

## Table of Contents

1	SUMMARY .....	1
2	ZUSAMMENFASSUNG.....	3
3	INTRODUCTION .....	5
3.1	Colic in horses and its importance.....	5
3.1.1	<i>Complications after colic surgery</i> .....	5
3.1.1.1	Postoperative ileus (POI) .....	6
3.1.1.2	Endotoxaemia .....	6
3.1.1.3	Adhesion formation .....	8
3.1.1.4	Other complications.....	9
3.2	Postoperative ileus (POI) in the literature.....	10
3.2.1	<i>Definition</i> .....	10
3.2.2	<i>Aetiology</i> .....	10
3.2.2.1	Neurogenic phase .....	11
3.2.2.2	Inflammatory phase .....	12
3.2.3	<i>Treatment of POI</i> .....	14
3.2.3.1	Treatment of POI in human medicine .....	14
3.2.3.1.1	Factors enchaining recovery after surgery: .....	14
3.2.3.1.2	Factors contributing to delayed recovery from POI .....	16
3.2.3.2	Treatment of POI in equine medicine .....	17
3.3	Physiology of normal equine intestinal motility .....	21
3.4	Intestinal homeostasis and inflammation.....	22
3.5	Eosinophilic granulocytes .....	23
3.5.1	<i>Origin, development, and localization of the eosinophilic granulocyte</i> ..	23
3.5.2	<i>Function of the eosinophilic granulocytes</i> .....	24
3.5.2.1	Eosinophilic granulocytes and organ development .....	26
3.5.2.2	Function of the eosinophilic granulocytes in the gastrointestinal tract .....	26
3.5.2.3	Eosinophils and parasitism.....	27
3.5.3	<i>Eosinophilic granulocytes and diseases</i> .....	27
3.5.3.1	Gastrointestinal tract diseases involving eosinophilic granulocytes	27
3.5.3.2	Other diseases involving eosinophilic granulocytes in horses .....	30
3.5.4	<i>Studies involving eosinophils in the equine gastrointestinal tract</i> .....	31
3.6	Neutrophilic granulocytes .....	33
3.6.1	<i>Origin, development, and localization of the neutrophilic granulocytes</i> . 33	33
3.6.2	<i>Function of the neutrophilic granulocyte</i> .....	34
3.6.3	<i>Neutrophilic granulocytes and diseases</i> .....	35
3.6.3.1	Gastrointestinal tract diseases involving neutrophilic granulocytes	36
3.6.3.2	Other diseases involving neutrophilic granulocytes .....	37
3.6.4	<i>Studies involving neutrophilic granulocytes in the equine gastrointestinal tract</i> .....	39
3.7	Previous studies on the effects of mechanical manipulations on the intestine .....	40
3.7.1	<i>Effect of laparotomy</i> .....	40
3.7.2	<i>Effect of small intestinal manipulation</i> .....	40
3.7.3	<i>Effect of large intestinal manipulation</i> .....	43
3.7.4	<i>Panenteritis and systemic effects of intestinal manipulation</i> .....	44

4	HYPOTHESIS AND AIM OF THE STUDY .....	45
5	Manuscript A .....	47
	Abstract:.....	47
	Introduction: .....	48
	Material and methods .....	50
	<i>Horses</i> .....	50
	<i>Study design:</i> .....	50
	<i>Study 1:</i> .....	51
	<i>Study 2:</i> .....	52
	<i>Histological evaluation:</i> .....	52
	<i>Statistical analysis:</i> .....	55
	Results .....	55
	<i>Study 1:</i> .....	55
	<i>Study 2:</i> .....	56
	Discussion.....	62
	Manufactures addresses:.....	65
	References.....	66
6	Manuscript B .....	71
	Abstract .....	72
	Objective—To determine characteristics of the inflammatory reaction in jejunums of horses in response to various mechanical manipulations.....	72
	ABBREVIATION .....	72
	Material and Methods .....	74
	Study design—	
	Histologic evaluation.....	76
	Statistical analysis .....	80
	Results .....	80
	Discussion .....	85
	Footnotes:.....	89
	References.....	90
7	GENERAL DISCUSSION .....	95
7.1	Method .....	95
7.2	Material .....	98
7.3	Results .....	99
7.3.1	<i>Eosinophils</i> .....	99
7.3.2	<i>Neutrophils</i> .....	101
7.4	Clinical consequences.....	104
7.5	Outlook .....	105
8	REFERENCES .....	107
9	ACKNOWLEDGEMENTS .....	149