

TABLE OF CONTENTS – Small Animal Radiographic Techniques and Positioning

Foreword

Preface

Acknowledgments

Section 1. Theory and Equipment 3

1. Introduction to Digital Imaging 5

Definition and Principles of Digital Imaging 5

Digital Radiography 6

Digital Imaging Communications in Medicine 6

Picture Archiving and Communication System 6

Workstation Monitors 7

Computed Radiography 10

Direct and Indirect Conversion Radiography 11

Digital Image Processing 12

2. Principles of Film-Screen Radiography 17

X-ray Film Construction 17

Intensifying Screens 18

Common Principles of Film-Screen and Digital Radiography 20

3. The Radiographic System 21

Basic Component Overview 21

X-ray Tube 21

Fluoroscopy 24

Secondary or Scatter Radiation 25

Grids 27

Milliamperage and Kilovoltage 28

Technique Chart 28

Overexposure vs. Underexposure 32

Patient Log 33

4. Darkroom Maintenance and Film Processing 37

Darkroom Setup 37

Manual Film Processing 38

Automatic Film Processing 39

Automatic Film Processor Maintenance 41

Silver Recovery Cartridges 42

Safelights 42

Film Storage and Handling 43

Patient Identification Labeling 44

Care and Maintenance of Film Cassettes 45

5. Film-Screen and Digital Imaging Artifacts 49

Exposure Artifacts 49

Darkroom Processing Artifacts 52

Film Storage Artifacts 54

Digital Imaging Artifacts 54

6. Positioning Aids and Alternative Restraint 57

Safe Use of Restraint Devices 57

Sedated Patient Restraint 59

7. Radiation Safety 61

Health Physics 61

Radiologic Units 61

ALARA Concept 65

Section 2. Radiographic Positioning 69

8. General Principles and Terminology 71

Positioning Terminology 72

Room Setup 74

Patient Preparation 74

Horizontal Beam Views 76

9. Small Animal Positioning—Forelimb 79

Scapula 79

Shoulder 82

Bicipital Groove 85

Humerus 87

Elbow 90

Radius and Ulna 94

Carpus 95

Metacarpus, Digits 100

10. Small Animal Positioning—Pelvis and Hind Limb 103

Pelvis 103

OFA Imaging 109

PennHIP Information 111

Femur 114

Stifle 117

Tibial Plateau Leveling Osteotomy (TPLO) 123

Tibial Tuberosity Advancement (TTA) 127

Tibia and Fibula 129

Tarsus 133

Metatarsus and Digits 138

11. Small Animal Positioning—Spine 143

Cervical Spine 144

Thoracic Spine and Thoraco-Lumbar Spine 149

Lumbar Spine 152

LS Spine 155

Sacrum 159

Caudal Spine 160

12. Small Animal Positioning—Thorax, Soft Tissue Neck, and Abdomen 163

Thorax 163

Soft Tissue Neck 166

Abdomen 167

13. Small Animal Positioning—Skull 171

Cranium 171

Nasal 174

Maxilla 179

Mandible 183

Temporomandibular Joints 187

Tympanic Bullae 191

14. Exotic Pet Imaging 197

Avian 197

Small Mammals 200

Reptile 202

Section 3. Contrast Media and Special Procedures 207

15. Radiopaque Contrast Media 209

Types of Radiopaque Contrast Media 209

Ionic and Nonionic Contrast Agents 209

Barium Sulfate 213

16. Special Imaging Procedures 215

Special Procedure—Esophagram (Static) 215

Esophagram—Fluoroscopic/Dynamic 216

Special Procedure—Upper GI 217

Special Procedure—Gastrogram 219

Special Procedure—Lower GI—Barium Enema 221

Special Procedure—Excretory Urogram 222

Special Procedure—Cystography 225

Special Procedure—Urethrography 230

Special Procedure—Vaginography 231

Special Procedure—Myelography 233

Special Procedure—Myelography—Avian 236

Special Procedure—Myelography—Rabbit 237

Special Procedure—Fistulography 238

Special Procedure—Arthrography 239

References 241

Webliography 242

Index 243.