  | | | | |
| Industrial dry/wet food from the grocery store | Mark the option if true | | | | |
| Industrial dry/wet food from the pet store |
| Raw fish or meat stored in the freezer |
| Raw fish or meat not stored in the freezer |
| Cooked meat/fish |
| Home food made specifically for the cat |
| Leftovers |
| Availability of food all the time | Yes=2, no=1 | | | | |
| Nutritional supplements | Yes=1, no=0 | | | | |
| **Outdoor habbits** | 1=Outside the entire time, 2=every day, 3=3-5 times per week, 4=1-2 times per week, 5=1-2 times per month, 6=a few times per year, 7=never | | | | |
| **Oral and dental diseases** |  | | | | |
| Malocclusion (teeth alignment problem) | Mark the option if true | | | | |
| Gingivitis |
| Stomatitis |
| Periodontitis |
| Dental calculus |
| Tooth fracture |
| Oligodontia |
| **Autoimmune diseases** |  | | | | |
| Autoimmune disease | Mark the option if true | | | | |
| AIHA/IMHA (autoimmune hemolytic anemia) |
| IMP (Immune-mediated thrombocytopenia) |
| ITP (Idiopathic thrombocytopenia purpura) |
| **Viral infections** |  | | | | |
| FELV (Feline leukemia virus) | Mark the option if true | | | | |
| FIP (Feline Infectious Peritonitis, FECV) |
| FIV (Feline Immunodeficiency Virus) |
| Cat flue |
| FCV (Feline Calicivirus) |
| FHV (Feline herpesvirus) |
| Feline panleukopenia |
| **Disease categories** | **Owner's/breeder's diagnose** | **Veterinarian's diagnose** | **No** | | **Not known** |
| Congenital developmental disorders | Mark the option that is true | | | | |
| Dermatological disease |
| Ocular disease |
| Otic disease |
| Renal or urinary disease |
| Cardiac or circulatory system disease |
| Blood disorders |
| Musculoskeletal disease |
| Digestive tract disease |
| Respiratory system disease |
| Diseases of the nervous system |
| Genital diseases |
| Endocrinological disease |
| Tumours |
| Parasites and protozoans |
| **Vaccinations** |  | | | | |
| Cat flu | Yes=2, no=1, not known=0 | | | | |
| Panleucopenia |
| Chlamydia |
| Leukaemia |
| Rabies |

**Supplementary Table S2.** Basic statistics and association of breeds to tooth resorption (TR) in single variable logistic regression with confounding factors age, gender and breed in Finnish cats in an internet survey collected 12/2012-2/2015; number (n), percentages (%) of cats with and without veterinarian diagnosed tooth resorption (N = 8115). CI = confidence interval. Bolded: significant association with tooth resorption.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Breed/breed group | TR diagnosed | | | TR not diagnosed | | | Single variable logistic regression with confounding factors | | |
|  | n = 316 | % | 95 % CI (Wilson) | n = 7799 | % | 95 % CI (Wilson) | odds ratio (OR) | 95 % CI  for OR | P-value (Wald) |
| House cat | 61 | 19.3 | 15.3-24.0 | 1405 | 18.0 | 17.2-18.9 | reference group | | |
| Abyssinian, ocicat, somali | **30** | **9.5** | **6.7-13.2** | **481** | **6.2** | **5.7-6.7** | **1.79** | **1.12-2.86** | **0.015** |
| Siamese, Balinese, Oriental, Seychellois | **34** | **10.8** | **7.8-14.7** | **402** | **5.2** | **4.7-5.7** | **3.15** | **1.99-5.00** | **<.0001** |
| Bengal | 5 | 1.6 | 0.7-3.6 | 301 | 3.9 | 3.5-4.3 | 0.62 | 0.24-1.57 | 0.311 |
| British | 15 | 4.7 | 2.9-7.7 | 345 | 4.4 | 4.0-4.9 | 1.64 | 0.90-2.99 | 0.106 |
| Burmese, burmilla, singapura | 13 | 4.1 | 2.4-6.9 | 321 | 4.1 | 3.7-4.6 | 1.28 | 0.68-2.41 | 0.440 |
| Cornish rex | **37** | **11.7** | **8.6-15.7** | **379** | **4.9** | **4.4-5.4** | **3.54** | **2.24-5.58** | **<0.001** |
| Cymric, manx | 1 | 0.3 | 0.1-1.8 | 140 | 1.8 | 1.5-2.1 | 0.15 | 0.02-1.11 | 0.063 |
| Devon rex | 1 | 0.3 | 0.1-1.8 | 280 | 3.6 | 3.2-4.0 | 0.23 | 0.03-1.66 | 0.144 |
| European | **20** | **6.3** | **4.1-9.6** | **244** | **3.1** | **2.8-3.5** | **2.22** | **1.29-3.84** | **0.004** |
| Korat | 5 | 1.6 | 0.7-3.6 | 233 | 3.0 | 2.6-3.4 | 0.52 | 0.21-1.33 | 0.172 |
| Maine coon | 10 | 3.2 | 1.7-5.7 | 375 | 4.8 | 4.4-5.3 | 1.28 | 0.63-2.57 | 0.498 |
| Neva masquerade, siberian | 10 | 3.2 | 1.7-5.7 | 324 | 4.2 | 3.7-4.6 | 1.53 | 0.76-3.10 | 0.235 |
| Norwegian forest cat | **22** | **7.0** | **4.6-10.3** | **361** | **4.6** | **4.2-5.1** | **1.80** | **1.06-3.07** | **0.029** |
| Persian, exotic | 8 | 2.5 | 1.3-4.9 | 338 | 4.3 | 3.9-4.8 | 0.51 | 0.23-1.13 | 0.096 |
| Sacred birman | 5 | 1.6 | 0.7-3.6 | 371 | 4.8 | 4.3-5.3 | 0.42 | 0.17-1.07 | 0.069 |
| Ragdoll | 16 | 5.1 | 3.1-8.1 | 394 | 5.1 | 4.6-5.6 | 1.70 | 0.95-3.06 | 0.075 |
| Russian blue | 7 | 2.2 | 1.1-4.5 | 328 | 4.2 | 3.8-4.7 | 0.60 | 0.27-1.34 | 0.214 |
| Sphynx | 3 | 0.9 | 0.3-2.8 | 260 | 3.3 | 3.0-3.8 | 0.77 | 0.24-2.53 | 0.668 |
| Turkish van | **1** | **0.3** | **0.1-1.8** | **226** | **2.9** | **2.5-3.3** | **0.09** | **0.01-0.66** | **0.018** |
| Other breeds | 12 | 3.8 | 2.2-6.5 | 291 | 3.7 | 3.3-4.2 | 1.86 | 0.96-3.60 | 0.064 |

**Supplementary Table S3.** Associations of disease categories in logistic regression model with confounding factors age, gender and breed in Finnish cats (N = 8115). The data comes from the cat health internet survey collected 12/2012-2/2015. Reference group is cats without diseases of the concerned category. CI = confidence interval. Bolded = disease categories selected for multivariable logistic regression modelling to identify major risk factors (p<0.05)**.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Disease category | P-value  (Fisher) | odds ratio (OR) | 95 % CI for  OR | P-value  (Wald) |
| Dermatological disease | <0.001 | 1.31 | 0.97-1.77 | 0.084 |
| Ocular disease | 0.001 | 0.99 | 0.52-1.88 | 0.966 |
| Renal or urinary disease | <0.001 | 1.27 | 0.94-1.72 | 0.119 |
| Cardiac or circulatory system disease | 0.007 | 1.40 | 0.84-2.35 | 0.198 |
| Musculoskeletal disease | **<0.001** | **1.80** | **1.32-2.46** | **<0.001** |
| Digestive tract disease | **<0.001** | **1.65** | **1.22-2.22** | **0.001** |
| Respiratory system disease | **<0.001** | **1.56** | **1.11-2.19** | **0.010** |
| Endocrinological disease | **<0.001** | **1.55** | **1.06-2.29** | **0.026** |
| Tumours | <0.001 | 1.45 | 0.99-2.11 | 0.054 |
| Parasites and protozoans | 0.061 | 1.30 | 0.90-1.87 | 0.171 |

**Supplementary Table S4.** Association of cats’ features with tooth resorption in logistic

regressions model with confounding factors age, gender and breed in Finnish cats (N = 8115).

The data comes from the cat health internet survey collected 12/2012-2/2015. Same cat may

have had several of the oral/dental diseases or viral infections. CI = confidence interval.

Bolded: features selected for multivariable logistic regression modelling to identify major

risk factors.

|  |  |  |  |
| --- | --- | --- | --- |
| Feature | Odds ratio (OR) | 95 % CI for  OR | P-value  (Wald) |
| Age (vs. < 7 yrs) | | | |
| 7-10,99 yrs | 6.77 | 5.04-9.08 | **<0.001** |
| ≤ 11 yrs | 10.34 | 7.58-14.11 | **<0.001** |
| Gender | | | |
| Male vs. female | 1.29 | 1.02-1.64 | **0.035** |
| Diet | | | |
| Cooked meat/fish vs. no | 1.05 | 0.80-1.39 | 0.724 |
| Availability of food vs. no | 0.55 | 0.43-0.71 | **<0.001** |
| Oral/dental disease | | | |
| Gingivitis vs. no | 4.90 | 3.73-6.43 | **<0.001** |
| Stomatitis vs. no | 6.92 | 3.60-13.30 | **<0.001** |
| Periodontitis vs. no | 7.58 | 4.70-12.21 | **<0.001** |
| Dental calculus vs. no | 3.73 | 2.89-4.81 | **<0.001** |
| Tooth fracture vs. no | 2.70 | 1.51-4.83 | **0.001** |
| Abnormal number of teeth vs. no | 3.20 | 1.61-6.37 | **0.001** |
| Viral infections | | | |
| Feline infectious peritonitis (FIP) vs. no | 0.48 | 0.07-3.47 | 0.463 |
| Cat flu vs. no | 2.21 | 1.22-3.98 | **0.009** |
| Vaccinations (vs. not vaccinated) | | | |
| Cat flu | 1.67 | 1.24-2.24 | 0.001 |
| Panleucopenia | 1.77 | 1.24-2.54 | 0.002 |
| Leukaemia | 0.89 | 0.58-1.37 | 0.596 |
| Rabies | 0.86 | 0.64-1.16 | 0.325 |