

# Contents

<b>Introduction</b> .....	1	The Influence of the Child's Health .....	22
The Growth of Knowledge and Understanding .....	1	The Influence of the Child's Developmental Skills and Needs .....	24
The Challenges .....	2	The Influence of the Child's Feeding and Oral Motor Skills .....	25
The Journey .....	3	The Influence of the Child's Emotional State and Temperament .....	25
Strategies and Techniques .....	3	The Influence of the Parent's Emotional State and Temperament .....	27
Keys to Learning .....	5	Observing and Understanding the Mealtime Environment .....	28
<b>Chapter 1 Foundations for a Mealtime</b> ...	7	<b>Chapter 3 Mealtime Roles</b> .....	31
What Is a Mealtime? .....	7	The Mealtime Dance .....	32
Reflections on a Mealtime .....	7	Birth to 3 Months—Homeostasis and Mealtimes .....	32
Where Did You Eat? .....	7	4 to 7 Months—Socialization at Mealtime .....	33
What Did You Eat? .....	7	Parent and Baby Roles During Infancy .....	34
With Whom Did You Share the Meal? .....	8	Emerging Independence .....	36
Purposes of a Mealtime .....	8	Parent and Baby Roles Between 6 and 12 Months .....	36
Communication .....	8	The Independent Toddler .....	38
Socialization .....	8	Parent Roles That Encourage Toddlers to Eat .....	39
Giving and Receiving Love .....	8	The Older Child .....	41
Sharing Personal Values Related to Eating ..	9	Special Feeding Issues .....	41
Sense of Family, Culture, and Community ..	9	<b>Chapter 4 Anatomy and Physiology of Eating</b> .....	43
Celebration .....	10	Oral and Pharyngeal Structures .....	43
Physical Growth and Health .....	10	Esophageal and Gastrointestinal Tract Structures .....	45
Sensory Exploration .....	11	Form and Function—Cavities, Tubes, and Valves .....	46
Relaxation .....	11	Neural Control in Eating .....	47
Habit .....	11	The Cranial Nerves .....	47
Break in Routine .....	11	Swallowing .....	49
Aspects of Nourishment at Mealtimes .....	11	The Process of Swallowing .....	49
I Feel Nourished at Mealtimes When ...	12	Sequence of Adult Swallowing .....	50
I Do Not Feel Nourished When ...	12	Comparison of Infant and Adult Anatomy for Swallowing .....	50
Creating Nourishing Mealtimes for Children and Families .....	12	Anatomical Differences Between the Newborn and the Adult Mouth and Pharynx .....	52
<b>Chapter 2 Mealtime Influences</b> .....	15	Infant Anatomical Maturation and Function ...	52
Identifying and Understanding Mealtime Influences .....	15		
The Influence of Beliefs .....	16		
The Influence of Culture .....	17		
The Influence of the Parent's History .....	18		
The Influence of the Child's History .....	19		
The Influence of Family Dynamics .....	20		
The Influence of Socioeconomic Factors .....	21		

Sucking .....	53	Jaw Movements in Biting .....	85
The Process of Sucking .....	53	Jaw Movements in Chewing .....	86
The Mechanics of Sucking .....	54	Tongue Movements in Chewing .....	87
Digestion .....	54	Lip Movements in Chewing .....	88
Into the Stomach .....	54	Chewing Efficiency .....	89
Into the Intestinal Tract .....	55	A Global Look at Feeding Skills .....	89
The Respiratory and Cardiac Systems .....	56	Newborns .....	89
<b>Chapter 5 Normal Development</b>		3-Month-Old Infants .....	90
<b>of Feeding Skills</b> .....	59	6-Month-Old Infants .....	90
The Influence of Normal Movement Development ...	62	9-Month-Old-Infants .....	91
Stability and Mobility .....	62	12-Month-Old Children .....	92
Separation of Movement .....	63	15-Month-Old Children .....	92
Straight Planes of Movement to Rotation .....	63	18-Month-Old Children .....	93
Midline Development .....	64	2-Year-Old Children .....	93
Reversion to Earlier Patterns of Movement ....	65	Older Children .....	94
Sensory Input in the Direction and Selection		Developmental Perspectives .....	94
of Movement .....	65	<b>Chapter 6 Factors That Limit</b>	
Economy and Efficiency of Movement .....	66	<b>Feeding Skill Development</b> .....	97
Rhythmicity .....	66	Structural Limits .....	100
Cultural Influences .....	67	Types of Structural Limitations and	
Theme and Variations .....	68	Their Influence on Feeding .....	100
The Influence of Oral Sensory Development .....	69	Structural Limitations Through	
Sensory Windows .....	69	the Feeding System .....	100
Taste .....	69	Physiological Limits .....	105
The Influence of Non-Feeding		Types of Physiological Limitations and	
Oral Motor Development .....	70	Their Influence on Feeding .....	105
Mouthing .....	70	Physiological Limitations Through	
Non-Nutritive Sucking .....	71	the Feeding System .....	106
A Sequential Look at Feeding Skills .....	72	Wellness Limits .....	111
Feeding Positions .....	73	Types of Wellness Limitations and	
Food Quantity .....	74	Their Influence on Feeding .....	111
Food Types and the Transition		Wellness Limitations Through	
From Liquids to Table Foods .....	74	the Feeding System .....	112
Newborn Oral Motor Reflexes .....	75	Experiential Limits .....	113
Sucking Liquids From the Bottle or Breast ....	76	Types of Experiential Limitations and Their	
Sucking Liquids From a Cup .....	79	Influence on Feeding and Mealtime ...	113
Sucking Liquids From a Straw .....	80	Experiential Limitations Through the	
Sucking Soft Solid Foods From the Spoon ....	81	Feeding and Mealtime System .....	113
Swallowing Liquids .....	82	Environmental Limits .....	118
Swallowing Semisolids .....	83	Types of Environmental Limitations and	
Swallowing Solids .....	84	Their Influence on the Family	
Coordination of Sucking, Swallowing,		at Mealtime .....	118
and Breathing .....	84	Environmental Limitations Through	
Control of Drooling .....	85	the Feeding and Mealtime System ....	119
		Relating to Factors That Limit Feeding Skill	
		Development .....	119

**Chapter 7 Factors That Limit**

**Oral Motor Skills** ..... 121

The Terminology of Tone and Movement ..... 122

    Muscle Tension ..... 122

        Low Tone ..... 122

        High Tone ..... 122

        Fluctuating Tone ..... 123

    Direction of Movement ..... 123

        Extension ..... 123

        Flexion ..... 123

        Retraction ..... 123

        Protraction and Protrusion ..... 123

        Exaggerated ..... 123

    Timing and Intensity of Movement ..... 124

        Thrust ..... 124

    Distribution of Movement ..... 124

        Symmetrical ..... 124

        Asymmetrical ..... 124

Problems With Function of Individual

    Oral Structures ..... 124

        Jaw ..... 125

        Tongue ..... 126

        Lips and Cheeks ..... 127

        Palate ..... 128

Problems With Motor Processes ..... 129

Problems With Sensory Processes ..... 130

    Hyperreaction ..... 131

    Hyporeaction ..... 132

    Sensory Defensiveness ..... 132

    Sensory Overload ..... 133

Problems With Feeding Processes ..... 133

    Sucking ..... 133

    Swallowing ..... 134

    Biting ..... 135

    Chewing ..... 135

Oral Motor Limitations Glossary ..... 136

    Limiting Oral Motor Patterns ..... 136

    Limiting Jaw Patterns ..... 136

    Limiting Tongue Patterns ..... 136

    Limiting Lip Patterns ..... 137

    Limiting Sensory Factors ..... 137

**Chapter 8 Supportive**

**Diagnostic Tests** ..... 139

Evaluation of Swallowing Function ..... 139

    Videofluoroscopic Swallow Study ..... 139

        When to Refer? ..... 140

        Procedure ..... 140

        Limitations in Performing a VFSS ..... 140

        Invaluable Information the VFSS  
        Can Tell Us ..... 141

        What a VFSS Cannot Tell Us ..... 143

        Questions to Consider Before a VFSS .... 143

        What to Do With the Results of a VFSS? .. 145

    Ultrasound ..... 145

        Procedure ..... 145

        Advantages of Ultrasound ..... 145

        Limitations of Ultrasound ..... 146

    Fiberoptic Endoscopic Evaluation of Swallowing  
    (FEES) ..... 146

        Procedure ..... 146

        Advantages of FEES ..... 146

        Limitations of FEES ..... 147

    Cervical Auscultation ..... 147

        Procedure ..... 147

        Advantages of Cervical Auscultation ..... 147

        Limitations of Cervical Auscultation ..... 147

Evaluation of Gastrointestinal Function ..... 147

    Upper GI Series ..... 147

        Procedure ..... 148

        Advantages of the UGI Series ..... 148

        Limitations of the UGI Series ..... 148

        Implications for the Feeding Therapist ... 149

    pH Probe ..... 150

        Procedure ..... 151

        Advantages of the pH Probe ..... 151

        Limitations of the pH Probe ..... 151

        Keeping it in Perspective ..... 152

    Upper Gastrointestinal Endoscopy ..... 152

        Procedure ..... 152

    Gastroesophageal Scintigraphy ..... 153

        Procedure ..... 153

        Advantages of Scintigraphy ..... 153

        Limitations of Scintigraphy ..... 154

    Esophageal Manometry ..... 154

Evaluation of Respiratory Function . . . . .	154	Developing a Feeding Plan With the Parent . . .	168
Bronchoscopy With Bronchoalveolar Lavage . .	154	Respect Parent Learning Styles . . . . .	168
<b>Chapter 9 Mealtime Assessment . . . . .</b>	<b>157</b>	Exploring the Initial Feeding Plan . . . . .	169
Foundations . . . . .	157	Demonstrate the Feeding Plan . . . . .	169
The Elements of the Story . . . . .	157	Establishing a Follow-Up Plan . . . . .	170
Seeking the Answers . . . . .	158	Creating the Report . . . . .	170
The Process . . . . .	159	Who and What? . . . . .	170
Rational and Intuitive Approaches . . . . .	159	How? . . . . .	171
Global Overview . . . . .	160	Links Between Assessment and Treatment . . . . .	172
Sequential Analysis . . . . .	160	The Feeding Team . . . . .	172
Specific Applications to the Feeding Assessment: Jason . . . . .	160	The Process . . . . .	174
Approaches to Gathering Information . . . . .	163	Parent Mealtimes Questionnaire—Eating and Drinking Skills . . . . .	175
Interview and Parent Questionnaire . . . . .	163	Parent Mealtimes Questionnaire—Tube Feedings and Beginning Oral Feedings . . . . .	179
Observation of the Child . . . . .	163	Mealtime Assessment Guide . . . . .	184
Observation Settings . . . . .	163	<b>Chapter 10 The Bridge to Treatment: Setting Priorities and Problem Solving . . .</b>	<b>187</b>
Parent-Child Feeding Interaction . . . . .	163	Organizing Information . . . . .	187
Therapist’s Observations From Feeding the Child . . . . .	164	Major Feeding Clusters . . . . .	188
Recording Mealtime Assessment Data . . . . .	164	Motor-Based Feeding Problems . . . . .	188
Parent Concerns . . . . .	164	Sensory-Based Feeding Problems . . . . .	189
Other Concerns . . . . .	164	Structurally Based Feeding Problems . . . .	190
Diagnoses and Medical History . . . . .	165	Experientially Based Feeding Problems . . .	191
Previous Therapies and Assessments . . . . .	165	Combination Feeding Problems . . . . .	192
Current Therapies and School . . . . .	165	What Works? What Doesn’t Work? . . . . .	193
Feeding History . . . . .	165	Pattern Clusters . . . . .	196
Current Medications . . . . .	165	Describing the Patterns . . . . .	197
Growth Parameters . . . . .	166	Creating the Plan . . . . .	197
Mealtime Routine . . . . .	166	Setting Priorities . . . . .	199
Child’s Developmental Skills . . . . .	166	Identifying the Key Issues . . . . .	199
Mealtime Relationship and Interactions . .	166	Problem Solving . . . . .	205
Mealtime Communication Skills (Strengths and Challenges) . . . . .	166	The Big Picture Model . . . . .	205
Mealtime Physical Skills (Strengths and Challenges) . . . . .	166	The Component Skills Model . . . . .	208
Mealtime Sensory Skills (Strengths and Challenges) . . . . .	167	Identifying the Target Components . . . . .	209
Mealtime Oral Motor Skills (Strengths and Challenges) . . . . .	167	Observation and Charting of Component Skills . . . . .	210
Treatment Explorations . . . . .	167	Moving Toward Efficient Oral Feeding— Guidelines for Therapy . . . . .	211
Ongoing Questions . . . . .	167	Building Bridges . . . . .	213
Challenges . . . . .	167	What’s Working and What’s Not Working? . . . . .	214
Plan . . . . .	168		

<b>Chapter 11 Creating the Mealtime Plan</b> .....	215	Following the Child's Lead .....	242
Setting Goals .....	215	Observing the Child's Response .....	242
Dylan, Age 12 Months .....	216	Inner Wisdom .....	243
Long-Term Behavioral Goal 1 .....	217	The Treatment Partnership .....	243
Treatment Strategies .....	217	Building on the Child's Assets .....	243
Long-Term Behavioral Goal 2 .....	217	Approaches, Strategies, and Techniques .....	244
Treatment Strategies .....	218	Approach or Philosophy .....	245
Long-Term Behavioral Goal 3 .....	218	Strategies .....	245
Treatment Strategies .....	218	Techniques .....	245
Tyrone, Age 5 Years .....	219	Alternative Pathways .....	246
Oral Motor Support for Feeding .....	219	The What and How of Therapy .....	246
Implementing the Plan .....	219	What We Do .....	246
Structure .....	220	How We Do It .....	247
Frequency .....	220	<b>Chapter 13 Learning and Communication at Mealtimes</b> .....	249
Type .....	221	Maximizing the Ability to Learn .....	249
Content .....	222	Principles of Learning .....	249
Mealtime Program .....	224	Making Changes: The Learning Environment .....	251
Part 1: Positive Mealtimes .....	224	The Power of Beliefs and Expectations .....	251
Part 2: Oral Awareness and Discrimination .....	225	The Power of Suggestion .....	253
Part 3: Rhythmical Suck-Swallow-Breathe .....	226	The Power of Music .....	254
Individual Mealtime Plan .....	227	The Power of Imagination .....	256
Supporting and Limiting Mealtime Skills .....	227	Concepts of Change .....	257
Short-Term Mealtime Focus and Objectives .....	227	Mealtime Communication .....	260
Mealtime Suggestions .....	227	Observation and Discovery .....	260
Mealtime Program .....	230	Enhancing the Mealtime Environment .....	262
Individual Mealtime Plan .....	231	Physical Environment .....	262
<b>Chapter 12 Treatment Principles and Perspectives</b> .....	235	Sensory Environment .....	263
The Concept of Mealtime Programs .....	235	Communication Environment .....	263
Mealtime Circles of Influence .....	235	Messages From Within .....	264
Feeding Programs, Oral Motor Treatment Programs, and Mealtime Programs .....	239	Hunger and Satiation .....	264
Interplay of Assessment and Treatment .....	240	Enhancing Inner Messages .....	265
Guiding Principles .....	241	Behavior as Communication .....	266
The Dance of Mealtime .....	241	Mealtime Communication Tools .....	267
Developing Trust and Respect .....	242	Mealtime Communication Board .....	267
Trusting Ourselves and Others .....	242	Mealtime Place Mat .....	268
Judgments and Acceptance .....	242	Mealtime Book .....	268
Getting the Child's Permission .....	242	The Interplay of Communication and Learning .....	269
		Messages and Belief Systems .....	269
		Behavior and Learning .....	271
		Behavior Modification Programs .....	271
		Changing Children's Feeding Behavior Through Behavior Modification .....	274



Incorporating Behavioral Principles of Learning in Mealtime Programs . . . .	275	<b>Chapter 15 Positioning and Handling Influences on the Mealtime</b> . . . . .	293
Learning Alternatives in Teaching Feeding and Mealtime Skills . . . . .	276	Handling and Movement . . . . .	293
<b>Chapter 14 The Sensory Challenges of Mealtime</b> . . . . .	277	Considerations for Positioning at Mealtimes . . . . .	293
The Senses and Mealtimes . . . . .	277	Mealtime Communication . . . . .	294
Personal Nature of the Senses . . . . .	277	Mealtime Socialization . . . . .	295
Beyond the Mouth . . . . .	277	Developmental Feeding Skills . . . . .	295
Understanding Sensory Variables . . . . .	278	Feeding Methods . . . . .	296
Vestibular Sensory Information (Balance and Equilibrium) . . . . .	278	Oral Motor Skills . . . . .	296
Proprioceptive Sensory Information (Inner-Muscle and Joint Awareness) . . .	279	Gastrointestinal, Oral-Facial, Respiratory, and Neurological Positioning Needs . . . . .	296
Tactile Sensory Information (Touch) . . . .	281	Physical Needs and Seating Choices . . . . .	297
Gustatory Sensory Information (Taste) . . .	281	The Child's Individual Needs . . . . .	297
Olfactory Sensory Information (Smell) . . .	282	Observing Body Alignment . . . . .	298
Visual Sensory Information (Sight) . . . . .	283	How Do All of These Components Interact? . . .	298
Auditory Sensory Information (Hearing) . .	285	Hips and Pelvis . . . . .	298
Sensory Preparation and Mealtimes . . . . .	285	Sitting Base . . . . .	298
Listening to the Child . . . . .	285	Feet . . . . .	299
Sensory Preparation of the Environment . . . .	286	Trunk . . . . .	299
Sensory Preparation of the Child . . . . .	286	Shoulder Girdle . . . . .	299
Sensory Preparation for the Adult . . . . .	287	Relationship of the Head and Spine . . . . .	300
Sensory Variables During the Meal . . . . .	287	Abdominal-Pelvic Girdle . . . . .	300
Grading of the Sensory Continuum of Food . . . . .	287	Freedom of Movement . . . . .	300
Sensory Preparation for Transition to the Next Activity . . . . .	288	Vision . . . . .	301
Helping Children Handle the New Sensory Challenges of Mealtimes . . . . .	288	Compensating Patterns of Movement . . . .	301
Listen to Children . . . . .	288	Recording Information . . . . .	302
Prepare for the Meal . . . . .	289	Comfort . . . . .	302
Preferences are Personal . . . . .	289	Straps and Belts . . . . .	302
Seek Foods Most Likely to Elicit Favorable Responses . . . . .	289	Safety . . . . .	302
Get Permission . . . . .	289	Feeder's Position . . . . .	302
Start With the Familiar . . . . .	289	Recording Information . . . . .	303
One Thing at a Time . . . . .	289	Active Therapy, Positioning for Meals and Equipment . . . . .	304
Mouthing Helps . . . . .	290	Helping Children Handle the Physical Challenges of Mealtimes . . . . .	304
Be Aware of Sensory Surprises . . . . .	290	Listen to Children . . . . .	304
Environmental Sensory Variable Analysis . . . . .	291	Prepare for the Meal . . . . .	304
		Direct Treatment at Primary Patterns, Not Compensatory Patterns . . . . .	304
		Help Children and Adults Develop Body Awareness . . . . .	305
		There is Always More Than One Way . . . .	305
		Introduce Very Small Changes . . . . .	305
		Start at the Bottom . . . . .	305
		Children Learn to Move by Moving . . . . .	305

Help Children Work With Their Special Chairs . . . . .	305	Increasing Nutrients . . . . .	338
Identify a Series of Seating Options That Fit the Child . . . . .	306	Food Supplements . . . . .	338
Position at Mealtime Addresses the Child's Physical and Emotional Needs . . . . .	306	Choices at the Supermarket and in Therapy . . . . .	339
Seating and Positioning Considerations for Mealtime Support . . . . .	307	Special Health Needs and Nutrition . . . . .	341
Body Alignment for Seating and Positioning Checklist . . . . .	309	Medications . . . . .	341
<b>Chapter 16 Issues of Nutrition . . . . .</b>	<b>311</b>	Allergies and Food Sensitivities . . . . .	343
Assessment of Nutrition . . . . .	312	Dietary Aspects of Attention Deficit and Learning Disabilities . . . . .	346
History . . . . .	312	Gastroesophageal Reflux . . . . .	347
Dietary Records . . . . .	312	Mucous Congestion . . . . .	347
Anthropometric Measures . . . . .	313	Constipation . . . . .	348
Intake . . . . .	313	Diet and Dental Health . . . . .	349
Feeding Skills . . . . .	313	Children on Special Diets . . . . .	350
Food . . . . .	314	Maximizing Nutrition for Children With Special Health Needs . . . . .	350
Calories . . . . .	315	<b>Chapter 17 Specifics of Oral Motor Treatment . . . . .</b>	<b>353</b>
Macronutrients . . . . .	315	<b>Oral Motor Problems and Treatment Directions . . . . .</b>	<b>356</b>
Micronutrients . . . . .	317	Problems With Function of Individual Oral Structures . . . . .	356
Beyond Vitamins and Minerals . . . . .	320	Jaw . . . . .	356
Dietary Diversity . . . . .	321	Jaw Thrust . . . . .	356
Developmental Guidelines . . . . .	323	Exaggerated Jaw Excursions . . . . .	357
Helping Children Improve Dietary Intake . . . . .	324	Jaw Instability . . . . .	359
Utilization . . . . .	326	Jaw Clenching . . . . .	360
Digestion . . . . .	326	Tooth Grinding . . . . .	361
Enzymes and the Breakdown of Food . . . . .	326	Stability Bite . . . . .	362
Water and Digestion . . . . .	327	Tonic Bite . . . . .	363
Stress and Digestion . . . . .	328	Jaw Retraction . . . . .	365
Bioavailability of Nutrients . . . . .	329	Tongue . . . . .	366
Metabolism . . . . .	329	Tongue Retraction . . . . .	366
Helping Children Utilize the Foods They Eat . . . . .	330	Exaggerated Tongue Protrusion . . . . .	367
Output . . . . .	331	Tongue Thrust . . . . .	368
Input is Defined by the Output Required . . . . .	331	Low Tone With Unusual Tongue Configuration . . . . .	370
Helping Children Balance Intake With Energy Output . . . . .	332	Tongue Asymmetry . . . . .	371
Meeting the Child's Nutritional Needs . . . . .	333	Limited Tongue Movement . . . . .	371
Increasing Calories . . . . .	333	Lips and Cheeks . . . . .	372
Protein Calories . . . . .	333	Lip Retraction and Pursing . . . . .	372
Fat Calories . . . . .	334	Low Tone in the Cheeks . . . . .	373
Caloric Values of Specific High Nutritional Foods . . . . .	335	Limited Upper Lip Movement . . . . .	375
Increasing Dietary Diversity . . . . .	336	Palate . . . . .	376
Tube Feedings . . . . .	337	Nasal Reflux . . . . .	376
		Structural Deformities of the Mouth . . . . .	376

Problems With Sensory Processes . . . . .	377	Head, Neck, and Trunk Alignment . . . . .	402
Hyposensitivity . . . . .	377	Capital Flexion . . . . .	403
Hyporeaction . . . . .	377	Symmetry . . . . .	403
Hypersensitivity . . . . .	379	Stability . . . . .	404
Hyperreaction . . . . .	379	Head and Trunk Stability . . . . .	404
Sensory Defensiveness . . . . .	380	Airway Stability . . . . .	405
Sensory Overload . . . . .	381	<i>Limiting Areas</i> . . . . .	406
Problems With Feeding Processes . . . . .	383	Change Tone . . . . .	406
Sucking . . . . .	383	Decrease Tone . . . . .	406
Facilitating a Normal Suckling Pattern . . .	383	Increase Tone . . . . .	406
Facilitating the Transition From Suckling to Sucking . . . . .	384	Stabilize Tone . . . . .	407
Facilitating Mature Oral Movements During Spoon Feeding of Soft Foods . . .	385	Change Physical Position . . . . .	407
Facilitating Mature Oral Movements During Cup Drinking . . . . .	386	Influence Tone . . . . .	407
Swallowing . . . . .	387	Change or Break Up a Total Pattern . . . . .	407
Facilitating a Normal Swallowing Pattern: Aspiration . . . . .	387	Influence Interaction . . . . .	408
Facilitating a Normal Swallowing Pattern: Gagging . . . . .	389	Influence Digestion . . . . .	408
Facilitating a Normal Swallowing Pattern: Drooling . . . . .	390	Change Sensory Input . . . . .	409
Facilitating a Mature Swallowing Pattern . . . . .	391	Decrease Input . . . . .	409
Coordination of Sucking, Swallowing, and Breathing: Breast-Feeding or Bottle-Feeding . . . . .	392	Increase Input . . . . .	409
Coordination of Sucking, Swallowing, and Breathing: Cup Drinking . . . . .	393	Increase Sensorimotor Awareness . . . . .	409
Biting and Chewing . . . . .	394	Change Emotional Input and Response . . . . .	410
Facilitation of a Normal Controlled Biting Pattern . . . . .	394	Interaction . . . . .	410
Facilitation of Munching, the Earliest Stage of Chewing . . . . .	395	Learning . . . . .	410
Facilitation of Lateralization in Chewing . .	396	Sensory Issues . . . . .	411
The Role of Food in Therapy . . . . .	398	<i>Supporting Areas</i> . . . . .	411
Food Transitions . . . . .	398	Sensory Awareness . . . . .	411
Moving From Liquids to Smooth Solids . . .	398	Overall Sensory System . . . . .	411
Moving From Smooth Solids to Lumpy Solids . . . . .	399	Face and Mouth . . . . .	411
Moving From Lumpy Solids to Chewy Solids . . . . .	400	Sensory Modulation . . . . .	413
<b>Treatment Strategies and Activities</b> . . . . .	402	Overall Sensory System . . . . .	413
Physical Issues . . . . .	402	Face and Mouth . . . . .	414
<i>Supporting Areas</i> . . . . .	402	Sensory Discrimination . . . . .	414
Postural Alignment . . . . .	402	Overall Sensory System . . . . .	414
		Face and Mouth . . . . .	414
		Sensory Feedback . . . . .	415
		Overall Sensory System . . . . .	415
		Face and Mouth . . . . .	415
		<i>Limiting Areas</i> . . . . .	417
		Hyporeaction . . . . .	417
		Environmental Sensory Input . . . . .	417
		Bodily Sensory Input . . . . .	417
		Hyperreaction . . . . .	418
		Environmental Sensory Input . . . . .	418
		Bodily Sensory Input . . . . .	419
		Sensory Overload . . . . .	421



Mealtime Input . . . . .	421	Tongue . . . . .	445
Food Input . . . . .	421	Lips and Cheeks . . . . .	445
Sensory Defensiveness . . . . .	422	Clenching and Biting . . . . .	446
Interaction Issues . . . . .	423	Jaw Clenching . . . . .	446
<i>Supporting Areas</i> . . . . .	423	Tonic Bite Reflex . . . . .	447
Trust . . . . .	423	Stability Bite . . . . .	449
Anticipation . . . . .	424	Tooth Grinding . . . . .	450
Communication . . . . .	424	Thrusting . . . . .	451
<i>Limiting Areas</i> . . . . .	425	Jaw . . . . .	451
Physical and Sensory . . . . .	425	Tongue . . . . .	451
Negative Interactions . . . . .	425	Exaggerated Movement . . . . .	452
Reduced Independence . . . . .	429	Jaw (Wide Excursions) . . . . .	452
Lack of Opportunity . . . . .	430	Tongue (Protrusion) . . . . .	453
Oral Control Issues . . . . .	430	Retraction . . . . .	455
<i>Supporting Areas</i> . . . . .	430	Jaw . . . . .	455
Jaw Control . . . . .	430	Tongue . . . . .	455
Jaw Opening and Closing . . . . .	430	Lips and Cheeks . . . . .	456
Jaw Stability in an Open Position . . . . .	431	Asymmetry . . . . .	457
Jaw Stability in a Closed Position . . . . .	432	Tongue . . . . .	457
Graded Jaw Movements . . . . .	432	Limited Movement . . . . .	458
Lip and Cheek Control . . . . .	434	Jaw . . . . .	458
Lip Rounding and Spreading . . . . .	434	Tongue . . . . .	458
Lip Closure . . . . .	435	Lips and Cheeks . . . . .	459
Cheek Compression . . . . .	435	Specific Feeding Skill Issues . . . . .	460
Tongue Control . . . . .	435	<i>Supporting Areas</i> . . . . .	460
Tongue Shape . . . . .	435	Sucking . . . . .	460
Tongue Movement . . . . .	436	Suckle Pattern . . . . .	460
Velopharyngeal Control . . . . .	438	Transition From Suckling to Sucking . . . . .	462
Palatal Closure . . . . .	438	Spoon Feeding . . . . .	463
Timing and Coordination . . . . .	438	Cup Drinking . . . . .	466
Oral Motor Imitation . . . . .	439	Straw Drinking . . . . .	467
Oral-Facial Imitation . . . . .	439	Swallowing . . . . .	469
Combined Oral Sensorimotor Control . . . . .	439	Safe and Efficient Suckle-Swallow . . . . .	469
Toothbrushing . . . . .	439	Mature Swallow . . . . .	471
Mouthing . . . . .	441	Saliva Control—Drooling . . . . .	472
Oral Exploration . . . . .	442	Coordination of Sucking, Swallowing, and Breathing . . . . .	473
<i>Limiting Areas</i> . . . . .	443	Bottle-Feeding or Breast-Feeding . . . . .	474
Increased Tone . . . . .	443	Cup Drinking . . . . .	474
Face . . . . .	443	Biting . . . . .	475
Jaw . . . . .	443	Controlled Bite . . . . .	476
Tongue . . . . .	443	Chewing . . . . .	477
Lips and Cheeks . . . . .	443	Munching . . . . .	477
Decreased Tone . . . . .	444	Lateralization . . . . .	478
Face . . . . .	444	Timing and Coordination . . . . .	481
Jaw . . . . .	444		

Food Transitions . . . . .	481	Resources for Feeding Materials . . . . .	502
Sensory Transitions . . . . .	481	Feeding Equipment Resource Information . . . . .	505
Liquids to Smooth Solids . . . . .	483	<b>Chapter 19 The Issues</b>	
Smooth Solids to Lumpy Solids . . . . .	484	<b>of Self-Feeding . . . . .</b>	<b>507</b>
Lumpy Solids to Chewy Solids . . . . .	485	Readiness for Self-Feeding . . . . .	507
Food Selection . . . . .	486	Learning Self-Feeding . . . . .	508
Food and Oral Movement . . . . .	486	Bottle-Feeding . . . . .	508
Facilitating Normal Oral Movement . . . . .	486	Developmental Sequence . . . . .	508
Limiting Normal Oral Movement . . . . .	489	Bottle Variations . . . . .	509
<i>Limiting Areas . . . . .</i>	<i>490</i>	Facilitation of Bottle Holding . . . . .	510
Aspiration . . . . .	490	Finger-Feeding . . . . .	511
Gagging . . . . .	490	Postural Support for Finger-Feeding . . . . .	511
Gastroesophageal Reflux . . . . .	493	Finger Foods . . . . .	511
Retching . . . . .	493	Independent Spoon Feeding . . . . .	512
Mouth Stuffing . . . . .	493	“Spoonable” Foods . . . . .	513
<b>Chapter 18 Feeding Materials</b>		Bowl and Spoon Options	
<b>for Assessment and Treatment . . . . .</b>	<b>495</b>	in Spoon Feeding . . . . .	513
Choosing Feeding Materials . . . . .	495	Teaching Self-Feeding With a Spoon . . . . .	514
Selection . . . . .	495	Independent Cup Drinking . . . . .	516
Availability . . . . .	496	Teaching Cup Drinking . . . . .	517
Selection Criteria . . . . .	497	Types of Liquid . . . . .	517
Choosing an Appropriate Pacifier . . . . .	497	Cup Variations . . . . .	517
Guidelines for Use of a Pacifier . . . . .	497	Straw Drinking . . . . .	519
Criteria for an Effective Pacifier . . . . .	497	Personal Exploration . . . . .	519
Choosing an Appropriate Nipple . . . . .	498	Teaching Straw Drinking . . . . .	519
Guidelines for Use of a Nipple . . . . .	498	Play and Self-Feeding . . . . .	520
Criteria for an Effective Nipple . . . . .	498	Self-Feeding for the Child	
Choosing an Appropriate Bottle . . . . .	498	With Physical Challenges . . . . .	521
Guidelines for Use of a Bottle . . . . .	498	Readiness . . . . .	521
Criteria for an Effective Bottle . . . . .	499	Moving Toward Self-Feeding . . . . .	522
Choosing an Appropriate Cup . . . . .	499	Self-Feeding for the Child	
Guidelines for Use of a Cup . . . . .	499	With Sensory Challenges . . . . .	523
Criteria for an Effective Cup . . . . .	499	Readiness . . . . .	523
Choosing an Appropriate Straw . . . . .	500	Moving Toward Self-Feeding . . . . .	524
Guidelines for Use of a Straw . . . . .	500		
Criteria for an Effective Straw . . . . .	500		
Choosing an Appropriate Spoon . . . . .	501		
Guidelines for Use of a Spoon . . . . .	501		
Criteria for an Effective Spoon . . . . .	501		
Choosing Appropriate Oral-Facial			
Stimulation Materials . . . . .	501		
Guidelines for the Use of Oral-Facial			
Stimulation Materials . . . . .	501		
Criteria for Effective Oral-Facial			
Stimulation Materials . . . . .	502		

**Chapter 20 Feeding and Speech:**

**A Question of Relationships** ..... 531  
 Parallel Versus Causal Relationships ..... 531  
     Feeding and Early Speech Sounds ..... 531  
     Children with Feeding Problems ..... 532  
     Asking the Right Questions ..... 534  
     Mealtime and Feeding Strategies ..... 535

**Chapter 21 The Child Who**

**Is Premature** ..... 537  
 Developmentally Supportive Care ..... 537  
 Feeding in the NICU ..... 538  
     Nutrition Continuum for Premature Infants .. 538  
     Readiness Factors for Nipping ..... 538  
         Color Changes ..... 539  
         Change of State ..... 539  
         Breathing Changes ..... 539  
         Swallowing Difficulties ..... 540  
         Motor Changes ..... 540  
     Nonnutritive Sucking ..... 540  
 Common Feeding Complications  
     in Premature Infants ..... 540  
         Medical Instability ..... 541  
         Neurological Immaturity ..... 541  
         Problems With State Regulation ..... 541  
         Abnormal Muscle Tone ..... 541  
         Immature or Altered Oral Mechanism .... 541  
         Poor Oral Skills for Sucking  
             and Swallowing ..... 542  
         Oral Hypersensitivity ..... 542  
         Oral Hyposensitivity ..... 542  
         Slowed Growth ..... 542  
         Disruption in the Development  
             of a Positive Feeding Relationship ..... 542  
 Parent Involvement in Feeding ..... 543  
     Breast-Feeding ..... 543  
     Bottle-Feeding ..... 545  
     Milk Delivery Alternatives ..... 545  
         Supplemental Nursing Systems ..... 545  
     Finger-Feeding ..... 545  
     Cup Feeding ..... 546  
 Development of Feeding Skills ..... 546  
     Facilitating Coordination of Sucking  
         and Swallowing ..... 546  
         Parent Guidance ..... 546  
         Position ..... 546

Preparatory Sensory Stimulation ..... 547  
 Imposed Breaks ..... 547  
 Bolus Size ..... 547  
 Flow Rate ..... 548  
 Oral Support ..... 548  
 Demand Versus Scheduled Feedings ..... 549  
 Facilitating Growth and Development  
     of Eating Skills in the Older  
     Premature Infant at Home ..... 549  
     Parental Guidance and Support ..... 549  
     Position ..... 550  
     Prepare the Home Environment ..... 551  
     Oral Support ..... 551  
     Transitions to Pureed Food ..... 551  
     Transitions to Solids ..... 552  
     Monitor and Optimize Growth ..... 552

**Chapter 22 The Child Who Has  
 Gastrointestinal Discomfort** ..... 555

Gastrointestinal Discomfort and Feeding ..... 555  
     Alicia ..... 556  
     Partnership With Physicians ..... 557  
 Common Gastrointestinal Symptoms  
     That Influence Feeding ..... 557  
         Nausea ..... 557  
         Gagging ..... 558  
         Vomiting ..... 559  
         Constant Fullness ..... 560  
         Retching ..... 560  
         Pain ..... 561  
     Emotional Impact on the  
         Gastrointestinal System ..... 561  
     Symptom Triggers ..... 561  
 Understanding and Treating  
     Gastrointestinal Discomfort ..... 562  
         Understanding and Treating  
             Esophageal Dysmotility ..... 562  
         Understanding and Treating  
             Gastroesophageal Reflux ..... 563  
         Symptoms of Gastroesophageal Reflux ..... 564  
             Diagnosis of Gastroesophageal Reflux .... 565  
             Treatment of Gastroesophageal Reflux .... 566  
         Understanding and Managing Retching ..... 569  
             Reducing Retching ..... 569  
         Understanding and Treating  
             Poor Stomach Emptying ..... 570

Understanding and Treating Constipation . . . .	570	Establishing a Positive Mealtime and Treatment Relationship . . . . .	600
Reducing Constipation . . . . .	571	Establishing a Relationship Between the Mouth and Feeding . . . . .	601
Understanding and Treating Gagging and Vomiting . . . . .	574	Reducing the Impact of Medical Conditions That Influence Feeding . . . . .	601
Medical Management . . . . .	575	Optimizing the Comfort and Enjoyment of Tube Feedings . . . . .	602
Challenges for the Therapist . . . . .	575	Improving Postural Control of the Head, Neck, and Trunk . . . . .	603
Understanding and Treating Poor Appetite . . . .	577	Improving Control of the Pharyngeal Airway . . . . .	603
Internal and External Regulators . . . . .	577	Using the Mouth to Explore the Environment . . . . .	604
Why Is the Child's Appetite Poor? . . . . .	579	Normalizing the Response to Stimulation . . . .	604
Gastroesophageal Reflux Parent Questionnaire . . . .	581	Identifying and Facilitating a Swallowing Reflex . . . . .	605
<b>Chapter 23 The Child Who Is Tube-Fed . . . . .</b>	<b>585</b>	Facilitating a Rhythmical Suckle-Swallow . . . .	606
The Decision to Tube Feed a Child . . . . .	585	Improving Tone and Movement in the Jaw . . . .	607
Tube Feedings and the Family . . . . .	585	Improving Tone and Movement in the Lips and Cheeks . . . . .	607
Tube Feedings and the Child . . . . .	586	Improving Tone and Movement in the Tongue . . . . .	607
Reasons for Tube Feeding . . . . .	587	Facilitating Voicing and Sound Play . . . . .	607
Feeding Tubes . . . . .	588	Programming Total Communication . . . . .	608
Enteral Tubes . . . . .	588	Creating a Learning Environment . . . . .	608
Parenteral Tubes . . . . .	590	Timing . . . . .	610
Impact on Oral Motor Treatment and Feeding . . . . .	590	Transition to Oral Feeding . . . . .	610
Management of Tube Feedings . . . . .	592	The Continuum From Tube Feeding to Oral Feeding . . . . .	610
Bolus or Continuous Drip Feedings . . . . .	592	Readiness Factors . . . . .	611
Positioning for Tube Feeding . . . . .	592	Resolution of the Original Problems . . . . .	611
Diet and Tube Feeding . . . . .	593	Overall Health of the Child . . . . .	611
Tube Feeding Management Team . . . . .	594	Swallowing Safety . . . . .	611
Treatment . . . . .	595	Status of Oral Skills . . . . .	612
Referral for Treatment . . . . .	595	Hunger . . . . .	612
Feeding Therapy . . . . .	595	Child Readiness . . . . .	612
Traditional Oral Motor Therapy . . . . .	595	Parent Readiness . . . . .	612
Comprehensive Oral Motor Treatment . . . .	595	The Continuum of Oral Preparation . . . . .	613
Role of the Feeding Therapist . . . . .	596	From Nonfoods to Foods . . . . .	613
Education . . . . .	596	Feeding Utensils . . . . .	613
Ongoing Consultation . . . . .	597	Mealtime Modeling . . . . .	614
Family Support . . . . .	597	Dietary Preparations for Oral Feedings . . . .	614
Direct Oral Treatment . . . . .	597	Hunger as an Ally . . . . .	615
Common Influences on Treatment . . . . .	597	Removing the Feeding Tube . . . . .	616
Oral Experiences . . . . .	597	Maturation and Change . . . . .	616
Medical Status . . . . .	598		
Mealtime Interactions . . . . .	598		
Physical Skills . . . . .	599		
Oral Skills . . . . .	599		
Components of a Comprehensive Oral Motor Treatment Program . . . . .	600		

<b>Chapter 24 The Child Who Refuses to Eat Enough</b> .....	619	Food Choices .....	643
The Personal Nature of Eating .....	620	Rejected Foods .....	643
A Layering of Issues .....	621	Liquid Intake .....	643
Growth Issues: To Be Concerned or Not Concerned? .....	621	Caloric Intake .....	644
Growth Charts .....	621	Mealtime Location .....	644
Pediatric Undernutrition or Failure to Thrive? .....	623	Feeling Safe .....	644
A Continuum of Concern .....	624	Exploration .....	645
Layers of Influence .....	625	Small Steps .....	645
The Now of Mealtime .....	625	Focus of Attention .....	645
Initial Influences: The First Layer .....	626	Novelty .....	646
Medical .....	626	Rules .....	646
Sensorimotor .....	627	Family Mealtimes .....	646
Mealtime Interaction .....	627	Team Support .....	646
Environment .....	627	Alternative Approaches .....	647
Interpretation and Action:		<b>Chapter 25 The Child Who Has a Cleft Lip or Palate</b> .....	649
The Second Layer .....	627	Clefts .....	649
Trigger Events .....	627	Types of Clefts .....	649
Beliefs and Interpretation .....	628	Incidence of Clefting .....	650
Common Beliefs and Their Roots .....	630	Etiology of Clefting .....	650
Is It a Behavior Problem? .....	630	Team Support .....	651
A Look at the Layers .....	631	Surgical Management .....	651
Andy .....	631	Feeding the Child With a Cleft .....	651
Tommy .....	631	Nutrition and Growth Patterns .....	651
Julia .....	634	The Mechanics of Sucking and Swallowing With Clefts .....	652
Frankie .....	636	Feeding Babies Who Have Clefts .....	652
Darria .....	636	Breast-Feeding .....	653
Treatment Strategies .....	639	Bottle-Feeding .....	654
Addressing the Layers .....	639	Palatal Obturator .....	655
Identifying the Layers .....	640	Spoon Feeding .....	656
Making Changes .....	640	Textured Foods and Chewing .....	656
Treating Underlying Physiological Influences on Feeding .....	640	Older Children With a Cleft Palate .....	657
Understanding and Respecting the Child's Beliefs .....	641	Babies Who Continue to Have Feeding Problems .....	657
Exploration and the Child's Relationship to Food .....	641	General Strategies for Feeding Children With a Cleft Lip or Palate .....	657
Helping the Feeding Relationship .....	641	Focus on the Feeding Interaction .....	657
Mealtime Environments That Maximize Success .....	642	Seek Simplicity .....	657
Division of Responsibility .....	642	Identify and Incorporate Effective Compensations .....	658
Meal-Snack Schedule .....	642	Move Slowly to Feeding Success .....	658
Grazing .....	642		



<b>Chapter 26 The Child Who Has Visual Impairment</b> .....	659	Coping Strategies .....	673
The Infant .....	659	Picky Eaters .....	673
Personal Exploration .....	659	Control .....	673
Preparation .....	659	Limiting Transitions .....	673
Control .....	660	Feedback From Older Children and Adults ....	674
Mouthing! Mouthing! Mouthing! .....	661	Nutrition and Growth .....	674
Change Sensory Variables Slowly .....	661	Growth Worries .....	674
Prevention .....	662	Dietary Challenges .....	675
Mealtimes for the Older,		Gastrointestinal Abnormalities .....	675
Visually Impaired Child .....	663	Food Allergy .....	676
Preparation .....	663	Central Nervous System Toxicity .....	676
Routine .....	663	Supplements .....	677
Exploration .....	663	Dietary Implications	
Continue to Go Slowly		for Feeding Programs .....	677
With Sensory Changes .....	664	Sensory-Based Treatment .....	678
Familiarity .....	664	Making a Positive Difference at Mealtimes .....	678
Separate Tastes .....	664	Handling the Sensory Challenges	
Reintroduce Rejected Foods .....	664	of Mealtimes .....	679
Incidental Learning and Imitation .....	664	Handling the Communication Challenges	
Teaching Independent Feeding .....	665	of Mealtimes .....	681
Personal Frame of Reference .....	665	<b>Chapter 28 The Child Who</b>	
Physical Success in Self-Feeding .....	666	<b>Has Minimal Involvement</b> .....	683
Check Out the Supports .....	666	The Issues .....	683
Provide Hand-Under-Hand		Drooling .....	683
Opportunities .....	666	Mouth Stuffing .....	684
Provide Opportunities for		Delays in Expressive Speech and Language ...	685
Trial-And-Error Learning .....	666	The Underlying Sensorimotor Issues .....	685
Provide Guidance With		Low Tone in the Trunk With Poor	
the Spoon Handle .....	666	Postural Stability for Movement .....	685
Provide Extra Elbow Support .....	666	Poor Differentiation of Movement .....	686
Provide Hand-Over-Hand Help .....	666	Poor Sensory Awareness	
Use the Utility Handhold .....	667	and Discrimination .....	686
Use Backward Chaining		Poor Attention .....	686
to Build Success .....	667	Sensory-Processing Difficulties .....	686
Fine-Tuning the Mealtime .....	667	Motor-Planning Difficulties .....	686
Vision Loss and Severe Feeding Challenges ...	668	An Approach to Therapy .....	687
<b>Chapter 27 The Child Who Has Autism</b> .....	669	Asking the Right Questions .....	687
Sensory Variables and Mealtimes .....	670	Mealtime and Feeding Strategies .....	687
Heightened Sensitivities .....	670	Postural Stability and Control .....	688
Sensory Overload .....	671	Sensory Processing .....	688
Motor Planning Deficits .....	671	Increasing Attention .....	688
Communication Variables and Mealtimes .....	671	Differentiation of Oral Movement .....	689
		Motor Planning .....	690
		Choosing Snack Foods .....	690

<b>Chapter 29 Mealtime Resources</b> . . . . .	691	<b>Appendix C Mealtime Participation Experiences</b> . . . . .	741
Books on Mealtime and Feeding Development . . . . .	691	Physical Limitations No. 5: Retraction Patterns . . . . .	743
Videotapes . . . . .	693	Spoon Feeding No. 1: Smooth Food from a Spoon . . . . .	746
Catalog . . . . .	693	Spoon Feeding No. 15: Lip Variations in Spoon Feeding . . . . .	748
Internet . . . . .	694	Imaginings: Sensory No. 12: Sensory Defensiveness to Touch in the Mouth . . . . .	751
<b>Appendix A Pre-Feeding Global and Sequential Charts</b> . . . . .	695	<b>References</b> . . . . .	755
<b>Appendix B Spanish Translations of Parent Questionnaires</b> . . . . .	727	<b>Index</b> . . . . .	783
Eating and Drinking . . . . .	729		
Tube Feeding and Beginning Oral Feeding . . . . .	733		
Gastroesophageal Reflux . . . . .	738		