

**Conclusions.** The proposed formulas represent a simple, applicable and individualized method to calculate the OrF linear length in cases of complete destruction of the IOR and OrF, with accuracy and without the use of expertise material.

#### PEDAGOGICAL MATERIAL CREATED BY AND FOR THE STUDENTS

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**Key words:** education, neuroanatomy, observation, dissection

**Background.** The classic anatomy lessons based on the observation/dissection of cadavers and anatomical pieces do not represent the experience of our students. Especially for head/neck and central nervous system the study is based on books or plastic/wax models. The few dissection sessions are hampered by the high number of students per class and restrictions on contact hours.

**Aim.** In an attempt to improve the quality and quantity of our teaching/learning models in Neuroanatomy, a multidisciplinary team composed of lab technicians, anatomy teachers and students was formed, which has developed several integrated projects. The objective is to promote and foster the research activity for students and simultaneously create pedagogical material for the pre and post-graduate phases.

**Material and Methods.** Between 2013–2018 five projects were developed in order to create anatomical models at the Institute of Anatomy of Lisbon Medical School (FMUL), involving 3–4 pre-graduate students per project. Laboratory techniques such as simple dissection, Klingler's dissection, 2D/3D plastinization, 3D skull and vascular printing, complemented by CT/MRI imaging were developed. The models created are currently in use for Anatomy classes.

**Results and Discussion.** With these integrated projects it was possible to increase and diversify different pedagogical models in Neuroanatomy. It enabled the integration of dozens of students into research work, giving them access to various laboratory, anatomical and imaging techniques.

**Conclusions.** Some of the models can be used in clinical practice, allowing for the planning and training of surgical procedures and also be used for commercialization.

#### RE-DEFINITION OF MINIMAL INVASIVE SURGICAL INCISIONS USED IN ARTHROPLASTIC HIP SURGERY

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**Key words:** hip region, anatomical landmarks, arthroplastic hip surgery

Minimally invasive approaches to the hip show promise for less muscle trauma compared to conventional approaches. However, the surgical incisions used for such approaches are not well defined. Since the surgical window of minimal invasive surgeries are narrow, the risk of damaging the neurovascular structures around the hip is more likely when compared to alternative approaches.

**Aim.** The aim of this presentation is to review the anatomic course of the nerves around the hip region and to define alternative surgical incisions under guidance of standard anatomical landmarks during minimally invasive approaches to the hip to prevent iatrogenic injuries.

**Materials and Methods.** The courses of the superior gluteal nerve (SGN) and inferior gluteal nerve (IGN) and their branches documented on 28 gluteal regions of 14 formalin-fixed cadavers.

**Results and Discussion.** The surgical incisions were suggested by taking the posterior inferior iliac spine, greater trochanter and a line connecting these two points as reference. Based on the results of this review, the safe zone for the SGN and IGN can be suggested to be smaller than previously reported. Use of a minimally invasive direct posterior or lateral approach to this region puts the branches to the gluteus medius at risk. Moreover, a minimally invasive anterolateral approach to the hip may compromise branches to the tensor fasciae latae muscle.

**Conclusions.** Using the surgical incisions defined in this review may decrease surgical morbidity during minimal invasive arthroplastic hip surgery.

#### OLIVE LEAF EXTRACT POLYPHENOLS AND DIABETES MELLITUS

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**Key words:** type 1 diabetes mellitus, olive leaf polyphenols, oleuropein, liver, glutamate

**Background.** Diabetes mellitus (DM) is one of the most common diseases worldwide, affecting 415 million people.

**Aim.** Abnormal glutamate homeostasis may contribute to the pathogenesis of diabetes with its direct