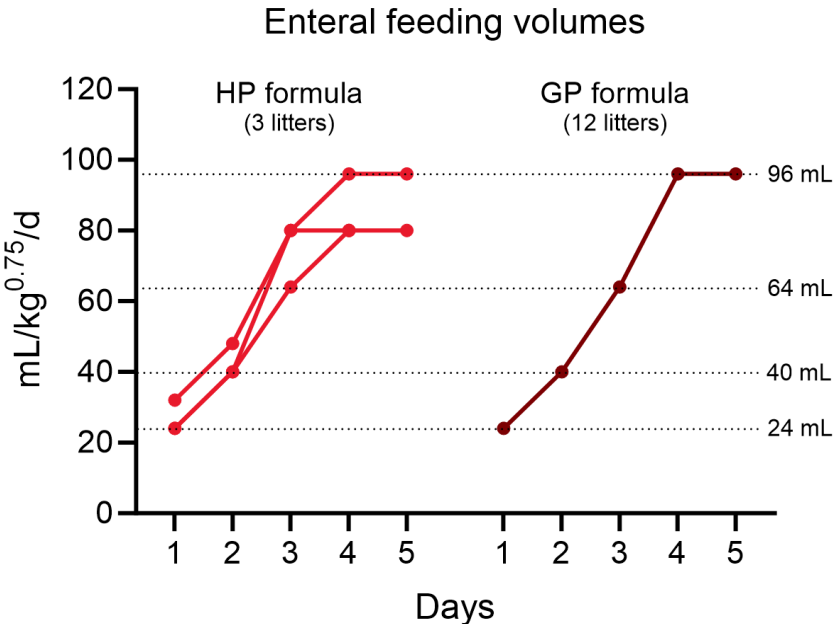
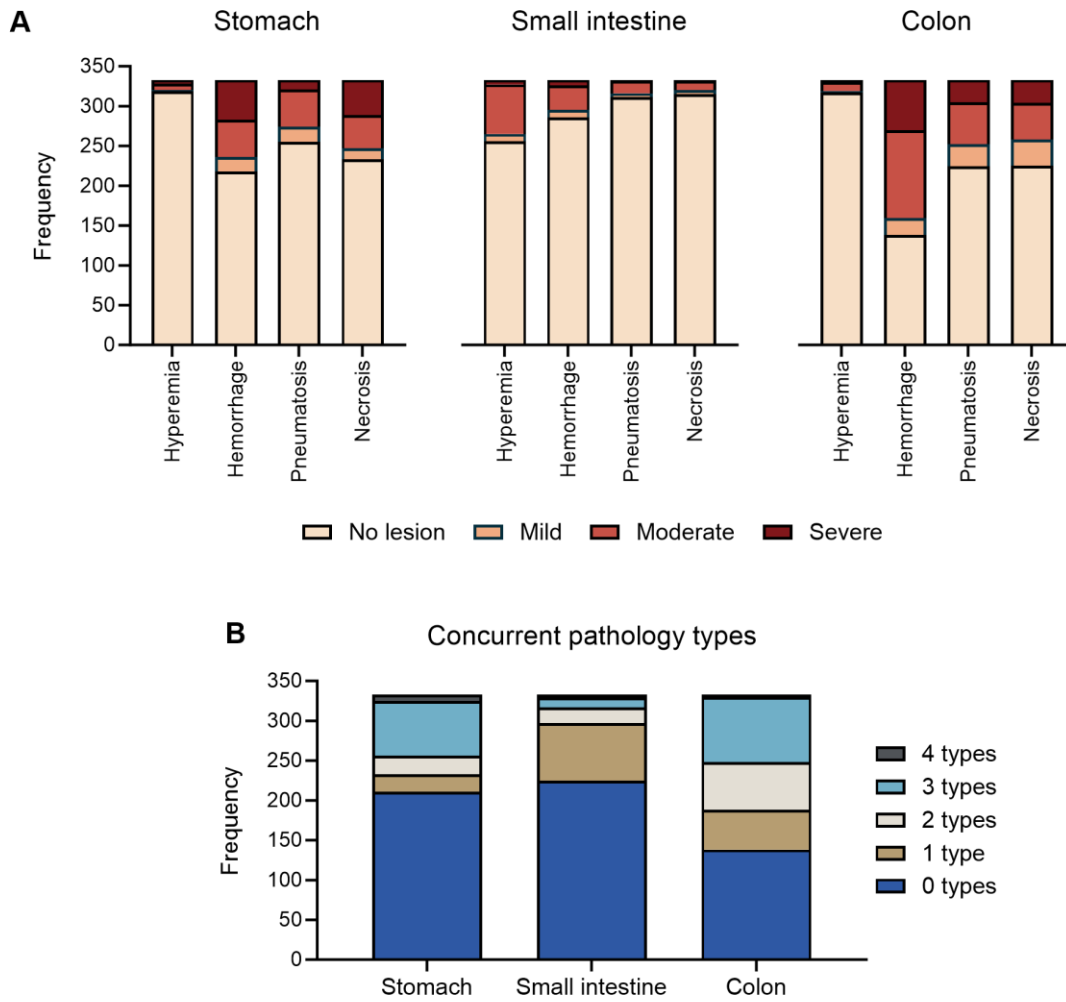


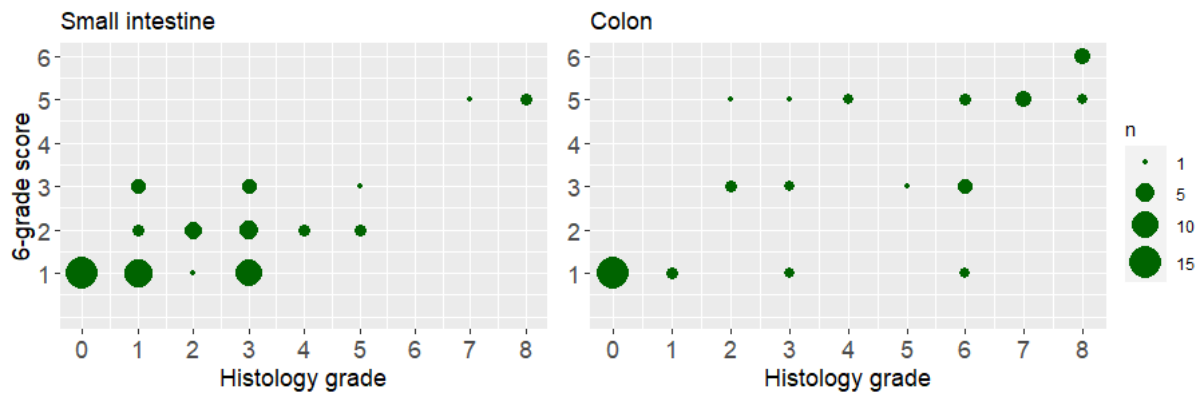
Supplementary materials



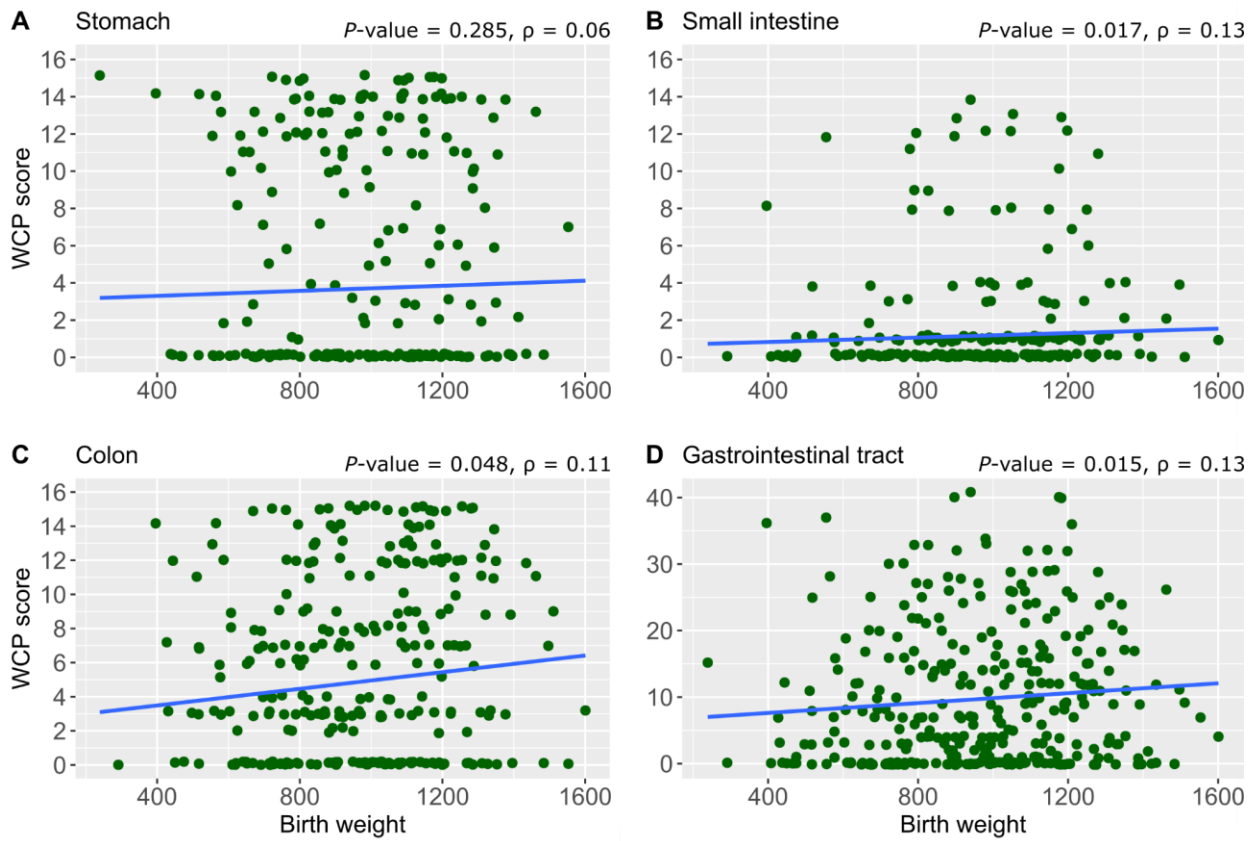
Supplementary Figure S1: Overview of daily enteral feeding volumes between piglet litters fed a harshly processed (HP) or a gently processed (GP) milk formula.



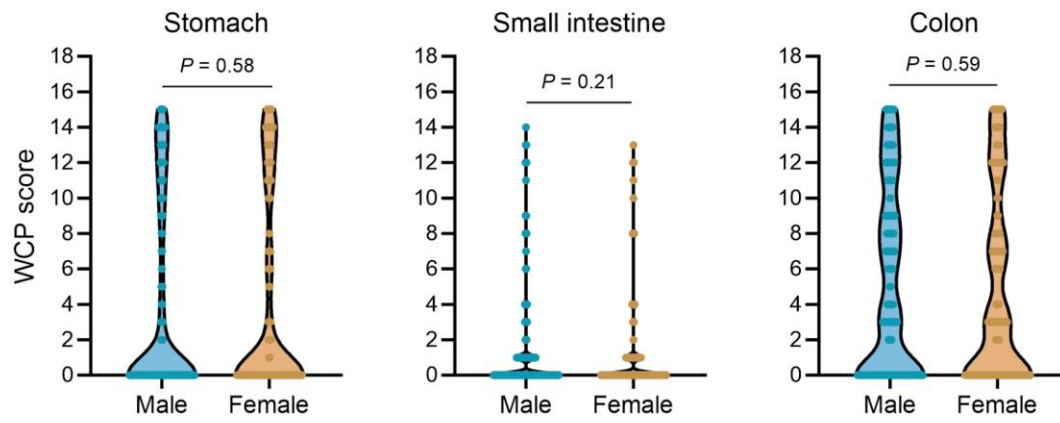
Supplementary Figure S2: Overview of the four pathology types; hyperemia, hemorrhage, pneumatosis intestinalis, and necrosis ($n = 333$). A) Distribution of each type and extent in the stomach, small intestine, and colon. B) Overview of the number of concurrent pathology types in each gastrointestinal segment.



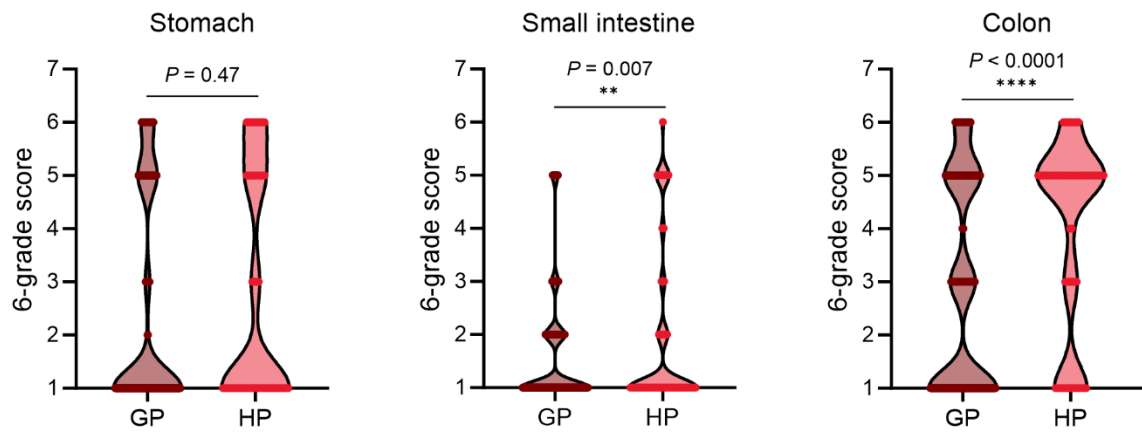
Supplementary Figure S3: Correlation between the macroscopic 6-grade score of the whole organ and the histopathologic assessment of the worst lesion site ($n = 62$).



Supplementary Figure S4: Correlation between weighted and cumulative point (WCP) scores and birth weight using Spearman's rho (ρ) in gastrointestinal sections separately; the stomach (A), small intestine (B), and colon (C), as well as the sum across the gastrointestinal tract (D). $n = 333$ pigs.



Supplementary Figure S5: Comparison of cumulative and weighted point (WCP) scores between males and females in stomachs, small intestines, and colons ($n = 333$).



Supplementary Figure S6: Comparison of a gently processed (GP, $n = 263$) and harshly processed (HP, $n = 70$) milk formula on gut inflammation using the categorical 6-grade scoring system.

Supplementary Table S1: Formula energy compositions.

	GP formula	HP formula
Energy (kJ/L)	3661	3922
Protein (g/L)	66	46
- Whey protein (g/L)	53	46
Carbohydrate (g/L)	47	78
- Lactose (g/L)	5	55
- Maltodextrin (g/L)	42	23
Fat (g/L)	48	49
- Saturated fats (g/L)	36	25
- Monounsaturated fats (g/L)	6	11
- Polyunsaturated fats (g/L)	3	8

GP = gently processed, home-mixed formula. HP = harshly processed ready-to-drink formula supplemented with extra fat and protein.

Supplementary Table S2: Cytokine levels affected by hyperemia, hemorrhage, pneumatosis intestinalis, and necrosis.

	IL-8		IL-1 β	
	Estimate ^a (95% CI)	P-value	Estimate ^a (95% CI)	P-value
Small intestine				
Hyperemia	0.71 (0.63, 0.80)	7.49e-08 ****	1.09 (0.86, 1.39)	0.475
Hemorrhage	0.94 (0.78, 1.13)	0.487	1.67 (1.15, 2.42)	0.007 **
Pneumatosis	0.61 (0.43, 0.86)	0.005 **	0.81 (0.41, 1.60)	0.542
Necrosis	1.92 (1.36, 2.72)	0.0003 ***	4.62 (2.32, 9.18)	2.02e-05 ****
Colon				
Hyperemia	0.97 (0.58, 1.30)	0.919	0.81 (0.50, 1.32)	0.3996
Hemorrhage	2.41 (1.81, 3.22)	5.22e-09 ****	2.59 (1.97, 3.40)	5.40e-11****
Pneumatosis	2.04 (1.54, 2.70)	1.22e-06 ****	2.21 (1.69, 2.89)	1.74e-08****
Necrosis	2.66 (2.00, 3.53)	6.43e-11 ****	2.41 (1.84, 3.16)	5.16e-10****

^a The estimate shows the relative difference in cytokine levels when the pathology type is present. For instance, an estimate of 2 indicates that the cytokine level doubles in the presence of the pathology. Pathology types that significantly *increase* cytokine levels are highlighted in bold. CI = confidence interval.