

Table of Contents

vii **Forewords**
 xiii **Acknowledgments**
 xv **Table of Contents**

1	Introduction	53	Manual Functional Analysis
2	The Masticatory System as a Biological System	54	The Masticatory System as a Biological System
3	Progressive/Regressive Adaptation and Compensation/ Decompensation	55	Specific and Nonspecific Loading Vectors
4	Functional Diagnostic Examination Procedures...	56	Examination Form for Manual Functional Analysis
5	...and their Therapeutic Consequences	58	Patient History
6	The Role of Dentistry in Craniofacial Pain	60	Positioning the Patient
7	Primary Dental Evaluation	61	Manual Fixation of the Head
8	Findings in the Teeth and Mucous Membrane	62	Active Movements and Passive Jaw Opening with Evaluation of the Endfeel
10	Overview of Dental Examination Techniques	67	Differential Diagnosis of Restricted Movement
11	Anatomy of the Masticatory System	68	Examination of the Joint Surfaces
12	Embryology of the Temporomandibular Joint and the Muscles of Mastication	70	Manifestations of Joint Surface Changes
14	Development of the Upper and Lower Joint Spaces	72	Conducting the Clinical Joint Surface Tests
16	Glenoid Fossa and Articular Protuberance	74	Examination of the Joint Capsule and Ligaments
18	Mandibular Condyle	78	Clinical Significance of Compressions in the Superior Direction
20	Positional Relationships of the Bony Structures	84	Examination of the Muscles of Mastication
22	Articular Disk	89	Palpation of the Muscles of Mastication with Painful Isometric Contractions
23	Anatomical Disk Position	94	Areas of Pain Referred from the Muscles of Mastication
24	Bilaminar Zone	96	Length of the Suprahyoid Structures
26	Joint Capsule	98	Investigation of Clicking Sounds
28	Ligaments of the Masticatory System	102	Active Movements and Dynamic Compression
31	Arterial Supply and Sensory Innervation of the Temporomandibular Joint	104	Manual Translations
32	Sympathetic Innervation of the Temporomandibular Joint	106	Dynamic Compression during Retrusive Movement
33	Muscles of Mastication	108	Differentiation among the Groups
34	Temporal Muscle	110	Differentiation within Group 1
35	Masseter Muscle	112	Differentiation within Group 2
36	Medial Pterygoid Muscle	114	Differentiation among Unstable, Indifferent, and Stable Repositioning
37	Suprahyoid Musculature	116	Differentiation within Group 3
38	Lateral Pterygoid Muscle	118	Differentiation within Group 4
40	Macroscopical-Anatomical and Histological Studies of the Masticatory Muscle Insertions	120	Unified Diagnostic Concept and...
41	Force Vectors of the Muscles of Mastication	121	...Treatment Plan for Anterior Disk Displacement
42	Tongue Musculature	122	Tissue-Specific Diagnosis
43	Muscle of Expression	122	—Principles of Manual Functional Analysis
44	Temporomandibular Joint and the Musculoskeletal System	122	—Protocol for Cases with Pain
45	Peripheral and Central Control of Muscle Tonus	123	—Protocol for Clicking Sounds
46	Physiology of the Jaw-Opening Movement	123	—Routine Protocol
47	Physiology of the Jaw-Closing Movement	123	—Protocol for Limitations of Movement
48	Physiology of Movements in the Horizontal Plane	123	—Primary and Secondary Diagnoses
49	The Teeth and Periodontal Receptors	124	Investigation of the Etiological Factors (Stressors)
50	Condylar Positions	125	Neuromuscular Deprogramming
51	Static Occlusion	126	Mandibular and Condylar Positions
52	Dynamic Occlusion	128	Static Occlusion
		130	Dynamic Occlusion
		132	Bruxism Vector or Parafunction Vector
		134	Dysfunctional Movements
		135	Influence of Orthopedic Disorders on the Masticatory System

136	Supplemental Diagnostic Procedures	175	Total Disk Displacement
136	—Mounted Casts, Axiography	176	Types of Disk Repositioning
137	—Panoramic Radiograph	177	Disk Displacement without Repositioning
137	—Lateral Jaw Radiograph	178	Partial Disk Displacement with Total Repositioning
137	—Joint Vibration Analysis (JVA)	179	Partial Disk Displacement with Partial Repositioning
138	Musculoskeletal Impediments in the Direction of Treatment	180	Total Disk Displacement with Total Repositioning
140	Manual Functional Analysis for Patients with no History of Symptoms	181	Total Disk Displacement with Partial Repositioning
141	Imaging Procedures	182	Condylar Hypermobility
142	Panoramic Radiographs	183	Posterior Disk Displacement
144	Portraying the Temporomandibular Joint with Panoramic Radiograph Machines	184	Disk Displacement during Excursive Movements
146	Asymmetry Index	185	Regressive Adaptation of Bony Joint Structures
147	Distortion Phenomena	186	Progressive Adaptation of Bony Joint Structures
148	Eccentric Transcranial Radiograph (Schüller Projection)	188	Evaluation of Adaptive Changes: MRI Versus CT
149	Axial Cranial Radiograph According to Hirtz and Conventional Tomography	189	Avascular Necrosis Versus Osteoarthritis
150	Posterior-Anterior Cranial Radiograph according to Clementschitsch	190	Metric (Quantitative) MRI Analysis
151	Lateral Transcranial Radiograph	192	Examples of Bumann's MRI Analysis
152	Computed Tomography of the Temporomandibular Joint	194	MRI for Orthodontic Questions
153	Computed Tomography of the Temporomandibular Joint and its Anatomical Correlation	195	Three-Dimensional Imaging with MRI Data
154	Three Dimensional Images of the Temporomandibular Joint...	196	Dynamic MRI
155	...with the Aid of Computed Tomography Data	196	—Cine MRI
156	Three-Dimensional Reconstruction for Hypoplastic Syndromes	197	—Movie MRI
157	Three-Dimensional Models of Polyurethane Foam and Synthetic Resin	198	MR Microscopy and MR Spectroscopy
158	Magnetic Resonance Imaging	199	Indications for Imaging Procedures as Part of Functional Diagnostics
159	T1- and T2-Weighting	200	Prospects for the Future of Imaging Procedures
160	Selecting the Slice Orientation	201	Mounting of Casts and Occlusal Analysis
161	Practical Application of MRI Sections	202	Making of Impressions and Stone Casts
162	Reproduction of Anatomical Detail in MRI	205	Fabrication of Segmented Casts
164	Visual (Qualitative) Evaluation of an MR Image	206	Registration of Centric Relation
165	Classification of the Stages of Bony Changes	207	Techniques for Recording the Centric Condylar Position
166	Disk Position in the Sagittal Plane	208	Transcutaneous Nerve Stimulation for Muscle Relaxation—“Myocentric”
167	Disk Position in the Frontal Plane	210	Interocclusal Registration Materials
168	Misinterpretation of the Disk Position in the Sagittal Plane	211	Centric Registration for Intact Dentitions
169	Morphology of the Pars Posterior	212	Occlusal Splints used as Record Bases
170	Progressive Adaptation of the Bilaminar Zone	214	Centric Registration for Posteriorly Shortened Dental Arches
171	Progressive Adaptation in T1- and T2-Weighted MRI	215	Jaw Relation Determination for Edentulous Patients
172	Disk Adhesions in MRI	216	Mounting the Cast in the Correct Relationship to the Cranium and Temporomandibular Joints
173	Disk Hypermobility	217	Attaching the Anatomical Transfer Bow
174	Partial Disk Displacement	220	Mounting the Maxillary Cast using the Anatomical Transfer Bow
		222	Mounting the Maxillary Cast using a Transfer Stand
		223	Mounting the Maxillary Cast following Axiography
		226	Mounting the Mandibular Cast
		228	Axiosplit System
		230	Split-Cast Control of the Cast Mounting

231	Check-Bite for Setting the Articulator Joints	301	Principles of Treatment
232	Effect of Hinge Axis Position and Thickness of the Occlusal Record on the Occlusion	302	Specific or Nonspecific Treatment?
233	Occlusal Analysis on the Casts	303	Nonspecific Treatment
236	Occlusal Analysis using Sectioned Casts	304	Elimination of Musculoskeletal Impediments
239	Diagnostic Occlusal Reshaping of the Occlusion on the Casts	306	Occlusal Splints
242	Diagnostic Tooth Setup	308	Splint Adjustment for Vertical Disocclusion and Posterior Protection
243	Diagnostic Waxup	309	Relationship between Joint Surface Loading and the Occlusal Scheme
246	Condylar Position Analysis Using Mounted Casts	310	Relaxation Splint
248	Instrumented Analysis of Jaw Movements	311	Stabilization Splint
250	Mechanical Registration of the Hinge Axis Movements (Axiography)	312	Decompression Splint
261	Evaluating the Axiograms and Programming the Articulator	313	Repositioning Splint
262	Hinge Axis Tracings (Axiograms) as Projection Phenomena	314	Verticalization Splint
263	Effect of an Incorrectly Located Hinge Axis on the Axiograms	316	Definitive Modification of the Dynamic Occlusion
264	Electronic Paraocclusal Axiography	318	Definitive Alteration of the Static Occlusion
		322	Examination Methods and Their Therapeutic Relevance
		323	Illustration Credits
		324	References
		354	Index
269	Diagnoses and Classifications		
270	Classification of Primary Joint Diseases		
271	Classification of Secondary Joint Diseases		
272	Hyperplasia, Hypoplasia, and Aplasia of the Condylar Process		
273	Hyperplasia of the Coronoid Process		
274	Congenital Malformations and Syndromes		
275	Acute Arthritis		
276	Rheumatoid Arthritis		
277	Juvenile Chronic Arthritis		
278	Free Bodies within the Joints		
279	Styloid or Eagle Syndrome		
280	Fractures of the Neck and Head of the Condyle		
281	Disk Displacement with Condylar Neck Fractures		
282	Fibrosis and Bony Ankylosis		
283	Tumors in the Temporomandibular Joint Region		
284	Joint Disorders—Articular Surfaces		
286	Joint Disorders—Articular Disk		
287	Joint Disorders—Bilaminar Zone and Joint Capsule		
295	Joint Disorders—Ligaments		
297	Muscle Disorders		