

Contents

Preface	V	3.2 Supply of the Connective Tissue	28
List of Abbreviations	VI	Diffusion	28
Picture Credits	VI	Osmosis	29
 		3.3 The “Creep” Phenomenon	29
Part A Muscle Chains		3.4 The Muscle	29
<i>Philipp Richter</i>		3.5 The Fasciae	30
 		Functions of the Fasciae	30
1 Introduction	2	Manifestations of Fascial Disorders	30
1.1 The Significance of Muscle Chains in the Organism	2	Evaluation of Fascial Tensions	31
1.2 The Osteopathy of Dr. Still	2	Causes of Musculoskeletal Dysfunctions ..	31
1.3 Scientific Evidence	4	Genesis of Myofascial Disorders	31
1.4 Mobility and Stability	5	Patterns of Pain	32
1.5 The Organism as a Unit	6	3.6 Vegetative Innervation of the Organs ..	34
1.6 Interrelation of Structure and Function ..	7	3.7 Irvin M. Korr	34
1.7 Biomechanics of the Spinal Column and the Locomotor System	7	Significance of a Somatic Dysfunction in the Spinal Column for the Entire Organism ...	34
1.8 The Significance of Homeostasis	8	Significance of the Spinal Cord	35
1.9 The Nervous System as Control Center ..	8	Significance of the Autonomous Nervous System	35
1.10 Different Models of Muscle Chains	8	Significance of the Nerves for Trophism ..	35
1.11 In This Book	9	3.8 Sir Charles Sherrington	36
 		Inhibition of the Antagonist or Reciprocal Innervation (or Inhibition)	36
2 Models of Myofascial Chains	10	Post-isometric Relaxation	36
2.1 Herman Kabat 1950: Proprioceptive Neuromuscular Facilitation	10	Temporary Summation and Local, Spatial Summation	36
Motion Patterns	10	Successive Induction	36
Application Modalities	11	3.9 Harrison H. Fryette	37
Observations	11	Lovett's Laws	37
2.2 Godelieve Struyff-Denys	11	Fryette's Laws	38
Classification of the Five Muscle Chains ..	12	3.10 The Gait as a Global Functional Motion Pattern	39
2.3 Thomas W. Myers	15	Gait Analysis	39
“Anatomy Trains”—Myofascial Meridians (Chains)	15	Muscle Activity during Walking	41
Myofascial Chains According to T. Myers ..	15	Conclusion	44
2.4 Leopold Busquet	18	 	
The Muscle Chains	18	4 The Craniosacral Model	45
Myofascial Chains According to Busquet ..	19	4.1 William G. Sutherland	45
Functions of the Myofascial Muscle Chains	25	4.2 Biomechanics of the Craniosacral System	46
2.5 Paul Chauffour: Le Lien Mécanique en Osteopathie (The Mechanical Link in Osteopathy)	25	4.3 The Movements and Dysfunctions of the Craniosacral Mechanism	49
Paul Chauffour's Biomechanical Chains ...	25	Flexion and Extension	49
2.6 Conclusion on the Different Models of Myofascial Chains	26	Torsion	50
 		Sidebending Rotation	52
3 Physiology	27	Vertical Strain and Lateral Strain	53
3.1 Components of the Connective Tissue ...	27	Compression Dysfunction in the Sphenobasilar Synchondrosis	53
The Cells	27	Intraossal Dysfunction	53
The Intercellular Substance	27	Sacral Dysfunctions	56
The Basic Substance	27	4.4 The Influence of Cranial Dysfunctions and Malpostures on the Periphery	56

5	The Biomechanical Model of John Martin Littlejohn—The Mechanics of the Spine	58	9	Posture	94
5.1	History	58	9.1	Hinge Zones	94
5.2	The “Mechanics of the Spine” and the Force Lines of the Body	58	9.2	Posture and Balance	95
	The Central Gravity Line	59	9.3	Leg Length Differences	97
	The Anterior Body Line	59		Postural Changes in the Pelvis and Spinal Column from Leg Length Differences	97
	The Anteroposterior Line	60		Effects on the Musculoskeletal System and Symptoms of Leg Length Difference	97
5.3	The Force Polygon	61		Diagnosis of a Leg Length Difference	98
5.4	Arches, Pivots, and Double Arches	62		Should We Correct Leg Length Differences?	99
	Pivots	62		Conclusion	100
	Double Arches	63	10	Diagnosis	101
5.5	Specific Adjustment Technique According to Dummer	64	10.1	Medical History	101
	History	64	10.2	Examination	101
	Procedure	65		Observation	101
	The Three Units	65		Palpation	101
				Motion Tests	101
6	Postural Muscles, Phasic Muscles, and Crossed Syndrome (Vladimir Janda’s Contribution to Myofascial Treatment Methods)	66	11	Therapy	106
6.1	Posture	66	11.1	Muscle Energy Techniques	106
6.2	Motorics	66		Definition	106
6.3	Skeletal Muscle Fiber Types	67		Indications and Contraindications	107
6.4	Crossed Syndrome	69		Prerequisites for Optimal Muscle Energy Technique Application	107
	The Upper Crossed Syndrome	69		Technical Prerequisites and Enhancers for Muscle Energy Techniques	107
	The Lower Crossed Syndrome	70		Variations of Muscle Energy Techniques	108
6.5	Practical Consequences	70	11.2	Myofascial Release Techniques	109
7	The Zink Patterns	71	11.3	Neuromuscular Technique	110
7.1	The Composition of the Zink Patterns	72	11.4	Myofascial Release Technique with Ischemic Compression	110
	Occiput-Atlas-Axis	72	Part B	Trigger Points and Their Treatment	
	Upper Thoracic Aperture	73		<i>Eric Hebgen</i>	
	Lower Thoracic Aperture	74	12	Definition	112
	Pelvis	74	13	Classification of Trigger Points	113
7.2	Practical Application of the Zink Patterns	75	13.1	Active and Latent Trigger Points	113
	Occiput-Atlas-Axis	75	13.2	Trigger Point Symptoms and Supporting Factors	113
	Upper Thoracic Aperture	75		Symptoms	113
	Lower Thoracic Aperture	75		Supporting Factors	113
	Pelvis	75	14	Pathophysiology of Trigger Points	114
8	Myofascial Chains—A Model	77	14.1	Locally Increased Tension in Trigger Points and Referred Pain	114
8.1	Muscle Chains	78	14.2	Causes of Locally Increased Tension in Trigger Points and Referred Pain	114
	Flexion Chain	80		Convergence Projection	114
	Extension Chain	84		Convergence Facilitation	115
8.2	Summary and Conclusions of the Flexion and Extension Chains	85		Axonal Ramifications	115
	Flexion Chain	85		Sympathetic Nerves	115
	Extension Chain	86		Metabolic Derailment	115
8.3	Torsion	86		Muscle Stretching Affects Muscle Metabolism	115
8.4	Specific Characteristics of Some Muscles or Muscle Groups	87			
	Sternocleidomastoid Muscle	87			
	Scalene Muscles	87			
	Diaphragm	88			
	Iliopsoas	91			
	Hip Rotators	92			

The Hypertonic Palpable Muscle Spindle . . .	115		
Muscular Weakness and Fast Tiring	117		
15 Diagnosis	118		
15.1 Detailed Medical History	118		
15.2 Charting Pain Patterns	118		
15.3 Examining Muscles in Activity	118		
15.4 Looking for Trigger Points	119		
16 Trigger Point Therapy	121		
16.1 Stretch-and-Spray Technique	121		
Applying Cooling Spray	121		
Passive Stretch	121		
Active Stretch	121		
16.2 Postisometric Relaxation/Muscle Energy Technique/Myofascial Release	122		
16.3 Ischemic Compression/Manual Inhibition.	122		
16.4 Deep Friction Massage	122		
17 Trigger Point–Sustaining Factors	123		
18 The Facilitated Segment	124		
19 The Trigger Points	125		
19.1 Muscles of Head and Neck Pain	125		
Trapezius Muscle	125		
Sternocleidomastoid Muscle	127		
Masseter Muscle	128		
Temporalis Muscle	130		
Lateral Pterygoid Muscle	131		
Medial Pterygoid Muscle	132		
Digastric Muscle	132		
Orbicularis Oculi, Zygomaticus Major, and Platysma Muscles	133		
<i>Orbicularis oculi</i>	133		
<i>Zygomaticus Major Muscle</i>	134		
<i>Platysma Muscle</i>	135		
Occipitofrontalis Muscle	135		
Splenius Capitis and Cervicis Muscles . . .	136		
Semispinalis Capitis and Cervicis Muscles, Multifidus Muscles (Transversospinalis) . .	138		
Rectus Capitis Posterior Major and Minor Muscles, Obliquus Capitis Inferior and Superior Muscles	139		
19.2 Muscles of Upper Thorax Pain and Shoulder–Arm Pain	140		
Levator Scapulae Muscle	140		
Scalene Muscles	142		
Supraspinatus Muscle	143		
Infraspinatus Muscle	144		
Teres Minor Muscle	145		
Teres Major Muscle	146		
Latissimus Dorsi Muscle	146		
Subscapularis Muscle	147		
Rhomboid Muscle	148		
Deltoid Muscle	149		
Coracobrachialis Muscle	151		
Biceps Brachii Muscle	152		
Brachialis Muscle	153		
Triceps Brachii Muscle	154		
Anconeus Muscle	155		
19.3 Muscles of Elbow–Finger Pain	156		
Brachioradialis Muscle and Wrist Extensors	156		
Brachioradialis Muscle	156		
<i>Extensor Carpi Radialis Longus Muscle</i>	156		
<i>Extensor Carpi Radialis Brevis Muscle</i>	157		
<i>Extensor Carpi Ulnaris Muscle</i>	158		
Extensor Digitorum and Indicis Muscles . .	158		
<i>Extensor Digitorum Muscle</i>	158		
<i>Extensor Indicis Muscle</i>	159		
Supinator Muscle	160		
Palmaris Longus Muscle	161		
Flexor Carpi Radialis and Ulnaris, Flexor Digitorum Superficialis and Profundus, Flexor Pollicis Longus, and Pronator Teres Muscles	162		
<i>Flexor Carpi Radialis Muscle</i>	162		
<i>Flexor Carpi Ulnaris Muscle</i>	162		
<i>Flexor Digitorum Superficialis Muscle</i>	163		
<i>Flexor Digitorum Profundus Muscle</i>	163		
<i>Flexor Pollicis Longus Muscle</i>	163		
Pronator Teres Muscle	164		
Adductor and Opponens Pollicis Muscles .	164		
<i>Adductor Pollicis Muscle</i>	164		
<i>Opponens Pollicis Muscle</i>	166		
Abductor Digiti Minimi Muscle	167		
Interosseous Muscles	168		
<i>Dorsal Interosseous Muscles</i>	168		
<i>Palmar Interosseous Muscles</i>	170		
19.4 Muscles of Upper Torso Pain	170		
Pectoralis Major Muscle	170		
Pectoralis Minor Muscle	172		
Subclavius Muscle	172		
Sternalis Muscle	174		
Serratus Posterior Superior Muscle	174		
Serratus Posterior Inferior Muscle	175		
Serratus Anterior Muscle	176		
Erector Spinae Muscles	177		
<i>Iliocostal Muscle</i>	177		
<i>Longissimus Muscle</i>	178		
<i>Spinalis Muscle</i>	178		
Rectus Abdominis, Abdominal Internal and External Oblique, Transversus Abdominis, and Pyramidalis Muscles	179		
<i>Rectus Abdominis Muscle</i>	179		
<i>Abdominal Internal Oblique Muscle</i>	179		
<i>Abdominal External Oblique Muscle</i>	180		
<i>Transversus Abdominis Muscle</i>	180		
<i>Pyramidalis Muscle</i>	181		
<i>Abdominal Muscles</i>	181		
19.5 Muscles of Lower Torso Pain	182		
Quadratus Lumborum Muscle	182		
Iliopsoas Muscle	183		
<i>Iliacus Muscle</i>	183		
<i>Psoas Major Muscle</i>	183		
<i>Psoas Minor Muscle</i>	184		
Muscles of the Pelvic Floor	185		
<i>Obturator Internus Muscle</i>	185		
<i>External Anal Sphincter Muscle</i>	185		
<i>Levator Ani Muscle</i>	185		
<i>Coccygeus Muscle</i>	186		
Gluteus Maximus Muscle	186		
Gluteus Medius Muscle	187		
Gluteus Minimus Muscle	188		
Piriformis Muscle	189		
19.6 Muscles of Hip, Thigh, and Knee Pain . . .	191		
Tensor Fasciae Latae Muscle	191		

Sartorius Muscle	191	<i>Soleus Muscle</i>	207
Pectineus Muscle	192	<i>Plantaris Muscle</i>	208
Quadriceps Femoris Muscle	193	Extensor Digitorum Longus and Hallucis Longus Muscles	209
<i>Rectus Femoris Muscle</i>	193	<i>Extensor Digitorum Longus Muscle</i>	209
<i>Vastus Lateralis Muscle</i>	193	<i>Extensor Hallucis Longus Muscle</i>	210
<i>Vastus Medialis Muscle</i>	193	Flexor Digitorum Longus and Hallucis Longus Muscles	210
<i>Vastus Intermedius Muscle</i>	193	<i>Flexor Digitorum Longus Muscle</i>	210
<i>Rectus Femoris, Vastus Lateralis, Vastus Medialis, and Vastus Intermedius Muscles</i>	194	<i>Flexor Hallucis Longus Muscle</i>	210
Gracilis and Adductor Longus, Brevis, and Magnus Muscles	196	Superficial Intrinsic Foot Musculature . . .	212
<i>Gracilis Muscle</i>	196	<i>Extensor Digitorum Brevis Muscle</i>	212
<i>Adductor Longus Muscle</i>	196	<i>Extensor Hallucis Brevis Muscle</i>	212
<i>Adductor Brevis Muscle</i>	196	<i>Abductor Hallucis Muscle</i>	213
<i>Adductor Magnus Muscle</i>	197	<i>Flexor Digitorum Brevis Muscle</i>	213
Biceps Femoris, Semitendinosus, and Semimembranosus Muscles	198	<i>Abductor Digiti Minimi Muscle</i>	214
<i>Biceps Femoris Muscle</i>	198	Deep Intrinsic Foot Musculature	215
<i>Semitendinosus Muscle</i>	199	<i>Quadratus Plantae Muscle</i>	215
<i>Semimembranosus Muscle</i>	199	<i>Dorsal Interossei Muscles</i>	215
Popliteus Muscle	200	<i>Plantar Interossei Muscles</i>	217
19.7 Muscles of Lower Leg, Ankle, and Foot Pain	202	<i>Adductor Hallucis Muscle</i>	217
Tibialis Anterior Muscle	202	<i>Flexor Hallucis Brevis Muscle</i>	218
Tibialis Posterior Muscle	203	Bibliography	220
Peroneus Longus, Brevis, and Tertius Muscles	205	Muscle Chains (Richter)	220
<i>Peroneus Longus Muscle</i>	205	Trigger Points and Their Treatment (Hebgen)	223
<i>Peroneus Brevis Muscle</i>	205	Index	224
<i>Peroneus Tertius Muscle</i>	206		
<i>Gastrocnemius Muscle</i>	206		
Soleus and Plantaris Muscles	207		