

TABLE OF CONTENTS – Manual of Equine Anesthesia and Analgesia, 2nd Edition

List of Contributors

Preface

Acknowledgments

1 Preoperative Evaluation and Patient Preparation 1

The Risk of Equine Anesthesia 1

Tanya Duke-Novakovski

Patient Preparation 5

Tanya Duke-Novakovski

2 Serum Chemistry and Hematology 8

Carla Sommardahl

3 The Cardiovascular System 19

Physiology of the Cardiovascular System 19

Tamara Grubb

Evaluation of the Cardiovascular System 36

Daniel G. Kenney

4 The Respiratory System 50

Anatomy of the Equine Respiratory System 50

Robert Reed

Physiology of the Respiratory System 55

Carolyn Kerr

Evaluation of the Respiratory System 67

Tom Doherty

Airway Management 68

Tom Doherty

Tracheostomy 78

Tanner Snowden and Jim Schumacher

5 The Renal System 86

Natalie S. Chow

6 Neurophysiology and Neuroanesthesia 98

Tanya Duke-Novakovski

7 The Autonomic Nervous System 110

Christine Egger

8 Electrolyte and Fluid Therapy 119

Electrolytes 119

Rachel A. Reed

Fluid Therapy 125

Christopher K. Smith

9 Acid-Base Physiology 137

Traditional Approach 137

Alex Valverde and Tom Doherty

Physicochemical Approach 147

Diego E. Gomez and Alex Valverde

10 Hemostasis and Hemotherapy 155

Hemostasis 155

Kira L. Epstein

Hemotherapy 162

Kira L. Epstein

11 Thermoregulation 173

Chiara E. Hampton

12 Pharmacology of Drugs Used in Equine Anesthesia 184

Phenothiazines 184

Alicia Skelding

Butyrophenones 186

Alicia Skelding

α 2-Adrenergic Agonists 188

Alicia Skelding

Opioids 196

Alicia Skelding

Trazadone 205
Alicia Skelding

Benzodiazepines 206
Alicia Skelding

Guaifenesin 209
Alicia Skelding

Ketamine 210
Alicia Skelding

Tiletamine and Zolazepam (TZ) 213
Alicia Skelding

Alfaxalone 214
Alicia Skelding

Propofol 216
Alicia Skelding

Barbiturates 218
Alicia Skelding

Intravenous lidocaine 219
Patricia Queiroz-Williams

Horse-related drug Regulations in Europe 222
Regula Bettschart-Wolfensberger and Simone K. Ringer

13 Inhalational Anesthetics 223
Rachel A. Reed

14 Local Anesthetics 232
Catherine M. Creighton and Leigh Lamont

15 Neuromuscular Blocking Agents in Horses 244
Manuel Martin-Flores and Daniel M. Sakai

16 Non-steroidal Anti-Inflammatory Drugs and Corticosteroids 250

Non-steroidal Anti-Inflammatory Drugs 250
Stephanie Kleine

Corticosteroids 259
Stephanie Kleine

17 Anesthetic Machines and Equipment 266
Rachel A. Reed

18 Positioning the Anesthetized Horse 287

Hui Chu Lin

19 Monitoring the Anesthetized Horse 294

Monitoring the Central Nervous System 294

Joanna C. Murrell

Cardiovascular Monitoring 300

Alanna N. Johnson

Respiratory Monitoring 310

Alanna N. Johnson

Anesthetic Agent Monitoring 323

Alanna N. Johnson

Monitoring Temperature 324

Chiara E. Hampton

Monitoring Neuromuscular Function 328

Manuel Martin-Flores and Daniel M. Sakai

20 Standing Sedation 333

Catherine M. Creighton

21 General Anesthesia Techniques 339

Regula Bettschart-Wolfensberger and Simone K. Ringer

22 Anesthesia of the Head and Neck 352

Anesthesia of the Head 352

Jim Schumacher, John Schumacher, and Ray Wilhite

Maxillary Nerve Block in Donkeys 358

Usama Hagag

Cervical Plexus Block 363

Luis Campoy

23 Anesthesia of the Eye 369

Daniel S. Ward

24 Anesthesia of the Limbs 376

Jim Schumacher, John Schumacher, and Ray Wilhite

25 Anesthesia of the Perineum and Testicle 396

Pudendal Nerve Block – Electrostimulation Technique 396

Kirsty Gallacher and Luiz Santos

Pudendal Nerve Block – Blind Approach 399
Jim Schumacher

Local Anesthesia for Castration 400
Philip D. Jones

26 Anesthesia of the Abdominal Wall 404

Thoracolumbar Paravertebral Block (TPVB) – Electrostimulation Technique 404
Luiz Santos and Kirsty Gallacher

Paravertebral Nerve Block – Blind Technique 406
Alex Valverde

Transversus Abdominis Plane Block 409
Alex Valverde and Flavio SA. Freitag

Caudal Intercostal Block for Abdominal Surgery (CIBAS) 413
Benjamin Gingold

27 Epidural Analgesia and Anesthesia 416
Alex Valverde

28 Pathophysiology of Pain 425
Rachel A. Reed

29 Pain Recognition in Horses 431
Karina B. Glerup, Casper Lindegaard, and Pia Haubro Andersen

30 Management of Pain 450

The Pharmacologic Approach to Pain Management 450
Rachel A. Reed

Rehabilitation Modalities for Acute and Chronic Pain in Horses 456
Tena L. Ursini

Equine Acupuncture 462
Neal Valk

31 Anesthesia of Foals 472
Tom Doherty and Alex Valverde

32 Anesthesia of Horses with Intestinal Emergencies (Colic) 494
Tom Doherty

33 Anesthesia of the Geriatric Horse 501
Reza M. Seddighi

34 Anesthesia and Pregnancy 511

Lydia Donaldson

35 Anesthesia for Equine Imaging 522

Carrie A. Davis

36 Anesthesia of Donkeys and Mules 543

Anatomic, Physiologic, and Behavioral Differences 543

Suzanne L. Burnham

Sedation and Anesthesia of Donkeys and Mules 548

Tom Doherty

Donkey Pain Assessment Scales 552

Machteld van Dierendonck and Thijs van Loon

37 Remote Capture of Equids 565

Nigel Caulkett

38 Complications 573

Intraoperative Hypotension 573

Christopher K. Smith and Tom Doherty

Intraoperative Hypertension 580

Tom Doherty

Hypoxia and Hypoxemia 582

Rachel A. Reed

Hypercarbia 588

Tom Doherty

Pulmonary Edema as a Consequence of Airway Obstruction 590

Tom Doherty

Endotoxemia 592

Tom Doherty

Postanesthetic Myopathy 594

Krista B. Mitchell

Neuropathy 599

Rachel A. Reed

Hyperkalemic Periodic Paralysis (HYPP) 604

Alanna N. Johnson and Rachel A. Reed

Malignant Hyperthermia 609
Alanna N. Johnson and Rachel A. Reed

Delayed Awakening and Recovery 611
Tom Doherty

Paraphimosis and Priapism 614
Meggan Graves and Jim Schumacher

Anaphylactic and Anaphylactoid Reactions 621
Rachel A. Reed

Intra-carotid and Perivascular Injections 624
Rachel A. Reed

Equine Cardiopulmonary Resuscitation 627
Genevieve Bussieres

39 Recovery from Anesthesia 633
Bernd Driessen

40 Euthanasia 653
Ron Jones and Tom Doherty

Index 661.