

13<sup>th</sup> International Conference on  
**Arthritis and Rheumatology**

&

3<sup>rd</sup> International Conference on  
**Anatomy and Physiology**

December 9-10, 2019 | Barcelona, Spain



## Scientific Tracks & Abstracts



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## Deformation of red blood cells in accordance with age-related changes

**Ramaz Khetsuriani**

Tbilisi State Medical University, Georgia

The lifespan of red blood cells depends on the age-related changes of the body, and the degree of red blood cell deformity changes accordingly. This is the morphological characteristic of the greatest value: if it wasn't for the deformability, the erythrocyte would not be able to move into a capillary three times lowering diameter.

### The purpose of our research was:

- To determine resistant of erythrocytes from practically healthy volunteers of different age;
- Establishing a correlation between the quality and age of red blood cell deformation.
- The study was conducted in 5 different age groups of both genders. We observed the age of red blood cells in the re-analysis, taking into account the reduction of their number as a result of apoptosis of red blood cells.
- The deformability of erythrocytes was determined with computer filter-photometer method.

The survey showed that in blood of younger volunteers to compare with deformability indicator, in peripheral blood erythrocytes of older people, has demonstrated decreased deformability. Particularly, in 17-25 age group, deformability is  $4,5 \pm 0,3$ , in 25-35 age group  $4,8 \pm 0,4$ , in older age group, this indicator is decreased  $3,0 \pm 0,3$ . This can be caused by changes in membrane lipid-protein composition in erythrocytes of older people.

It has also been shown that the lifespan of red blood cells increases with increasing age of the body. Therefore, a decrease in its deformation indicates that this function is difficult to perform and it is undergoing apoptosis.

### Biography

Ramaz Khetsuriani, from Tbilisi State Medical University, is a Full time Professor – Head of Department of Normal Anatomy. He has 34 years of experience in the field of anatomy. He worked as an Assistant Professor, Department Head, Vice Rector of Internal Medicine and Clinical Practice fields in the Department of Normal Anatomy in Tbilisi State Medical University.

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## Learning methods and strategies of anatomy among medical students by using mobile apps

**Nasir Mustafa**

Istanbul Gelisim University, Turkey

In the modern era smart phone apps decreased face to face teaching time may lead to students making greater use of mobile apps technologies in their learning. Smartphone apps technologies offer new opportunities to improve anatomy learning. This study examined the effect of using mobile apps. This is the first study to report on the learning methods and strategies of anatomy among medical students by using mobile apps and to ascertain if a relationship exists between preferred learning styles as determined by the validated VARK questionnaire and use of mobile anatomy apps. The majority of the students who completed the VARK questionnaire were multimodal learners with kinesthetic and visual preferences. Seventy-five percent of students owned one or more mobile anatomy apps which were used. Most of these students spent less than 30 minutes per week using them. Top ten mobile anatomy apps owned and recommended by the students were developed by 3D4Medical. Visual learning preferences were not associated with time spent using mobile anatomy.

**Conclusion:** This study explore that the use of mobile learning app influenced students' academic performance and boosted their engagement in the subject. This study evaluated the effectiveness of a mobile app as a learning tool. Created to better engage students in lecture content, the app was used to deliver multiple-choice content-based quizzes directly to students' personal mobile devices post-lecture and pre-tutorial. This study evaluated the effectiveness of a mobile app as a learning tool.



### Biography

Nasir is an innovative and knowledgeable professional who has 14 years' medical college teaching experience. He is a versatile, positive, and self-motivated team player who is resulting driven. He is specialized in teaching with excellent and proven computer skills. Dr. Nasir has his expertise in Research and passion in improving the health and wellbeing. He has exceptional communication skills and able to strike an appropriate balance between time lines and challenging deadlines.

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## Relationship of vertebral artery with atlas and axis vertebrae: A cadaveric study

**Rashmi Malhotra**

AllMS, India

**Aim:** To study anatomy of vertebral artery in relation to atlas and axis, to provide data, helpful in preventing vertebral artery injuries during crania-vertebral surgeries.

**Background:** With the advent of pedicle screws and other advanced instrumentation, fixation and stabilization of cervical vertebra is possible. However, proximity of vertebral artery poses a unique challenge to surgeons performing these procedures. Vascular complications due to misplaced C1-C2 trans-articular screw, C1 lateral mass and cervical pedicle screw, can result in profound and permanent physical impairment to patients undergoing spinal fusion and instrumentation. Vertebral artery injury can occur during anterior or posterior instrumentation. Anatomical variations in course of vertebral artery are being extensively studied with CT and MR Angiography, but cadaveric studies on vertebral artery, its variations and relation to cervical vertebrae in Indian population are lacking.

**Material and methods:** The study was carried out in ten cadavers at dissection hall of Anatomy department, AllMS Rishikesh. The course of vertebral artery on its exit from C3 vertebra to foramen magnum was studied. Measurements of vertebral artery related to vertical segment, horizontal segment, distance from midline and from third cervical vertebra were taken. Position and relations of vertebral artery in foramen transversarium and vertebral artery groove were also recorded. All linear and angular measurements were done with help of digital callipers and goniometer respectively.

**Results:** Results of the study will be discussed in detail during the scientific session.

### Biography

Rashmi Malhotra has 12+ years of teaching experience in the department of anatomy, she is an Associate Professor in the department of anatomy in AllMS, Rishikesh for past 8 years, she worked as a Senior Lecturer in the department of anatomy from 2007-2009 in Kalka Dental College, Meerut, and as a Lecturer in the field of anatomy in LLRM Medical College, Meerut for 3 years.

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**Morphology and distribution of the thoracic spinal nerves in the African giant rat  
(*Cricetomys gambianus*)**

**Sunday Maidawa**

Ahmadu Bello University, Nigeria

This study was carried out to provide detailed description of the morphology of the thoracic spinal nerves and their distribution to the skeletal muscles of the AGR. Six (6) adult rats of both sexes were euthanized using halothane inhalant anesthetic by the application of the open – drop method. The rats were fixed in 10% formalin and skin and muscles were dissected and the vertebral column was opened by laminectomy and removal of osseous pedicle enclosing the spinal cord using a bone cutter and rongeur. The AGR has 12 thoracic spinal nerves. The dorsal primary branches of the thoracic spinal nerves divided into medial and lateral branches. The medial branches supplied branches to the thoracic erector spinae muscles while the lateral branches supplied several layers of muscles on the dorsolateral aspect of the thorax and reached the skin subcutaneously as the lateral cutaneous nerves. The ventral primary branches of the thoracic (intercostal) nerves passed distally along the caudal border of the ribs covered medially by pleura. Each intercostal nerve detached muscular branches and a cutaneous branch which supplied branches to the muscles of the lateral thoracic wall. The lateral branch detached about the middle of the lateral thoracic wall divided into the middle muscular branch and the lateral cutaneous branches. The former supplied fibers to the thoracic part of the abdominal muscles and the latter supplied the superficial fascia on the ventrolateral aspect of the thorax and the cutaneous trunci. The cranial series of intercostal nerves at their distal ends supplied fibers to the transvesus and rectus thoracis. The distal ends of the caudal series formed a trunk that terminated in the cranial part of the rectus abdominis. The thoracic spinal nerves are distributed to the muscles of the trunk of the AGR.

**Biography**

S M Maidawa is lecturer of Veterinary Anatomy at the Faculty of Veterinary Medicine, Ahmadu Bello University, Zaria, Nigeria. He has taught Anatomy since 2005 and is actively involved in research.

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## Post-operative blood tests in trauma & orthopaedic surgery – Is there a scope for efficacy savings?

**Louai Abdeh**

Manchester Royal Infirmary, UK

**Background:** Similar to many healthcare systems worldwide, the UK's National Health Service (NHS) is under increasing financial pressures owing to many factors including an ageing population and increased treatment costs. As medical professionals we have a responsibility to identify and reduce the waste of resources within our practice. We have set up a study to identify the possible financial savings that can be achieved by eliminating unnecessary post-operative blood tests in our unit.

**Aim:** Identify possible savings that can be achieved by educating staff and eliminating unnecessary post-operative blood tests for patients undergoing orthopaedic surgery at Manchester Royal Infirmary & Trafford General Hospital.

**Methods:** A retrospective study was conducted to identify the cost of unnecessary post-operative blood tests for 100 patients who underwent trauma or elective orthopaedic surgery at both hospital sites. The patients' notes were reviewed to identify: 1) The operations undertaken 2) Blood tests which were done up to 5 days post-operatively 3) Whether there was a clinical indication for the blood tests.

**Results:** A possible saving of over £1500 was identified, with over 300 blood tests being identified as unnecessary for the patients included in the study. An estimated 80% of these blood tests were carried out at Manchester Royal Infirmary where majority of patients underwent trauma rather than elective surgery. CRP, Liver Function Tests, Bone profile and Coagulation screen were the most commonly ordered unnecessary blood tests.

**Conclusion:** Significant financial savings can be achieved through appropriate education of medical and nursing staff to eliminate or reduce the practice of performing unnecessary post-op blood tests. This study therefore recommends the introduction of a post-op blood protocol followed by comprehensive staff training in order to reverse the culture of performing unnecessary tests on patients undergoing orthopaedic surgery.

### Biography

Louai Abdeh is a Trauma & Orthopedics Core Surgical Trainee at the Manchester Royal Infirmary. As a medical student and junior doctor, he has taken an active role in many clinical governance and research projects, and he has presented at a number of conferences including the ASiT International Conference 2018, Barts and London National Undergraduate Surgical Conference and Warwick Undergraduate Regional Medical Conference. He has also completed a Master of Research in Tissue Engineering for Regenerative Medicine, and he received a distinction grade for his dissertation "The Role of Macrophages and Mast Cells in Fibroblast to Myofibroblast Differentiation- An insight into the Relationship between Inflammatory Cells and Fibrosis".

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## **Fracture clinic and x-ray follow up of non-operatively managed distal radius fractures – Are we requesting too many?**

**Louai Abdeh**

Manchester Royal Infirmary, UK

**Introduction:** Distal radius fractures (DRFs) are the most common fractures seen in adults. Strong literature evidence suggests that non-operative management of DRFs is an appropriate and efficient treatment option. However, practice varies considerably with regards to the frequency of patient follow up and repeat x-rays in clinic.

**Methods:** A retrospective audit was conducted to evaluate our trust's compliance with the management guidelines for conservatively managed DRFs. The guidelines used were those of the British Orthopaedic Association and BSSH's published Best Practice for Management of DRFs. After making recommendations for change, a re-audit was undertaken to evaluate whether improvements had been made to our practice, specifically with regards to the frequency of clinic follow-up and repeat x-rays in clinic.

**Results:** Each audit cycle evaluated data from 38 adult patients. In the initial audit, 50% of patients were followed >3 times in clinic, whilst 48% had >3 x-ray episodes including the initial ED images. In comparison, the repeat audit showed that only 27% of patients were seen >3 times in clinic, whilst only 26% of them >3 episodes of x-ray.

Furthermore, the initial audit showed that 58% of patients had an x-ray on removal of plaster while following our recommendations only 7% did. In the initial audit, only one case required change of fracture management from conservative to surgical treatment compared to none in the repeat audit.

**Conclusion:** Fracture clinic follow up and x-rays can be tailored according to patients' needs. It is recommended that patients with stable fractures, not requiring manipulation in ED, do not require repeat x-rays unless there is high suspicion regarding possible fracture displacement or collapse. Fractures manipulated in ED will need a repeat x-ray 1-2 weeks later to ensure an adequate position is maintained. There is no role for an x-ray upon removal of the plaster unless there is clinical concern.

### **Biography**

Louai Abdeh is a Trauma & Orthopedics Core Surgical Trainee at the Manchester Royal Infirmary. As a medical student and junior doctor, he have taken an active role in many clinical governance and research projects, and he had presented at a number of conferences including the ASiT International Conference 2018, Barts and London National Undergraduate Surgical Conference and Warwick Undergraduate Regional Medical Conference. He have also completed a Master of Research in Tissue Engineering for Regenerative Medicine, and he received a distinction grade for my dissertation "The Role of Macrophages and Mast Cells in Fibroblast to Myofibroblast Differentiation- An insight into the Relationship between Inflammatory Cells and Fibrosis".

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**Does unicompartmental knee arthroplasty have worse outcomes in spontaneous osteonecrosis of the knee than in medial compartment osteoarthritis? A systematic review and meta-analysis**

**Chan Yoon**

Seoul BumIn Hospital, South Korea

**Introduction:** The role of Unicompartmental knee arthroplasty (UKA) in spontaneous osteonecrosis of the knee (SONK) remains controversial, even though SONK involves only one compartment of the knee joint. We aimed to compare the survival rate and clinical outcomes of UKA in SONK and medial compartment osteoarthritis (MOA) via a meta-analysis of previous studies.

**Materials and Methods:** MEDLINE, Embase, and Cochrane Library were searched up to January 2018 with keywords related to SONK and knee arthroplasty. Studies were selected with predetermined inclusion criteria: (1) medial UKA as the primary procedure, (2) reporting implant survival or clinical outcomes of osteonecrosis and osteoarthritis, and (3) follow-up period > 1 year. Quality assessment was performed using the risk of bias assessment tool for non-randomized studies. A random-effects model was used to estimate the pooled relative risk (RR) and standardized mean difference.

**Results:** The incidence of UKA revision for any reason was significantly higher in SONK than in MOA group (pooled RR = 1.83, p = 0.009). However, the risk of revision due to aseptic loosening was not significantly different between the groups (Figure 1). Moreover, when stratified by the study quality, high quality studies showed similar risk of overall revision in SONK and MOA (p = 0.71). Subgroup analysis revealed no significant difference in failure between SONK and MOA after cemented mobile and fixed bearing UKA. Results of uncemented UKA was reported only in one study, which showed higher failure of SONK compared to MOA. Clinical outcomes after UKA were similar between SONK and MOA (p = 0.66).

**Conclusions:** Cemented UKA has similar survival and clinical outcomes in SONK and MOA. Prospective studies designed specifically to compare the UKA outcomes in SONK and MOA are necessary.

**Biography**

Chan Yoon has his expertise in knee arthroplasty and arthroscopy. He has finished residency at Seoul National University Hospital, department of orthopaedic surgery, and specialized in knee arthroplasty and arthroscopy during his fellowship at Seoul Metropolitan Government Boramae Medical Center. He is currently working as an orthopaedic surgical staff at Seoul BumIn Hospital. He has special interest in total and partial knee arthroplasty.

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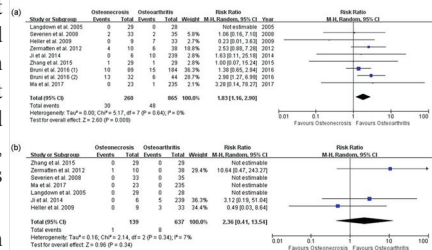


Figure 1: Meta-analysis of the results of unicompartmental knee arthroplasty in spontaneous osteonecrosis of the knee and in medial compartment osteoarthritis (a) Revision for any reason; (b) Revision due to aseptic loosening

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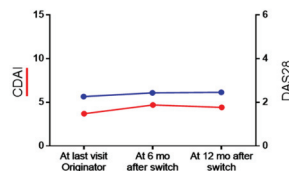
## Switching from reference to biosimilar rituximab in rheumatoid arthritis patients: Experience from a single rheumatology centre

**Renna Daniela**  
University of Bari, Italy

**Statement of the problem:** Clinical and real-world data on the effects of switching are currently limited to transition studies of approved biosimilars. Few data have been published about the outcome of switching from reference to biosimilar rituximab in rheumatoid arthritis (RA) and this monocentric study aimed to evaluate the effectiveness and safety of this switching.

**Material and methods:** we evaluated RA patients who consented to switch to biosimilar RTX with a 52-weeks follow-up. Clinical and laboratory findings, DAS28, CDAI and SDAI, as well as any adverse events (AEs) have been recorded, before the first dose and 6 and 12 months after the switch. Results: a total of 62 RA patients consented to switch after a median (IQR) of 12 (6-14) cycles of reference RTX. At last follow-up visit of reference RTX a mean of  $2,2 \pm 1,0$ ,  $3,7 \pm 4,3$  and  $4,2 \pm 4,4$  of DAS28, CDAI and SDAI, respectively, were observed. After switching to biosimilar RTX no statistically significant changes in DAS28, CDAI and SDAI were observed. At 12months after switching to biosimilar RTX, 50 (81%), 54 (87%) and 56 (90%) patients were still on remission/low-disease activity according to DAS28, CDAI and SDAI, respectively ( $p > 0,05$ ). In biosimilar RTX we registered 3 cases of leukopenia, 9 infections and 5 hospitalizations. All cases were resolved after RTX suspension and specific antibiotic treatment. These AEs occurred after a global exposure to 11 (4-11) cycles of RTX in biosimilar RTX. Similar conditions have been already observed during treatment with reference RTX (3 leukopenia; 15 infections; 3 hospitalizations) after 8 (5-12) cycles.

**Conclusion:** our study demonstrates the maintenance of effectiveness of biosimilar after switching from reference RTX. On safety concerns are more relevant the cumulative and repeated administrations of RTX rather than the use of the biosimilar.



### Biography

Daniela Renna graduated in December 2016 in Medicine and Surgery magna cum laude at the University of Bari. She is a Rheumatology resident in Bari University, currently working at the Rheumatology Unit of Bari's Policlinico. She spent her first year of residency at the Rheumatology ward; she's currently attending her second year of residency at the outpatient clinic "pre-infusional visits"; she manages follow-up visits of patients with RA, SpA and other rheumatic diseases in treatment with i.v. biological therapies (Tocilizumab, Abatacept, Infliximab, Rituximab).

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**Bone mineral density around the knee joint: Correlation with central bone mineral density and associated factors**

**Chan Yoon**

Seoul BumIn Hospital, South Korea

**Introduction:** The aims of this study were to 1) assess the bone mineral density (BMD) around the knee joint, 2) determine the correlation between central and knee BMDs, and 3) investigate the factors associated with BMD around the knee joint in patients with knee osteoarthritis (OA).

**Methodology:** This cross-sectional study included 122 patients who underwent total knee arthroplasty (TKA). Central and knee dual-energy X-ray absorptiometry (Fig. 1) was performed preoperatively. BMD at six regions of interest (ROIs) around the knee joint were measured (Fig. 2), and their correlations with central BMD were determined using Spearman's correlation analysis. Lower limb alignment, severity of OA, body mass index (BMI), preoperative functional and pain scores were assessed to elucidate the factors associated with knee BMD using linear regression analysis.

**Results:** Around the knee joint, BMD was the lowest at the distal femoral metaphysis and lateral tibial condyle. Knee BMD was significantly correlated with central BMD (Table). However, the correlation coefficients varied by the ROI. Additionally, multivariate analysis revealed different associations with respect to the regions around the knee joint. Varus alignment of the lower limb was associated with increased BMD of the medial condyles and decreased BMD of lateral condyles. High grade OA was a protective factor; it was associated with increased BMD at the lateral condyles of the femur and tibia. Higher BMI was an independent protective factor in all ROIs around the knee joint except the lateral femoral condyles. Lower functional level was not associated with decreased BMD, whereas a higher pain score was significantly associated with lower BMD at the proximal tibial metaphysis.

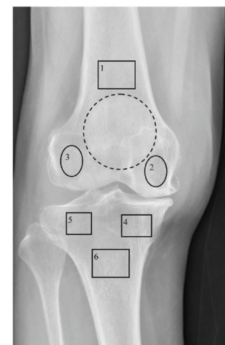
**Conclusions:** Knee BMD was significantly correlated with central BMD. However, the correlations varied with the regions around the knee joint probably due to their independent association with the alignment of the lower limb, severity of OA, BMI, and preoperative pain level.

Correlation Coefficient Between Bone Mineral Density of Proximal Femur and Bone Mineral Density Around the Knee Joint

Region of interest	Proximal femur		
	Neck	Trochanter	Shaft
Distal femoral metaphysis	0.579*	0.591*	0.533*
Medial femoral condyle	0.340*	0.301*	0.224*
Lateral femoral condyle	0.397*	0.432*	0.270*
Medial tibial condyle	0.477*	0.551*	0.396*
Lateral tibial condyle	0.453*	0.409*	0.333*
Proximal tibial metaphysis	0.586*	0.630*	0.602*



**Fig. 1.** Dual-energy X-ray absorptiometry was performed with the patella facing upward with the position of the knee maintained using supportive devices. (A) anteroposterior view. (B) lateral view.



**Fig. 2.** Diagram demonstrating 6 areas of bone mineral density measurement around the knee. 1, distal femoral metaphysis; 2, medial femoral condyle; 3, lateral femoral condyle; 4, medial tibial condyle; 5, lateral tibial condyle; 6, proximal tibial metaphysis.

**Biography**

Chan Yoon has his expertise in knee arthroplasty and arthroscopy. He has finished residency at Seoul National University Hospital, department of orthopaedic surgery, and specialized in knee arthroplasty and arthroscopy during his fellowship at Seoul Metropolitan Government Boramae Medical Center. He is currently working as a orthopaedic surgical staff at Seoul BumIn Hospital. He has special interest in total knee arthroplasty.

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