

# Contents

<b>Foreword to the First English Edition .....</b>	xii
<b>Preface .....</b>	xiii
<b>Acknowledgments .....</b>	xv
<b>1 Basic Principles.....</b>	2
<b>1.1 Why Do Clinicians Need Surface Anatomy? .....</b>	2
<b>1.5.2 Palpating Bony Edges .....</b>	5
<b>1.5.3 Palpating Bony Prominences .....</b>	6
<b>1.5.4 Palpating Muscle Bellies.....</b>	6
<b>1.5.5 Palpating the Edge of Muscles.....</b>	8
<b>1.5.6 Palpating Tendons .....</b>	8
<b>1.5.7 Palpating Ligaments .....</b>	9
<b>1.5.8 Palpating Capsules .....</b>	10
<b>1.5.9 Palpating Bursae .....</b>	11
<b>1.5.10 Palpating Peripheral Nerves.....</b>	11
<b>1.5.11 Palpating Blood Vessels (Arteries) .....</b>	12
<b>1.4 Workflow for Palpation .....</b>	3
<b>1.4.1 Objective and Location.....</b>	4
<b>1.4.2 The Reliable Result .....</b>	4
<b>1.4.3 Central Aspects of the Procedure .....</b>	4
<b>1.4.4 Pressure Applied during Palpation .....</b>	5
<b>1.5 Palpatory Techniques .....</b>	5
<b>1.5.1 Palpating the Skin.....</b>	5
<b>1.6 Palpation Aids.....</b>	13
<b>1.6.1 Guiding Structures.....</b>	13
<b>1.6.2 Connecting Lines.....</b>	13
<b>1.6.3 Supporting Measures for Confirming a Palpation .....</b>	14
<b>1.6.4 Marking Structures .....</b>	14
<b>1.6.5 Starting Positions for Practice (Practice SPs) .....</b>	15
<b>2 Shoulder Complex.....</b>	17
<b>2.1 Introduction.....</b>	17
<b>2.4.2 Summary of the Palpatory Process .....</b>	29
<b>2.4.3 Palpation of Individual Structures .....</b>	29
<b>2.2 General Orientation—Posterior .....</b>	21
<b>2.5 General Orientation—Anterior .....</b>	35
<b>2.5.1 Starting Position .....</b>	35
<b>2.5.2 Supraclavicular and Infraclavicular Fossae .....</b>	35
<b>2.3 Local Palpation—Posterior .....</b>	22
<b>2.6 Local Palpation—Anteromedial .....</b>	36
<b>2.6.1 Overview of the Structures to be Palpated .....</b>	36
<b>2.6.2 Summary of the Palpatory Process .....</b>	36
<b>2.6.3 Palpation of Individual Structures .....</b>	36
<b>2.6.4 Tips for Assessment and Treatment .....</b>	37
<b>2.7 Local Palpation—Anterolateral.....</b>	37
<b>2.7.1 Overview of the Structures to be Palpated .....</b>	37
<b>2.7.2 Summary of the Palpatory Process .....</b>	37
<b>2.7.3 Palpation of Individual Structures .....</b>	38
<b>2.4 Local Palpation—Lateral .....</b>	29
<b>2.4.1 Overview of the Structures to be Palpated .....</b>	29
<b>3 Elbow Complex .....</b>	48
<b>3.1 Introduction.....</b>	48
<b>3.1.2 Common Applications for Treatment in this Region .....</b>	48
<b>3.1.3 Required Basic Anatomical and Biomechanical Knowledge.....</b>	48

## Contents

<b>3.2</b>	<b>General Orientation—Anterior .....</b>	52	<b>3.4.4</b>	Differentiation in the Presence of Epicondylitis	60
3.2.1	Boundaries of the Cubital Fossa .....	52	<b>3.4.5</b>	Tips for Assessment and Treatment.....	62
<b>3.3</b>	<b>Local Palpation—Anterior .....</b>	52	<b>3.5</b>	<b>Local Palpation—Lateral .....</b>	63
3.3.1	Overview of the Structures to be Palpated.....	52	3.5.1	Summary of the Palpitory Process .....	63
3.3.2	Summary of the Palpatory Process .....	52	3.5.2	Locating the Most Important Osseous Structures .....	63
3.3.3	Palpation of Individual Structures.....	53	3.5.3	Locating the Muscles and their Insertions .....	66
3.3.4	Neurovascular Bundle.....	54	3.5.4	Locating the Lateral Insertion Tendinopathies	66
3.3.5	Proximal Radioulnar Joint (PRUJ).....	56	3.5.5	Tips for Assessment and Treatment.....	68
3.3.6	Tips for Assessment and Treatment.....	56	3.5.6	Palpation in the Radial Tunnel.....	69
<b>3.4</b>	<b>Local Palpation—Medial .....</b>	57	<b>3.6</b>	<b>General Orientation—Posterior Humerus .....</b>	71
3.4.1	Overview of the Structures to be Palpated.....	57	3.6.1	Summary of the Palpitory Process .....	71
3.4.2	Summary of the Palpatory Process .....	57	3.6.2	Palpating Warmth and Swelling.....	71
3.4.3	Palpation of Individual Structures .....	57			
<b>4</b>	<b>Hand .....</b>				75
<b>4.1</b>	<b>Significance and Function of the Hand .....</b>	75	<b>4.4.1</b>	Summary of the Palpitory Process .....	91
4.1.1	Causes of the Diversity of Functions in the Hand .....	75	4.4.2	Carpal Bones in the Radial Column .....	91
4.1.2	Common Applications for Treatment in this Region.....	76	4.4.3	Carpal Bones in the Central Column .....	93
4.1.3	Required Basic Anatomical and Biomechanical Knowledge.....	77	4.4.4	Tips for Assessment and Treatment.....	94
4.1.4	Axial Divisions of the Skeleton of the Hand into Columns and Their Clinical Significance .....	77	4.4.5	Carpal Bones in the Ulnar Column.....	94
4.1.5	The Carpus.....	78	4.4.6	Tips for Assessment and Treatment.....	95
4.1.6	Kinematic and Kinetic Model of the Hand .....	78	<b>4.5</b>	<b>General Orientation—Palmar .....</b>	96
4.1.7	Triangular Fibrocartilage Complex (TFC).....	79	4.5.1	Summary of the Palpitory Process .....	96
4.1.8	Construction of the Carpal Tunnel.....	80	4.5.2	Edge of the Radius .....	97
4.1.9	Extensor Tendons and their Compartments ...	80	<b>4.6</b>	<b>Local Palpation of the Palmar Soft Tissues.....</b>	98
<b>4.2</b>	<b>General Orientation—Dorsal .....</b>	82	4.6.1	Summary of the Palpitory Process .....	98
4.2.1	Summary of the Palpatory Process .....	82	4.6.2	Palpation of Individual Structures .....	98
4.2.2	Palpation of Individual Structures .....	83	4.6.3	Summary of all Radial Structures.....	99
4.2.3	Tips for Assessment and Treatment.....	86	4.6.4	Summary of all Ulnar Structures .....	101
<b>4.3</b>	<b>Local Palpation of the Dorsal Soft Tissues .....</b>	86	4.6.5	Tips for Assessment and Treatment.....	101
4.3.1	Summary of the Palpatory Process.....	86	<b>4.7</b>	<b>Local Palpation of the Palmar Aspect of the Carpal Bones .....</b>	101
4.3.2	Palpation of Individual Structures .....	86	4.7.1	Summary of the Palpitory Process .....	101
4.3.3	Radial Nerve, Cephalic Vein, and Radial Artery	89	4.7.2	Palpation of Individual Structures .....	101
4.3.4	Tips for Assessment and Treatment.....	90	4.7.3	Tips for Assessment and Treatment.....	106
<b>4.4</b>	<b>Local Palpation of the Dorsal Aspect of the Carpal Bones .....</b>	91			
<b>5</b>	<b>Hip and Groin Region .....</b>				109
<b>5.1</b>	<b>Introduction.....</b>	109	<b>5.2</b>	<b>Local Palpation—Lateral .....</b>	114
5.1.1	Lumbar-Pelvic-Hip Region .....	109	5.2.1	Overview of the Structures to be Palpated....	114
5.1.2	Functional Significance of the Pelvis and Hip Joint .....	109	5.2.2	Summary of the Palpatory Process .....	114
5.1.3	Pathology and Common Applications for Treatment in this Region .....	109	5.2.3	Palpation of Individual Structures .....	115
5.1.4	Required Basic Anatomical and Biomechanical Knowledge .....	110	<b>5.3</b>	<b>Local Palpation—Dorsal .....</b>	117
			5.3.1	Overview of the Structures to be Palpated....	117
			5.3.2	Summary of the Palpatory Process .....	117

5.3.3	Palpation of Individual Structures .....	118	5.4.2	Summary of the Palpatory Process .....	120
<b>5.4</b>	<b>Local Palpation—Anterior .....</b>	<b>120</b>	5.4.3	Palpation of Individual Structures .....	121
5.4.1	Overview of the Structures to be Palpated....	120			
<b>6</b>	<b>Knee Joint.....</b>				131
<b>6.1</b>	<b>Introduction.....</b>	<b>131</b>	<b>6.6</b>	<b>Local Palpation—Anterior .....</b>	<b>138</b>
<b>6.2</b>	<b>Significance and Function of the Knee Joint.....</b>	<b>131</b>	6.6.1	Summary of the Palpatory Process .....	138
			6.6.2	Palpation of Individual Structures .....	139
			6.6.3	Tips for Assessment and Treatment.....	142
<b>6.3</b>	<b>Pathological Conditions and Common Applications for Treatment .....</b>	<b>132</b>	<b>6.7</b>	<b>Local Palpation—Medial .....</b>	<b>143</b>
6.3.1	A Selection of Possible Pathologies .....	132	6.7.1	Summary of the Palpatory Process .....	143
6.3.2	Common Assessment and Treatment Techniques .....	132	6.7.2	Boundaries of the Joint Space .....	143
			6.7.3	Medial Epicondyle of the Femur.....	146
			6.7.4	Medial Gastrocnemius Tubercl.....	146
			6.7.5	Anteromedial and Medial Soft Tissues .....	146
			6.7.6	Tips for Treatment .....	150
<b>6.4</b>	<b>Required Basic Anatomical and Biomechanical Knowledge.....</b>	<b>132</b>	<b>6.8</b>	<b>Local Palpation—Lateral .....</b>	<b>153</b>
6.4.1	Construction of the Femorotibial Joint.....	132	6.8.1	Summary of the Palpatory Process .....	153
6.4.2	Construction of the Patellofemoral Joint.....	134	6.8.2	Palpation of Individual Structures .....	154
6.4.3	Proximal Tibiofibular Joint .....	134	6.8.3	Tips for Assessment and Treatment.....	158
6.4.4	Muscles of the Knee Joint .....	134			
6.4.5	Neural Structures .....	136	<b>6.9</b>	<b>Local Palpation—Posterior .....</b>	<b>160</b>
<b>6.5</b>	<b>Palpation for Warmth and Swelling .....</b>	<b>136</b>	6.9.1	Summary of the Palpatory Process .....	160
6.5.1	Palpating an Increase in Temperature .....	136	6.9.2	Palpation of Individual Structures .....	160
6.5.2	Palpating Edema.....	137	6.9.3	Tips for Assessment and Treatment.....	163
<b>7</b>	<b>Foot .....</b>				165
<b>7.1</b>	<b>Introduction.....</b>	<b>165</b>	7.3.1	Summary of the Palpatory Process .....	180
7.1.1	Significance and Function of the Foot.....	165	7.3.2	Overview of the Structures to be Palpated....	180
7.1.2	Special Characteristics of the Bony Construction.....	165	7.3.3	Tips for Assessment and Treatment.....	187
7.1.3	Features of the Nomenclature .....	166	<b>7.4</b>	<b>Local Palpation of the Dorsum of the Foot.....</b>	<b>189</b>
7.1.4	Special Biomechanical Characteristics .....	166	7.4.1	Summary of the Palpatory Process .....	189
7.1.5	Common Symptoms in the Foot .....	167	7.4.2	Overview of the Structures to be Palpated....	189
7.1.6	Required Basic Anatomical and Biomechanical Knowledge .....	168	7.4.3	Tips for Assessment and Treatment.....	192
<b>7.2</b>	<b>Local Palpation of the Medial Border of the Foot .....</b>	<b>170</b>	<b>7.5</b>	<b>Local Palpation of the Distal Posterior Leg .....</b>	<b>193</b>
7.2.1	Summary of the Palpatory Process .....	170	7.5.1	Summary of the Palpatory Process .....	193
7.2.2	Overview of the Structures to be Palpated....	170	7.5.2	Overview of the Structures to be Palpated....	194
7.2.3	Position of the Medial Ligaments.....	173	7.5.3	Borders of the Achilles Tendon .....	194
7.2.4	Tips for Treatment .....	178	7.5.4	Insertion of the Triceps Surae .....	194
			7.5.5	Palpation of the Tendon.....	195
<b>7.3</b>	<b>Palpation of the Lateral Border of the Foot.....</b>	<b>180</b>			
<b>8</b>	<b>Soft Tissues .....</b>				199
<b>8.1</b>	<b>Significance and Function of Soft Tissues...</b>	<b>199</b>	<b>8.2</b>	<b>Common Applications for Treatment in this Region .....</b>	<b>199</b>

## Contents

<b>8.3</b>	<b>Required Basic Anatomical and Biomechanical Knowledge</b> .....	199	<b>8.7.3</b>	Palpating the Consistency of Muscle (Assessment of Muscle Tension).....	204
<b>8.4</b>	<b>Summary of the Palpatory Process</b> .....	199	<b>8.8</b>	<b>Tips for Assessment and Treatment</b> .....	206
8.4.1	Extent of the Palpation.....	199	8.8.1	Differentiating between Tissues .....	206
8.4.2	Criteria for Palpation .....	199	8.8.2	Interpreting the Findings of Skin Surface Palpation .....	207
<b>8.5</b>	<b>Method and Techniques of the Palpatory Process</b> .....	201	8.8.3	Interpreting the Skin Consistency (Turgor) Palpation Findings .....	207
<b>8.6</b>	<b>Starting Position</b> .....	201	8.8.4	Interpreting the Muscle Consistency (Tension) Palpation Findings .....	207
8.6.1	Difficult and Alternative Starting Positions ...	202	<b>8.9</b>	<b>Examples of Treatment</b> .....	208
<b>8.7</b>	<b>Palpation Techniques</b> .....	203	8.9.1	Lumbar Functional Massage in Side-lying....	208
8.7.1	Palpating the Surface of the Skin .....	203	8.9.2	Functional Massage of the Trapezius in Side-lying.....	210
8.7.2	Palpating the Quality of the Skin (Turgor). ....	203			
<b>9</b>	<b>Posterior Pelvis</b> .....				213
<b>9.1</b>	<b>Significance and Function of the Pelvic Region</b> .....	213	9.6.1	Starting Position .....	227
<b>9.2</b>	<b>Common Applications for Treatment in this Region</b> .....	213	<b>9.7</b>	<b>Local Palpation Techniques</b> .....	230
<b>9.3</b>	<b>Required Basic Anatomical and Biomechanical Knowledge</b> .....	215	9.7.1	Summary of the Palpatory Procedure.....	230
9.3.1	Gender-based Differences.....	216	9.7.2	Ilium—Iliac Crest .....	231
9.3.2	Coxal Bone.....	216	9.7.3	Ilium—Posterior Superior Iliac Spine (PSIS) ...	231
9.3.3	Sacrum .....	217	9.7.4	Sacrum—S2 Spinous Process .....	233
9.3.4	The Pelvic Ligaments .....	219	9.7.5	Sacrum—Median Sacral Crest.....	233
9.3.5	The Sacroiliac Joint.....	220	9.7.6	Sacrum—Insertion of the Multifidus.....	235
9.3.6	Sacroiliac Joint Biomechanics.....	221	9.7.7	Sacrum—Sacral Hiatus .....	235
9.3.7	Ligament Dynamization in the Sacroiliac Joint ..	222	9.7.8	Sacrum—Sacrococcygeal Transition.....	236
<b>9.4</b>	<b>Summary of the Palpatory Process</b> .....	223	9.7.9	Sacrum—Inferolateral Angles of the Sacrum ..	236
<b>9.5</b>	<b>Palpatory Techniques for Quick Orientation on the Bones</b> .....	223	9.7.10	Sacrotuberous Ligament .....	237
9.5.1	Starting Position .....	224	9.7.11	Long Posterior Sacroiliac Ligament .....	237
<b>9.6</b>	<b>Palpatory Procedures for Quick Orientation on the Muscles</b> .....	226	<b>9.8</b>	<b>Orienting Projections</b> .....	238
<b>10</b>	<b>Lumbar Spine</b> .....		9.8.1	Posterior Inferior Iliac Spine (PIIS).....	238
<b>10.1</b>	<b>Significance and Function of the Lumbar Spine</b> .....	245	9.8.2	Sacroiliac Joint Projection .....	239
10.1.1	Supporting the Weight of the Body.....	245	9.8.3	Piriformis .....	239
10.1.2	Spatial Alignment of the Upper Body .....	245	9.8.4	Sciatic Nerve and the Gluteals.....	240
10.1.3	The Importance of Stability for Standing and Lifting .....	245	<b>9.9</b>	<b>Tips for Treatment</b> .....	242
10.1.4	Movement in the Trunk .....	245			
10.1.5	Development of Energy Needed for Locomotion.....	246			
			10.1.6	Junction between the Rigid and Mobile Vertebral Column .....	246
			<b>10.2</b>	<b>Common Applications for Treatment in this Region</b> .....	246
			<b>10.3</b>	<b>Required Basic Anatomical and Biomechanical Knowledge</b> .....	247
			10.3.1	Anatomical Definitions.....	247

10.3.2	Shape of the Inferior Lumbar Vertebrae and Intervertebral Disks .....	248	<b>10.7</b>	<b>Palpation Techniques</b> .....	262
10.3.3	Detailed Anatomy of Bony Structures.....	249	10.7.1	Orienting Projections .....	262
10.3.4	Detailed Anatomy of the Ligaments .....	252	10.7.2	Local Bony Palpation .....	263
10.3.5	Detailed Anatomy of the Muscles.....	256	<b>10.8</b>	<b>Tips for Treatment</b> .....	268
10.3.6	Basic Biomechanical Principles .....	260	10.8.1	Research Findings on Reliable Lumbar Palpation .....	268
<b>10.4</b>	<b>Overview of the Structures to be Palpated</b> .....	261	10.8.2	Test for Rotation (Transverse Vertebral Pressure).....	269
<b>10.5</b>	<b>Summary of the Palpitory Process</b> .....	261	10.8.3	Posteroanterior Segmental Joint Play .....	269
<b>10.6</b>	<b>Starting Position</b> .....	261	10.8.4	Palpation during Flexion and Extension Movements .....	270
10.6.1	Positioning in the Frontal Plane .....	262	10.8.5	Anteroposterior Segmental Joint Play .....	270
10.6.2	Positioning in the Transverse Plane.....	262	10.8.6	Local Segmental Mobility Using Coupled Movements .....	271
10.6.3	Difficult and Alternative Starting Positions ...	262	10.8.7	Training the Multifidus.....	272
<b>11</b>	<b>Abdominal Region</b> .....	275			
<b>11.1</b>	<b>Significance of the Region</b> .....	275	11.7.1	Preparation .....	285
<b>11.2</b>	<b>Common Applications for Treatment in this Region</b> .....	275	11.7.2	Xiphoid Process.....	286
<b>11.3</b>	<b>Required Knowledge (Topographic and Morphologic)</b> .....	275	11.7.3	Costal Arch .....	286
11.3.1	Boundaries of the Abdominal Wall .....	275	11.7.4	Anterior Superior Iliac Spine (ASIS) and Inguinal Ligament.....	286
11.3.2	Regions of the Abdominal Wall.....	275	11.7.5	Pubic Symphysis .....	287
11.3.3	Deep and Superficial Abdominal Muscles....	276	<b>11.8</b>	<b>Orienting Projections</b> .....	287
11.3.4	Organs of the Abdominopelvic Cavity .....	279	11.8.1	Epigastric Region .....	287
11.3.5	Anatomy of the Groin .....	282	11.8.2	Lower Abdomen .....	288
<b>11.4</b>	<b>Summary of the Palpitory Process</b> .....	284	11.8.3	Anterior Median Line .....	288
<b>11.5</b>	<b>Overview of the Structures to be Palpated</b> .....	284	<b>11.9</b>	<b>Muscles</b> .....	288
11.5.1	Bony Structures.....	284	11.9.1	Rectus Abdominis.....	288
11.5.2	Orienting Projections .....	284	11.9.2	Linea Semilunaris .....	289
11.5.3	Muscles.....	284	11.9.3	Regional Subdivision of the Central Abdomen...	289
11.5.4	Palpation of the Colon.....	284	<b>11.10</b>	<b>Palpation of the Colon</b> .....	290
11.5.5	Palpation of the Groin Region .....	284	11.10.1	Locating the Cecal Point .....	290
<b>11.6</b>	<b>Starting Position</b> .....	284	11.10.2	Locating the Ascending Point .....	291
11.6.1	Difficult and Supplementary SPs .....	285	11.10.3	Locating the Linear Point .....	292
<b>11.7</b>	<b>Palpation of the Bony Structures</b> .....	285	11.10.4	Locating the Descending Point .....	293
<b>11.7</b>	<b>Palpation of the Bony Structures</b> .....	285	11.10.5	Locating the Sigmoid Point .....	293
<b>12</b>	<b>Thoracic Spine and Thoracic Cage</b> .....	297	<b>11.11</b>	<b>Palpation of the Groin Region</b> .....	294
<b>12.1</b>	<b>Significance and Function of the Thoracic Region</b> .....	297	11.11.1	Technique and Expectations .....	294
12.1.1	Protective Function .....	297	11.11.2	Palpation of Inguinal Hernias.....	294
12.1.2	Supportive Function .....	297	<b>12.1.5</b>	How Does this Affect Palpation?.....	297
12.1.3	Junction between the Cervical and Lumbar Spines .....	297	<b>12.2</b>	<b>Common Applications for Treatment in this Region</b> .....	298
12.1.4	Respiration .....	297	<b>12.3</b>	<b>Required Basic Anatomical and Biomechanical Knowledge</b> .....	299

## Contents

12.3.1	Functional Divisions in the Thoracic Spine....	299	12.7.1	Cervicothoracic Junction in the Sitting Starting Position.....	309
12.3.2	Anatomical Characteristics of the Thoracic Spine .....	299	12.7.2	Cervicothoracic Junction in the Prone Starting Position.....	317
12.3.3	Thorax.....	302	12.7.3	Tips for Assessment and Treatment.....	321
12.3.4	Thoracic Back Muscles .....	307			
<b>12.4</b>	<b>Overview of the Structures to be Palpated.....</b>	<b>308</b>	<b>12.8</b>	<b>Anterior Palpation Techniques.....</b>	<b>326</b>
<b>12.5</b>	<b>Summary of the Palpatory Process.....</b>	<b>309</b>	12.8.1	Anterior Palpation in the Sitting Starting Position.....	326
<b>12.6</b>	<b>Starting Position.....</b>	<b>309</b>	12.8.2	Anterior Palpation in the Supine Starting Position.....	329
12.6.1	Difficult and Alternative Starting Positions ...	309	12.8.3	Thoracic Palpation in the Side-lying Starting Position.....	329
			12.8.4	Tips for Assessment and Treatment.....	331
<b>12.7</b>	<b>Posterior Palpation Techniques.....</b>	<b>309</b>			
<b>13</b>	<b>Cervical Spine .....</b>	<b>339</b>			
<b>13.1</b>	<b>Significance and Function of the Cervical Spine.....</b>	<b>339</b>	13.7.1	Occiput .....	356
			13.7.2	Suboccipital Fossa and Ligamentum Nuchae..	357
<b>13.2</b>	<b>Common Applications for Treatment in this Region .....</b>	<b>339</b>	13.7.3	C2 Spinous Process.....	360
			13.7.4	Spinous Processes of the Lower Cervical Spine	360
<b>13.3</b>	<b>Required Basic Anatomical and Biomechanical Knowledge.....</b>	<b>340</b>	13.7.5	Facet Joints .....	361
13.3.1	Sections of the Cervical Spine .....	340	13.7.6	Muscles, Suboccipital Nerves, and Blood Vessels.....	364
13.3.2	Anatomy of the Lower Cervical Spine.....	340			
13.3.3	Lower Cervical Spine Biomechanics .....	342	<b>13.8</b>	<b>Tips for Assessment and Treatment .....</b>	<b>368</b>
13.3.4	Anatomy of the Occiput and the Upper Cervical Spine.....	344	13.8.1	Functional Massage of the Trapezius in Supine Position .....	369
13.3.5	Ligaments of the Cervical Spine .....	346	13.8.2	Test for the Alar Ligaments .....	370
13.3.6	Biomechanics of the Upper Cervical Spine....	348	13.8.3	Identifying the Level of Chronically Irritated Intervertebral Disks.....	371
13.3.7	Posterior Muscles .....	349	13.8.4	Functional Massage .....	372
13.3.8	Anterior and Lateral Muscles.....	351			
13.3.9	Nerves and Blood Vessels .....	353	<b>13.9</b>	<b>Lateral Palpation Techniques .....</b>	<b>372</b>
<b>13.4</b>	<b>Overview of the Structures to be Palpated.....</b>	<b>354</b>	13.9.1	Angle of the Mandible .....	373
<b>13.5</b>	<b>Summary of the Palpatory Process.....</b>	<b>354</b>	13.9.2	C1 Transverse Process.....	374
<b>13.6</b>	<b>Starting Position.....</b>	<b>354</b>	13.9.3	C2 and C3 Transverse Processes .....	375
13.6.1	Difficult and Alternative Starting Positions ...	355	13.9.4	Boundaries of the Posterior Triangle of the Neck.....	375
<b>13.7</b>	<b>Posterior Palpation Techniques.....</b>	<b>356</b>	13.9.5	Occipital Triangle of the Neck .....	379
			13.9.6	Supraclavicular Triangle of the Neck.....	381
<b>14</b>	<b>Head and Jaw.....</b>	<b>389</b>	<b>13.10</b>	<b>Anterior Palpation Techniques.....</b>	<b>382</b>
	<i>Wolfgang Stelzenmüller</i>		13.10.1	Anatomy.....	382
<b>14.1</b>	<b>Introduction.....</b>	<b>389</b>			
14.1.1	Significance and Function of the Temporomandibular Joint.....	389	14.1.3	Required Basic Anatomical and Biomechanical Knowledge .....	389
14.1.2	Common Applications for Treatment in this Region.....	389	<b>14.2</b>	<b>Anatomy of the Bony Skull.....</b>	<b>390</b>
			14.2.1	Dividing the Head into Regions.....	390

14.2.2	Overview of the Frontal Aspect of the Viscerocranium .....	390	14.5.1	Overview of the Structures to be Palpated ....	394
<b>14.3</b>	<b>Palpation of the Bony Skull .....</b>	<b>390</b>	14.5.2	Summary of the Palpatory Process .....	394
14.3.1	Frontal Aspect of the Viscerocranium.....	390	14.5.3	Assessment of the Clicking Phenomenon during Active Mouth Opening.....	394
14.3.2	Lateral Aspect of the Skull.....	391	<b>14.6</b>	<b>Palpatory Examination of the Jaw Muscles.....</b>	<b>396</b>
<b>14.4</b>	<b>The Jaw—Temporomandibular Joints.....</b>	<b>391</b>	14.6.1	Overview of the Structures to be Palpated ....	396
14.4.1	Required Basic Knowledge of Topography and Morphology .....	392	14.6.2	Summary of the Palpatory Process .....	396
14.4.2	Biomechanics of the Temporomandibular Joint .....	392	14.6.3	Masseter.....	396
14.4.3	Assessing Deviations from the Mid-line during Mouth Opening.....	393	14.6.4	Tips for Assessment and Treatment.....	396
<b>14.5</b>	<b>Palpating the Temporomandibular Joints .....</b>	<b>394</b>	14.6.5	Medial Pterygoid Muscle.....	396
			14.6.6	Lateral Pterygoid Muscle.....	398
			14.6.7	Temporalis.....	400
			14.6.8	Anterior and Posterior Bellies of the Digastric .....	403
<b>Index.....</b>					<b>405</b>