

Assignment for Viva (Spring 2020) (DPT 2nd Semester- sec B)

Course Title: Human Anatomy II

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Q1. Why do we study Human Anatomy in Physical Therapy?

Ans Introduction

Anatomy is the oldest known medical science and has an important part in the foundation of health education. It is a known fact that healthcare professionals may require a good knowledge of anatomy to be better in their fields (Ocak & Topal, 2015). Therefore, anatomy is the main course in any Physical Therapy (PT) program's curriculum and there is a close relationship between vocational courses. It supports both understanding these courses and is essential for clinical practice. (I., 2013). In anatomy education, various approaches are valid and anatomy books, cadaver training, computer aided programs, overhead projectors and power point presentations are the widely used methods (Estai & Bunt, 2016). Production and use of knowledge in relation to the continuity of education is a process which is consistently developed and renewed (Khan et al., 2015). In addition, new technologies such as 3D are also used in anatomy education. Contemporary articles discuss new educational techniques and state that anatomy education should be adapted to technology as well (Cornwall & Pollard, 2012; Wilkinson & Barter, 2016). When practical education is in question, the importance of cadaver dissections are underlined (Strkalj, 2016; Leung et al., 2006). This education is extremely important in both medical applications performed on the healthy human body and pathological situations. However, the greatest handicap in both medical faculties and Physiotherapy and Rehabilitation schools is the low number or lack of cadavers. Many graduate students never see a cadaver and receive their practical training on models or only on visuals.

Health professionals need good anatomical knowledge on the functions and structures of the body to be able to perform high quality care and health services. What is more important than having theoretical knowledge is being able to use this knowledge in a suitable manner in numerous occupational practices such as palpation, examination and pathological tissue evaluation. Clinical knowledge of anatomy is learned in a better manner in environments which are related to students' academic and occupational targets .

In this study, the effect of anatomy on occupational education processes and occupational life from the point of view of physiotherapists is being dealt with. It is aimed at identifying the needs/deficiencies of physiotherapists who work in clinics about the quality of the current anatomy education and clinical cases and presenting suggestions of these people on the process of anatomy education.

Q2. What physical therapy treatment should be given to a patient who has limited hip extension?

Ans. Restricted hip mobility has shown strong correlation with various pathologies of the hip, lumbar spine and lower extremity. Restricted mobility can consequently have deleterious effects not only at the involved joint but throughout the entire kinetic chain. Promising findings are suggesting benefit with skilled joint mobilization intervention for clients with various hip pathologies. Supervised home program intervention, while lacking specifically for the hip joint, are demonstrating promising results in other regions of the body. Application of an accompanying home program for the purpose of complementing skilled, in clinic intervention is advisable for those clients that respond favorably to such methodology.

(Problem).

Hip mobility limitations have been suggested to be present in some conditions of the lumbar spine 1–4 as well as in more distal lower extremity pathologies. 5–7 Directly relevant to the hip itself these mobility limitations have been found in clients with osteoarthritis, 8–10 sports related groin pain, 11, 12 and femoroacetabular impingement (FAI) and/or hip labral tear. 10, 13

Lower extremity range-of-motion (ROM) deficits are often noticed in clients with various hip joint pathologies. Clients with FAI and labral tear tend to exhibit reduced hip ROM for flexion, internal rotation, and/or adduction.^{14–18} Athletes with groin pain were also found to have limited hip ROM.^{11,12} Strong predictor variables for the presence of hip osteoarthritis include squatting as an aggravating factor,¹⁹ as well as limited hip internal rotation ROM.^{8,9,19} Additionally, decreased ROM of hip abduction has been suggested to predict the occurrence of future lower extremity injuries.²⁰ Therefore, it is important to minimize the deleterious effects of limited ROM if possible.

Limitations in flexion and internal rotation ROM have been implicated as characteristic of hip pathology.^{14–18} Any sport that requires squatting, pivoting, plant and cut, and similar movements will approximate these positions. Other sport-related activities do not frequently require this combination of movement. Upright running, for example, is such an example and is a particularly important skill requirement of most sports. Limited hip extension flexibility has been proposed as one possible cause of increased anterior pelvic tilt and lumbar lordosis during running.^{21,22} Currently, there are few published investigations regarding limited hip extension in running athletes. Additionally, the literature that is available does not clearly elucidate the reason for this limited hip extension, although it appears that the deficit in extension cannot be explained by muscle tightness alone.²³ Therefore, careful assessment of the lumbar spine, pelvis, and hip should be undertaken in the running athlete lacking this motion in order to most appropriately intervene regarding their limitation(s).

When joint mobility restrictions limiting hip motions are discovered, an appropriate intervention to address these limitations is joint mobilization of the appropriate portions of the joint capsule, most likely the posterior, inferior and lateral portions.^{24,25} Achieving optimal client outcomes can be augmented with self-mobilizations²⁶ and muscle re-education exercises in order to maintain treatment benefit. Furthermore, mobilization and muscle re-education exercises have been suggested as part of a multi-modal approach for hip pathology.^{27–30}

Recent findings are suggestive of abnormal hip joint morphology in young athletes contributing to limited ROM, even those without pathology.^{31–34} The extent that these limitations in ROM are due to radiographic changes is not fully elucidated. Additionally, the extent to which joint ROM and mobility can be improved in a client with radiographic changes is not currently understood. The individual anatomical geometry of the proximal femur and acetabulum only partly influences restricted mobility and function. A hip with an abnormal radiographically illustrated morphology may not be destined for arthritic degeneration.^{35,36} The clinician must consider though whether joint mobilization is an appropriate component of the treatment plan. For the client with bony morphologic changes, mobilizations may be inappropriate. As with all employed interventions, client tolerance and re-assessment to a trial of joint mobilization and muscle re-education intervention is necessary (if it is even appropriate at all). The utilization of skilled joint mobilization interventions supplemented with an appropriately implemented self-mobilization program may be of benefit for the client with mobility deficits.

(Solution)

There are various methods to self-mobilize and/or re-educate hip musculature for the client with either hip intra- or extra-articular pathology. The goal with each of the self-mobilization techniques is to improve capsule and potentially other connective tissue mobility. The goals of the combined techniques (self-mobilization and muscle re-education) are also to improve capsule and connective tissue mobility, as well as improve muscle re-education. Additionally, often with these techniques the recruited muscles can assist with optimizing hip joint movement. In some cases, this improved joint movement may significantly alleviate the athlete or client's symptoms. All of the techniques described in this clinical suggestion may be carried out in a clinical setting as clinician directed multi-

modal treatment including both therapeutic exercise and manual therapy interventions. With proper in-clinic instructions selected clients may be able to enhance their treatment plan by performing a series of selected self-mobilization techniques and end range exercises as part of a home rehabilitation program. These techniques are not, and should not, be employed as an alternative to a skilled intervention applied by a properly trained clinician. They are simply adjuncts to achieving the treatment goals of the clinician and client. Application of these techniques is beneficial after the clinician has performed them directly on the client in the clinic.

The authors have selected a variety of self-hip mobilization techniques for possible integration into a home program. Clinicians should base their prescription of self-hip mobilization based on a thorough clinical evaluation and examination as well as consideration of the client's vocational, avocational, and athletic goals. While there is no direct evidence to support that hip self-mobilizations are effective in their own right, tangential evidence demonstrates that prescriptive, supervised home programs to which the client adheres, result in improved outcomes compared to non-supervised .

Client safety should be kept in mind when prescribing self-hip mobilization techniques. Clinicians should consider the variables of mobilization including: force magnitude, force direction, and duration when sending a client home with a self-mobilization technique. Contraindications to self-hip joint mobilization include but are not limited to a history of fracture, recent surgery, anticoagulation medication, worsening of symptoms, generalized and local ligamentous laxity, and systemic illness. The client must be independent and safe with all of these techniques prior to their utilization.