

TOTAL JOINT REPLACEMENT

Joint replacement is indicated for irreversibly damaged joints with loss of function and unremitting pain (e.g., degenerative and rheumatoid arthritis [RA]), selected fractures (e.g., hip/femoral neck), joint instability, and congenital hip disorders. The surgery can be performed on any joint except the spine. Hip and knee replacements are the most common procedures. The prosthesis may be metallic or polyethylene (or a combination) implanted with a methylmethacrylate cement, or it may be a porous, coated implant that encourages bony ingrowth.

CARE SETTING

Inpatient acute surgical unit and subacute or rehabilitation unit.

RELATED CONCERNS

Fractures
Psychosocial aspects of care
Rheumatoid arthritis
Sepsis/septicemia
Surgical intervention
Thrombophlebitis: deep vein thrombosis

Patient Assessment Database

ACTIVITY/REST

May report: History of occupation/participation in sports activities that wears on particular joint
Difficulty walking; stiffness in joints (worse in the morning or after period of inactivity)
Fatigue, generalized and muscle weakness
Inability to participate in occupational/recreational activities at desired level
Interruption of sleep, delayed falling asleep/awakened by pain; does not feel well rested

May exhibit: Decreased ROM and muscle strength/tone

HYGIENE

May report: Difficulty performing ADLs
Use of special equipment/mobility devices
Need for assistance with some/all activities

NEUROSENSORY

May exhibit: Soft tissue swelling, nodules
Muscle spasm, stiffness, deformity
Impaired ROM of affected joints

PAIN/DISCOMFORT

May report: Pain (dull, aching, persistent) in affected joint(s), worsened by movement

SAFETY

May report: Traumatic injury/fractures affecting the joint
Congenital deformities
History of inflammatory, debilitating arthritis (RA or osteoarthritis); aseptic necrosis of the joint head

May exhibit: Distorted joints
Joint/tissue swelling, decreased ROM, changes in gait

TEACHING/LEARNING

May report: Current medication use, e.g., anti-inflammatory, analgesics/narcotics, steroids, hormone replacement therapy (HRT), bone resorption inhibitor (e.g., Fosamax), calcium supplements

Discharge plan considerations: **DRG projected mean length of inpatient stay: 3–5 days (depending on joint replaced)**
 May need assistance with transportation, self-care activities, homemaker/maintenance tasks, possible placement in rehab/extended-care facility for continued rehabilitation/assistance

Refer to section at end of plan for postdischarge considerations.

DIAGNOSTIC STUDIES

X-rays: May reveal destruction of articular cartilage, bony demineralization, fractures, soft-tissue swelling; narrowing of joint space, joint subluxations or deformity.

Bone scan, CT/MRI: Determine extent of degeneration and rule out malignancy.

NURSING PRIORITIES

1. Prevent complications.
2. Promote optimal mobility.
3. Alleviate pain.
4. Provide information about diagnosis, prognosis, and treatment needs.

DISCHARGE GOALS

1. Complications prevented/minimized.
2. Mobility increased.
3. Pain relieved/controlled.
4. Diagnosis, prognosis, and therapeutic regimen understood.
5. Plan in place to meet needs after discharge.

NURSING DIAGNOSIS: Infection, risk for
Risk factors may include
 Inadequate primary defenses (broken skin, exposure of joint)
 Inadequate secondary defenses/immunosuppression (long-term corticosteroid use, cancer)
 Invasive procedures; surgical manipulation; implantation of foreign body
 Decreased mobility
Possibly evidenced by
 [Not applicable; presence of signs and symptoms establishes an *actual* diagnosis.]
DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:
Infection Status (NOC)
 Achieve timely wound healing, be free of purulent drainage or erythema, and be afebrile.

ACTIONS/INTERVENTIONS	RATIONALE
<p>Infection Protection (NIC) Independent Promote good handwashing by staff and patient.</p> <p>Use strict aseptic or clean techniques as indicated to reinforce/change dressings and when handling drains. Instruct patient not to touch/scratch incision.</p>	<p>Reduces risk of cross-contamination.</p> <p>Prevents contamination and risk of wound infection, which could require removal of prosthesis.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p>Infection Protection (NIC)</p>	
<p>Independent</p>	
<p>Maintain patency of drainage devices (e.g., Hemovac/Jackson-Pratt) when present. Note characteristics of wound drainage.</p>	<p>Reduces risk of infection by preventing accumulation of blood and secretions in the joint space (medium for bacterial growth). Purulent, nonserous, odorous drainage is indicative of infection, and continuous drainage from incision may reflect developing skin tract, which can potentiate infectious process.</p>
<p>Assess skin/incision color, temperature, and integrity; note presence of erythema/inflammation, loss of wound approximation.</p>	<p>Provides information about status of healing process and alerts staff to early signs of infection.</p>
<p>Investigate reports of increased incisional pain, changes in characteristics of pain.</p>	<p>Deep, dull, aching pain in operative area may indicate developing infection in joint. <i>Note:</i> Infection is devastating, because joint cannot be saved once infection sets in, and prosthetic loss will occur.</p>
<p>Monitor temperature. Note presence of chills.</p>	<p>Although temperature elevations are common in early postoperative phase, elevations occurring 5 or more days postoperatively and/or presence of chills usually requires intervention to prevent more serious complications, e.g., sepsis, osteomyelitis, tissue necrosis, and prosthetic failure.</p>
<p>Encourage fluid intake, high-protein diet with roughage.</p>	<p>Maintains fluid and nutritional balance to support tissue perfusion and provide nutrients necessary for cellular regeneration and tissue healing.</p>
<p>Collaborative</p>	
<p>Maintain reverse/protective isolation, if appropriate.</p>	<p>May be done initially to reduce contact with sources of possible infection, especially in elderly, immunosuppressed, or diabetic patient.</p>
<p>Administer antibiotics as indicated.</p>	<p>Used prophylactically in the operating room and first 24 hr to prevent infection.</p>

NURSING DIAGNOSIS: Mobility, impaired physical

May be related to

Pain and discomfort, musculoskeletal impairment
Surgery/restrictive therapies

Possibly evidenced by

Reluctance to attempt movement, difficulty purposefully moving within the physical environment
Reports of pain/discomfort on movement
Limited ROM; decreased muscle strength/control

DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:

Mobility Level (NOC)

Maintain position of function, as evidenced by absence of contracture.
Display increased strength and function of affected joint and limb.
Participate in ADLs/rehabilitation program.

ACTIONS/INTERVENTIONS	RATIONALE
Positioning (NIC)	
Independent	
Maintain affected joint in prescribed position and body in alignment when in bed.	Provides for stabilization of prosthesis and reduces risk of injury during recovery from effects of anesthesia.
Medicate before procedures/activities.	Muscle relaxants, narcotics/analgesics decrease pain, reduce muscle tension/spasm, and facilitate participation in therapy.
Turn on unoperated side using adequate number of personnel and maintaining operated extremity in prescribed alignment. Support position with pillows/wedges.	Prevents dislocation of hip prosthesis and prolonged skin/tissue pressure, reducing risk of tissue ischemia/breakdown.
Demonstrate/assist with transfer techniques and use of mobility aids, e.g., trapeze, walker.	Facilitates self-care and patient's independence. Proper transfer techniques prevent shearing abrasions of skin and falls.
Determine upper body strength as appropriate. Involve in exercise program.	Replacement of lower extremity joint requires increased use of upper extremities for transfer activities and use of ambulation devices.
Inspect skin, observe for reddened areas. Keep linens dry and wrinkle-free. Massage skin/bony prominences routinely. Protect operative heel, elevating whole length of leg with pillow and placing heel on water glove if burning sensation reported.	Prevents skin irritation/breakdown.
Exercise Therapy: Joint Mobility (NIC)	
Perform/assist with ROM to unaffected joints.	Patient with degenerative joint disease can quickly lose joint function during periods of restricted activity.

ACTIONS/INTERVENTIONS	RATIONALE
<p>Exercise Therapy: Joint Mobility (NIC)</p> <p>Independent</p> <p>Medicate before procedures/activities.</p> <p>Promote participation in rehabilitative exercise program, e.g.:</p> <p><i>Total hip:</i> Quadriceps and gluteal muscle setting, isometrics, leg lifts, dorsiflexion, plantar flexion of the foot; <i>Total knee:</i> Quadriceps setting, gluteal contraction, flexion/extension exercises, isometrics;</p> <p><i>Other joints:</i> Exercises are individually designed, e.g., toes and knee movements; arm and unaffected fingers (for finger-joint replacement), exercise fingers/wrist of affected arm (for shoulder replacement).</p> <p>Observe appropriate limitations based on specific joint; e.g., avoid marked flexion/rotation of hip and flexion or hyperextension of leg; adhere to weight-bearing restrictions; wear knee immobilizer as indicated.</p> <p>Investigate sudden increase in pain and shortening of limb, as well as changes in skin color, temperature, and sensation.</p> <p>Encourage participation in ADLs.</p> <p>Provide positive reinforcement for efforts.</p>	<p>Muscle relaxants, narcotics/analgesics decrease pain, reduce muscle tension/spasm, and facilitate participation in therapy.</p> <p>Strengthens muscle groups, increasing muscle tone and mass; stimulates circulation; prevents decubitus. Active use of the joint may be painful but will not injure the joint. Continuous passive motion (CPM) exercise may be initiated on the knee joint postoperatively.</p> <p>Meets specific needs of the replaced joint.</p> <p>Joint stress is to be avoided at all times during stabilization period to prevent dislocation of new prosthesis.</p> <p>Indicative of slippage of prosthesis, requiring medical evaluation/intervention.</p> <p>Enhances self-esteem; promotes sense of control and independence.</p> <p>Promotes a positive attitude and encourages involvement in therapy.</p>
<p>Collaborative</p> <p>Consult with physical/occupational therapists and rehabilitation specialist.</p> <p>Provide foam/flotation mattress.</p>	<p>Useful in creating individualized activity/exercise program. Patient may require ongoing assistance with movement, strengthening, and weight-bearing activities, as well as use of adjuncts, e.g., walkers, crutches, canes, elevated toilet seat, pickup sticks, and so on.</p> <p>Reduces skin/tissue pressure; limits feelings of fatigue and general discomfort.</p>

NURSING DIAGNOSIS: Peripheral Neurovascular, risk for dysfunction

Risk factors may include

Orthopedic surgery; mechanical compression (e.g., dressing, brace, cast), vascular obstruction, immobilization

Possibly evidenced by

[Not applicable; presence of signs and symptoms establishes an *actual* diagnosis.]

DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:

Tissue Perfusion: Peripheral (NOC)

Maintain function as evidenced by sensation, movement within normal limits (WNL) for individual situation.

Demonstrate adequate tissue perfusion as evidenced by palpable pulses, brisk capillary refill, skin warm/dry, and normal color.

ACTIONS/INTERVENTIONS	RATIONALE
<p>Circulatory Care: Arterial [or] Venous Insufficiency (NIC)</p> <p>Independent</p> <p>Palpate pulses. Evaluate capillary refill and skin color and temperature. Compare with nonoperated limb.</p> <p>Assess motion and sensation of operated extremity.</p> <p>Test sensation of peroneal nerve by pinch/pinprick in the dorsal web between first and second toe, and assess ability to dorsiflex toes after hip/knee replacement.</p> <p>Monitor vital signs.</p> <p>Monitor amount and characteristics of drainage on dressings/from suction device. Note swelling in operative area.</p>	<p>Diminished/absent pulses, delayed capillary refill time, pallor, blanching, cyanosis, and coldness of skin reflect diminished circulation/perfusion. Comparison with unoperated limb provides clues as to whether neurovascular problem is localized or generalized.</p> <p>Increasing pain, numbness/tingling, inability to perform expected movements (e.g., flex foot) suggest nerve injury, compromised circulation, or dislocation of prosthesis, requiring immediate intervention.</p> <p>Position and length of peroneal nerve increase risk of direct injury or compression by tissue edema/hematoma.</p> <p>Tachycardia and decreasing BP may reflect response to hypovolemia/blood loss or suggest anaphylaxis related to absorption of methylmethacrylate into systemic circulation. <i>Note:</i> This occurs less often because of the advent of prosthetics with a porous layer that fosters ingrowth of bone instead of total reliance on adhesives to internally fix the device.</p> <p>May indicate excessive bleeding/hematoma formation, which can potentiate neurovascular compromise. <i>Note:</i> Drainage following hip replacement may reach 1000 cc in early postoperative period, potentially affecting circulating volume.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p>Circulatory Care: Arterial [or] Venous Insufficiency (NIC)</p> <p>Independent</p> <p>Ensure that stabilizing devices (e.g., abduction pillow, splint device) are in correct position and are not exerting undue pressure on skin and underlying tissue. Avoid use of pillow or knee gatch under knees.</p> <p>Evaluate for calf tenderness, positive Homans' sign, and inflammation.</p> <p>Observe for signs of continued bleeding, oozing from puncture sites/mucous membranes, or ecchymosis following minimal trauma.</p> <p>Observe for restlessness, confusion, sudden chest pain, dyspnea, tachycardia, fever, development of petechiae.</p>	<p>Reduces risk of pressure on underlying nerves or compromised circulation to extremities.</p> <p>Early identification of thrombus development and intervention may prevent embolus formation.</p> <p>Depression of clotting mechanisms/sensitivity to anticoagulants may result in bleeding episodes that can affect red blood cell (RBC) level and circulating volume.</p> <p>Fat emboli can occur (usually in first 72 hr postoperatively) because of surgical trauma and manipulation of bone during implantation of prosthesis.</p>
<p>Collaborative</p> <p>Administer IV fluids, blood/plasma expanders as needed.</p> <p>Monitor laboratory studies, e.g.:</p> <p style="padding-left: 20px;">Hct;</p> <p style="padding-left: 20px;">Coagulation studies.</p> <p>Administer medications as indicated, e.g.: warfarin sodium (Coumadin), heparin, aspirin, low-molecular-weight heparin, e.g., enoxaparin (Lovenox).</p> <p>Apply cold/heat as indicated.</p> <p>Maintain intermittent compression stocking/foot pumps when used.</p> <p>Prepare for surgical procedure as indicated.</p>	<p>Restores circulating volume to maintain perfusion. <i>Note:</i> Drainage collected from operative site during first 6–10 hr following procedure may be reinfused per protocol, reducing need for transfusion from unknown donor.</p> <p>Usually done 24–48 hr postoperatively for evaluation of blood loss, which can be quite large because of high vascularity of surgical site in hip replacement. <i>Note:</i> Monitoring of CBC/repeated count may also be indicated for patients receiving enoxaparin (Lovenox).</p> <p>Evaluates presence/degree of alteration in clotting mechanisms and effects of anticoagulant/antiplatelet agents when used. <i>Note:</i> Not necessary for patients receiving enoxaparin (Lovenox); however, stool occult blood tests may be indicated.</p> <p>Anticoagulants/antiplatelet agents may be used to reduce risk of thrombophlebitis and pulmonary emboli.</p> <p>Ice packs are used initially to limit edema/hematoma formation. Heat may then be used to enhance circulation, facilitating resolution of tissue edema.</p> <p>Promotes venous return and prevents venous stasis, reducing risk of thrombus formation.</p> <p>Evacuation of hematoma or revision of prosthesis may be required to correct compromised circulation.</p>

NURSING DIAGNOSIS: Pain, acute

May be related to

Injuring agents: biological, physical/psychological (e.g., muscle spasms, surgical procedure, preexisting chronic joint diseases, elderly age, anxiety)

Possibly evidenced by

Reports of pain; distraction/guarding behaviors
Narrowed focus/self-focusing
Alteration in muscle tone; autonomic responses

DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:

Pain Level (NOC)

Report pain relieved/controlled.
Appear relaxed, able to rest/sleep appropriately.

Pain Control (NOC)

Demonstrate use of relaxation skills and diversional activities as indicated by individual situation.

ACTIONS/INTERVENTIONS	RATIONALE
<p>Pain Management (NIC)</p> <p>Independent</p> <p>Assess reports of pain, noting intensity (scale of 0–10), duration, and location.</p> <p>Maintain proper position of operated extremity.</p> <p>Provide comfort measures (e.g., frequent repositioning, back rub) and diversional activities. Encourage stress management techniques (e.g., progressive relaxation, guided imagery, visualization, meditation). Provide Therapeutic Touch as appropriate.</p> <p>Medicate on a regular schedule and before activities/procedures.</p> <p>Investigate reports of sudden, severe joint pain with muscle spasms and changes in joint mobility; sudden, severe chest pain with dyspnea and restlessness.</p>	<p>Provides information on which to base and monitor effectiveness of interventions.</p> <p>Reduces muscle spasm and undue tension on new prosthesis and surrounding tissues.</p> <p>Reduces muscle tension, refocuses attention, promotes sense of control, and may enhance coping abilities in the management of discomfort/pain, which can persist for an extended period.</p> <p>Reduces muscle tension; improves comfort, and facilitates participation.</p> <p>Early recognition of developing problems, such as dislocation of prosthesis or pulmonary emboli (blood/fat), provides opportunity for prompt intervention and prevention of more serious complications.</p>
<p>Collaborative</p> <p>Administer narcotics, analgesics, and muscle relaxants as needed. Instruct in/monitor use of PCA/epidural administration.</p>	<p>Relieves surgical pain and reduces muscle tension/spasm, which contributes to overall discomfort. Narcotic infusion (including epidural) may be given during first 24–48 hr, with oral analgesics added to pain management program as patient progresses. <i>Note:</i> Use of ketorolac (Toradol) or other NSAIDs is contraindicated when patient is receiving enoxaparin (Lovenox) therapy.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p>Pain Management (NIC)</p> <p>Independent</p> <p>Apply ice packs as indicated.</p> <p>Initiate/maintain extremity mobilization: e.g., ambulation, physical therapy, exerciser/CPM device.</p>	<p>Promotes vasoconstriction to reduce bleeding/tissue edema in surgical area and lessens perception of discomfort.</p> <p>Increases circulation to affected muscles. Minimizes joint stiffness; relieves muscle spasms related to disuse.</p>

<p>NURSING DIAGNOSIS: Knowledge, deficient [Learning Need] regarding condition, prognosis, treatment, self-care, and discharge needs</p> <p>May be related to</p> <p>Lack of exposure/recall Information misinterpretation</p> <p>Possibly evidenced by</p> <p>Questions/request for information, statement of misconception Inaccurate follow-through of instructions, development of preventable complications</p> <p>DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:</p> <p>Knowledge: Disease Process (NOC)</p> <p>Verbalize understanding of surgical procedure and prognosis. Correctly perform necessary procedures and explain reasons for the actions.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p>Teaching: Disease Process (NIC)</p> <p>Independent</p> <p>Review disease process, surgical procedure, and future expectations.</p> <p>Encourage alternating rest periods with activity.</p> <p>Stress importance of continuing prescribed exercise/rehabilitation program within patient's tolerance: crutch/cane walking, weight-bearing exercises, stationary bicycling, or swimming.</p> <p>Review/instruct in home use of CPM exercise program.</p>	<p>Provides knowledge base from which patient can make informed choices.</p> <p>Conserves energy for healing and prevents undue fatigue, which can increase risk of injury/fall.</p> <p>Increases muscle strength and joint mobility. Most patients will be involved in formal rehabilitation/outpatient home care programs or be followed in extended-care facilities by physical therapists. Muscle aching indicates too much weight bearing or activity, signaling a need to cut back.</p> <p>CPM therapy may be continued for some patients after discharge. <i>Note:</i> CPM therapy is used in only about 50% of patients at this time.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p>Teaching: Disease Process (NIC)</p> <p>Independent</p> <p>Review activity limitations, depending on joint replaced, e.g., for hip/knee—sitting for long periods or in low chair/toilet seat/recliner, jogging, jumping, excessive bending, lifting, twisting or crossing legs.</p> <p>Discuss need for safe environment in home (e.g., removing scatter rugs and unnecessary furniture) and use of assistive devices (e.g., hand rails in tub/toilet, raised toilet seat, cane for long walks).</p> <p>Review/have patient or caregiver demonstrate incisional/wound care.</p> <p>Identify signs/symptoms requiring medical evaluation, e.g., fever/chills, incisional inflammation, unusual wound drainage, pain in calf or upper thigh, or development of “strep” throat/dental infections.</p> <p>Review drug regimen, e.g., anticoagulants or antibiotics for invasive procedures (e.g., tooth extraction).</p> <p>Identify bleeding precautions, (e.g., use of soft toothbrush, electric razor, avoidance of trauma/forceful blowing of nose), and necessity of routine laboratory follow-up.</p> <p>Encourage intake of balanced diet, including roughage and adequate fluids.</p>	<p>Prevents undue stress on implant. Long-term restrictions depend on individual situation/physician protocol.</p> <p>Reduces risk of falls and excessive stress on joints.</p> <p>Promotes independence in self-care, reducing risk of complications.</p> <p>Bacterial infections require prompt treatment to prevent progression to osteomyelitis in the operative area and prosthesis failure, which could occur at any time, even years later.</p> <p>Prophylactic therapy may be necessary for a prolonged period after discharge to limit risk of thromboemboli/infection. Procedures known to cause bacteremia can result in osteomyelitis and prosthesis failure.</p> <p>Reduces risk of therapy-induced bleeding/hemorrhage.</p> <p>Enhances healing and feeling of general well-being. Promotes bowel and bladder function during period of altered activity.</p>

POTENTIAL CONSIDERATIONS following acute hospitalization (dependent on patient’s age, physical condition/presence of complications, personal resources, and life responsibilities)

In addition to considerations in Surgical Intervention plan of care:

Trauma, risk for—balancing difficulties/altered gait, weakness, lack of safety precautions, hazards associated with use of assistive devices.

Self-Care deficit/Home Maintenance, impaired—musculoskeletal impairment, decreased strength/endurance, pain in operative site or other joints.