

Table of contents

Contributors, xiii

Preface, xv

1 Miniature Horses and Ponies 1

DG Pugh, Nicole Passler, and Sara Ziska

1.1 Miniature Horses 1

1.2 General Feeding of Miniature Horses 1

1.3 Pony Feeding 2

References 2

2 Draft Horses, Mules, and Donkeys 5

DG Pugh, Sara Ziska, and Nicole Passler

2.1 Draft Horses 5

2.2 Donkeys 6

2.3 Mules 7

References 7

3 Gastrointestinal System 9

Amelia Munsterman

3.1 The Association between Nutrition and Colic 9

3.1.1 Feeds and Colic: Pastures 9

3.1.2 Feeds and Colic: Dried Forages 10

3.1.3 Feeds and Colic: Concentrates 11

3.1.4 General Practices to Prevent Colic 11

3.2 Nutritional Plans for Horses with Colic 12

3.2.1 Identifying Nutritional Status 12

3.2.2 Nutritional Requirements of Horses with Colic 13

3.3 Routes for Feeding Horses Recovering from Colic 15

3.3.1	Voluntary Intake	15
3.3.2	Supportive Enteral Nutrition	17
3.3.3	Parenteral Nutrition	21
3.4	Diets for Specific Diseases	27
3.4.1	Uncomplicated Colic	27
3.4.2	Equine Gastric Ulcer Syndrome	28
3.4.3	Duodenitis/Proximal Jejunitis	29
3.4.4	Small Intestinal Strangulation	30
3.4.5	Ileal Impaction (Nonstrangulating Small Intestinal Obstruction)	31
3.4.6	Ascending (Large) Colon Impactions	32
3.4.7	Sand Impactions	34
3.4.8	Enteroliths and Fecaliths	35
3.4.9	Ascending Colon Displacement	36
3.4.10	Ascending Colon Volvulus (Large Colon Torsion)	37
3.4.11	Cecal Impactions	39
3.4.12	Cecocolic and Cecocolic Intussusception	39
3.4.13	Descending (Small) Colon Obstructions	40
3.4.14	Descending (Small) Colon Strangulations	41
	References	41

4 Muscular System 51

Stephanie J. Valberg

4.1	Myopathies Associated with Nutritional Deficiencies	51
4.1.1	Nutritional Myodegeneration due to Selenium Deficiency	51
4.1.2	Equine Motor Neuron Disease and Vitamin E Deficiency	52
4.1.3	Vitamin E Deficient Myopathy	53
4.1.4	Sporadic Exertional Rhabdomyolysis	54

4.2 Nutrigenomics 55

4.2.1 Chronic Forms of Exertional Rhabdomyolysis 55

4.2.2 Polysaccharide Storage Myopathy 59

4.2.3 Hyperkalemic Periodic Paralysis 66

References 68

5 Endocrine System 73

Iveta Becvarova

5.1 Equine Metabolic Syndrome 73

5.1.1 Definition of Equine Metabolic Syndrome 73

5.1.2 Epidemiology 73

5.1.3 Species, Age, and Sex Predisposition 73

5.1.4 Genetics and Breed Predisposition 73

5.1.5 Risk Factors 74

5.1.6 Geography and Seasonality 74

5.1.7 Associated Conditions and Disorders 74

5.1.8 Clinical Presentation 74

5.1.9 Diagnosis 80

5.1.10 Treatment 82

5.1.11 Possible Complications of Treatment or of the Disease Process 85

5.1.12 Recommended Monitoring 85

5.1.13 Prognosis and Outcome 85

5.1.14 Prevention 85

5.2 Feeding Horses with Pituitary Pars Intermedia Dysfunction 86

5.2.1 Horses with Pituitary Pars Intermedia Dysfunction and Adequate Body Condition 86

5.2.2 Obese Horses with Pituitary Pars Intermedia Dysfunction 87

5.2.3 Horses with Pituitary Pars Intermedia Dysfunction and Thin Body Condition or Horses with PPID that are in Work 87

5.3 Pearls and Considerations 87

5.3.1 Client Education 87

5.3.2 Veterinary Technician Tips 88

References 88

6 Respiratory System 91

Bryan M. Waldridge

6.1 Effects of Inhaled Dust and Potential Aeroallergens on Equine Respiratory Disease 91

6.2 Respirable Dust Deposition in the Airways 91

6.3 Effects of Soaking Hay 93

6.4 Effects of Steam Treating Hay 93

6.5 Feeding Forage Alternatives 93

6.5.1 Haylage 93

6.5.2 Hay Cubes 93

6.5.3 Pellets 95

6.6 Exercise-Induced Pulmonary Hemorrhage 95

6.7 Acute Interstitial Pneumonia 95

References 95

7 Neurologic System 97

Peter Huntington

7.1 Cervical Vertebral Malformation 97

7.2 Botulism 98

7.3 Ryegrass Staggers 99

7.4 Equine Degenerative Myelopathy and Neuroaxonal Dystrophy 99

7.5 Equine Motor Neuron Disease 100

7.6 Effect of Form and Dose of Vitamin E on Serum and Cerebrospinal Fluid Concentrations
101

References 102

8 Mycotoxins 103

Ramesh C. Gupta

8.1 Aflatoxins 103

8.1.1 Toxicokinetics 104

8.1.2 Mechanism of Action 104

8.1.3 Toxicity and Clinical Signs 105

8.1.4 Reproductive and Developmental Effects 105

8.1.5 Treatment 106

8.2 Fumonisin 106

8.2.1 Toxicokinetics 107

8.2.2 Mechanism of Action 107

8.2.3 Toxicity and Clinical Signs 107

8.2.4 Treatment 108

8.3 Slaframine 108

8.3.1 Mechanism of Action 109

8.3.2 Toxicity and Clinical Signs 109

8.3.3 Treatment 109

8.4 Trichothecenes 110

8.4.1 Toxicokinetics 110

8.5 Mechanism of Action 111

8.5.1 Toxicity and Clinical Signs 111

8.5.2 Treatment 112

8.6 Zearalenone 112

8.6.1 Toxicokinetics	113
8.6.2 Mechanism of Action	113
8.6.3 Toxicity and Clinical Signs	113
8.7 Treatment	114
8.8 Concluding Remarks	114
Acknowledgment	114
References	114

9 Poisonous Plants 119

Anthony P. Knight

9.1 Excessive Salivation Induced by Plants	119
9.2 Colic and Diarrhea-Inducing Plants	121
9.2.1 Horse Chestnut or Buckeye	121
9.2.2 Field Bindweed (Morning Glory)	122
9.2.3 Oak	123
9.2.4 Mountain Laurel	124
9.2.5 Pokeweed	125
9.2.6 Buttercups	126
9.2.7 Castor Oil Plant	126
9.2.8 Jimson Weed, Potato, and Tomato	128
9.2.9 Kentucky Coffee Tree	129
9.3 Photodermatitis-Inducing Plants	129
9.3.1 Primary Photosensitization	129
9.3.2 Secondary Photosensitization	131
9.3.3 Liver Disease-Inducing Plants	131
9.4 Neurologic Disease-Inducing Plants	138
9.4.1 Sagebrush	139

- 9.4.2 Locoweeds and Milkvetches 140
- 9.4.3 Milkvetch Neurotoxicosis 143
- 9.4.4 Yellow Star Thistle and Russian Knapweed 143
- 9.4.5 Horsetail 145
- 9.4.6 White Snakeroot and Crofton, Jimmy, or Burrow Weeds 145
- 9.4.7 Bracken Fern 146
- 9.4.8 Johnsongrass and Sudangrass 147
- 9.5 Lameness and Muscle Weakness-Inducing Plants 149
 - 9.5.1 Black Walnut 149
 - 9.5.2 Hoary Alyssum 150
 - 9.5.3 Coffee Weed or Coffee Senna 150
- 9.6 Plant-Induced Calcinosis 151
 - 9.6.1 Day-Blooming Jessamine 152
 - 9.6.2 Flatweed 153
- 9.7 Selenium Toxicosis 153
 - 9.7.1 Causes of Selenium Toxicosis 154
 - 9.7.2 Two-Grooved Milkvetch (*Astragalus bisulcatus*) 155
 - 9.7.3 False Golden Weed (*Oenopsis* species) 155
 - 9.7.4 Woody Aster (*Xylorhiza glabriuscula*) 155
 - 9.7.5 Prince's Plume (*Stanleya pinnata*) 155
 - 9.7.6 White Prairie Aster (*Aster falcatus*) 155
 - 9.7.7 Broom, Turpentine, Snake, or Match Weed (*Gutierrezia sarothrae*) 156
 - 9.7.8 Gumweed or resinweed (*Grindelia* spp.) 157
 - 9.7.9 Saltbush (*Atriplex* spp.) 157
 - 9.7.10 Indian Paintbrush (*Castilleja* spp.) 157

- 9.7.11 Beard Tongue (*Penstemon* spp.) 157
- 9.7.12 Effects of Acute Selenium Toxicosis 158
- 9.7.13 Effects of Chronic Selenium Toxicosis 159
- 9.7.14 Diagnosis of Selenium Toxicosis 160
- 9.8 Anemia-Inducing Plants 161
 - 9.8.1 Onions 162
 - 9.8.2 Red Maple 162
 - 9.8.3 Spoiled Sweet Clover 163
- 9.9 Teratogenic Plants 164
- 9.10 Sudden Death-Inducing Plants 165
 - 9.10.1 Cyanide-Induced Sudden Death 166
 - 9.10.2 Toxicity of Cyanogenic Glycosides 167
 - 9.10.3 Serviceberry or Saskatoon berry (*Amelanchier alnifolia*) 167
 - 9.10.4 Wild Blue Flax (*Linum* spp.) 167
 - 9.10.5 Western Chokecherry (*Prunus virginiana*) 167
 - 9.10.6 Elderberry (*Sambucus* spp.) 168
 - 9.10.7 Sorghum Grasses 168
 - 9.10.8 Arrow grass or goose grass (*Triglochin* spp.) 169
 - 9.10.9 Clinical Effects and Diagnosis of Acute Cyanide Poisoning 169
 - 9.10.10 Treatment of Acute Cyanide Poisoning 170
 - 9.10.11 Cardiac Glycoside-Induced Sudden Death 170
- 9.11 Larkspur 175
- 9.12 Monkshood 176
- 9.13 Poison Hemlock 176
- 9.14 Water Hemlock 177

9.15 Yew 178

9.16 Death Camas 179

9.17 Avocado 180

Glossary 180

Supplemental Reading 181

References 182

Index 189