

---

# Contents

Preface .....	xvi
---------------	-----

Contributors .....	xvii
--------------------	------

## Part I Introduction

<b>1 Preoperative Planning and Preparation .....</b>	<b>2</b>
--	----------

*Kyle Andrews, Megan Mooney, and Emily Wynkoop*

1.1 Desired Result .....	2	1.6 Elective Procedures .....	4
1.2 Surgical Tactic .....	2	1.7 Nonelective Procedures .....	5
1.3 Case Coordination .....	3	1.8 Timing to Surgical Intervention .....	5
1.4 Alternative Techniques .....	4	1.9 Preoperative Risk Assessment .....	6
1.5 Preoperative Testing .....	4		

<b>2 Hip and Knee Arthroplasty Templating .....</b>	<b>7</b>
---	----------

*Jeremy Raducha and Valentin Antoci*

2.1 Hip Arthroplasty Templating .....	7	2.2 Knee Arthroplasty Templating .....	8
---------------------------------------	---	--	---

## Part II Hand Surgery

<b>3 Open Carpal Tunnel Release .....</b>	<b>12</b>
---	-----------

*Andrew P. Harris and Alexander S. Kuczmarski*

3.1 Preop .....	12	3.4 Closure .....	15
3.2 Approach .....	12	3.5 Postop .....	16
3.3 Release of the Transverse Carpal Ligament .....	15		

<b>4 Trigger Finger Release .....</b>	<b>17</b>
---------------------------------------	-----------

*Tyler S. Pidgeon*

4.1 Preop .....	17	4.4 Testing for Triggering .....	22
4.2 Approach .....	18	4.5 Closure .....	24
4.3 A1 Pulley Release .....	22	4.6 Postop .....	24

<b>5 Open Reduction Internal Fixation of Distal Radius Fractures .....</b>	<b>26</b>
--	-----------

*Travis Blood*

5.1 Introduction .....	26	5.5 Patient exam .....	27
5.2 Indications .....	26	5.6 Approach .....	27
5.3 Contraindications .....	27	5.7 Plate Application .....	28
5.4 Patient Positioning .....	27	5.8 Radiographs .....	29

## Contents

<b>5.9</b>	<b>Closure</b> .....	29	<b>5.11</b>	<b>Complications</b> .....	30
<b>5.10</b>	<b>Postop</b> .....	29			
<b>6</b>	<b>Both Bone Forearm Fracture</b> .....	31			
	<i>M. Wesley Honeycutt and Daniel Kim</i>				
<b>6.1</b>	<b>Introduction</b> .....	31	<b>6.5</b>	<b>Ulnar Fixation</b> .....	35
<b>6.2</b>	<b>Preop</b> .....	31	6.5.1	Approach .....	35
<b>6.3</b>	<b>Radius Fixation</b> .....	32	6.5.2	Fracture Reduction and Fixation .....	35
<b>6.4</b>	<b>Volar Approach</b> .....	33	<b>6.6</b>	<b>Closure</b> .....	35
6.4.1	Fracture Reduction and Fixation .....	34	<b>6.7</b>	<b>Postop</b> .....	36
<b>Part III Shoulder and Elbow</b>					
<b>7</b>	<b>Monteggia Fracture Including Olecranon Fracture</b> .....	40			
	<i>Christopher Grant Sanford, Jr. and Martin Skie</i>				
<b>7.1</b>	<b>Preop</b> .....	40	7.4.3	Plate Fixation .....	44
<b>7.2</b>	<b>Approach</b> .....	41	<b>7.5</b>	<b>Monteggia Fracture Fixation Considerations</b> .....	46
<b>7.3</b>	<b>Reduction</b> .....	41	<b>7.6</b>	<b>Closure</b> .....	46
<b>7.4</b>	<b>Fixation</b> .....	42	<b>7.7</b>	<b>Postop</b> .....	46
7.4.1	Tension Band Fixation .....	42			
7.4.2	Intramedullary Screw Fixation ...	43			
<b>8</b>	<b>Distal and Diaphyseal Humerus Plating</b> .....	48			
	<i>Martin Skie</i>				
<b>8.1</b>	<b>Positioning and Approaches</b> ..	48	8.2.6	Triceps Splitting .....	51
<b>8.2</b>	<b>Surgical Approaches</b> .....	49	8.2.7	Olecranon Osteotomy .....	51
8.2.1	Anterior Approach to the Humerus .....	49	<b>8.3</b>	<b>Fixation</b> .....	52
8.2.2	Lateral Approach to the Distal Humerus .....	50	8.3.1	Humeral shaft fractures .....	52
8.2.3	Posterior Approaches .....	50	8.3.2	Distal Third Shaft Fractures ...	53
8.2.4	Initial Exposure for all Posterior Approaches .....	50	8.3.3	Intra-articular Split Condylar Fractures .....	53
8.2.5	Triceps Sparing .....	51	8.3.4	Lateral Condyle and Capitellum Fractures .....	54
			<b>8.4</b>	<b>Pearls and Pitfalls</b> .....	54
<b>9</b>	<b>Proximal Humerus Open Reduction and Internal Fixation</b> .....	57			
	<i>Joseph J. King and Matthew R. Patrick</i>				
<b>9.1</b>	<b>Setup (Critical for Success of the Procedure)</b> .....	57	<b>9.4</b>	<b>Reduction</b> .....	59
<b>9.2</b>	<b>Approach</b> .....	58	<b>9.5</b>	<b>Provisional Fixation</b> .....	61
<b>9.3</b>	<b>Exposure</b> .....	58	<b>9.6</b>	<b>Filling the Defect</b> .....	62
			<b>9.7</b>	<b>Final Fixation</b> .....	62

9.8	Confirm Reduction and Screw Length on Multiplanar Fluoroscopy .....	62	9.9	Closure .....	62
-----	---	----	-----	---------------	----

**10 Shoulder Arthroplasty** ..... 65

*LeeAnne Torres and Alan Koester*

10.1	Preop .....	65	10.6	Glenoid Preparation .....	70
10.2	Approach .....	66	10.7	Trialing Implants .....	73
10.3	Arthrotomy .....	67	10.8	Subscapularis Repair .....	73
10.4	Humerus Dislocation .....	68	10.9	Closure .....	74
10.5	Humeral Preparation .....	69	10.10	Postop .....	74

**Part IV Joint Arthroplasty**

**11 Posterior Approach to Hip Arthroplasty** ..... 80

*Daniel Kim, Jonathon David Gillig, and G. Daxton Steele*

11.1	Preop .....	80	11.4	Femoral Preparation .....	83
11.2	Approach .....	81	11.5	Closure .....	84
11.3	Acetabular Preparation .....	82	11.6	Postop .....	84

**12 Anterolateral Approach to Total Hip Arthroplasty** ..... 86

*Stephen Maraccio*

12.1	Preop .....	86	12.5	Acetabular Preparation .....	88
12.2	Approach .....	86	12.6	Femoral Preparation .....	89
12.3	Superficial Dissection .....	87	12.7	Closure .....	89
12.4	Deep Dissection .....	87	12.8	Postop .....	90

**13 Direct Anterior Approach to Total Hip Arthroplasty** ..... 91

*Daniel J. Gehling*

13.1	Introduction .....	91	13.5	Femoral Preparation .....	94
13.2	Preop .....	91	13.6	Closure .....	97
13.3	Approach .....	92	13.7	Postop .....	97
13.4	Acetabular Preparation .....	94			

**14 Component Positioning in Hip Arthroplasty** ..... 98

*Katharine Hollnagel and Daniel J. Gehling*

14.1	Introduction .....	98	14.5	Femur—Femoral Preparation and Broaching Technique .....	102
14.2	Preop .....	98	14.6	Femur—Positioning .....	102
14.3	Acetabulum—Reaming Technique .....	99	14.6.1	Varus Valgus .....	102
14.4	Acetabulum—Positioning .....	101	14.6.2	Femoral Version .....	103
14.4.1	Medial—Lateral .....	101	14.6.3	Femoral Offset .....	103
14.4.2	Acetabular Version .....	101	14.6.4	Leg Length .....	103
14.4.3	Inclination .....	102			

## Contents

---

<b>15</b>	<b>Total Knee Arthroplasty</b> .....	105			
	<i>Stephen Marcaccio</i>				
<b>15.1</b>	<b>Preop</b> .....	105	<b>15.2.5</b>	<b>Tibial Preparation</b> .....	107
<b>15.2</b>	<b>Approach</b> .....	106	<b>15.2.6</b>	<b>Trialing Implant Components</b> ...	108
<b>15.2.1</b>	<b>Medial Parapatellar Approach to Knee</b> .....	106	<b>15.2.7</b>	<b>Confirm Balance and Position of Trial Components</b> .....	108
<b>15.2.2</b>	<b>Entering Joint and Creating Adequate Visualization</b> .....	106	<b>15.2.8</b>	<b>Patella Preparation</b> .....	108
<b>15.2.3</b>	<b>Proximal Tibial Exposure and Preparation</b> .....	106	<b>15.2.9</b>	<b>Final Implant Insertion</b> .....	108
<b>15.2.4</b>	<b>Femoral Preparation</b> .....	107	<b>15.2.10</b>	<b>Wound Closure</b> .....	109
			<b>15.3</b>	<b>Postop</b> .....	109
 <b>Part V Sports Orthopaedics</b>					
<b>16</b>	<b>Knee Arthroscopy and Meniscectomy</b> .....	114			
	<i>John R. Tuttle</i>				
<b>16.1</b>	<b>Introduction</b> .....	114	<b>16.5</b>	<b>Partial Meniscectomy</b> .....	118
<b>16.2</b>	<b>Preop</b> .....	114	<b>16.6</b>	<b>Closure</b> .....	120
<b>16.3</b>	<b>Portals</b> .....	115	<b>16.7</b>	<b>Postop</b> .....	120
<b>16.4</b>	<b>Diagnostic Arthroscopy</b> .....	116			
<b>17</b>	<b>Anterior Cruciate Ligament Reconstruction</b> .....	122			
	<i>Steven F. DeFroda and Brett D. Owens</i>				
<b>17.1</b>	<b>Introduction</b> .....	122	<b>17.7</b>	<b>Diagnostic Arthroscopy</b> .....	124
<b>17.2</b>	<b>Preop</b> .....	122	<b>17.8</b>	<b>Femoral Tunnel Preparation</b> ..	125
<b>17.3</b>	<b>Position</b> .....	122	<b>17.9</b>	<b>Tibial Tunnel Preparation</b> .....	126
<b>17.4</b>	<b>Approach</b> .....	123	<b>17.10</b>	<b>Graft Passage</b> .....	126
<b>17.5</b>	<b>Bone–Patellar Tendon–Bone Harvest</b> .....	123	<b>17.11</b>	<b>Closure</b> .....	127
<b>17.6</b>	<b>Graft Prep</b> .....	124	<b>17.12</b>	<b>Postop</b> .....	127
<b>18</b>	<b>Shoulder Arthroscopy and Labral Repair</b> .....	129			
	<i>Steven F. DeFroda and Brett D. Owens</i>				
<b>18.1</b>	<b>Introduction</b> .....	129	<b>18.5</b>	<b>Anterior–Inferior Labral Repair</b> .....	131
<b>18.2</b>	<b>Preop</b> .....	129	<b>18.6</b>	<b>Postop</b> .....	132
<b>18.3</b>	<b>Positioning</b> .....	130			
<b>18.4</b>	<b>Diagnostic Arthroscopy</b> .....	130			
<b>19</b>	<b>Hip Arthroscopy</b> .....	134			
	<i>Brian Harris Cohen and Jonathan R. Schiller</i>				
<b>19.1</b>	<b>Introduction</b> .....	134	<b>19.5</b>	<b>Approach</b> .....	137
<b>19.2</b>	<b>Indications</b> .....	134	<b>19.6</b>	<b>Closure</b> .....	139
<b>19.3</b>	<b>Prognosis</b> .....	136	<b>19.7</b>	<b>Postop</b> .....	139
<b>19.4</b>	<b>Preop</b> .....	136	<b>19.8</b>	<b>Complications</b> .....	140

**Part VI Spine Surgery**

**20 Anterior Cervical Discectomy and Fusion (ACDF) . . . . . 144**  
*Alim F. Ramji and Sean M. Esmende*

20.1 **Introduction . . . . . 144**      20.5 **Closure . . . . . 148**  
 20.2 **Preop . . . . . 144**              20.6 **Postop . . . . . 148**  
 20.3 **Approach . . . . . 145**          20.7 **Complications . . . . . 148**  
 20.4 **Procedure . . . . . 146**

**21 Lumbar Microdiscectomy . . . . . 150**  
*Alim F. Ramji and Sean M. Esmende*

21.1 **Introduction . . . . . 150**      21.3 **Procedure . . . . . 151**  
 21.2 **Preop . . . . . 150**              21.4 **Complications . . . . . 151**

**22 Posterior Lumbar Laminectomy and Pedicle Screw Instrumentation . . . . . 153**  
*Alim F. Ramji and Sean M. Esmende*

22.1 **Introduction . . . . . 153**      22.3.2 **Part 2: Instrumentation . . . . . 156**  
 22.2 **Preop . . . . . 154**              22.4 **Complications . . . . . 158**  
 22.3 **Procedure . . . . . 154**  
 22.3.1 **Part I: Decompression . . . . . 154**

**Part VII Trauma**

**23 Antegrade Femoral Nailing . . . . . 160**  
*Jeremy Raducha*

23.1 **Implant Selection . . . . . 160**      23.4 **Fracture Reduction . . . . . 164**  
 23.2 **Patient Positioning . . . . . 163**      23.5 **Canal Preparation and Nail Insertion . . . . . 165**  
 23.3 **Entry Point . . . . . 163**              23.6 **Postop . . . . . 167**  
 23.3.1 **Trochanteric Entry Nails . . . . . 164**  
 23.3.2 **Piriformis Entry Nails . . . . . 164**

**24 Retrograde Femoral Nailing . . . . . 168**  
*Stephen Maraccio*

24.1 **Preop . . . . . 168**              24.3 **Distal Interlocking Screw Placement . . . . . 170**  
 24.2 **Approach . . . . . 168**              24.4 **Proximal Interlocking Screw Placement . . . . . 171**  
 24.2.1 **Anterior Knee Approach . . . . . 168**      24.5 **Closure . . . . . 172**  
 24.2.2 **Guidewire Entry . . . . . 169**              24.6 **Postop . . . . . 173**  
 24.2.3 **Fracture Reduction and Reaming . . . . . 169**  
 24.2.4 **Nail Insertion . . . . . 170**



29.4.2	CFL.....	210	<b>29.5</b>	<b>Closure</b> .....	210
29.4.3	Peroneal Tendons.....	210	<b>29.6</b>	<b>Postop</b> .....	210

**30 Achilles Tendon Repair**..... 212

*C. Lucas Myerson, Jimmy J. Chan, and Ettore Vulcano*

<b>30.1</b>	<b>Preop</b> .....	212	30.2.2	Limited Open Approach.....	214
<b>30.2</b>	<b>Approach</b> .....	213	<b>30.3</b>	<b>Postop</b> .....	216
30.2.1	Traditional Open Approach.....	213			

**31 Hallux Valgus Surgery**..... 217

*Dalton Michael Ryba and Jordan Ernst*

<b>31.1</b>	<b>Introduction</b> .....	217	<b>31.6</b>	<b>Fixation and Soft Tissue Balancing</b> .....	219
<b>31.2</b>	<b>Preop</b> .....	217	<b>31.7</b>	<b>Closure</b> .....	224
<b>31.3</b>	<b>Approach</b> .....	218	<b>31.8</b>	<b>Dressing</b> .....	224
<b>31.4</b>	<b>Joint Preparation</b> .....	219	<b>31.9</b>	<b>Postop</b> .....	224
<b>31.5</b>	<b>IM Correction</b> .....	219			

**Part IX Pediatrics**

**32 Pediatrics: Intramedullary Fixation of Midshaft Forearm Fractures**..... 228

*Carson James Smith and Francisco Schwartz Fernandes*

<b>32.1</b>	<b>Introduction</b> .....	228	<b>32.6</b>	<b>Closure</b> .....	232
<b>32.2</b>	<b>Preop</b> .....	229	<b>32.7</b>	<b>Postop</b> .....	233
<b>32.3</b>	<b>Anesthesia</b> .....	229	<b>32.8</b>	<b>Complications</b> .....	233
<b>32.4</b>	<b>Distal Radius Insertion</b> .....	230	<b>32.9</b>	<b>Special Cases</b> .....	233
<b>32.5</b>	<b>Proximal Ulna Insertion</b> .....	231			

**33 Supracondylar Humeral Fracture**..... 235

*M. Wesley Honeycutt and Mark A. Prevost II*

<b>33.1</b>	<b>Introduction</b> .....	235	<b>33.4</b>	<b>Open Reduction and Pinning</b> .....	239
<b>33.2</b>	<b>Preop</b> .....	235	33.4.1	Approach.....	239
<b>33.3</b>	<b>Closed Reduction Percutaneous Pinning</b> .....	236	33.4.2	Fracture Reduction.....	240
33.3.1	Fracture Reduction.....	237	33.4.3	Closure.....	241
33.3.2	Lateral Entry Pinning.....	237	<b>33.5</b>	<b>Postop</b> .....	241
33.3.3	Crossed Pinning.....	238			

**34 Femoral Rotational Osteotomy**..... 242

*Viorel Raducan and Adam Kopiec*

<b>34.1</b>	<b>Introduction</b> .....	242	<b>34.5</b>	<b>Blade Plate Preparation</b> .....	245
<b>34.2</b>	<b>Preop</b> .....	243	<b>34.6</b>	<b>Osteotomy and Measurement of Rotation</b> .....	245
<b>34.3</b>	<b>Approach</b> .....	244	<b>34.7</b>	<b>Blade Plate Fixation</b> .....	246
<b>34.4</b>	<b>Osteotomy Preparation</b> .....	244			

## Contents

---

<b>34.8</b>	<b>Intramedullary Nail Fixation and Osteotomy</b> .....	246	<b>34.10</b>	<b>Closure</b> .....	248
<b>34.9</b>	<b>Technique</b> .....	248	<b>34.11</b>	<b>Postop</b> .....	249
<b>35</b>	<b>Gastrocnemius, Hamstring, and Adductor Releases/Lengthening</b> .....	251			
	<i>Anna L. Johnson</i>				
<b>35.1</b>	<b>Introduction</b> .....	251	<b>35.4.2</b>	Hamstring Release .....	255
<b>35.2</b>	<b>Preop</b> .....	252	<b>35.4.3</b>	Adductor Release .....	256
<b>35.3</b>	<b>Approach</b> .....	253	<b>35.5</b>	<b>Postop</b> .....	256
35.3.1	Gastrocnemius Release .....	253	35.5.1	Gastrocnemius Release .....	256
35.3.2	Hamstring Release .....	253	35.5.2	Hamstring Release .....	256
35.3.3	Adductor Release .....	254	35.5.3	Adductor Release .....	256
<b>35.4</b>	<b>Closure</b> .....	255			
35.4.1	Gastrocnemius Release .....	255			
	<b>Index</b> .....	258			