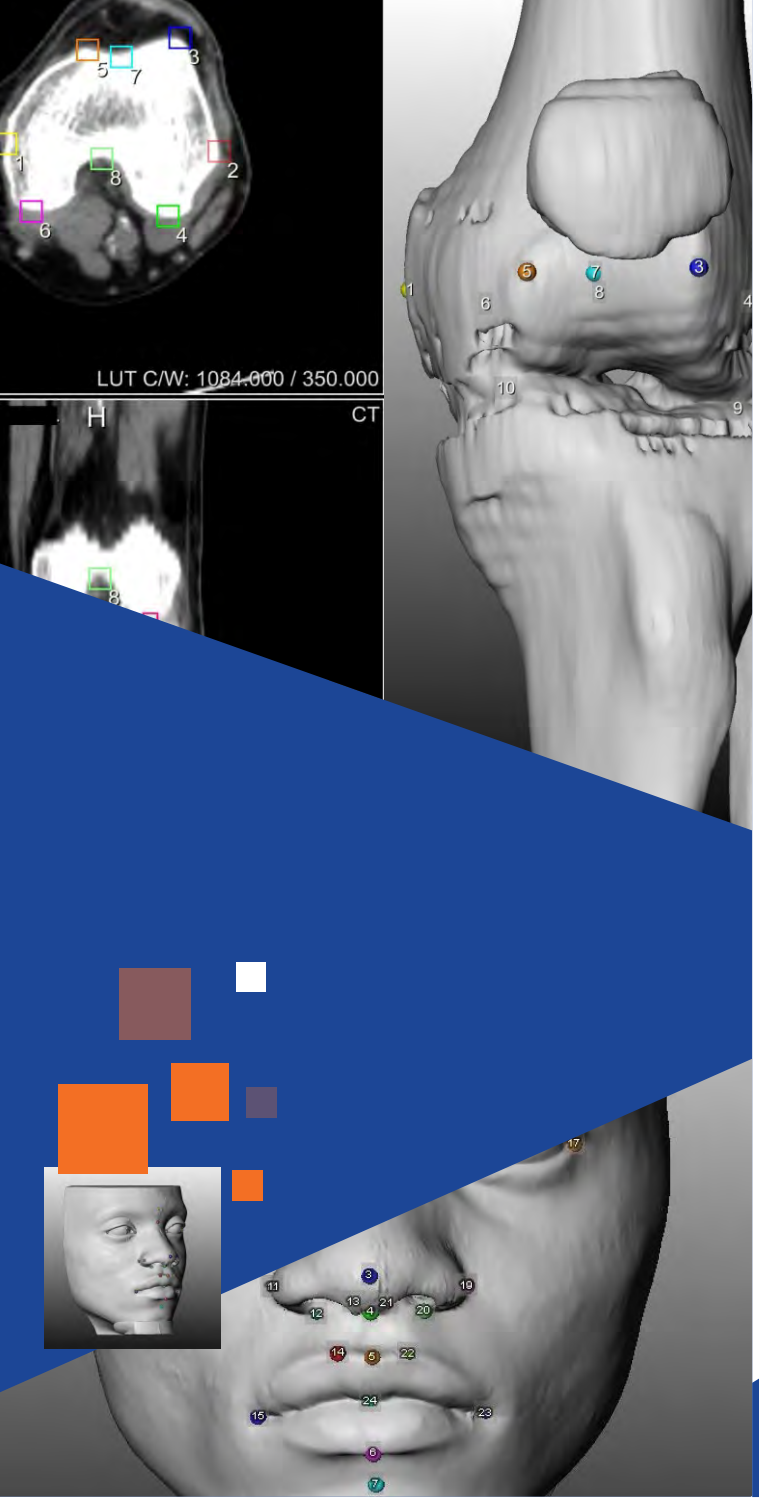

Anatomical Education

Education and research can not be separated. Education at tertiary level is in many ways similar to a research study where the hypothesis will be constructed by the lecturer or team as informed by previous experience or as required by new circumstances e.g. lockdown regulations. The classroom could be considered the laboratory, the learners and techniques the materials and the learning opportunities the methods. The study outcomes and results can be reflected on in the planning of future educational situations.

Here at the Sefako Makgatho Health Sciences University, we consider the educational needs of our students paramount and the reflections of students on teaching and learning are important for us in the design of our instructional sessions. Our studies involve questionnaires and interviews.

Objective:
To deliver quality education to our students

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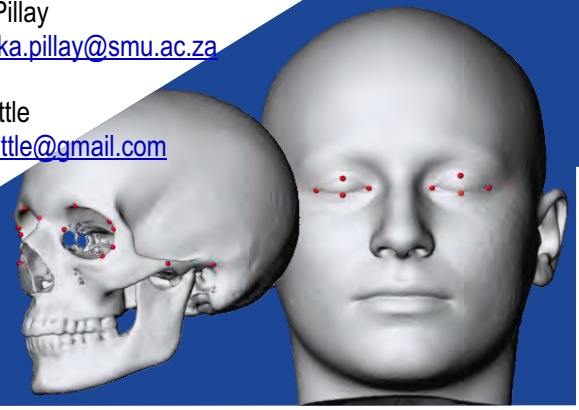

SEFAKO MAKGATHO
HEALTH SCIENCES UNIVERSITY

DEPARTMENT OF ANATOMY
School of Medicine

Dissection, images and educational research

Anatomical research in service of the community supports our mission statements:

- Provide high-quality primary health care-oriented health sciences research, education and services.
- Deploy educational approaches that include evidence-based methods for curriculum development and delivery that are rooted in the community.
- Promote interdisciplinary research, education and skills training that recognise the cross-disciplinary nature of holistic health care provision.
- Produce a cadre of health professionals with the transformative leadership capacity to identify, analyse and address the health needs of the individual, the family, the community and the population.
- Create an environment that supports innovation and harnesses the power of new technologies to address the health needs of the community.

To this end:
In an attempt to find answers for clinicians and forensic scientists, we explore the human body through dissections and images and meet the needs of our students for excellence in teaching by actively engaging them in educational research topics.

Gross Anatomy

Vascular and nervous variations in the South African Population

With the continual drive for the most cost effective and least invasive care which carries minimal risks, new surgical procedures and regional anaesthetic techniques are being developed on a regular basis. Each of these requires detailed anatomical knowledge for the safe and easy performance of procedures and in the case of regional blocks also the effective administration success of each block. Due to the incline of available surgical procedures, there lies a need to compare existing techniques to newer ones in order to differentiate the exact relation to anatomical structures between techniques. Thereby, adding to literature necessary for clinicians, surgeons or anaesthesiologists to evaluate the negative and positive outcomes for each approach, with the patient's safety being the focus. Additionally, since these newer techniques are being applied more to the adult population, research on how to adapt the techniques to a paediatric population while, focusing on their anatomy is necessary.

Arterial, venous and peripheral nervous systems in the body are often noted to be highly variable from those described in the standard anatomy textbooks. There is no consistency in the literature regarding the classification and prevalence of these variant patterns. The anatomical- and physiological differences between an adult- and paediatric population make it inaccurate to extrapolate data from an adult sample to a paediatric population. Moreover, due to the inconsistent growth development from a neonate to an adult, regional blocks will have to be adapted appropriately for each population group. Population differences have been recorded in the literature, but are relatively insufficiently investigated in South African groups.

Objective
To establish prevalent arterial, venous and nervous patterns in the South African Population. Cadavers (fresh and embalmed), ultrasound scans and computed tomography images may be used in these studies

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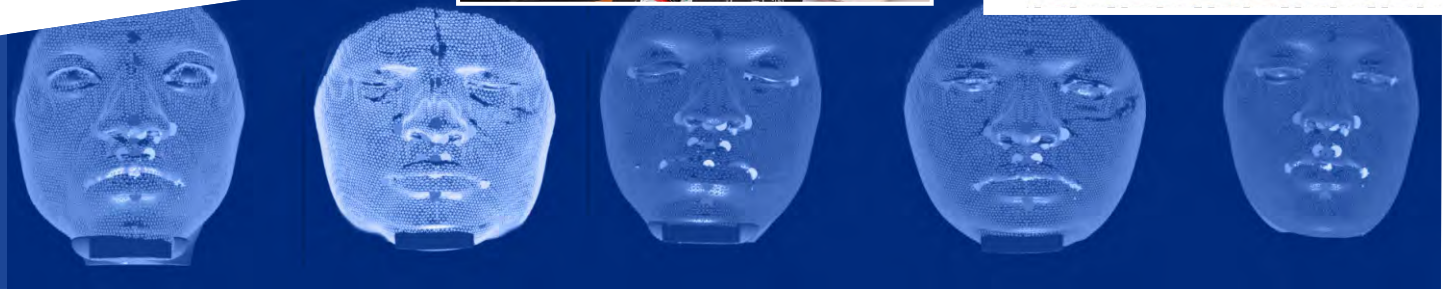

Biological Anthropology

Biological Anthropology includes growth and development, skeletal biology, human biological variation, and forensic anthropology. Linear (2D) measurements and shape (3D) analyses as well as nonmetric analyses are part of the approaches employed in differentiating skeletal materials. Not only conventional radiology, but also more advanced scanning methodologies e.g. computer tomography (CT), cone beam computer tomography (CBCT) and its newer higher resolution successor: micro CT scans are used to study both the macro and microstructure of the skeletal system. Facial approximation techniques may be employed in the identification of unknown individuals and relies on established guidelines or algorithms derived from CBCT for automatic facial approximation. As these guidelines and algorithms were derived on populations beyond our continent, they are not applicable to South Africans and there is therefore a special obligation on us to create them using South Africans as a reference population. In this way, forensic anthropologist could inform and assist the South African Police Service in the identification of missing persons, the first step in the solving of crime towards justice for all. Human biological variation may also have clinical applications as for instance in the birthing process, continence, knee replacement prostheses and several dentistry disciplines e.g. orthodontics and endodontics.

Objective:
To study human structural variations and growth as especially applicable in the field of forensic anthropology to assist the South African Police Service (SAPS) in identifying deceased individuals, mainly decomposed bodies or skeletal remains as well as to inform clinicians.

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