

Supplementary Material 1.

1. General queries

Total joint replacement

How to plan the amount of osteotomy and the type of prosthesis before surgery when the knee joint has varus. Planning for osteotomy and prosthesis type in a patient with a varus knee deformity typically involves a thorough assessment of the patient's condition, including clinical evaluation, imaging studies, and consideration of the patient's age, activity level, and overall health. Here's a step-by-step guide on how to plan for osteotomy and prosthesis selection:

1. **Clinical Assessment:**
 - Begin by conducting a comprehensive clinical assessment of the patient's knee. Evaluate their symptoms, range of motion, pain level, and functional limitations.
2. **Imaging Studies:**
 - X-rays: Obtain standing full-leg X-rays, including anterior-posterior (AP) and lateral views of both knees. These X-rays will help assess the degree of varus deformity, joint alignment, and any joint space narrowing.
 - CT Scan or MRI: In some cases, a more detailed imaging study may be necessary to evaluate the joint's anatomy, bone quality, and soft-tissue structures.
3. **Assessment of Varus Deformity:**
 - Measure the mechanical axis: Assess the mechanical axis of the lower extremity, which should pass through the center of the knee joint. A varus deformity indicates that the mechanical axis deviates medially.
4. **Consideration of Patient Factors:**
 - Evaluate the patient's age, activity level, and overall health. Younger, more active patients may be candidates for different procedures than older, less active individuals.
5. **Non-Surgical Options:**
 - Explore non-surgical treatment options first, such as physical therapy, bracing, and medication, to alleviate symptoms and improve function. These may be suitable for some patients, particularly those with mild varus deformities.
6. **Osteotomy Planning:**
 - If non-surgical treatments are insufficient, consider osteotomy as a surgical option. Osteotomy involves cutting and repositioning the bones to correct alignment.
 - Decide on the type of osteotomy, such as high tibial osteotomy (HTO) or distal femoral osteotomy (DFO), based on the location of the deformity and the patient's specific needs.
 - Calculate the amount of correction needed to restore the mechanical axis to a more neutral alignment. This is typically done using radiographic measurements and specialized software.
7. **Prosthesis Selection:**
 - If the varus deformity is accompanied by significant joint degeneration and the patient is not a suitable candidate for osteotomy or has not responded to it, consider total knee arthroplasty (TKA) or partial knee arthroplasty (PKA) as prosthesis options.
 - Select the appropriate prosthesis based on factors such as the extent of joint damage, bone quality, ligament integrity, and the patient's age and activity level.
8. **Surgical Planning:**
 - Collaborate with a surgical team to plan the surgical approach, technique, and implant selection.
 - Ensure the patient is fully informed about the chosen procedure, its risks, benefits, and expected outcomes.

9. **Postoperative Care:**
 - Develop a postoperative care plan, including rehabilitation and physical therapy, to optimize the patient's recovery and functional outcomes.
10. **Follow-Up:**
 - Schedule regular follow-up appointments to monitor the patient's progress and address any complications or concerns.

The specific approach and decisions will vary from case to case, so it is crucial to involve a multidisciplinary team, including orthopedic surgeons, radiologists, and physical therapists, to provide the best possible care for patients with varus knee deformities.

How to plan prosthetic selection and surgical techniques for patients with type IV developmental dysplasia of the hip (DDH). Planning prosthetic selection and surgical techniques for patients with Type IV DDH involves a comprehensive evaluation of the patient's condition, careful consideration of anatomical abnormalities, and a tailored approach to address the specific challenges posed by DDH. Here is a step-by-step guide on how to plan for prosthetic selection and surgical techniques in such cases:

1. **Patient Evaluation:**
 - Conduct a thorough clinical assessment, including a medical history review and physical examination, to understand the patient's symptoms, functional limitations, and pain levels.
2. **Imaging Studies:**
 - Utilize a combination of imaging studies to assess the extent and severity of DDH:
 - X-ray: Obtain anteroposterior (AP) and lateral pelvic X-rays to assess the hip joint's anatomy, including the degree of hip dysplasia, acetabular coverage, femoral head deformities, and joint congruency.
 - CT Scan or MRI: In some cases, a more detailed imaging study may be necessary to evaluate the soft tissues, bone quality, and any additional anatomical abnormalities.
3. **Classification of DDH:**
 - Classify the DDH type based on the Tonnis classification system, which categorizes DDH into three stages (I, II, III) and also includes a "pre-arthritis" or "Type IV" stage.
4. **Determine Treatment Goals:**
 - Define the treatment goals based on the patient's age, activity level, and severity of symptoms. Common goals include pain relief, improved joint stability, and restoration of hip function.
5. **Non-Surgical Management:**
 - Explore non-surgical treatment options initially, such as activity modification, physical therapy, and pain management strategies, especially in less severe cases and in younger patients.
6. **Surgical Planning:**
 - If conservative management is insufficient, consider surgical intervention, such as hip preservation or total hip arthroplasty (THA), depending on the patient's age and the severity of DDH.
 - For patients with Type IV DDH, THA is often the preferred surgical option.
7. **Prosthetic Selection:**
 - Select the appropriate prosthetic components for THA, taking into account the patient's age, bone quality, hip anatomy, and surgeon experience.
 - Consider using specialized implants designed for patients with DDH, which may include modular or high-offset components to address the deformities and provide stability.

8. **Surgical Techniques:**
 - Discuss the surgical approach with the patient, weighing the advantages and disadvantages of various approaches (e.g., posterior, lateral, anterior).
 - Depending on the surgeon's preference and patient-specific factors, choose an appropriate surgical technique for THA, such as cemented or cementless fixation.
 - Address any associated soft-tissue abnormalities, such as contractures or impingement, during the surgery.
 - Optimize leg length and hip offset during implantation to achieve proper biomechanical alignment.
9. **Postoperative Care and Rehabilitation:**
 - Develop a postoperative care plan, including rehabilitation and physical therapy, to ensure a safe and effective recovery.
 - Emphasize the importance of hip precautions to prevent dislocation in the early postoperative period.
10. **Follow-up:**
 - Schedule regular follow-up appointments to monitor the patient's progress, assess implant stability, and address any complications or concerns.

Collaboration with a team of healthcare professionals, including orthopedic surgeons, radiologists, and physical therapists, is essential for the successful planning and management of patients with Type IV DDH. Tailoring the approach to each patient's unique anatomy and goals is crucial for achieving the best outcomes.

How to reduce perioperative infection in joint replacement. Reducing perioperative infection in joint replacement surgery is crucial to ensure successful outcomes and prevent complications. Here are some strategies to help minimize the risk of infection:

1. **Patient Selection and Optimization:**
 - Identify and address patient-related risk factors for infection, such as obesity, diabetes, smoking, and immunosuppression, before surgery.
 - Ensure patients with active infections at other sites (e.g., dental infections, urinary tract infections) are treated and infection-free before joint replacement.
2. **Preoperative Screening and Decolonization:**
 - Screen patients for nasal carriage of *Staphylococcus aureus*, including methicillin-resistant *Staphylococcus aureus* (MRSA), and consider decolonization protocols if necessary.
 - Identify carriers of other multidrug-resistant organisms and implement appropriate precautions.
3. **Antibiotic Prophylaxis:**
 - Administer prophylactic antibiotics according to established guidelines, usually within 60 minutes before surgical incision.
 - Use appropriate antibiotics based on local susceptibility patterns and patient allergies.
 - Continue antibiotics for only 24 hours postoperatively in most cases, as prolonged antibiotic use can increase the risk of antibiotic resistance.
4. **Skin Preparation:**
 - Use a chlorhexidine-alcohol solution for preoperative skin preparation, which has been shown to be more effective than traditional iodine-based solutions in reducing infection rates.
5. **Operating Room Sterility:**
 - Ensure strict adherence to aseptic techniques during surgery.
 - Maintain a sterile environment in the operating room, including proper draping, surgical attire, and instrument handling.

6.	Implant Handling and Sterility:	<ul style="list-style-type: none"> • Handle implants with care and ensure their sterility is maintained throughout the surgical procedure. • Confirm that all prosthetic components are stored and handled appropriately, adhering to manufacturer guidelines.
7.	Surgical Technique:	<ul style="list-style-type: none"> • Minimize surgical time to reduce the duration of exposure to the environment. • Maintain meticulous hemostasis to minimize dead spaces where bacteria can collect. • Use an appropriate surgical approach and closure technique.
8.	Postoperative Wound Care:	<ul style="list-style-type: none"> • Monitor wound healing and educate patients on the signs of infection. • Implement a clear protocol for wound assessment, dressing changes, and the management of surgical site complications.
9.	Infection Prevention Bundles:	<ul style="list-style-type: none"> • Implement comprehensive infection prevention bundles that include all aspects of care, from preoperative preparation to postoperative surveillance. • These bundles often include standardized protocols, checklists, and audits to ensure compliance with best practices.
10.	Surveillance and Reporting:	<ul style="list-style-type: none"> • Establish a system for monitoring and reporting surgical site infections. • Collect and analyze data on infection rates to identify trends and areas for improvement.
11.	Patient Education:	<ul style="list-style-type: none"> • Educate patients about the importance of adhering to postoperative instructions, including wound care, activity restrictions, and the management of potential signs of infection.
12.	Team Training:	<ul style="list-style-type: none"> • Ensure that all members of the surgical team are well-trained in infection prevention protocols and are aware of their roles and responsibilities in reducing the risk of infection.
13.	Quality Improvement Programs:	<ul style="list-style-type: none"> • Continuously review and update infection prevention practices based on the latest evidence and outcomes data. • Participate in quality improvement initiatives to further reduce infection rates.

Reducing perioperative infection in joint replacement surgery requires a multifaceted approach involving the entire healthcare team, from patient selection and preparation to surgical technique and postoperative care. Adherence to evidence-based guidelines and ongoing quality improvement efforts are essential for success.

Spine fusion surgery

How to determine the responsible segment in degenerative spinal disease. Determining the responsible segment in degenerative spinal disease typically involves a combination of clinical evaluation, diagnostic imaging, and sometimes further specialized tests. Here are the steps to help determine the responsible segment:

1.	Clinical Assessment:	<ul style="list-style-type: none"> • Begin with a thorough clinical evaluation of the patient, which includes obtaining a detailed medical history and conducting a physical examination. • Document the patient's symptoms, including location, duration, quality of pain, exacerbating and alleviating factors, and any neurological symptoms (such as numbness, weakness, or tingling) associated with the spinal condition.
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2.	Neurological Examination:
	<ul style="list-style-type: none"> • Perform a comprehensive neurological examination to assess motor strength, sensation, reflexes, and coordination in the affected area. • Note any muscle weakness, sensory deficits, or abnormal reflexes that may indicate spinal nerve compression or dysfunction.
3.	Radiographic Imaging:
	<ul style="list-style-type: none"> • Order appropriate radiographic imaging studies to visualize the spine and assess for degenerative changes. Common imaging modalities include X-rays, CT scans, and MRIs. • X-rays can provide information about bone and alignment abnormalities. • CT scans offer detailed images of bone structures, which can be helpful in assessing for spinal stenosis or facet joint arthritis. • MRIs provide detailed images of soft tissues, including intervertebral discs, spinal cord, and nerve roots. MRIs are especially useful for evaluating disc herniation, spinal cord compression, and nerve impingement.
4.	Advanced Imaging (if necessary):
	<ul style="list-style-type: none"> • In some cases, additional advanced imaging studies, such as discography, myelography, or nerve conduction studies, may be needed to further evaluate specific aspects of the spine's pathology or nerve involvement.
5.	Diagnostic Injections:
	<ul style="list-style-type: none"> • Consider diagnostic injections, such as facet joint injections or epidural steroid injections, to determine if a specific spinal level is the source of pain. • These injections can help pinpoint the responsible segment by temporarily alleviating pain when medication is delivered directly to the affected area.
6.	Specialized Testing (if needed):
	<ul style="list-style-type: none"> • For patients with atypical symptoms or diagnostic uncertainty, specialized tests like electromyography (EMG) or nerve conduction studies can help assess nerve function and identify specific nerve involvement.
7.	Multidisciplinary Evaluation:
	<ul style="list-style-type: none"> • In complex cases, involving a multidisciplinary team, including orthopedic or neurosurgical spine specialists, pain management specialists, and physical therapists, can be beneficial. • Collaboration among healthcare professionals can lead to a more accurate diagnosis and treatment plan.
8.	Correlate Clinical and Imaging Findings:
	<ul style="list-style-type: none"> • Carefully correlate the patient's clinical symptoms and examination findings with the results of diagnostic imaging and other tests. • Identify the spinal level or segment where the degenerative changes or pathology most likely correspond to the patient's symptoms.
9.	Clinical Judgment:
	<ul style="list-style-type: none"> • Ultimately, clinical judgment plays a significant role in determining the responsible segment in degenerative spinal disease. • Consider the patient's overall clinical picture, including the severity of symptoms and the impact on their daily life.
10.	Treatment Planning:
	<ul style="list-style-type: none"> • Once the responsible segment is identified, work with the patient to develop an appropriate treatment plan, which may include conservative measures (physical therapy, medication, lifestyle modifications) or surgical intervention (e.g., decompression, fusion) as necessary.

It's essential to approach the diagnosis of degenerative spinal disease systematically, considering both clinical and imaging findings to determine the responsible segment accurately. Consulting with specialists

and using a multidisciplinary approach can enhance the accuracy of the diagnosis and improve patient outcomes.

How to design a fixation plan in spinal orthopedic surgery. Designing a fixation plan in spinal orthopedic surgery is a critical step to ensure the stability and proper alignment of the spine. The fixation plan involves selecting the appropriate instrumentation (e.g., screws, rods, cages) and determining their placement to achieve the surgical goals. Here is a step-by-step guide to help design a fixation plan in spinal orthopedic surgery:

1. **Preoperative Assessment:**
 - Conduct a comprehensive preoperative evaluation of the patient, including a review of medical history, clinical examination, and interpretation of relevant imaging studies (X-rays, CT scans, MRIs).
2. **Diagnosis and Surgical Indications:**
 - Clearly define the diagnosis, the specific spinal condition, and the surgical indications. This will guide your decision-making throughout the fixation planning process.
3. **Surgical Goals:**
 - Establish clear surgical goals, such as decompression of neural structures, correction of deformity, stabilization of the spine, or a combination of these objectives.
4. **Choose the Surgical Approach:**
 - Decide on the appropriate surgical approach (e.g., anterior, posterior, lateral) based on the specific pathology, patient anatomy, and surgical goals.
 - Consider minimally invasive techniques when appropriate, as they can reduce tissue trauma and promote quicker recovery.
5. **Incorporate Spinal Imaging:**
 - Review and analyze preoperative imaging studies to assess the location and extent of the spinal pathology, the number of affected levels, and the condition of adjacent segments.
6. **Select Instrumentation:**
 - Choose the type of instrumentation needed for fixation, which may include:
 - Pedicle screws: Used for posterior fixation.
 - Rods: Connects and stabilizes screws or hooks.
 - Interbody cages: Used for intervertebral fusion.
 - Plates: Sometimes used in conjunction with screws for additional stability.
 - Hooks: Alternative to screws for certain cases.
 - Select instrumentation appropriate for the surgical approach and pathology.
7. **Instrumentation Size and Length:**
 - Determine the appropriate size and length of screws, rods, or cages based on the patient's anatomy, the level of fixation required, and the implant manufacturer's guidelines.
8. **Fixation Levels:**
 - Identify the levels at which fixation is needed, considering the pathology and the desired surgical outcome.
 - Decide whether to include adjacent levels in the fixation plan to prevent adjacent segment disease.
9. **Screw Placement:**
 - Plan the precise placement of screws or hooks using anatomical landmarks and imaging guidance.
 - Ensure proper trajectory and depth to avoid neurovascular injury and maintain biomechanical stability.

10.	Rod Contouring:	<ul style="list-style-type: none"> • Contour rods as needed to achieve proper sagittal and coronal alignment of the spine. • Use rod benders to shape the rods according to the specific surgical goals.
11.	Interbody Fusion Devices:	<ul style="list-style-type: none"> • If interbody fusion is part of the surgical plan, choose the appropriate size and type of interbody cages. • Determine whether autograft, allograft, or bone graft substitutes will be used to promote fusion.
12.	Stress Testing:	<ul style="list-style-type: none"> • Perform intraoperative stress testing to evaluate the stability and alignment of the construct before final fixation. • Make necessary adjustments to ensure proper alignment and tension.
13.	Documentation:	<ul style="list-style-type: none"> • Keep meticulous records of the fixation plan, including the type and size of instrumentation used, the levels of fixation, and any intraoperative adjustments.
14.	Intraoperative Imaging:	<ul style="list-style-type: none"> • Utilize intraoperative imaging, such as fluoroscopy or navigation systems, to confirm the accuracy of screw placement and alignment during surgery.
15.	Collaboration:	<ul style="list-style-type: none"> • Collaborate closely with the surgical team, including nurses, anesthesiologists, and assistants, to ensure a smooth surgical procedure.
16.	Postoperative Care:	<ul style="list-style-type: none"> • Develop a postoperative care plan that includes monitoring the patient for complications and ensuring proper immobilization and early mobilization as needed.

Designing a fixation plan in spinal orthopedic surgery is a complex process that requires careful consideration of patient-specific factors, pathology, surgical goals, and instrumentation. Close collaboration with a multidisciplinary team and adherence to best practices are essential for achieving successful surgical outcomes.

Selection of spinal open surgery and minimally invasive surgery methods for patients with lumbar disc herniation. The selection of spinal open surgery or minimally invasive surgery (MIS) methods for patients with lumbar disc herniation depends on various factors, including the patient's clinical presentation, imaging findings, surgical goals, and the surgeon's expertise. Here is a guide to help make the choice:

Factors to Consider:

1.	Clinical Presentation:	<ul style="list-style-type: none"> • Assess the patient's symptoms, including the location, severity, and duration of pain, as well as any neurological deficits. • Determine if conservative treatments (e.g., rest, physical therapy, medications) have been unsuccessful in providing relief.
2.	Imaging Studies:	<ul style="list-style-type: none"> • Evaluate imaging studies (MRI, CT, X-rays) to confirm the diagnosis of lumbar disc herniation and assess its location, size, and impact on adjacent structures.
3.	Surgical Goals:	<ul style="list-style-type: none"> • Define the specific surgical goals, which may include decompression of neural structures, removal of the herniated disc fragment, and potential spinal stabilization.
4.	Patient Factors:	<ul style="list-style-type: none"> • Consider the patient's age, overall health, comorbidities, and willingness to undergo surgery.

- Assess the patient's expectations and preferences, including the desire for a shorter recovery time and smaller incisions.

5. **Anatomical Factors:**

- Evaluate the anatomy of the affected disc, including its location and accessibility.
- Assess the presence of other spinal conditions, such as spinal stenosis or spondylolisthesis, which may require additional intervention.

6. **Surgeon's Experience:**

- Consider the surgeon's level of experience and familiarity with both open and minimally invasive techniques.

Options for Lumbar Disc Herniation Surgery:

1. **Open Microdiscectomy:**

- **Indications:** Open microdiscectomy is typically recommended for patients with a straightforward lumbar disc herniation, especially when it is centrally located and easily accessible.
- **Procedure:** This surgery involves making a larger incision, retracting muscles and soft tissues, and directly visualizing the herniated disc. The surgeon removes the herniated portion of the disc, relieving pressure on the nerves.
- **Advantages:** Open microdiscectomy provides direct visualization and allows for complete removal of the herniated disc material.

2. **Minimally Invasive Discectomy (Endoscopic or Microendoscopic):**

- **Indications:** Minimally invasive discectomy techniques are suitable for patients with lumbar disc herniation, especially when the herniation is localized and the surgeon has expertise in minimally invasive procedures.
- **Procedure:** These techniques involve making smaller incisions, using specialized instruments and endoscopes for visualization, and removing the herniated disc fragment. Variations include percutaneous endoscopic discectomy (PED) and microendoscopic discectomy (MED).
- **Advantages:** MIS techniques typically result in smaller incisions, reduced muscle and soft tissue disruption, shorter hospital stays, and quicker recovery times.

3. **Laser Disc Surgery:**

- **Indications:** Laser disc surgery is a less commonly used option for specific cases of lumbar disc herniation. It may be considered for certain patients who are not suitable candidates for traditional surgery.
- **Procedure:** Laser energy is used to shrink or vaporize the herniated disc material. This procedure is less invasive than open surgery but may have limited effectiveness.
- **Advantages:** Reduced invasiveness and potentially shorter recovery times.

The selection of open surgery vs. minimally invasive surgery should be tailored to the individual patient's needs and the expertise of the surgeon. Both approaches can be effective in treating lumbar disc herniation, but the choice should prioritize patient safety and the best chance of achieving the desired surgical outcomes. The decision should be made in consultation with the patient and their healthcare team.

ACL surgery

The selection of tibial and femoral positioning points and the method of tunnel establishment. The selection of tibial and femoral positioning points and the method of tunnel establishment are critical aspects of anterior cruciate ligament (ACL) reconstruction in knee surgery. These decisions greatly impact the overall success and stability of the procedure. Here is a guide on how to approach these important aspects:

Tibial and Femoral Positioning Points:

1. **Anatomical Landmarks:**

- Begin by identifying key anatomical landmarks on the tibia and femur.
- On the tibia, the most common reference point is the center of the tibial plateau. This is typically located 1-2 cm posterior to the anterior tibial cortex.
- On the femur, the most commonly used landmarks include the intercondylar notch, the lateral epicondyle, and the posterior cortex.

2. **Anteroposterior (AP) Positioning:**

- The AP positioning of the tunnels is crucial to replicate the native ACL's function.
- For the femoral tunnel, the center of the tunnel is often located at the center of the native ACL's footprint on the femoral condyle.
- For the tibial tunnel, the center is typically placed at the center of the native ACL's footprint on the tibial plateau.

3. **Medial-Lateral (ML) Positioning:**

- The ML positioning of the tunnels should aim to restore the patient's individualized anatomy.
- Use intraoperative measurements or preoperative imaging, such as MRI or CT scans, to determine the correct ML positioning.
- Consider the patient's unique knee anatomy, which can vary widely.

Methods of Tunnel Establishment:

1. **Single-Bundle vs. Double-Bundle ACL Reconstruction:**

- Decide whether to perform single-bundle or double-bundle ACL reconstruction based on the patient's specific needs, activity level, and surgeon preference.
- Single-bundle reconstruction involves creating 1 tunnel in each of the femur and tibia, while double-bundle reconstruction involves creating 2 tunnels in each.

2. **Tibial Tunnel Creation:**

- The tibial tunnel is typically created first.
- The surgeon may use a transtibial technique, anteromedial portal technique, or other methods to create the tunnel.
- Ensure proper alignment and avoid creating a tunnel that is too steep or too shallow.

3. **Femoral Tunnel Creation:**

- Create the femoral tunnel using a transtibial, anteromedial, or other technique, depending on the surgeon's preference.
- Ensure that the femoral tunnel is accurately positioned in both the AP and ML dimensions.
- Use guides, aiming devices, and visual references to place the tunnel accurately.

4. **Graft Placement:**

- Pass the selected graft material (often a hamstring autograft or a patellar tendon autograft) through the tibial and femoral tunnels.
- Secure the graft in the tunnels using interference screws, suspensory devices, or other fixation methods.
- Tension the graft appropriately to achieve the desired knee stability.

5. **Tunnel Size:**

- Consider the size of the tunnels relative to the graft size to achieve adequate fixation without causing graft compression or tunnel enlargement.
- Oversized tunnels may lead to graft motion, while undersized tunnels may weaken the graft fixation.

6. **Intraoperative Assessment:**

- Use intraoperative tools, such as fluoroscopy or arthroscopic visualization, to verify the correct placement of the tunnels and graft tension.

7. **Rehabilitation and Postoperative Care:**

- Develop a postoperative rehabilitation plan that includes controlled range of motion exercises and progressive weight-bearing to optimize graft healing and patient recovery.

The selection of tibial and femoral positioning points and the method of tunnel establishment should be individualized for each patient based on their specific anatomy, surgical goals, and surgeon's expertise. Collaboration between the surgeon, radiologist, and physical therapist is important to achieve successful ACL reconstruction outcomes.

Surgical indications for anterior cruciate ligament injury. Surgical indications for anterior cruciate ligament (ACL) injury depend on several factors, including the patient's age, activity level, the severity of the injury, associated knee instability, and the patient's goals. Surgery is typically considered for ACL injuries when conservative (non-surgical) management is insufficient or when certain criteria are met. Here are common surgical indications for ACL injury:

1. **High-Demand Athletes:** ACL surgery is often recommended for athletes and individuals with high physical demands, such as those involved in competitive sports (e.g., soccer, basketball, football), where knee stability is essential for performance.
2. **Symptomatic Instability:** If the ACL injury results in symptomatic knee instability, characterized by episodes of the knee giving way, surgery is considered to restore stability and prevent recurrent injuries.
3. **Active Individuals:** Surgery may be indicated for individuals who wish to return to activities that require a stable knee joint, such as jogging, hiking, skiing, or dancing.
4. **Multiple Ligament Injuries:** When ACL injury is accompanied by damage to other knee ligaments, such as the medial collateral ligament (MCL) or posterior cruciate ligament (PCL), surgical intervention may be necessary to restore overall knee stability.
5. **Young and Active Patients:** Younger patients, particularly those with open growth plates (skeletally immature), may benefit from ACL reconstruction to prevent long-term knee instability and associated issues.
6. **Meniscal Tears:** If an ACL injury is associated with a meniscal tear, surgical intervention may be recommended to address both the ACL and meniscal injury, as meniscal tears can lead to significant knee problems if left untreated.
7. **Occupational Demands:** Individuals with physically demanding jobs or activities that require knee stability, such as construction workers or military personnel, may be candidates for surgery to ensure they can perform their duties safely.
8. **Chronic ACL Insufficiency:** In some cases, individuals with chronic ACL insufficiency may experience persistent knee instability and functional limitations, making them candidates for surgical intervention to improve their quality of life.
9. **Desire to Avoid Early Knee Osteoarthritis:** ACL reconstruction can help reduce the risk of early-onset knee osteoarthritis, particularly in individuals who want to maintain an active lifestyle.
10. **Patient Preference:** Ultimately, the patient's preferences and goals play a significant role in the decision to undergo ACL surgery. Some individuals may choose surgery to regain full knee function, while others may opt for non-surgical management if their lifestyle is less demanding.

It is important to note that not all ACL injuries require surgery, and conservative management, including physical therapy and bracing, may be appropriate in certain cases. Additionally, the timing of surgery, graft choice (e.g., autograft or allograft), and surgical technique may vary depending on individual circumstances and the surgeon's recommendations.

The decision to undergo ACL surgery should be made through a shared decision-making process between the patient and their healthcare provider, taking into consideration the individual's unique circumstances, goals, and expected outcomes.

How to recover from ACL surgery. Recovery from anterior cruciate ligament (ACL) surgery is a gradual process that involves specific stages of rehabilitation and a commitment to following your surgeon's and physical therapist's recommendations. Proper postoperative care is essential for regaining knee strength, stability, and function. Here is a general overview of how to recover from ACL surgery:

Note: Recovery can vary depending on the surgical technique, graft choice (autograft or allograft), individual factors, and surgeon's instructions. Always consult with your healthcare team for personalized guidance.

Immediate Postoperative Phase (Weeks 1-2):

1. **Pain Management:**

- Follow your surgeon's prescribed pain medication regimen to manage postoperative pain and discomfort.
- Elevate your leg and apply ice to reduce swelling.

2. **Brace and Crutches:**

- Use a knee brace as instructed by your surgeon. It may provide support and stability.
- Use crutches to offload weight from the operated leg, as directed.

3. **Range of Motion (ROM):**

- Begin gentle, passive range-of-motion exercises, guided by a physical therapist.
- Focus on gradually increasing knee flexion and extension while protecting the surgical site.

Early Rehabilitation Phase (Weeks 3-6):

4. **Physical Therapy:**

- Start formal physical therapy sessions to address muscle strength, balance, and coordination.
- Therapists will guide you through exercises to regain knee range of motion and prevent muscle atrophy.

5. **Weight-Bearing Progression:**

- Gradually progress from non-weight-bearing to partial weight-bearing and eventually to full weight-bearing, following your surgeon's recommendations.

6. **Gait Training:**

- Work with your physical therapist to improve your walking pattern and normalize your gait.

7. **Active Range of Motion (AROM):**

- Begin active range-of-motion exercises, such as heel slides, leg raises, and gentle knee bends.

Intermediate Rehabilitation Phase (Weeks 7-12):

8. **Strength Training:**

- Continue to build quadriceps, hamstring, and calf muscle strength through resistance exercises and functional activities.
- Incorporate balance and proprioception exercises.

9. **Cardiovascular Conditioning:**

- Engage in low-impact cardiovascular exercises (e.g., stationary cycling, swimming) to maintain cardiovascular fitness.

10. **Sport-Specific Training:**

- If you are an athlete, your rehabilitation program may include sport-specific drills and exercises to prepare for a return to sports.

11. **Gradual Return to Normal Activities:**

- Begin returning to daily activities, such as climbing stairs, with guidance from your physical therapist.

Advanced Rehabilitation Phase (Months 3-6+):

12.	Functional Activities:
	<ul style="list-style-type: none"> • Progress to functional activities like squats, lunges, and jumping under the supervision of your therapist.
13.	Running and Agility Drills:
	<ul style="list-style-type: none"> • Start a structured running program and agility drills to regain sports-specific movements. • Athletes may work on sport-specific skills.
14.	Return to Sport Testing:
	<ul style="list-style-type: none"> • Undergo specific tests to assess your readiness to return to sports, including strength, stability, and neuromuscular control assessments. • Only return to your sport when cleared by your surgeon and therapist.
15.	Long-Term Maintenance:
	<ul style="list-style-type: none"> • Continue with strength and conditioning exercises to maintain knee stability and reduce the risk of future injuries. • Periodic check-ins with your surgeon and physical therapist may be recommended.

Recovering from ACL surgery is a gradual process, and it may take several months to return to sports or activities at pre-injury levels. It is crucial to follow your healthcare team's instructions, stay consistent with your rehabilitation exercises, and be patient with your progress. ACL surgery success relies on commitment to the rehabilitation process and a safe return to activities.

Total joint replacement

1. An elderly woman, 92 years old, with a height of 150 cm and a weight of 35kg, suffered from left femoral neck fracture (Garden IV) after falling down due to dizziness. The patient usually suffered from hypertension and diabetes. She had long-term use of antihypertensive drugs and insulin. Her blood pressure was well controlled and her blood sugar was poorly controlled. The patient was well aware and was admitted to the hospital for treatment 24 hours after the injury. Upon admission, it was found that the patient had pneumonia, lacunar infarction anemia, low protein, and left lower limb intermuscular vein thrombosis. The selection of surgical methods and prostheses, as well as the methods of perioperative antithrombotic treatment.

The case you have described involves a complex situation with multiple comorbidities in an elderly patient who has suffered a femoral neck fracture. The decision-making process should prioritize the patient's overall health, medical conditions, and surgical risk. Here are some considerations for selecting surgical methods, prostheses, and perioperative antithrombotic treatment:

Surgical Method Selection:

1. **Patient Assessment:** Begin with a thorough assessment of the patient's overall health, including a review of her hypertension, diabetes, pneumonia, and lacunar infarction.
2. **Timing of Surgery:** Given the patient's age and comorbidities, expedited surgery is generally recommended for femoral neck fractures to reduce complications and improve outcomes. Surgery within 24-48 hours of admission is ideal, but individual patient factors should be considered.
3. **Anemia Management:** Assess the severity of the anemia and consider measures such as blood transfusion or iron supplementation to optimize the patient's hemoglobin levels before surgery. Anemia can increase the risk of perioperative complications.

4. **Choice of Surgical Procedure:** The choice of surgical procedure may depend on several factors, including the type of femoral neck fracture (Garden IV), surgeon expertise, and the patient's overall condition. Options include:

- **Hemiarthroplasty:** Partial hip replacement, often chosen for elderly patients with displaced femoral neck fractures.
- **Total Hip Arthroplasty (THA):** This may be considered in cases of severe arthritis or when the surgeon anticipates a good functional outcome.
- **Internal Fixation:** In some cases, internal fixation with screws or pins may be considered if the patient's overall health and fracture characteristics are suitable.

Prosthesis Selection:

1. **Implant Choice:** The choice between hemiarthroplasty and total hip arthroplasty should be made based on the patient's age, functional status, bone quality, and surgeon preference.

2. **Implant Material:** Consider using implants that are biocompatible and suitable for elderly patients. The surgeon will select the most appropriate prosthetic components, which may include cemented or uncemented implants, based on the patient's bone quality and surgeon experience.

Perioperative Antithrombotic Treatment:

1. **Deep Vein Thrombosis (DVT) Prophylaxis:** Given the patient's risk factors and the presence of left lower limb intermuscular vein thrombosis, it is crucial to implement comprehensive DVT prophylaxis measures. These may include:

- **Mechanical prophylaxis,** such as compression stockings or intermittent pneumatic compression devices.
- **Pharmacological prophylaxis** with low molecular weight heparin (LMWH) or other anticoagulants. However, due to the patient's history of poorly controlled blood sugar, close monitoring of glucose levels and potential adjustments to insulin therapy are necessary.

2. **Pneumonia Management:** Aggressively manage the pneumonia with appropriate antibiotics, respiratory support, and physiotherapy to optimize the patient's respiratory function before surgery.

3. **Blood Sugar Control:** Optimize blood sugar control to reduce the risk of perioperative complications, including infection. Work closely with an endocrinologist to adjust insulin therapy as needed.

4. **Anesthesia:** Collaborate with the anesthesia team to ensure that anesthesia is administered safely, considering the patient's age and medical conditions.

5. **Multidisciplinary Care:** This complex case may require coordination among a multidisciplinary team, including orthopedic surgeons, internists, endocrinologists, pulmonologists, and hematologists.

The treatment plan should be individualized for this elderly patient, considering her overall health status, comorbidities, and specific fracture characteristics. Frequent monitoring and adjustments to the perioperative plan are crucial to optimize outcomes and minimize complications in such cases.

2. **A 23-year-old man with height 175cm, weight 70kg, limping for 20 years, left hip joint pain with limited mobility for 3 years, significant pain during walking, and improvement after rest. The patient sought medical attention from a local hospital and underwent a double hip X-ray examination, which showed that bilateral congenital hip dislocation (CROWE IV) was treated conservatively with medication, and the initial effect was satisfactory. In the past 6 months, patients have consciously experienced worsening pain and claudication in their left hip joint, and the effectiveness of medication treatment has not been satisfactory. Surgical methods and selection of prostheses. What complications need to be noted.**

The 23-year-old male with a history of bilateral congenital hip dislocation (Crowe IV) who has experienced worsening left hip pain and claudication should consider surgical intervention to address his hip pathology. The surgical methods and prosthesis selection depend on the patient's specific condition

and several considerations, including the degree of hip dysplasia, the patient's age, bone quality, and functional goals. Here are some surgical options and potential complications to consider:

Surgical Methods:

1. **Total Hip Arthroplasty (THA):** THA is a common surgical intervention for patients with Crowe IV hip dysplasia. It involves replacing the hip joint with prosthetic components. The specific surgical approach and components may vary:
 - **Surgical Approach:** Depending on the patient's anatomy and surgeon preference, options include posterior, lateral, and anterior approaches. The choice should provide adequate exposure while minimizing damage to muscles and soft tissues.
 - **Implant Type:** Choose prosthetic components suitable for the patient's age, activity level, and anatomy. Options include cemented, cementless, or hybrid implants. Surgeons may use a specially designed acetabular cup to address severe dysplasia.
 - **Leg Length Discrepancy (LLD):** Patients with long-standing hip dysplasia may have significant LLD. Surgeons must plan the procedure carefully to address this issue.
2. **Femoral Shortening Osteotomy:** In cases of severe hip dysplasia with excessive limb length discrepancy, a femoral shortening osteotomy may be performed to equalize limb lengths. This procedure is often combined with THA.

Complications to Note:

1. **Infection:** Postoperative infection is a potential complication. Surgeons take precautions such as prophylactic antibiotics and strict aseptic techniques to minimize this risk.
2. **Dislocation:** Hip dislocation can occur postoperatively, particularly in patients with severe dysplasia. Surgeons may use techniques to enhance joint stability.
3. **Thromboembolism:** Patients undergoing hip surgery are at risk of deep vein thrombosis (DVT) and pulmonary embolism (PE). Prophylactic measures, such as blood thinners, mechanical devices, and early mobilization, are essential to reduce this risk.
4. **Nerve Injury:** Nerve injury, including injury to the sciatic nerve, can occur during surgery. Surgeons must take care to protect nerves and surrounding tissues.
5. **Implant-Related Issues:** Prosthetic complications, such as implant loosening or wear, can arise in the long term. Regular follow-up is essential to monitor implant function.
6. **Leg Length Discrepancy:** Despite surgical efforts to equalize limb lengths, some residual LLD may persist. Orthotic devices or shoe modifications may be required.
7. **Heterotopic Ossification:** The formation of abnormal bone outside the joint can occur postoperatively. Surgeons may prescribe medications to reduce the risk.
8. **Rehabilitation:** Adequate rehabilitation is crucial for a successful outcome. Patients may need physical therapy to regain strength and mobility.

The choice of surgical method and prosthetic components should be discussed between the patient and the orthopedic surgeon, considering the patient's goals and unique anatomical characteristics. It is important to manage the patient's expectations and provide comprehensive pre- and postoperative care to minimize complications and optimize outcomes.

3. A 19-year-old woman developed left knee joint varus deformity 8 years ago without obvious pain or limited mobility. After outpatient physical examination and film review, she plans to be admitted for "left knee joint varus deformity, left proximal tibia, distal femur developmental deformity, hereditary multiple osteochondromatosis." The patient did not experience fever, dizziness, palpitations, chest tightness, or other discomfort during the course of the disease, slept well, had normal bowel movements, and had no significant changes in weight recently. Hereditary multiple osteochondroma, multiple surgical resection of osteochondroma, and denial of hypertension, diabetes, and other diseases. The selection of surgical methods and the reasons for their selection.

The 19-year-old female with a diagnosis of hereditary multiple osteochondromatosis and left knee joint varus deformity has complex orthopedic issues. The surgical approach should aim to correct the varus deformity while addressing the underlying condition. The selection of surgical methods will depend on the extent of the deformity, the patient's age, and individual factors. Here are potential surgical options and the reasons for their selection:

Surgical Methods:

1. **Guided Growth (Hemiepiphysiodesis):** In a young patient with ongoing skeletal growth, guided growth procedures can be considered. This involves temporarily tethering the growth plate (either proximal tibia or distal femur) on the opposite side of the deformity using staples or plates. As the healthy side continues to grow, it gradually corrects the deformity on the affected side. Reasons for selecting this method:

- The patient is young, and her bones are still growing.
- Guided growth is a less invasive option compared to osteotomy.
- It allows for gradual correction and can prevent or minimize future deformities.

2. **Osteotomy:** In cases where the deformity is more severe or when guided growth is not suitable, corrective osteotomy can be performed. An osteotomy involves surgically cutting and realigning the bone. Reasons for selecting this method:

- The deformity is severe and requires immediate correction.
- The patient's growth is complete, and guided growth is not applicable.
- Osteotomy allows for precise correction of angular deformities.

3. **Resection of Osteochondromas:** Given the diagnosis of hereditary multiple osteochondromatosis, it is essential to assess the location and size of osteochondromas that may contribute to the deformity. Surgical resection of problematic osteochondromas may be necessary to relieve impingement or pressure on adjacent structures.

Reasons for Selection:

1. **Age and Growth Potential:** Since the patient is 19 years old and still within the age range for skeletal growth, guided growth procedures may be considered initially to correct the varus deformity gradually.

2. **Hereditary Multiple Osteochondromatosis:** The presence of osteochondromas may contribute to the deformity or limit joint mobility. Surgical resection of problematic osteochondromas should be performed to alleviate these issues.

3. **Individualized Approach:** The choice between guided growth and osteotomy should be tailored to the specific characteristics of the patient's deformity, including its severity, location, and impact on daily life.

4. **Orthopedic Evaluation:** The decision should be made following a comprehensive evaluation by an orthopedic surgeon who specializes in pediatric and adolescent orthopedics and has experience with hereditary multiple osteochondromatosis.

5. **Long-Term Monitoring:** Regardless of the chosen surgical approach, long-term monitoring and follow-up are essential to track the patient's progress, ensure that the correction is maintained, and address any potential complications or new osteochondromas that may develop.

The selection of surgical methods should be made in consultation with the patient, their family, and a specialized orthopedic surgeon. The goal is to achieve optimal correction of the deformity while preserving joint function and minimizing the impact of hereditary multiple osteochondromatosis.

4. A 50-year-old man accidentally slipped while walking 5 days ago and landed directly on the outside of his right thigh. At that time, he felt that his right thigh could not move and the pain was severe. After being sent to a local hospital for treatment by family members and receiving targeted treatment such as tibial tuberosity bone traction and intravenous analgesia, he was transferred to a higher-level hospital for treatment. There is no history of headache, dizziness, coma, vomiting, and nasal and external auditory canal bleeding during the course of the disease; No

history of chest pain, chest tightness, or difficulty breathing; No history of abdominal pain or bloating. Sleep and bowel movements are normal. Thirty years ago, he was diagnosed with mandatory spondylitis and received intermittent medication treatment, but the treatment effect was not satisfactory. Afterwards, he gradually developed spinal deformities and bilateral loss of hip joint mobility; Twenty years ago, bilateral total hip arthroplasty was performed due to bilateral hip ankylosis. The initial effect after the surgery is good, and one can take care of themselves. Five years ago, bilateral hip joint pain gradually began to appear, and claudication worsened year by year. A year ago, he needed to walk with a cane. Selection of surgical methods and prostheses.

The 50-year-old male with a history of ankylosing spondylitis, bilateral hip ankylosis, and a recent right thigh injury has complex orthopedic issues. The selection of surgical methods and prostheses will depend on several factors, including the extent of the right thigh injury, the condition of the hip prostheses, and the patient's overall health. Here are potential surgical options and the reasons for their selection:

Surgical Methods:

1. **Evaluation of Right Thigh Injury:** Before addressing the hip joint, it is essential to evaluate the right thigh injury thoroughly. Imaging studies (e.g., X-rays, MRI) should be performed to assess the extent of the injury, such as fractures or soft tissue damage. The choice of surgical method will depend on the specific findings of the evaluation.
2. **Revision Hip Arthroplasty:** Given the patient's history of bilateral total hip arthroplasty (THA) for hip ankylosis and subsequent hip pain, one consideration is revision hip arthroplasty for both hips to address the worsening hip joint condition. Reasons for selecting this method:
 - Hip pain and claudication have been progressively worsening, impacting the patient's mobility and quality of life.
 - Revision hip arthroplasty can replace the existing prostheses, which may be contributing to the pain and mobility issues.
3. **Right Thigh Injury Management:** The right thigh injury should be managed surgically, if necessary, with a focus on restoring the function of the injured thigh and addressing any fractures or soft-tissue injuries.

Prosthesis Selection:

1. **Choice of Hip Prostheses:** The choice of hip prostheses for revision arthroplasty will depend on the patient's bone quality, the extent of bone loss, and surgeon preference. Options include:
 - Cemented or uncemented prostheses, depending on bone quality and stability.
 - Use of constrained components if there are issues with instability or soft tissue laxity.
 - Modular components to allow for flexibility in addressing bone loss.
2. **Biological Fixation:** Given the history of ankylosing spondylitis, careful consideration should be given to achieving biological fixation of the prostheses. Techniques such as bone grafting or using specialized implants may be needed to achieve optimal fixation in the presence of bone deformities or bone loss.
3. **Multidisciplinary Approach:** The surgical approach should involve a multidisciplinary team, including orthopedic surgeons experienced in revision hip arthroplasty, rheumatologists for managing the ankylosing spondylitis, and physical therapists for postoperative rehabilitation.
4. **Long-Term Monitoring:** After surgery, long-term monitoring and follow-up care are essential to ensure the stability and function of the prostheses and to address any potential complications or recurrence of hip pain.

The selection of surgical methods and prostheses should be made in consultation with the patient, their family, and a specialized orthopedic surgeon experienced in revision hip arthroplasty and the management of ankylosing spondylitis. The goal is to relieve pain, improve hip joint function, and enhance the patient's overall quality of life.

Spine fusion surgery

1. A 37-year-old man was injured in the lower back by a mineral 3 days before admission. The lower back immediately experienced pain, significantly limited mobility, and was not accompanied by numbness and weakness in both lower limbs. He immediately sought medical attention from a local hospital and underwent lumbar CT and X-ray examination, which showed an L2 fracture. Today, to seek a clear diagnosis and treatment, the patient urgently came to our hospital for treatment. After detailed medical history inquiry, physical examination, and self-provided auxiliary examination, the diagnosis was "lumbar spine fracture (L2)." It is recommended that the patient be admitted for surgical treatment, and therefore admitted to the hospital. Recently, the patient has not experienced chills, fever, headache, dizziness, chest tightness, suffocation, nausea, and vomiting. He has a good diet and sleep, normal urination, and poor bowel movements. He had a good physical condition in the past, denied hypertension, diabetes, chronic kidney disease, coronary heart disease and other medical history, denied hepatitis, tuberculosis and other infectious medical history and contact history, denied food and drug allergy history, poisoning history, denied trauma history, denied surgery history. The flat car was pushed into the ward, with limited active lumbar spine movement, kyphosis deformity centered around the waist 2, tenderness and percussion pain of the lumbar spine process (+), bilateral iliopsoas muscle strength of level 4, and other lower limb muscle strength of level 4+. The superficial sensation of the skin in the saddle area and both lower limbs slightly decreased, and the lower limb joint activity was good. Bilateral knee tendon reflex and Achilles tendon reflex (++), bilateral Babinski sign (+). The selection and basis of surgical methods.

The 37-year-old man with an L2 lumbar spine fracture presents with specific clinical findings that warrant surgical intervention. The choice of surgical method will depend on various factors, including the type of fracture, neurological involvement, and the overall health of the patient. Based on the information provided, the following surgical options may be considered:

Surgical Methods:

1. **Posterior Lumbar Fusion (PLF) with Instrumentation:** This surgical method involves stabilizing the fractured vertebra and adjacent levels by using pedicle screws, rods, and bone grafting to promote fusion. The basis for selecting this method includes:

- **Fracture Type:** PLF is suitable for managing unstable fractures, such as burst fractures or fractures with significant kyphosis or angulation, as it provides stability to the spine.
- **Neurological Involvement:** The patient has reported sensory deficits in the saddle area and both lower limbs, which may indicate neurological compression or injury. Surgical decompression and stabilization can address this issue.
- **Kyphosis Deformity:** The presence of a kyphotic deformity centered around L2 indicates the need for realignment and stabilization to restore spinal alignment and prevent further deformity.
- **Spinal Instability:** The limited active lumbar spine movement and tenderness at the lumbar spine process suggest spinal instability, which can be addressed through fusion and instrumentation.

Basis for Surgery Selection:

1. **Neurological Involvement:** The presence of decreased sensation in the saddle area and both lower limbs, along with a positive Babinski sign, suggests neurological compression or injury. Surgical intervention is essential to decompress the spinal cord or nerve roots and prevent further neurological deficits.
2. **Spinal Stability:** The tenderness and percussion pain at the lumbar spine process, along with limited active lumbar spine movement, indicate spinal instability. Surgery is needed to stabilize the spine and prevent further deformity or injury.

3. **Kyphotic Deformity:** The kyphosis deformity centered around the L2 level is an indication for realignment and stabilization through surgical intervention.
4. **Instrumentation and Fusion:** Posterior lumbar fusion with instrumentation is a well-established technique for achieving spinal stability and promoting fusion. It addresses both the instability and the kyphotic deformity.
5. **Multidisciplinary Approach:** The surgical team should collaborate with neurosurgeons or spine surgeons experienced in complex spinal procedures to ensure optimal surgical outcomes.
6. **Postoperative Care:** After surgery, the patient will require close postoperative care, including monitoring for complications, rehabilitation, and physical therapy to regain function and mobility.

The selection of the surgical method is crucial to addressing the patient's fracture, neurological deficits, and spinal instability effectively. The decision should be made in consultation with a specialized spine surgeon after a thorough evaluation of the patient's condition and imaging studies.

2. A 32-year-old woman developed back pain and discomfort without obvious cause 18 months ago, accompanied by nocturnal pain and limited rolling activity, which worsened after activity. Bedrest can be slightly relieved, accompanied by low fever, night sweating, emaciation, and fatigue. She lost about 3 kilograms of weight in 1 year, without radiation pain in both lower limbs, sensory and motor dysfunction in both lower limbs, and no urinary and bowel dysfunction. The patient sought medical attention at a local hospital, The specific diagnosis was unknown and no special treatment was given. Before 6 months, the patient's lower back pain significantly worsened, accompanied by a soft mass of egg size palpable in the left inguinal area, slightly limited movement of the left lower limb, numbness in the left hip, no significant distal numbness in both lower limbs, and no intermittent claudication. The patient did not receive special treatment. A month ago, the patient's above symptoms worsened, so she went to the hospital for treatment. A lumbar X-ray examination revealed tuberculosis of the lumbar vertebrae 3 and 4 with cold abscesses beside the vertebrae. The diagnosis was "lumbar tuberculosis," and oral anti tuberculosis drugs (isoniazid, rifampicin, pyrazinamide) were given for treatment. The patient and their family have come to our outpatient clinic for further treatment, and the outpatient department has admitted her for "lumbar tuberculosis." Previous physical fitness. Deny the history of infectious diseases such as hepatitis, tuberculosis, malaria, hypertension, diabetes, surgery, trauma, blood transfusion, drug, and food allergy. What is the treatment plan for this patient?

The 32-year-old female with a diagnosis of lumbar tuberculosis presents with a complex condition that requires comprehensive treatment. The management of lumbar tuberculosis typically involves a combination of medical treatment, surgical intervention, and rehabilitation. Here is a suggested treatment plan:

1. Anti-Tuberculosis Medication:

- The patient is already receiving isoniazid, rifampicin, and pyrazinamide, which are standard drugs for the treatment of tuberculosis.
- Continue the anti-tuberculosis medications as prescribed by a healthcare provider. The duration of treatment may vary but usually lasts for several months to a year or more.
- Regular monitoring of liver function and other potential side effects of the medications is essential.

2. Surgical Intervention:

- Surgical intervention may be necessary, especially if there are complications such as a cold abscess or neurological deficits.

- Depending on the extent of involvement and complications, surgical options may include:

- **Decompression Surgery:** To remove the infected tissue and relieve pressure on the spinal cord or nerve roots.
- **Spinal Fusion:** In some cases, spinal fusion may be required to stabilize the affected vertebrae.
- **Abscess Drainage:** If there is a large cold abscess, it may need to be drained surgically.

- The timing and type of surgery should be determined by a spine surgeon based on the patient's condition and imaging studies.

3. Pain Management:

- Pain management is essential to improve the patient's quality of life. Provide pain relief medications as needed.

4. Nutritional Support:

- Since the patient has experienced weight loss, emaciation, and fatigue, nutritional support is crucial. A registered dietitian should assess the patient's dietary needs and provide guidance on maintaining a balanced diet.

5. Rehabilitation:

- Physical therapy and rehabilitation are important components of the treatment plan to improve mobility, muscle strength, and function.
- A physical therapist can design an individualized exercise program to address the patient's specific needs.

6. Ongoing Monitoring:

- The patient should be closely monitored during the entire course of treatment. This includes regular follow-up visits to assess the response to treatment, monitor for complications, and adjust the treatment plan as necessary.

7. Family Education:

- Educate the patient and their family about the importance of medication adherence, infection control measures, and the signs and symptoms of tuberculosis.
- Emphasize the need for completing the full course of anti-tuberculosis medication to prevent drug resistance.

8. Infection Control:

- Ensure that infection control measures are in place, especially if there are other individuals living in close proximity to the patient, to prevent the spread of tuberculosis.

9. Psychological Support:

- Provide psychological support to the patient, as a tuberculosis diagnosis can be emotionally challenging.

The treatment plan should be developed and overseen by a multidisciplinary team, including infectious disease specialists, spine surgeons, physical therapists, dietitians, and other healthcare professionals, to address the various aspects of the patient's condition and ensure the best possible outcome.

3. A 51-year-old woman began to experience intermittent claudication 2 years ago without obvious cause. She had pain in the front of her right thigh and needed rest when walking 500 meters. After rest, the pain could be relieved and gradually worsened. Before 2 months, she developed numbness in both lower legs and feet and fatigue in the right lower limb. Conservative treatments such as rest and taking analgesics and anti-inflammatory drugs had poor results. The above symptoms have worsened in the past 10 days. Previous physical fitness; Deny the medical history of "hypertension," "coronary heart disease," "diabetes," etc. Physiological curvature of the spine, tenderness and percussion pain in the spinous process and paravertebral region, bilateral straight leg elevation and strengthening test (-), decreased sensation in both calves and soles, 5-grade muscle strength in both lower limbs, symmetrical and normal reflexes in both knees and

ankles, and negative pathological signs on both sides. VAS score: waist 5 points, legs 5 points; ODI score: 40 points; JOA score: 12 points. Based on imaging and the patient's physical signs, the diagnosis of the patient is lumbar spondylolisthesis. The treatment plan and reasons for the patient's choice.

The 51-year-old female with a diagnosis of lumbar spondylolisthesis and symptoms of intermittent claudication, numbness, and weakness in both lower legs and feet requires appropriate management. The treatment plan aims to address the underlying lumbar spondylolisthesis, relieve symptoms, and improve the patient's quality of life. Here is a suggested treatment plan and the reasons for its selection:

1. Conservative Management (Initial Approach):

- Conservative treatment is often the first step for managing lumbar spondylolisthesis. This includes rest, physical therapy, and medications.
- Physical therapy can help improve core strength, flexibility, and posture, which may alleviate symptoms and stabilize the spine.
- Medications like nonsteroidal anti-inflammatory drugs (NSAIDs) and muscle relaxants may be prescribed to manage pain and muscle spasms.

2. Epidural Steroid Injections:

- If conservative treatments are ineffective, epidural steroid injections may be considered. These injections can provide temporary relief by reducing inflammation and pain around the affected nerve roots.

3. Surgical Intervention (if conservative measures fail):

- Surgical intervention may be necessary if conservative treatments do not adequately address the patient's symptoms or if there is evidence of progressive neurological deficits.
- Surgical options for lumbar spondylolisthesis may include:
 - **Laminectomy:** Removal of the lamina to decompress the spinal canal.
 - **Laminectomy with Fusion:** Involves decompression and fusion of the affected vertebrae to stabilize the spine.
 - **Minimally Invasive Surgery:** Some cases may be suitable for minimally invasive procedures that offer smaller incisions, shorter recovery times, and reduced postoperative pain.

Reasons for Surgical Intervention:

1. **Progressive Neurological Symptoms:** The patient has experienced progressive symptoms, including numbness and weakness in both lower legs and feet. Surgical intervention is indicated when there is evidence of neurological deterioration.
2. **Ineffectiveness of Conservative Treatments:** The patient has not responded well to conservative treatments, including rest and medication, which suggests that surgical intervention may be necessary.
3. **Lumbar Spondylolisthesis:** The diagnosis of lumbar spondylolisthesis, along with the patient's clinical symptoms and imaging findings, supports the need for surgical correction to stabilize the affected vertebrae and alleviate compression of the spinal nerves.
4. **Quality of Life:** The patient's symptoms, including intermittent claudication and difficulty walking, significantly affect her quality of life. Surgery aims to improve her mobility and reduce pain.
5. **Radiographic Evidence:** Imaging studies (e.g., X-rays, MRI) will provide detailed information about the degree of spondylolisthesis, spinal stability, and nerve compression, helping guide the surgical approach.

The choice of surgical procedure should be discussed between the patient and the spine surgeon, taking into account the specific characteristics of the spondylolisthesis and the patient's overall health. The goal is to alleviate symptoms, stabilize the spine, and improve the patient's functional capacity and quality of life.

4. A 47-year-old man developed numbness and weakness in his limbs without obvious cause 2 years ago. Initially, the symptoms were mild, but worsened after exertion. After rest, the patient was relieved. The patient was not taken seriously and there was no further diagnosis and treatment. Over the past 2 years, the symptoms have gradually worsened, and by June, the symptoms have significantly worsened, including unstable walking, feeling of stepping on cotton, difficulty in fine movements of both hands, poor control of holding chopsticks and writing, feeling of chest and abdominal bands, weakness in bowel movements, poor control of urination, and constipation. Since June, the symptoms have not eased and further worsened after conservative treatment such as rest. He came to our outpatient clinic for treatment today. The imaging examination showed: "Cervical degeneration, straightened physiological curvature, cervical 5/6 intervertebral disc protrusion, osteophyte formation, significant compression of the spinal cord, and high signal visible locally on T2 weighted imaging." The outpatient was admitted for "cervical spondylotic myelopathy" and is preparing for surgical treatment. Deny a history of infectious diseases. Denial of surgical history. Deny a history of trauma. Denial of blood transfusion history. Deny any history of food or drug allergies. Functional score: JOA score: 11 points; NDI score: 35.6%. Sphincter: Relaxed anal sphincter. Feeling: Decreased pain and temperature sensation in the radial forearms and lower limbs of both upper and lower limbs, and decreased pain and temperature sensation below the nipple level in the trunk. Muscle tension: Significant increase in limb muscle tension. The treatment plan and reasons for the patient's choice.

The 47-year-old male with a diagnosis of cervical spondylotic myelopathy (CSM) and significant neurological deficits requires timely surgical intervention to prevent further progression of the condition. CSM is a serious spinal disorder characterized by spinal cord compression in the neck region. Here is a suggested treatment plan and the reasons for its selection:

1. Surgical Intervention (High Priority):

- Surgical decompression is the primary treatment for CSM when neurological deficits and spinal cord compression are present.
- Common surgical approaches for CSM include anterior cervical discectomy and fusion (ACDF) or cervical laminectomy with fusion.
- The choice of surgical approach depends on the specific findings on imaging, the location and extent of compression, and the surgeon's assessment of the patient's anatomy.

Reasons for Surgical Intervention:

1. **Progressive Neurological Deficits:** The patient's symptoms have significantly worsened, with numbness, weakness, and loss of fine motor control in the limbs. These neurological deficits are indicative of spinal cord compression and the need for surgical decompression.
2. **Imaging Findings:** Imaging studies have revealed a protruded cervical intervertebral disc, osteophyte formation, and significant compression of the spinal cord. These findings provide clear evidence of the cause of the neurological symptoms and the necessity of surgery.
3. **Functional Impairment:** The patient's quality of life is significantly affected by symptoms such as unstable walking, difficulty with fine movements, and sphincter dysfunction. Surgical intervention aims to alleviate these symptoms and improve function.
4. **Prevention of Further Progression:** Without surgical intervention, CSM can lead to irreversible spinal cord damage and worsened neurological deficits. Surgery is crucial to prevent further deterioration.

2. Postoperative Rehabilitation:

- After surgery, the patient will require postoperative rehabilitation and physical therapy to regain strength, mobility, and fine motor control.
- Physical therapists can design a customized rehabilitation program to address the patient's specific deficits and facilitate recovery.

3. Long-Term Monitoring:

- CSM is a chronic condition, and long-term monitoring is essential to assess the patient's progress, manage postoperative care, and address any potential complications or recurrence of symptoms.

4. Patient Education:

- Educate the patient about the importance of adhering to postoperative instructions, rehabilitation exercises, and follow-up appointments.
- Discuss lifestyle modifications, including posture and ergonomics, to reduce the risk of recurrent symptoms.

5. Pain Management:

- Provide pain management as needed, both before and after surgery, to ensure the patient's comfort.

Surgical decompression offers the best chance of relieving the patient's neurological symptoms and preventing further progression of CSM. The specific surgical approach and details should be discussed between the patient and the spine surgeon, taking into account the patient's unique condition and preferences. The goal is to improve the patient's neurological function and overall quality of life.

ACL surgery

1. A 27-year-old man accidentally fell 2 days ago, causing pain in the left knee joint. There was no coma, abdominal pain, nausea, vomiting, headache, or chest tightness. After the injury, he sought medical attention in our hospital. MRI examination of the left knee joint showed that the anterior cruciate ligament of the left knee joint was damaged; After detailed physical examination and film review, the outpatient physician made a preliminary diagnosis of “anterior cruciate ligament injury of the left knee joint” and he was admitted to our department. The patient is currently in good spirits, normal physical strength, normal appetite, normal sleep, no significant changes in weight, normal bowel movements, and normal urination. Deny any history of infectious diseases such as hepatitis, tuberculosis, malaria, hypertension, surgery, blood transfusion, or drug or food allergies. The patient entered the ward on a flat car, with a slight swelling of the left knee joint and no tension blisters or subcutaneous congestion. The front drawer test was positive, the back drawer test was negative, the internal and external stress tests were negative, the patellar friction test was negative, the left knee joint movement was limited, the hip and ankle joint movement was normal, and the left lower limb sensation and blood circulation were normal. The choice of surgical method and rehabilitation plan for this patient.

The 27-year-old male with a diagnosis of anterior cruciate ligament (ACL) injury of the left knee joint requires surgical intervention and a comprehensive rehabilitation plan to restore knee function and prevent future complications. Here is a suggested treatment plan:

Surgical Method:

The primary treatment for an ACL injury is surgical reconstruction of the torn ligament. The choice of surgical technique and timing may vary based on individual factors and surgeon preference. Common surgical methods include:

1. **Arthroscopic ACL Reconstruction:** This minimally invasive procedure involves using a graft (often from the patient's hamstring tendon, patellar tendon, or a donor tendon) to replace the torn ACL. The surgeon uses an arthroscope for visualization and small incisions.

Reasons for Surgical Intervention:

1. **Positive Drawer Test:** The positive front drawer test indicates ACL instability, which is typically treated with surgical intervention to restore knee stability.
2. **Functional Impairment:** The patient's limited knee movement and swelling suggest impaired knee function, which is best addressed with surgical reconstruction.

Rehabilitation Plan:

Rehabilitation plays a crucial role in the recovery process following ACL reconstruction surgery. The goal is to restore knee strength, stability, and range of motion while reducing the risk of complications. Here is a general outline of a rehabilitation plan:

Immediate Postoperative Phase (Weeks 0-2):

- Controlled weight-bearing with crutches or a brace as recommended by the surgeon.
- Swelling and pain management through ice application and medications as prescribed.
- Gentle range of motion exercises to prevent stiffness.
- Gradual introduction of weight-bearing exercises under the guidance of a physical therapist.

Early Rehabilitation Phase (Weeks 2-6):

- Progressive weight-bearing and walking exercises.
- Strengthening exercises for the quadriceps, hamstrings, and calf muscles.
- Balance and proprioception training to improve knee stability.
- Gait training to normalize walking patterns.

Intermediate Rehabilitation Phase (Weeks 6-12):

- Continued strengthening and neuromuscular training.
- Progressive resistance exercises to regain muscle strength.
- Agility and sport-specific training if the patient participates in athletic activities.
- Return-to-sport assessments and functional testing.

Late Rehabilitation Phase (Months 3 and Beyond):

- Continued strength and stability training.
- Sport-specific drills and exercises.
- Gradual return to sports or physical activities, as guided by the surgeon and physical therapist.
- Maintenance exercises to prevent re-injury and maintain knee health.

Additional Considerations:

- Patient education on proper knee protection and injury prevention techniques.
- Psychological support to address any anxiety or fear of reinjury.
- Regular follow-up appointments with the surgeon and physical therapist to monitor progress and make necessary adjustments to the rehabilitation plan.

The specific details of the rehabilitation plan should be tailored to the patient's individual needs, surgical technique, and any specific goals or activities the patient wishes to return to. Compliance with the rehabilitation program is essential for the best possible outcome, including a successful return to normal knee function and activities.

2. A 21-year-old woman reported that she accidentally sprained her right knee while playing basketball about 2 months ago, causing swelling and pain in her right knee. She presented with persistent stabbing pain, accompanied by poor mobility, and no lower limb edema or numbness. She immediately went to the emergency department of the People's Hospital of Laibin City and underwent an MRI examination of her right knee, indicating "rupture of the anterior cruciate ligament of the right knee." She did not receive treatment. Afterwards, she gradually felt weakness in my right knee and was unable to exercise vigorously. During the activity, there was a bouncing sound in my right knee joint, and her legs softened without any pain or discomfort. She still feels weakness in the right knee joint and cannot exercise vigorously. To seek medical treatment, she came to our outpatient clinic. After reviewing the film, she was diagnosed with "rupture of the anterior cruciate ligament of the right knee" and admitted to the hospital. Since the onset of the disease, the patient has clear consciousness, moderate mental state, normal diet, normal sleep, normal physical strength, and normal bowel movements. She was healthy in the past, denied the medical history of "hypertension," "diabetes," "coronary heart disease," and denied the medical history of "hepatitis," "tuberculosis," "typhoid fever," "dysentery" and other infectious diseases.

No other major trauma or surgical history, no history of blood transfusion, no history of drug or food allergies. The patient has a high demand for exercise, whether they choose autologous or artificial ligaments, and the reasons for their choice.

The 21-year-old female with a diagnosis of a ruptured anterior cruciate ligament (ACL) in the right knee has a strong desire to return to physical activities and exercise. The choice between autologous (using the patient's tissue) or artificial (using synthetic grafts) ACL reconstruction is an important decision, and it depends on several factors. Here are considerations for both options:

1. Autologous ACL Reconstruction:

- **Patellar Tendon Autograft (Bone-Patellar Tendon-Bone, BPTB):**

- This involves using a portion of the patient's patellar tendon to reconstruct the ACL.

- Advantages:

- Strong graft option with good initial stability.
- Reliable and well-established technique.
- Suitable for younger patients with high activity levels.

- Considerations:

- Potential for anterior knee pain or patellar tendon issues.
- Slightly longer recovery time compared to other autograft options.

- **Hamstring Tendon Autograft:**

- In this approach, a portion of the patient's hamstring tendons is used to reconstruct the ACL.

- Advantages:

- Reduced risk of anterior knee pain compared to BPTB graft.
- Good outcomes for return to sports and activities.

- Considerations:

- May have slightly less initial graft strength compared to BPTB.
- Careful rehabilitation is essential to restore hamstring strength.

2. Artificial ACL Reconstruction (Synthetic Graft):

- **Synthetic grafts:** These are made of synthetic materials like polyester or polyethylene.

- Advantages:

- No risk of donor site morbidity (as seen in autografts).
- Immediate availability without the need to harvest tissue from elsewhere in the body.

- Considerations:

- Historically, synthetic grafts have had higher failure rates and complications compared to autografts.
- There may be a higher risk of graft rupture or inflammation.

Reasons for Choosing Autologous or Artificial ACL Reconstruction:

1. **Patient's Activity Level and Goals:** The patient's strong desire for exercise and physical activities is an essential factor. Autologous grafts, especially BPTB or hamstring tendons, tend to be favored for individuals with high activity levels who want to return to sports.

2. **Graft Strength:** Autografts are often chosen for their known strength and durability, making them suitable for athletes who engage in demanding activities.

3. **Risk of Complications:** Autologous grafts may carry a lower risk of complications such as graft rupture, inflammation, or graft rejection compared to synthetic grafts.

4. **Recovery and Rehabilitation:** The choice may also depend on the patient's tolerance for postoperative rehabilitation. Autologous grafts may require slightly longer recovery times and more extensive rehabilitation.

5. **Surgeon's Recommendation:** The patient should consult with an orthopedic surgeon experienced in ACL reconstruction. The surgeon can assess the patient's knee, discuss graft options, and make recommendations based on individual factors.

6. **Patient Preference:** Ultimately, the decision should align with the patient's preferences and values. Some patients prefer autologous grafts for their proven track record, while others may opt for synthetic grafts to avoid potential donor site issues.

It's important for the patient to have a thorough discussion with the orthopedic surgeon to understand the pros and cons of each graft option in the context of their specific situation, activity goals, and lifestyle. The choice should be a collaborative decision that takes into account the patient's individual needs and preferences.

3. A 54-year-old man was accidentally kicked and injured his left knee 5 hours ago. He immediately felt pain and swelling in the left knee joint, which continued to be severe and sharp, unbearable. He attempted to exercise his left knee and the pain intensified. Unable to bear weight on the left lower limb, he was rushed to a local hospital after injury. X-ray examination revealed a torn fracture of the left tibial intercondylar ridge, and he was transferred to our hospital. After the injury, the patient had no nausea or vomiting, no chest tightness, shortness of breath, difficulty breathing, no abdominal pain, or bloating and was in good spirits upon admission. Urine spontaneously resolved, but bowel movements did not resolve. He has a history of "gout" for 2 years. The left knee joint is swollen with no damage to the skin, the tension of the suprapatellar capsule skin is high, and there is widespread tenderness around the knee joint, especially on the outside. The left knee joint has a range of motion of 0 ° -110 °, positive for the floating patella test, tenderness in the inner joint space, tenderness in the outer joint space, negative for the inner and outer stress tests, positive for the front drawer test, negative for the back drawer test, palpable pulsation of the left dorsalis pedis artery, rosy toes, and normal sensation. The selection and reasons for the patient's surgical plan.

The 54-year-old male patient with a torn fracture of the left tibial intercondylar ridge requires surgical intervention to address the injury and stabilize the knee joint. Here is a suggested surgical plan and the reasons for its selection:

Surgical Plan:

- Open reduction and internal fixation (ORIF) of the torn fracture of the left tibial intercondylar ridge.

Reasons for Surgical Intervention:

1. **Nature of the Injury:** The patient's injury involves a torn fracture of the tibial intercondylar ridge, which typically requires surgical intervention for optimal alignment and stabilization of the fractured fragments.
2. **Pain and Swelling:** The severe and sharp pain, along with significant swelling, suggests that the fracture may be displaced or unstable. Surgical reduction and fixation are necessary to alleviate pain and promote proper healing.
3. **Inability to Bear Weight:** The patient's inability to bear weight on the left lower limb indicates a functional impairment of the knee joint, further emphasizing the need for surgical intervention to restore mobility.
4. **Positive Front Drawer Test:** The positive front drawer test suggests anterior cruciate ligament (ACL) instability, which may be associated with the fracture. Surgical repair and stabilization can address both the fracture and any ligamentous injuries.
5. **Tenderness and Swelling:** The widespread tenderness around the knee joint, especially on the outside, indicates significant soft tissue involvement. Surgical intervention can address both bony and soft tissue injuries.

Surgical Technique (ORIF):

- Open reduction and internal fixation (ORIF) involves exposing the fractured area, realigning the fractured bone fragments, and securing them in place with screws, plates, or other fixation devices.

- In this case, the surgeon will focus on reducing the tibial intercondylar ridge fracture and stabilizing it to promote healing.

Postoperative Care:

- After surgery, the patient will require a period of immobilization and non-weight-bearing to allow for proper healing.
- Physical therapy and rehabilitation will be essential to regain range of motion, strength, and functional mobility in the knee joint.

Management of Gout:

- Given the patient's history of gout, it is important to consider the impact of gout on the affected joint. Gout management may include medication to control uric acid levels and dietary modifications to prevent gout attacks.

The specific details of the surgical procedure and postoperative care should be discussed between the patient and the orthopedic surgeon. The goal of surgery is to restore the stability and function of the knee joint, alleviate pain, and promote a successful recovery.

4. A 46-year-old woman suffered from swelling and pain in the right knee joint due to a sprain 1 month ago. At that time, she was treated in an emergency department at a local hospital and was given an X-ray examination of the right knee joint. There were no signs of fracture and no special treatment was given; After resting, the swelling and pain in the patient's right knee joint gradually relieved. Recently, the patient was able to walk on the ground, but the right knee joint showed swelling and pain, as well as joint instability and leg weakness during weight-bearing. The patient and their family members came to our hospital for further treatment and underwent an MRI examination of the right knee joint. The results showed that there was a lack of continuous signal in the anterior cruciate ligament of the right knee joint and uneven signal in the inner and outer meniscus; High signal shadows can be seen in the suprapatellar capsule; The outpatient diagnosis is "anterior cruciate ligament injury and meniscus injury of the right knee joint." It is recommended that the patient be hospitalized for surgical treatment, and the patient and their family agree to be hospitalized for surgical treatment. During the course of the disease, the patient has good mental and appetite. No fever, no palpitations, chest tightness, no coughing or expectoration, normal bowel movements, no significant changes in weight. He was in good health in the past, denied the chronic medical history of "hypertension, heart disease, diabetes, asthma," denied the history of blood transfusion, and denied the history of drug and food allergy. Mild swelling of the right knee joint, tenderness in the tibiofemoral joint space of the right knee, mild tenderness around the patella, right knee joint flexion and extension range of motion: 135 ° -0 ° -0 °, right knee floating patella test (+), patellar grinding test (-), McMurry test (+), front drawer test (+), Lachman test (+), axial displacement test (+), lateral stress test (-), back drawer test (-), normal peripheral blood flow, sensation, and toe movement of the right lower limb. Lyshom scored 47 points. The plan for the patient's meniscus suture and the selection of the type of autologous ligament.

The 46-year-old female patient with a diagnosis of anterior cruciate ligament (ACL) injury and meniscus injury of the right knee joint requires surgical intervention to address both the ACL and meniscus issues. Here is a suggested surgical plan and the selection of the type of autologous ligament for ACL reconstruction:

1. ACL Reconstruction:

- Surgical reconstruction of the torn ACL is the primary treatment to restore stability and function to the knee joint.

Selection of the Type of Autologous Ligament for ACL Reconstruction:

The choice of an autologous (patient's own tissue) ligament for ACL reconstruction depends on various factors, including the patient's age, activity level, surgeon's preference, and the availability of suitable graft options. Common graft choices include:

1. Patellar Tendon Autograft (Bone-Patellar Tendon-Bone, BPTB):
<ul style="list-style-type: none"> • Involves using a portion of the patient's patellar tendon for ACL reconstruction. • Advantages: <ul style="list-style-type: none"> • Provides strong initial graft stability. • Well-established technique with reliable outcomes. • Considerations: <ul style="list-style-type: none"> • Potential for anterior knee pain or patellar tendon issues. • May require a slightly longer recovery period compared to other graft options.
2. Hamstring Tendon Autograft:
<ul style="list-style-type: none"> • In this approach, a portion of the patient's hamstring tendons (semitendinosus and gracilis) is used for ACL reconstruction. • Advantages: <ul style="list-style-type: none"> • Reduced risk of anterior knee pain compared to BPTB graft. • Good outcomes for return to sports and activities. • Considerations: <ul style="list-style-type: none"> • Slightly less initial graft strength compared to BPTB.
Surgical Plan for Meniscus Repair:
<ul style="list-style-type: none"> • If the MRI has indicated meniscus injury, surgical repair or trimming (partial meniscectomy) may be necessary, depending on the extent and type of meniscus damage. The surgical approach will aim to preserve as much of the healthy meniscus tissue as possible.
Postoperative Care:
<ul style="list-style-type: none"> • After surgery, the patient will require a period of immobilization and non-weight-bearing to allow for proper healing of the ACL graft and meniscus repair. • Physical therapy and rehabilitation will be essential to regain range of motion, strength, and functional mobility in the knee joint.
Patient-Specific Considerations:
<ul style="list-style-type: none"> • The choice between BPTB and hamstring tendon autografts should be discussed with the surgeon. Factors such as the patient's activity level, graft preferences, and the surgeon's expertise will guide the decision. • The type and extent of meniscus repair will be determined during surgery based on the actual findings and condition of the meniscus.
Outcome Expectations:
<p>The goal of surgery is to restore knee stability, alleviate pain, and allow for a return to normal activities and sports. The patient should have a thorough discussion with the orthopedic surgeon to understand the specific details of the surgical plan and the expected outcomes.</p> <p>The final decision regarding the choice of graft and surgical approach will be made in consultation with the surgeon, taking into account the patient's unique circumstances and preferences.</p>

Rotator Cuff Injury

1. A 57-year-old woman reported experiencing pain and discomfort in the right shoulder half a year before admission, mainly manifested as pain during lifting and lifting heavy objects, relieved during rest, accompanied by limited mobility, weakness in the right upper limb, no headache, coma, no nausea, vomiting, no obvious chest tightness, palpitations, breathing difficulties, no hemoptysis, no abdominal distension, and abdominal pain. Recently, the right shoulder joint pain has repeatedly occurred. She came to our hospital for treatment today, The patient plans to be admitted to the outpatient department for the treatment of "right shoulder sleeve injury." The appearance of the right shoulder joint is not swollen, and the joint range of motion is 0 to 30 degrees for forward flexion. Abduction is active at 0 to 40 degrees, with pain arcs occurring at 60 to 70 degrees. External and internal rotation are normal, but extension is limited. Neer's sign (+), Hawkins sign (+), Jobe sign (+), positive internal rotation resistance, positive external rotation

resistance test, Sulcus sign (-), and no abnormalities in peripheral sensory motor function. The advantages and disadvantages of mini-open surgery and arthroscopic surgery, as well as the selection and reasons for the patient's surgical method.

The 57-year-old female patient with right shoulder pain and limited mobility presents with symptoms that may be indicative of various shoulder conditions. Two common surgical approaches for shoulder injuries are mini-open surgery and arthroscopic surgery. Here are the advantages and disadvantages of each approach, along with considerations for selecting the surgical method:

Mini Open Surgery:

Advantages:

1. **Direct Visualization:** Mini open surgery allows the surgeon to directly visualize the affected area of the shoulder joint, making it suitable for addressing various shoulder pathologies.
2. **Versatility:** It can be adapted to a wide range of procedures, including rotator cuff repairs, labral repairs, and decompression.
3. **Tactile Feedback:** Surgeons can feel the tissues and structures more directly, which can aid in precise repairs.
4. **Durability:** Mini open repairs tend to have good long-term outcomes and durability.

Disadvantages:

1. **Larger Incision:** Compared to arthroscopic surgery, mini-open surgery typically requires a larger incision, which may result in more visible scarring.
2. **Postoperative Pain:** Patients may experience more postoperative pain due to the larger incision.
3. **Longer Recovery:** The recovery time may be slightly longer compared to arthroscopic surgery.

Arthroscopic Surgery:

Advantages:

1. **Minimally Invasive:** Arthroscopic surgery involves smaller incisions and is generally considered less invasive, resulting in reduced postoperative pain and faster recovery.
2. **Direct Visualization:** Although indirect, the arthroscope provides a clear view of the joint interior, allowing the surgeon to address various pathologies.
3. **Less Scarring:** The smaller incisions result in less visible scarring.
4. **Quicker Recovery:** Patients often experience a quicker recovery and return to daily activities.

Disadvantages:

1. **Limited Scope:** Arthroscopic surgery may not be suitable for all shoulder conditions, particularly complex or extensive cases.
2. **Skill Requirement:** The surgeon needs specialized training in arthroscopic techniques.
3. **Limited Tactile Feedback:** The surgeon may have limited tactile feedback, making some procedures technically challenging.
4. **Potential for Conversion:** In some cases, arthroscopic surgery may need to be converted to open surgery if complications or unexpected findings arise during the procedure.

Selection of Surgical Method:

The choice between mini open surgery and arthroscopic surgery depends on several factors:

1. **Diagnosis:** The specific shoulder condition and the extent of the injury or pathology play a crucial role in determining the surgical approach.
2. **Surgeon's Expertise:** The surgeon's familiarity and skill with both techniques are important. They should choose the method they are most comfortable and experienced with.
3. **Patient Preference:** The patient's preferences regarding scarring, recovery time, and pain tolerance should be considered.

4. **Complexity:** More complex cases may benefit from mini open surgery due to the direct visualization it provides.
5. **Risk Factors:** The patient's overall health and any potential surgical risks or contraindications should be assessed.

Ultimately, the surgeon will assess the patient's condition, consider these factors, and discuss the most appropriate surgical method based on the individual case. The goal is to provide the patient with the best outcome while minimizing surgical risks and discomfort.

2. A 69-year-old woman developed right shoulder joint pain and limited mobility without obvious cause 8 years ago. The pain was obvious during activity and could be relieved after rest. There was no discomfort such as upper limb numbness or fatigue. She has sought medical attention from multiple hospitals and the condition can be alleviated, but it is easy to recur. One day ago, the pain worsened after carrying a heavy object. To seek further treatment, she came to our hospital and is planned to be admitted to the outpatient department for surgical treatment under the condition of "shoulder sleeve injury." The patient's mental state is good after self-injury, Normal diet, sleep, and bowel movements. There is no swelling, deformity, or abnormal protrusion in the local area of the right shoulder joint, and the skin color is normal; Tenderness at the outer edge of the right shoulder peak and the intertubercular sulcus; Active range of motion of the right shoulder joint: forward flexion and upward movement of 20 °, abduction and upward movement of 0 °, lateral external rotation of 10 °, and lateral internal rotation reaching the level of T3 vertebral body. Passive range of motion is not limited; Neer test (+), Hawkins test (+); Jobe test (+), external rotation Lag test (±), Liff off test (±); The Speed test (±) and O'Brien test (±) showed normal blood flow, sensation, and activity in the fingers of the right upper limb. Does the patient have acromion impact and long-head tendinitis of the biceps brachii muscle? What is the treatment plan chosen by the patient?

The 69-year-old female patient with right shoulder joint pain and limited mobility presents with symptoms that may be indicative of several shoulder conditions, including acromion impingement syndrome and long head tendinitis of the biceps brachii muscle. Here is an assessment of her condition and possible treatment options:

Clinical Assessment:

1. **Pain and Limited Mobility:** The patient's description of right shoulder joint pain, especially during activity, and the relief of pain after rest are consistent with symptoms of shoulder impingement syndrome.
2. **Physical Examination:** Positive findings on the Neer and Hawkins tests suggest impingement signs, which may indicate that the rotator cuff tendons are getting pinched within the shoulder joint.
3. **Tenderness:** Tenderness at the outer edge of the right shoulder peak and the intertubercular sulcus could be associated with inflammation or irritation of the structures in that area.

Possible Diagnoses:

1. **Acromion Impingement Syndrome (Subacromial Impingement):** This occurs when the space between the acromion (a bony prominence of the scapula) and the rotator cuff tendons narrows, leading to pinching and irritation of the tendons. This can result in pain, especially during overhead activities.
2. **Long Head Tendinitis of the Biceps Brachii Muscle:** Inflammation of the long head of the biceps tendon can cause pain in the front of the shoulder, especially with certain movements.

Treatment Options: The treatment plan for this patient may include both conservative and surgical approaches, depending on the severity of the condition:

Conservative Treatment:

- **Physical Therapy:** Physical therapy can help improve shoulder strength and flexibility and address any muscle imbalances.
- **Anti-inflammatory Medications:** Non-steroidal anti-inflammatory drugs (NSAIDs) may be prescribed to reduce pain and inflammation.
- **Rest and Activity Modification:** Avoiding activities that exacerbate symptoms and allowing the shoulder to rest can help.
- **Corticosteroid Injections:** In some cases, a corticosteroid injection into the subacromial space may provide temporary relief from inflammation and pain.

Surgical Treatment:

- If conservative measures fail to provide adequate relief, and the patient's condition is affecting their quality of life, surgical intervention may be considered.
- Surgical options may include subacromial decompression to create more space in the subacromial area, repair of any damaged tendons, or biceps tenodesis (removing the long head of the biceps tendon if it is a significant source of pain).

The choice of treatment should be based on a thorough evaluation by an orthopedic specialist, including a detailed physical examination and possibly imaging studies (such as MRI) to assess the extent of the injury. The patient and the surgeon should have a discussion to determine the most appropriate treatment plan based on the diagnosis and the patient's goals and preferences.

It's important to note that while the patient may have clinical signs suggestive of impingement syndrome and biceps tendinitis, a definitive diagnosis and treatment plan should be made by the attending orthopedic specialist following a comprehensive evaluation.