



HIP JOINT DISEASES: AN OVERVIEW IN PHYSICAL THERAPY PRACTICE

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Abstract:

Hip joint diseases encompass a spectrum of pathological conditions affecting the hip joint, leading to pain, dysfunction, and impaired mobility. This paper provides an in-depth exploration of common hip joint diseases encountered in physical therapy practice, including osteoarthritis, rheumatoid arthritis, avascular necrosis, and developmental dysplasia of the hip. Epidemiology, etiology, clinical manifestations, diagnostic methods, and current management strategies are discussed. The role of physical therapy in the conservative management and rehabilitation of hip joint diseases is highlighted, emphasizing the importance of tailored exercise programs, manual therapy techniques, patient education, and functional training in optimizing patient outcomes and improving quality of life.

Keywords: Hip joint diseases, physical therapy, osteoarthritis, rheumatoid arthritis, avascular necrosis, developmental dysplasia of the hip.

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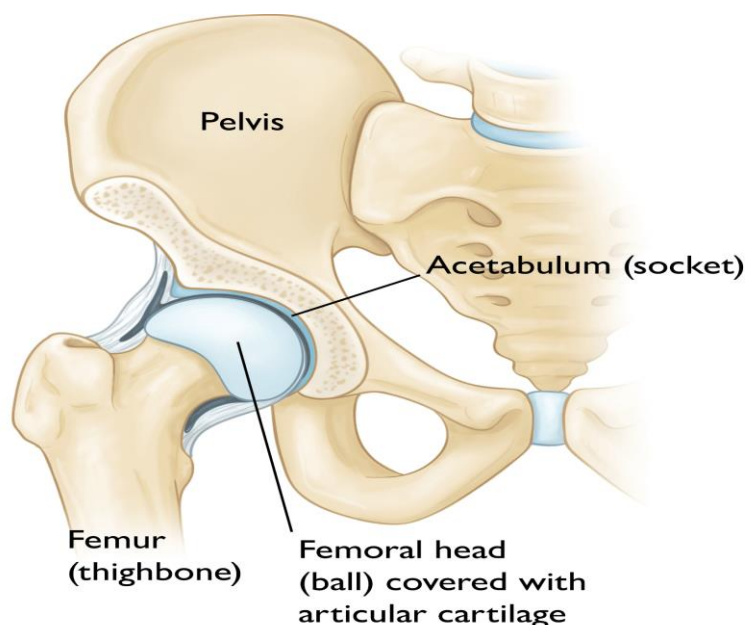
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Introduction:

The hip joint is a complex articulation crucial for weight-bearing activities and functional mobility. Hip joint diseases represent a significant health burden globally, contributing to pain, disability, and impaired quality of life. Physical therapists play a pivotal role in the management of hip joint

diseases, employing a comprehensive approach aimed at reducing pain, restoring function, and enhancing patient well-being. This paper aims to elucidate the epidemiology, pathophysiology, clinical manifestations, diagnostic modalities, and contemporary management strategies of hip joint diseases encountered in physical therapy practice.

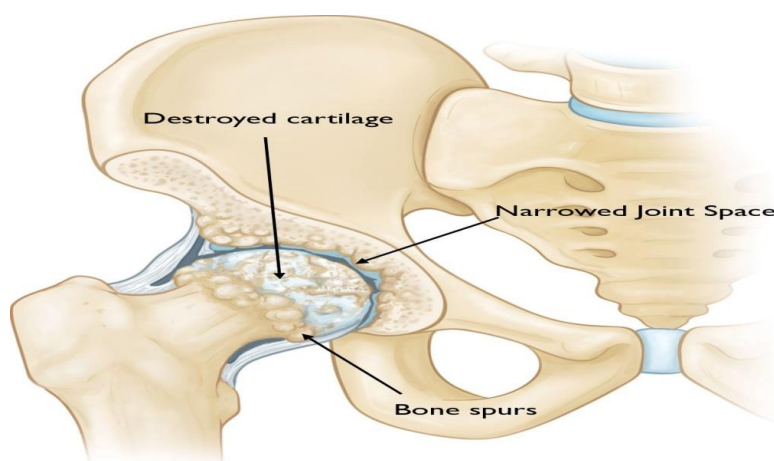


The normal anatomy of the hip

Osteoarthritis of the Hip:

Osteoarthritis (OA) is the most prevalent form of arthritis and a leading cause of hip joint disease, characterized by progressive degeneration of articular cartilage, osteophyte formation, and joint inflammation. Risk factors for hip OA include advanced age, obesity, previous hip injury, and genetic predisposition (Brandt et al., 2006). Clinical manifestations typically include groin pain, limited range of motion, joint stiffness, and functional impairment. Radiographic assessment,

including plain radiography and magnetic resonance imaging (MRI), aids in the diagnosis and severity grading of hip OA (Hunter et al., 2019). Management of hip OA focuses on pain relief, improving joint function, and preserving mobility. Physical therapy interventions such as therapeutic exercise, manual therapy, aquatic therapy, and assistive devices play a crucial role in alleviating symptoms and enhancing patient function (Skou et al., 2018).



A hip damaged by osteoarthritis

Rheumatoid Arthritis of the Hip:

Rheumatoid arthritis (RA) is a systemic autoimmune disorder characterized by chronic inflammation of synovial joints, including the hip, leading to cartilage destruction, joint deformity, and functional impairment. RA predominantly affects the smaller joints but can also involve large weight-bearing joints such as the hip. Genetic predisposition, environmental factors, and aberrant immune responses contribute to the pathogenesis of RA (Smolen et al., 2016). Clinical features of hip RA include pain, swelling, morning stiffness, and reduced joint mobility. Diagnosis relies on clinical assessment, laboratory tests (e.g., rheumatoid factor, anti-cyclic citrullinated peptide antibodies), and imaging studies (e.g., MRI, ultrasound). Physical therapy interventions focus on pain management, joint protection, and preserving functional independence through tailored exercise programs, splinting, and patient education (Stoffer-Marx et al., 2018).

Avascular Necrosis of the Hip:

Avascular necrosis (AVN) of the hip, also known as osteonecrosis, results from impaired blood supply to the femoral head, leading to ischemic bone necrosis, collapse of the articular surface, and secondary osteoarthritis. AVN can arise secondary to trauma, corticosteroid use, alcohol abuse, or systemic diseases such as sickle cell disease and systemic lupus erythematosus (Mont et al., 2016). Clinical manifestations include hip pain, limping, and restricted joint motion. Diagnostic evaluation involves imaging modalities such as plain radiography, MRI, and bone scintigraphy. Physical therapy aims to alleviate pain, preserve joint function, and delay disease progression through weight-bearing modifications, assistive devices, and therapeutic exercises targeting hip musculature (Kubo et al., 2015).

Developmental Dysplasia of the Hip:

Developmental dysplasia of the hip (DDH) encompasses a spectrum of congenital abnormalities affecting the hip joint's development and stability, predisposing to subluxation or dislocation. Risk factors for DDH include breech presentation, female gender, family history, and oligohydramnios (Pavone et al., 2018). Clinical manifestations vary from asymptomatic cases detected during routine examination to hip instability, gait abnormalities, and limb length discrepancy. Diagnostic evaluation includes physical examination maneuvers (e.g., Ortolani and Barlow tests),

ultrasonography, and plain radiography. Physical therapy interventions focus on conservative management in infants (e.g., Pavlik harness) and surgical rehabilitation in older children and adults (e.g., hip arthroplasty) (Novais et al., 2018).

Recommendations

Based on the overview provided, the following recommendations can be made for physical therapy practice in the management of hip joint diseases:

1. Individualized Treatment Plans: Develop tailored treatment plans for each patient, considering their unique clinical presentation, functional goals, and comorbidities. Individualized care enhances patient engagement and improves treatment outcomes.

2. Multimodal Approach: Implement a multimodal approach to treatment, incorporating a combination of therapeutic exercise, manual therapy techniques, modalities (e.g., heat, cold), and assistive devices. Combining different modalities can address various aspects of hip joint diseases and optimize therapeutic effects.

3. Pain Management Strategies: Prioritize pain management strategies to alleviate discomfort and improve patient compliance with rehabilitation programs. Utilize evidence-based techniques such as manual therapy, therapeutic exercise, and patient education on pain coping mechanisms.

4. Patient Education: Empower patients with knowledge about their condition, treatment options, and self-management strategies. Educate patients on joint protection techniques, home exercise programs, and lifestyle modifications to optimize long-term outcomes and prevent disease progression.

5. Functional Rehabilitation: Emphasize functional rehabilitation to enhance patients' ability to perform activities of daily living and participate in meaningful activities. Incorporate functional tasks and mobility training into treatment sessions to improve functional independence and quality of life.

6. Long-Term Management: Implement long-term management strategies to support patients in maintaining gains achieved through rehabilitation. Provide ongoing support, periodic reassessment, and modifications to treatment plans as needed to address changing patient needs and goals.

7. Collaborative Care: Foster collaboration with other healthcare professionals involved in the care of patients with hip joint diseases, including orthopedic surgeons, rheumatologists, and primary care providers. Multidisciplinary collaboration ensures holistic patient care and facilitates seamless transitions between different stages of treatment.

8. Evidence-Based Practice: Stay updated with the latest research evidence and guidelines in the field of physical therapy for hip joint diseases. Continuously evaluate and adjust clinical practice based on emerging evidence to provide high-quality, evidence-based care to patients.

By implementing these recommendations, physical therapists can optimize the management of hip joint diseases, improve patient outcomes, and enhance the overall quality of care delivered to individuals affected by these conditions.

Suggestions

Here are some suggestions for future research and practice in the field of physical therapy for hip joint diseases:

1. Exploration of Novel Therapeutic Modalities: Investigate the efficacy of emerging therapeutic modalities, such as regenerative medicine techniques (e.g., stem cell therapy, platelet-rich plasma injections) and biologics, in the management of hip joint diseases. Research in this area could provide insights into potential novel treatment options for patients with refractory symptoms or advanced disease stages.

2. Long-Term Follow-Up Studies: Conduct longitudinal studies to assess the long-term outcomes and durability of physical therapy interventions in patients with hip joint diseases. Long-term follow-up data can inform clinicians about the sustainability of treatment effects, recurrence rates, and factors influencing treatment success over time.

3. Patient-Centered Outcome Measures: Incorporate patient-reported outcome measures (PROMs) and patient-reported experience measures (PREMs) into clinical practice and research studies to assess the impact of physical therapy interventions on patients' quality of life, satisfaction with care, and functional outcomes. Emphasizing patient-centered outcomes ensures that treatment goals align with patients' priorities and preferences.

4. Adaptive Technology and Tele-Rehabilitation: Explore the use of adaptive technology (e.g., wearable devices, virtual reality) and tele-rehabilitation platforms to deliver physical therapy interventions remotely and facilitate home-based rehabilitation for patients with hip joint diseases. Investigate the feasibility, acceptability, and effectiveness of these innovative approaches in enhancing access to care and promoting patient engagement.

5. Biomechanical Studies: Conduct biomechanical studies to elucidate the mechanisms underlying hip joint diseases and the effects of physical therapy interventions on joint biomechanics, muscle activation patterns, and functional movement patterns. Biomechanical insights can inform the development of targeted rehabilitation protocols tailored to address specific biomechanical impairments associated with different hip pathologies.

6. Health Equity and Access to Care: Investigate disparities in access to physical therapy services among diverse patient populations, including underserved communities, racial and ethnic minorities, and individuals with socioeconomic challenges. Identify barriers to care and develop strategies to promote health equity and ensure equitable access to high-quality rehabilitation services for all patients with hip joint diseases.

7. Interprofessional Education and Collaboration: Foster interprofessional education and collaboration among healthcare providers involved in the care of patients with hip joint diseases, including physical therapists, orthopedic surgeons, rheumatologists, primary care physicians, and allied health professionals. Interprofessional collaboration enhances communication, coordination of care, and shared decision-making, leading to improved patient outcomes and satisfaction.

8. Preventive Strategies: Investigate preventive strategies aimed at reducing the incidence and progression of hip joint diseases, such as targeted exercise programs, lifestyle modifications (e.g., weight management, smoking cessation), and early detection and intervention strategies for high-risk populations. Emphasizing primary prevention measures can mitigate the burden of hip joint diseases on individuals and healthcare systems.

By addressing these areas of research and practice, the field of physical therapy for hip joint

diseases can continue to evolve, innovate, and improve the quality of care provided to patients, ultimately enhancing their functional outcomes and quality of life.

Conclusion:

Hip joint diseases pose significant challenges to patients' functional independence and quality of life, necessitating a multidisciplinary approach for optimal management. Physical therapists play a crucial role in the conservative management and rehabilitation of hip joint diseases, employing evidence-based interventions to alleviate pain, restore function, and enhance patient well-being. Further research is warranted to explore novel therapeutic modalities and improve clinical outcomes in individuals affected by hip joint diseases.

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