Department of Orthopaedics and Rehabilitation

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<th>Rotation-Specific Objectives for Resident Education</th>
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<td>Rotation: Hip and Knee Reconstruction</td>
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<td>Resident Year-In-Training: PGY5 &amp; PGY3</td>
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**Attending Physicians**

1. **Thomas Huff, MD**  
   Orthopaedic Surgeon, AAOS Board Certified, ABOS Diplomate

2. **Kathryn Schabel, MD**  
   Orthopaedic Surgeon, AAOS Board Certified, ABOS Diplomate

**Primary Objective**

Training in preparation for medical and surgical management of hip and knee arthritis

- Understand the varying conditions that can lead to end stage arthritis: primary osteoarthritis, inflammatory arthritis, post-traumatic conditions, or juvenile arthritic conditions as a result from disease such as SCFE or LCP.
- To understand the alternatives to joint arthroplasty including osteotomies and non-operative management.
- To understand principles of pre-operative templating for a primary hip replacement.
- Understand the proper management and treatment algorithm for an infected total joint arthroplasty.
- Understand the proper management and treatment algorithm for peri-prosthetic fractures around hip or knee arthroplasty.
- To be knowledgeable of approaches to a failed arthroplasty and comfortable with straightforward revisions.
- To have a basic knowledge of tribology and implant selection, and the advantages and disadvantages of each implant. To be able to accurately define the causes of arthroplasty failure.

**Educational Philosophy**

The principal goal of the adult reconstruction service is to familiarize orthopaedic residents with the management of hip and knee arthritis. This includes, first and foremost, non-surgical management of the varying arthritic conditions. A keen understanding of which patients are surgical candidates is mandatory, along with absolute and relative contra-indications to surgery. The indications for multiple treatment options should be able to be individualized to each patient; i.e. osteotomy, unicompartmental arthroplasty or hip resurfacing, total joint arthroplasty (with various degrees of constraint). Furthermore, the resident should understand varying methods of failure (infection, fracture, loosening, malposition, osteolysis, etc) and appropriate algorithms of management.
Rotation Expectations and Opportunities

The Orthopaedic Residents will work primarily with two full-time University based Adult Reconstruction surgeons. Two residents, a pgy3 and pgy5, will spend 10-11 weeks dedicated to Adult Reconstruction. Approximately half of the rotation will be spent with each faculty (apprenticeship model). On average, there will be 2-3 OR days per week, 2 days of clinic per week, and ½ day of educational activity / self study (preparing for conferences, review of upcoming cases, independent study).

Dr. Huff
Monday: OR (1 out of 4 weeks in clinic)
Tuesday: OR
Wednesday: OR
Thursday: Clinic
Friday: Clinic/OR, or independent study

Dr. Schabel
Monday: OR
Tuesday: Clinic (1 out of 4 weeks at St V’s OR)
Wednesday: Clinic
Thursday: OR or clinic
Friday: OR

Every Tuesday, at 7am, there is a combined Joints/Tumor conference. This is a case based conference consisting of upcoming surgical cases (primarily revisions or complicated cases), interesting cases seen in clinic, or cases of patients seen in the emergency room. This is primarily led by the PGY3 on the joints rotation.

Residents participate as 1st assist in all circumstances as no fellows participate. Roughly 600-800 cases annually (~65% primary arthroplasty, 25% revisions, 5% periprosthetic fractures, <5% osteotomy).

Residents are expected to prepare for each case. This includes having knowledge of the patients history and exam specific to their hip and/or knee condition, pertinent medical information, knowledge of radiographs, and other information as pertinent. They are expected to have a pre-operative template made in preparation for primary cases of hip arthroplasty, along with preoperative planning for all cases.

Residents are expected to direct and supervise learners including medical students, PA students, surgical staff and clinical staff.
Generalized Sports Rotation Goals & Mechanisms

**Didactic**
- A weekly conference on Tuesday mornings involving the adult reconstruction and tumor residents / attendings.
  - This is a case based conference consisting of upcoming surgical cases (primarily revisions or complicated cases), interesting cases seen in clinic, or cases of patients seen in the emergency room. This is primarily led by the PGY3 on the joints rotation.
- Pre-, mid- and post-rotation meetings to assess expectations and progress of residents.
- Journal Club 2-3x / year to discuss important literature on hip and knee replacements.

**Patient Care**
- Manage all aspects of arthritis seen in patients of all ages. This includes appropriate non-operative treatment modalities along with varying surgical treatment options. The resident is responsible for learning and understanding indications of different procedures (PAO, HTO, UKA, TKA/THA). The resident should learn absolute and relative contra-indications to total joint arthroplasty, and the risks and benefits of proceeding with surgery under various conditions.
- Attain competence in performing a comprehensive evaluation and examination of new and return patients in clinic. Comprehensive and concise history, physical examination, and diagnostic test ordering and interpretation are emphasized.
- Thorough and concise management of post-operative patients during their inpatient stay at OHSU.

**Medical Knowledge**
At the conclusion of a rotation, each resident is expected to have a basic understanding of:
- Case based learning, focusing on topically driven reading.
- Pathology behind a variety of conditions that lead to hip and/or knee arthritis: osteoarthritis, osteonecrosis, inflammatory arthritis, post-traumatic arthritis, hip dysplasia, FAI, and varying childhood disorders (LCP, SCFE, MED, PFFD).
- Medical management of hip and knee arthritis prior to surgical intervention.
- Preparation for surgical care by learning surgical approaches, implant options, and reconstruction in the setting of bone loss or fracture.
- Prepare patients for operative and non-operative management and empathetically guide them through the recovery process of each.
- Familiarize oneself with current standards of care by reading Orthopedic Knowledge Update, current literature, weekly case presentations, and the below listed literature resources.
- Be thoroughly knowledgeable of basic textbook information and current journal articles on orthopaedic specialties pertinent to this rotation.
- Read and understand the key orthopaedic literature on the orthopaedic specialties pertinent to this rotation.
- Understand the role of the Adult Reconstruction Surgeon as part of the health care team and our relationship to the working environment with; Nurses, PA’s, PT’s, OT’s, Orthotists, Patients & Families.
Practice-Based Learning and Improvement

- Participate as an assistant in surgical procedures and as primary surgeon where level of skill makes this appropriate. Develop the planning and technical skills to the level that participation as primary surgeon is appropriate on most surgical cases.
- Demonstrate ability to effectively perform preoperative planning for surgical procedures, even complex cases. This includes pre-operative templating.
- Set up an operating room for surgery, including surgical instruments, implants, patient positioning, need for fluoroscopy, etc.
- Understand and direct the role/limitations of Operating personnel: Scrubs, Nurses, Charge nurse, Company representatives, Schedulers, and Surgeons.
- Identify and clearly communicate the indication for every operation prior to scrubbing, to the attending and students as indicated.
- Know the algorithm for several techniques for each indication:
  - Be prepared in advance to complete the operation
  - Understand the choices for anesthesia and indications
  - Be ready to describe how to change course mid-operation, if needed
- Direct and perform the following procedures:
  1. Aspiration and Injection of the Knee joint; injection of Trochanteric bursa
  2. Primary Hip and Knee Arthroplasty
  3. Revision Hip and Knee Arthroplasty
     a. Infection – first and second stage revision
     b. Osteolysis
     c. Implant failure
     d. Instability
     e. Need for constraint
  4. ORIF insetting of periprosthetic fracture

Professionalism

- Learn to organize patient clinic practice while participating in more advance patient evaluation and management activities.
- Actively and competently participate in supervising the educational and clinical activities of the junior level residents (for PGY5s) or medical students (for PGY3s and 5s).
- Model appropriate professional values and behaviors for peers, faculty, and staff.
- Mature in the development of patient care, considering the cost, quality, outcomes, and impact on patient and healthcare system as essential variables in the equation.
- Demonstrate ability to engage in supportive, clear, and compassionate communication with patients and family members.
- Answer requests in a timely, cordial manner.

Interpersonal and Communication Skills

- The resident is expected on this rotation and all others to interact as a professional and team member with all the other staff and services within the hospital.
- The demeanor and tone of the resident in both verbal and nonverbal communication is expected to be exemplary.
- The same communication skills above are expected to be used with the patients and families.
**Systems Based Practice**

- Develop methods of analyzing complex data and prioritizing principles and issues to solve complex and ill-defined problems related to orthopaedic patient care.
- Demonstrate appropriate judgment, particularly as related to indications for surgical treatment of patients, non-operative treatment options and algorithms.
- Understand the daily business of Medicine/Orthopedic Surgery.
- Become facile with billing and coding issues.
- Manage the patient and health system to manage a disease/injury in the context of the biopsychosocial model.

**Literature Resources**

**Textbooks**

Orthopaedic Knowledge Update: Hip and Knee Reconstruction 4

The Adult Hip, Callaghan & Rosenberg (2 Volumes) - in Orthopaedic library

Insall & Scott Surgery of The Knee (4 Volumes) - in Orthopaedic library

**Articles**

**Hip Arthroplasty**

**Leg-Length Discrepancy**


**Nerve Injuries s/p THA**


**Heterotopic Ossification**


**Femoral Neck Fracture**


**Osteonecrosis**


**Osteolysis**


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**Dislocation / Instability**


Garbuz DS, Masri BA, Duncan CP, et al. Dislocation in Revision THA: Do Large Heads (36 and 40mm) Result in Reduced Dislocation Rates in a Randomized Clinical Trial? CORR. 2012, 470, 351-6.


**Constrained Acetabular Liner**


**Revision THA**


**Pelvic Discontinuity**


Trochanteric Osteotomy


Metal-Metal THA


Ceramic THA


Park YS, Hwang SK, Choy WS, et al. Ceramic Failure After Total Hip Arthroplasty with an


**Hip Resurfacing**


**Periprosthetic Fracture**


**Total Knee Arthroplasty**

**Cemented All PE Tibial Component**


Voigt J, Mosier M. Cemented All-Polyethylene and Metal-Backed Polyethylene Tibial Components Used for Primary Total Knee Arthroplasty: A systematic Review of the Literature and Meta-Analysis of Randomized Controlled Trials Involving 1798 Primary Total Knee Implants. *JBJS-A*. 2011, 93A, 1790-8.

**Mobile Bearing TKA**


**Cruciate Retaining vs Stabilized TKA**


**UKA**


**High Tibial Osteotomy**


**Osteolysis**

Lachieieicz PF, Geyer MR. The Use of Highly Cross-Linked PE in TKA. *JAAOS*. 2011, 19, 134-51.


**Patella Resurfacing**


**Patellar Tracking**


**Ligament Balancing**


**Tantalum Monoblock**


**Mechanical Axis**

Middleton FR, Palmer SH. How Accurate is Whiteside's Line as a Reference Axis in TKA? The Knee. 2007, 14, 204-7.


**Patient Specific**


Computer Navigation


Revision TKA


Extensor Mechanism Problems


Other


Infection


**Other**

**Ogilvie Syndrome**

**Obesity**


**Diabetes**
Tranexamic Acid


Polyethylene & Highly Cross-Linked PE


Venous Thromboembolism


Multimodal Pain Management / Accelerated Rehab
