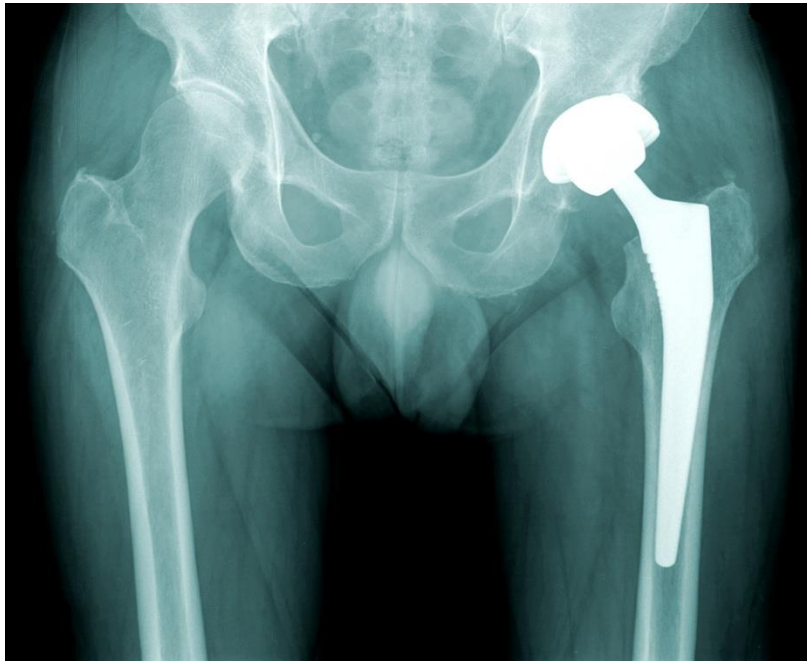
Total joint replacement



Unit: Understanding medical conditions for exercise referral

Total joint replacement

- The surgical replacement of diseased joint surfaces with implants, which restore proper, pain-free function of the joint.
  - also known as joint arthroplasty
  - treatment of painful and disabling joint pathologies
  - implants mimic bone shape
  - can be made of metal, high-density polyethylene or ceramic

- Can be performed on any joints of the body
  - hip, knee, ankle, foot, shoulder, elbow, wrist, and fingers
  - most common are hip and knee

Prevalence

- England and Wales (2009)
  - 65,229 hip replacements
  - 72,980 knee replacements
- Scotland (2009)
  - 7,168 hip replacements
  - 6,884 knee replacements
- The single largest indication recorded for surgery was osteoarthritis
  - recorded in 97% of all primary procedures.
- The average age for hip and knee replacement surgery
  - 66-67 years
  - accounting for 56-57% of procedures

Cost to the nation

- In the UK, estimated costs are:
  - hip replacement between £4,300 to £7,350
  - knee replacement is £5,372

Pathology

- The ends of bone that form a joint are covered with a smooth layer called cartilage.
  - the cartilage becomes damaged or diseased
  - joints become stiff and painful
  - an individual will avoid using the joint (pain)
  - the muscles around the joint weaken
- The most common cause of chronic hip and knee pain and disability:
  - osteoarthritis
  - rheumatoid arthritis
  - traumatic arthritis

Presentation

- **The dominant symptom is pain**
  - predominantly occurs on weight-bearing
  - in developed stages may be constant and unrelieved by rest
  - night pain is a disabling symptom, demanding urgent attention
  - the pain may be localised to one area or many areas
- **Other common symptoms**
  - stiffness
  - swelling
  - locking
  - giving way
- **Some patients report interference with**
  - social interaction
  - sexual function
  - sleep deprivation
  - exhaustion
  - depression

Risk factors

- The risk factors are based on the risk factors for the development of the condition that leads to the joint degeneration.

- The commonest causes are:
  - osteoarthritis
  - rheumatoid arthritis

Part two

ACCEPTED TREATMENTS

Common medications

- Medications prescribed will depend on the underlying condition that led to surgery
  - E.g. osteoarthritis would continue on analgesics and NSAIDs
- Post-operative clients may be prescribed medications that reduce the risk of clots forming, e.g. Warfarin

Lifestyle intervention

- Physiotherapy
- Exercise and physical activity
- Behavioural therapy to address stress, coping strategies and emotional issues)
- Dietary modification
- Occupational health advice

Part three

EXERCISE GUIDELINES AND CONSIDERATIONS

Rationale for exercise

- Following surgery, a return to full function (or improved function) will only occur with a full programme of rehabilitation.

- To ensure long-term success, a prehabilitation (as well as rehabilitation) exercise programme should be developed.

- Generally, a 6-week prehabilitation exercise programme can safely improve pre-operative functional status and muscle strength levels in those undergoing total joint replacement

Exercise recommendations

Mode	FIT principles
Aerobic	• 60-85% MHR. 3-5x/week. 20-40 mins/session • Progression to moderate intensity will assist in improving CV fitness
Resistance	• Begin with gravity/body weight-assisted movements; gradually add resistance as fitness and pain improves • 2-3 reps initially; build up to 12-15 reps. 2-3x/week • Isometric exercise: perform 3-6 sec holds, and repeat 2-3 times for each muscle group, building up to 12 reps. Can be performed daily, or as part of a prescribed exercise programme.
Functional training	• Can be performed individually, or as part of a resistance training programme. 2-3x/week. Consider daily performance of these activities at low frequency
Flexibility	• Performed daily . Stay within pain-free range of motion • Consider performing exercises in the morning when joints are stiffer • Hold stretch statically for 10-30 secs; older clients may benefit from a longer stretch (30-60 secs) if no pain is present • Assisted stretching, or use of a towel if restricted range of motion
Neuromuscular	• 2-3x/week, or incorporated within a general exercise programme • Emphasis on quality of movement

Other considerations

- Low impact activities are first line choices
  - walking and swimming and possibly cycling
- Include proprioceptive exercises
  - to increase joint stability, balance and gait
- Avoid high impact exercise and contact sports
  - these increase the risk of wear and tear & loosening prosthesis
- Give consideration to the range of motion and load bearing on the specific joint
- Resistance bands can be used for initial strengthening exercises

Other considerations

- Any isometric exercises
  - performed at multiple angles to ensure strengthening through full range of motion
- Hip adduction contraindicated for hip replacements
- Hip abduction limited, affecting some activities
  - advisable to avoid breaststroke swimming
- Some exercise positions may be uncomfortable
  - alternatives for kneeling
- Be sensitive to initial fear and cautiousness in the client
- Seated exercise
  - ensure the chair height allows the hips to be positioned higher than the knees

Comorbidities

- Consider
  - Any change in risk stratification?
  - Effects of medications
  - Exercise recommendations for other conditions
  - Further adaptations and modifications?