

## Contents

<b>Foreword to the First Edition</b>	xv
<b>Preface</b>	xvii
<b>Acknowledgments</b>	xix
<b>Author Biographies</b>	xxi
<b>List of Contributors</b>	xxv
<b>About the Companion Website</b>	xxvii
<b>1 History and Physical Examination</b>	<b>1</b>
<i>Gerianne Holzman and Lana Bishop</i>	
History	1
Vaccinations	2
Parasites	2
Diet	2
Allergies	3
Current Medication	3
Patient's Lifestyle	3
Medical History	3
Client Expectation	4
Physical Exam	5
Temperature, Pulse, Respiration, and Weight	5
Body Condition Score	5
General Appearance	7
Attitude	7
Locomotion	8
Head and Face	9
Oral Pharynx	10
Lymph Nodes	10
Integument	10
Musculoskeletal	10
Perineum	13
Abdominal Cavity	14
Respiratory System	14
Cardiovascular System	14
Nervous System	15
References	16

**2 Preoperative Planning 17**

*Gerianne Holzman and Lana Bishop*

Laboratory Tests 17

Complete Blood Count 18

Serum Chemistry Panel 18

Coagulation Tests 21

Blood Collection Tubes 21

Urinalysis 21

Other Diagnostic Tests 24

Abdominocentesis 25

Arthrocentesis 25

Fine Needle Aspirate 27

Imaging 28

Personal Protection 29

Radiographs 30

Computed Tomography Scan and Magnetic Resonance Imaging 31

Ultrasound 33

Contrast Studies 36

Cystogram 36

Esophagram 36

Arthrogram 37

Enterogram 37

Medications 37

Antibiotics 37

Analgesics 38

Pathophysiology of Pain 38

Where to Control Pain 38

When to Control Pain 38

Non-steroidal Anti-inflammatory Drugs (NSAIDs) 41

Opioids 41

References 43

**3 Asepsis and Infection Control 45**

*Teri Raffel Kleist and Cassandra Simmons*

Surgical Suite Preparation 45

Theater Design 45

Air Exchanges 45

Surgical Attire 46

Traffic 47

Cleaning 48

Before the First Case of the Day 48

In Between Cases 48

Terminal Cleaning – End of Day 49

Solutions to Use for Cleaning 49

Sodium Hypochlorite	49
Potassium Peroxymonosulfate	50
Quaternary Ammoniums	50
Accelerated Hydrogen Peroxide	50
Patient Preparation	50
Clipping	51
Abdominal	52
Thoracic	52
Orthopedic	54
Neurologic	55
Miscellaneous Sites	56
Ophthalmic	56
Aural	57
Head and Mouth	57
Perineal	57
Open Wound Clipping	58
Clipper Care	59
Patient Skin Preparation	59
Surgical Scrub Products	59
Chlorhexidine	59
Povidone-Iodine	59
Rinsing Agents	60
Final Paint Solutions	60
Patient Prep Patterns	62
Target Pattern	62
Orthopedic Prep	63
Perineal	65
Patient Positioning	66
Patient Warming	69
Heated Surgery Tables	69
Circulating Water Blankets	69
Convection Warming Systems	70
Solid Warming Pads	70
Alternative Methods	70
Patient Sterile Prep	71
Personnel Preparation	73
Attire	73
Surgeons Hand Scrub	74
Surgical Hand Rub	78
Drying the Hands and Arms	78
Gowning	80
Gloving	83
Closed Gloving	83
Open Gloving	86
Assisted Gloving	89

Removing a Contaminate Glove	90
Double Gloving	90
Stress Mats	91
Instrumentation	92
Instrument Manufacturing	92
General Surgery Instruments	94
Scissors	94
Towel Clamps	97
Scalpel Handles and Scalpel Blades	97
Hemostatic Forceps	98
Thumb Tissue Forceps	99
Needle Holders	101
Hand-Held Retractors	102
Miscellaneous Instruments	104
Snook Spay Hook	104
Dowling Spay Retractor	104
Grooved Director	104
Alligator Forceps	104
Allis Tissue Forceps	105
Needle Rack	105
Abdominal Instrumentation	105
Retractors	105
Abdominal Intestinal Forceps	106
Thoracic Instruments	106
Retractors	106
Thoracic Scissors	106
Thumb Tissue Forceps	107
Vascular Clamps	107
Satinsky/Cooley	107
Orthopedic Instruments	108
Retractors	108
Ronguers	110
Periosteal Elevators	110
Osteotomes	111
Chisels	111
Mallet	111
Bone Holding/Reduction Forceps	111
Bone Cutters	113
Jacob's Chuck	113
Power Equipment	113
Internal Fixation Implants	114
Intramedullary Pins	114
Orthopedic Wire	115
Wire Twisters	115
Pin/Bolt Cutters	116
Interlocking Nails	117

Bone Plates	117
Bone Screws	118
Arthroscopic Instrumentation	120
Laparoscopic Instruments	122
Neurologic Instrumentation	123
Ophthalmic Instrumentation	124
Instrument Cleaning and Care	126
Manual Cleaning	127
Ultrasonic Cleaning	127
Instrument Lubrication	129
Instrument Maintenance	130
Pack Preparation	131
Pack Wrapping and Instrument Packaging	136
Methods of Wrapping Packs	138
Sterilization	141
Chemical	142
Steam	143
Loading the Autoclave	145
Autoclave Maintenance	146
Ethylene Oxide Sterilization (ETO, EtO, or EO)	147
Plasma Sterilization	147
Monitoring the Sterilization Process	148
Physical Monitors	148
Chemical Indicators	148
Biological Indicators	149
Shelf Life	150
Reference	151
Webliography	151
<b>4 Intraoperative Surgical Assistant and Circulating Nurse</b>	<b>153</b>
<i>Teri Raffel Kleist and Cassandra Simmons</i>	
Patient Positioning	154
Sterile Patient Prep	157
Patient Draping	158
Non-orthopedic Draping (Soft Tissue, Neuro, etc.)	159
Orthopedic Draping	162
Other Responsibilities	163
Setting Up the Instrument Table	164
Passing Surgical Instruments	164
Scalpel Handle and Blade	164
Ring-Handled Instruments	164
Thumb Tissue Forceps	165
Lavaging	165
Hemostasis	167
Suction	169

- Retraction 170
- Instrument Maintenance 170
- Scalpel Blade/Handle Assembly 171
- Sponge/Instrument Count 171
- Procedure Specific Duties 173
- Suture Materials and Suture Patterns 174
  - Characteristics 174
  - Sizing 176
  - Classification 176
    - Absorbable vs. Non-absorbable 176
    - Monofilament vs. Multifilament 177
    - Natural/Organic vs. Synthetic 178
  - Suture Material 178
    - Absorbable Sutures – Monofilament 178
    - Absorbable – Multifilament 179
    - Non-absorbable Suture – Monofilament 179
    - Non-absorbable – Multifilament 179
- Suture Patterns 180
  - Continuous Patterns 180
    - Simple Continuous 180
    - Ford Interlocking 181
    - Lembert, Cushing, and Connell Patterns 182
  - Interrupted Patterns 182
    - Simple Interrupted 182
    - Horizontal Mattress 182
    - Cruciate Pattern 183
    - Vertical Mattress 183
- Cutting Suture 184
  - Internal Sutures 184
  - External Sutures 185
- Staples 185
  - External (Skin) Staples 185
  - Internal Staples 186
- Circulating Nurse 187
  - Setting Up the Room 187
  - Opening Packs 188
  - Monitoring Aseptic Technique 193
  - Monitoring the Room During the Surgery 193
- References 195
- Additional Resources 195
  - Further Reading 195

## 5 Surgical Procedures 196

- Teri Raffel Kleist, JoAnne Mead, and Gerianne Holzman*
- Abdominal 196
  - Digestive 196
    - GDV Gastric Dilatation Volvulus (Bloat) 196

Gastric Foreign Body	197
Intestinal Foreign Body	198
Exploratory Laparotomy	199
Gallbladder	200
Cholecystectomy	200
Liver	201
Liver Lobectomy	201
Portosystemic Shunt (PSS)	203
Reproductive	203
Cesarean Section	203
Orchiectomy (Neuter/Castration)	204
Ovariohysterectomy (OHE/Neuter/Spay)	206
Spleen	207
Splenectomy	207
Urinary	208
Cystotomy	208
Nephrectomy	210
Perineal Urethrostomy – Male Cats	211
Subcutaneous Ureteral Bypass (SUB)	212
Head and Neck	212
Auditory	212
External Ear Canal and Pinna	212
Otitis Media and Otitis Interna	214
Ophthalmic	215
Distichiasis	215
Entropion	215
Enucleation	216
Neoplasia of the Eye	217
Thyroidectomy	217
Upper Respiratory System	218
Elongated Soft Palate	218
Laryngeal Paralysis	220
Stenotic Nares	221
Minimally Invasive	222
Arthroscopy	222
Laparoscopy	223
Thoracoscopy	224
Neurosurgery	227
Spine	227
Cervical	227
Thoracolumbar	227
Orthopedic	228
Fractures	228
Forelimb	232
Shoulder	232
Elbow	233
Radius/Ulna	237

- Carpus 239
- Digits 240
- Hindlimb 243
  - Pelvis 243
    - Hip Dysplasia 243
  - Stifle 249
    - Cranial Cruciate Ligament (CCL) Rupture 249
    - Patella Luxation 253
  - Tarsus 253
    - Tarsus – Achilles Tendon Repair 253
    - Arthrodesis 255
- Thoracic 256
  - Cardiovascular 256
    - Thoracotomy / Patent Ductus Arteriosus (PDA) 256
    - Persistent Right Aortic Arch (PRAA) 257
  - Respiratory 258
    - Lung Lobectomy 258
    - Tracheal Collapse 259
- Other Surgery 262
  - Anal Sacculectomy 262
  - Perineal Hernia 263
  - Mastectomy 264
- References 266
- Additional Resources 267
  - References 267
- Webliography 268
  
- 6 Wound Management 269**
  - Gerianne Holzman and JoAnne Mead*
  - Types of Wounds 269
  - Phases of Wound Healing 270
    - Delays in Wound Healing 272
  - General Wound Care 274
    - Negative Pressure Wound Therapy 280
  - Burns 282
    - Thermal Burns 282
      - Thermal Burn Treatment 283
    - Frostbite 286
      - Frostbite Treatment 286
    - Chemical Burns 287
      - Chemical Burn Treatment 287
    - Electrical Burns 287
  - References 287
  
- 7 Postoperative Care 289**
  - Gerianne Holzman and Sandra Engelmeyer*
  - Anesthesia Recovery 289

Self-Trauma	290
Housing	291
Bedding	291
Pads	291
Perforated Mats	291
Other Mats	292
Other Bedding	292
Cage Lining	293
Boxes/Hiding Spots	293
Cage Height	293
Pheromones	294
Nutritional Support	294
Urinary Bladder Care	294
Bandages	295
External Coaptation Concepts	295
Types of Support	296
Temporary Support	296
Supplemental Support	296
Primary Support	297
Considerations	297
Anatomy of a Bandage	298
Soft Padded	299
Application of a Limb Bandage	299
Robert Jones	303
Splints	305
Purposes	305
Splint Materials	305
Splint Application	306
Spica Splints	307
Casts	310
Cast Application	310
External Coaptation Complications and Care	312
External Skeletal Fixation (ESF) Devices	314
Slings	315
References	317

## **8 Aftercare and Home Care** 319

*Gerianne Holzman and Sandra Engelmeyer*

Client Instructions	319
Written Instructions	319
Hands-on Demonstrations	321
Feeding Instructions	322
Elimination	324
Exercise	325
Support Devices	325
Physical Rehabilitation	326
Cryotherapy	329

Heat	329
Massage	329
Passive Range of Motion	329
Therapeutic Exercises	331
Follow-Up	332
References	334
<b>Glossary</b>	<b>335</b>
<b>Index</b>	<b>341</b>