



61st
Annual Academic Day
30 August 2017

UNDERGRADUATE STUDENT PRESENTATIONS

61st Annual Academic Day
30 August 2017

61ste Akademiese Jaardag
30 Augustus 2017



Programme
Program

Medicine and Health Sciences
Geneeskunde en Gesondheidswetenskappe
EzoNyango nezeeNzululwazi kwezeMpilo



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Health Systems Strengthening: ORALS (2)

HEALTH SYSTEMS STRENGTHENING (1)

An investigation of evidence based fall prevention strategies as implemented in old age homes in the Breede Valley Municipality

Cornelia Kruger, Danielle Nortje, Martitia Terblanche, Este Louw (Stellenbosch University - Occupational Therapy)

Falls among the elderly have extensive cost implications in terms of elderly people's functioning and the associated health care burden. With a growing elderly population there is an increased emphasis on fall prevention to prevent these implications. A literature gap exists regarding implementation of fall prevention programmes in South African old age homes. This study aimed to explore which evidence-based fall prevention strategies exist globally and are currently being implemented by old age homes in the Breede Valley Municipality in the Western Cape. A descriptive quantitative study design and total population sample was used. A survey data collection tool was developed based on the evidence-based fall prevention strategies found in the literature. Knowledgeable representatives of each old age home were the participants who completed the survey. The results of an extensive literature review showed that numerous evidence based fall prevention strategies are available in global literature. Although limitations in the data collection tool and process were identified, valuable findings were still obtained. Strategies implemented in the Breede Valley Municipality old age homes include evidence based fall risk assessments, home and environmental modifications as well as medication adaptations in order to reduce falls. Interventions that are not implemented optimally in the old age homes include exercise interventions as well as employing the skills of an occupational therapist to provide home modifications to reduce falls. Furthermore, training sessions for residents, carers and staff members did not include evidence based content on fall prevention and only a few old age homes evaluate the effectiveness of their current fall prevention programmes. This speaks to a clear gap in the implementation of fall prevention strategies within this context. Further research into effective strategies in South African old age homes and awareness raising of occupational therapy's role in fall prevention is recommended.

HEALTH SYSTEMS STRENGTHENING (2)

Investigation into the sport interests regarding participation and spectatorship of the adults in Bishop Lavis community

Kathrin Gioia; Tanyam Burger; Caroline Collier; Chelsea Lawrie; Charlotte Lovemore; Hayley Schruer (Univeristy of Stellenbosch - Department of Occupational Therapy)

Bishop Lavis is a low socio-economic community in Cape Town. Plans to upgrade the local sports facilities to promote a balanced lifestyle and reduce crime are currently underway. Numerous studies have been done on the impact of sport in society with results showing a reduction in destructive behaviour. The aim of the study was to determine what sport facilities are available as well as what the sport interests of the community are and what they would like to participate in, actively or as spectators. Sequential mixed methods design was utilised. Phase one involved qualitative data collection by means of key informants in a focus group, with information used to develop a survey. This survey was piloted and refined. In phase two, it was distributed among a representative sample of Bishop Lavis community members. This phase involved quantitative data collection and data analysis. The results of the study show that soccer was considered by the highest number of participants (94%) to be a sport in which the community of Bishop Lavis would want to participate in. There was an increase in the number of participants that previously participated in sports, as compared to the number of participants that want to participate in sport in the future, specifically in the age group 18-25 and 25-64 years old. There was a significant increase in the percentage of participants over the age of 65 years that would like to spectate sport in the future. One of the core concepts of Occupational Therapy is the promotion of a balanced lifestyle. Identifying Bishop Lavis community's sporting interests will enable the promotion of a balanced lifestyle through involvement in sport activities. Simultaneously it will prevent their participation in destructive activities leading to an improved overall well-being of the community.

Health Systems Strengthening: POSTERS (1)

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**Sarah Beckett, Kristen Buys,
Marcelle Erasmus & Nadia Ortmann**



**Public vs Private: Why do most Speech and
Language Therapists in South Africa choose to work
in the private sector?**

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HEALTH SYSTEMS STRENGTHENING (poster 1)

Public vs Private: Why do most Speech and Language Therapists in South Africa choose to work in the private sector?

Sarah Beckett (Stellenbosch University - Speech, Language and Hearing Therapy), Kristen Hannah Somerville Buys (Stellenbosch University - Speech language and Hearing Therapy), Marcelle Erasmus (Stellenbosch University - Speech, Language and Hearing Therapy), Nadia Ortmann (Stellenbosch University - Speech, Language and Hearing Therapy)

There is a growing need for the Speech-Language Therapy profession to address the needs of the population by adopting a public health care discourse (Law, Reilly & Snow, 2013). However, in South Africa, the majority of the population continues to be served by a minority of Speech-Language Therapists (SLT's) working in the public health sector. No previous studies addressing the motivations of SLT's to work in either the public or private sector could be sourced. Knowledge of factors influencing job satisfaction can however assist the healthcare system with recruiting and retaining SLT's in the public sector (Randolph, 2005). This study therefore aims to identify the intrinsic and extrinsic factors which motivate SLT's to work in the private sector rather than the public sector, and to explore their perceptions of both the experience gained in the community service year and the availability of their services to the South African population. The study made use of a quantitative, explorative observational approach. A sample of 26 private practising SLT's who completed their community service year between 2004 and 2014, completed an online survey consisting of open- and closed-ended questions. Results suggest that factors influencing job satisfaction include the availability of posts, management of the Department of Health, case load, availability of resources, salary, and the work environment. Ultimately, these factors influence SLT's motivations to work in the private sector. Implications of the findings aim to address policies at departmental level. Keywords: Speech-Language Therapy, public health, private sector, motivations, population

Maternal & Child Health: ORALS (2)

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UMR RASDIEN



**COMPARING THE DEMOGRAPHIC AND DIAGNOSTIC
PROFILE OF NEW PATIENTS ATTENDING A
NEURODEVELOPMENTAL CLINIC IN 2008/2009 AND 2016**

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MATERNAL & CHILD HEALTH (1)

Comparing the demographic and diagnostic profile of new patients attending a neurodevelopmental clinic in 2009 and 2016

Umr Rasdien (Stellenbosch University - Faculty of medicine and health science), Andrew Redfern (Stellenbosch University - Paediatrics and Child Health), Priscilla Springer (Stellenbosch University - Paediatrics and Child Health), Tawanda Chivese (Stellenbosch University - Global health, division of epidemiology and biostatistics)

Background: There is limited data available regarding the demographic and diagnostic profile of children with developmental disabilities in South Africa and other low to middle income countries. Research in this area could identify needs and assist allocation of limited healthcare resources. Objectives: We compared the change in demographic and diagnostic profile of new patients attending a neurodevelopmental clinic (NDC) between two 12 month periods: 2008/2009 and 2016. Methods: We conducted a retrospective descriptive cross sectional folder review of new patients seen at the NDC at Tygerberg Hospital paediatric outpatients. We compared information obtained from the clinical records for two twelve month periods: July 2008 to June 2009 and January 2016 to December 2016. Results: 84 children were seen during the 2008/2009 period and 240 children during 2016. The median age of presentation was 62 months (IQR 31-92) in 2008/2009 and 53 months (37-67) in 2016. The 2008/2009 study period saw 59.5% of participants residing in the Tygerberg health district versus 36.7% in 2016. In 2016, subsequent to the addition of Khayelitsha health sub-district as a referral drainage area for Tygerberg Hospital, 20.4% of participants originated from that health sub-district. An increasing proportion of patients were referred by Allied health professionals (30.4% versus 16.4% in 2008). A total of twenty six diagnostic categories were identified, with Autism spectrum disorder (ASD) showing greatest increase over the study periods: 10 children (8.4%) in 2008/2009 compared to 84 (35%) in 2016. Conclusion: There has been a significant increase in neurodevelopmental referrals over the past 8 years, which cannot be completely explained by change in referral areas. The number of children diagnosed with autism spectrum disorder has disproportionately increased. The reasons for this require further investigation.

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COURTNEY OLIVIER



**HEALTHCARE-ASSOCIATED INFECTIONS IN PAEDIATRIC
AND NEONATAL WARDS: A POINT PREVALENCE
SURVEY AT FOUR SOUTH AFRICAN HOSPITALS**

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MATERNAL & CHILD HEALTH (2)

Healthcare-associated infections in paediatric and neonatal wards: a point prevalence survey at four South African hospitals

Courtney Molly Olivier (Stellenbosch University (Full time student)), Dr. Hilda Kunneke (Worcester Provincial Hospital - Department of Paediatrics), Dr. Natasha O'Connell (Khayelitsha District Hospital - Department of Paediatrics), Dr. Eckart von Delft (Paarl Hospital - Department of Paediatrics), Dr. Mark Wates (Karl Bremer Hospital - Department of Paediatrics), Dr. Angela Dramowski (Faculty of Medicine and Health Stellenbosch University - Department of Paediatrics and Child Health, Division of Paediatric Infectious Diseases)

Background: Healthcare-associated infections (HAIs) cause substantial morbidity, mortality and health cost. The prevalence of neonatal/paediatric HAI at South African district and regional hospitals is unknown. Methods: An HAI point prevalence survey (PPS) was conducted in neonatal and paediatric wards at two district and two regional hospitals in the Western Cape, South Africa during December 2016 applying National Healthcare Safety Network definitions. HAI events and antimicrobial therapy active at 8 am on the PPS day [point] and during the preceding seven days [period]) were documented. Provisions for hand hygiene (HH) and HH compliance rates were observed on each ward using the World Health Organization's HH surveillance tool. Results: Pooled point and period HAI prevalence was 10% (95% CI 6-15.8; 15/151) and 12.6% (95% CI 8-18.9; 19/151) respectively. Hospital-acquired pneumonia (5/15; 33%), bloodstream infection (3/15; 20%) and urinary tract infection (3/15; 20%) were predominant HAI types. Risk factors for HAI were: history of recent hospitalization (8/19 [42%] vs 17/132 [13%]; $p < 0.001$) and underlying co-morbidity (17/19 [89%] vs 72/132 [54%]; $p < 0.004$). HH provisions (handwash basins/alcohol handrub) were available and functional; HH compliance was higher in neonatal than paediatric wards (151/243 [62%] vs 115/250 [46%]; $p < 0.001$). Overall HH compliance rates were highest among nurses (152/263 [63%]) and mothers (46/107 [43%]) versus doctors (29/103 [28%]). Conclusion: Neonatal and paediatric HAI are frequent adverse events at district and regional hospitals. This at-risk population should be prioritized for HAI surveillance and prevention through improved infection prevention practices and HH compliance.

Maternal & Child Health: POSTERS (2)

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**Jennifer Daleman, Marzanne Janse van
Rensburg, Carla Jansen, Maatje Nel**



**A DESCRIPTION OF THE LANGUAGE FACILITATING STRATEGIES
USED BY EARLY CHILDHOOD EDUCATORS OF THREE TO FIVE-
YEAR-OLD CHILDREN IN THE CAPE WINELANDS DISTRICT**

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MATERNAL & CHILD HEALTH (3)

A Description of the Language Facilitating Strategies used by Early Childhood Educators of three to five-year-old children in the Cape Winelands District

Jennifer Daleman, Marzanne Janse van Rensburg, Carla Jansen, Maatje Nel (University of Stellenbosch - Speech, Language & Hearing Therapy)

The preschool years are the crucial period for optimal language development. Early Childhood Educators play a vital role in promoting interaction and language skills in the classroom. This study described the Language Facilitating Strategies used by 13 educators in two (2) different contexts (circle time and table-top activity). A mixed method design was used. The TILRS (Giromaletto, Weitzman and Greenberg, 2000) was used to score the educators. Outcome measures focused on the three sub-areas of the TILRS. More strategies were used during circle time compared to table-top activities. The ECE used a Variety of Labels most frequently, however, rarely implemented the Join In and Play strategy. Overall, LFS are not used regularly enough. Further research studies should focus on incorporating an additional context that would provide more opportunities for Child-Centred strategies. Implications for possible educator training in a South African context are discussed.

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Nicole Scheepers and Andrea Visser



**A scoping review on the factors affecting the implementation
of augmentative and alternative communication in children
with complex communication needs**

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MATERNAL & CHILD HEALTH (4)

A scoping review of the factors influencing augmentative and alternative communication system implementation in the paediatric population with complex communication needs.

Nicole Scheepers & Andrea Visser (Stellenbosch University - Speech-Language and Hearing Therapy)

Children with developmental disabilities often experience severe communication restrictions due to the physical, cognitive, sensory and specific speech and language delays and impairments associated with the condition. In turn communication restriction may not only lead to social isolation, but negatively impacts the very identity of the individual as communicator (Beukelman & Mirenda, 2013). The complex communication needs (CCN) of children can be met through the use of augmentative and alternative communication (AAC) (Beukelman & Mirenda, 2013). However, the reality in South Africa is that children who need this intervention most all too often cannot secure it. Clinicians may have some assumptions or ideas about the reasons for this, but often lack hard evidence about potential barriers and facilitators to AAC implementation. (Baxter, Enderby, Evans & Judge, 2012). This study, therefore, aimed to review published literature investigating the potential barriers and facilitators to AAC implementation. In order to achieve the aims of the study a scoping review was deemed the most appropriate methodology because it allowed for the identification, selection, synthesis and analysis of the most important published information, while also assisting in the identification of gaps in literature which could direct future research on this topic. Steps set out by Arksey and O'Malley (2005) were followed to perform the review. The final results of the study will be available by July 2017. The results will include documented barriers and facilitators to the implementation of AAC. In the process the researchers hope to contribute to the knowledge base of professionals working in the field of AAC in SA by using the results to guide and inform best practice, and to use the results of the study to identify future research into the specific factors (barriers and facilitators) influencing AAC implementation, thereby supporting evidence-based practice in the field of AAC intervention.

Mental Health & Neurosciences: ORALS (1)

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RYAN JACOBS



**MEDICAL STUDENTS' PERSPECTIVES ON
EUTHANASIA AND PHYSICIAN-ASSISTED SUICIDE
AND THE
PROSPECTS OF LEGALISING THESE PRACTICES IN SA.**

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MENTAL HEALTH & NEUROSCIENCES (1)

MEDICAL STUDENTS' PERSPECTIVES ON EUTHANASIA AND PHYSICIAN-ASSISTED SUICIDE AND THE PROSPECTS OF LEGALISING THESE PRACTICES IN SOUTH AFRICA

Ryan Kurt Jacobs (Undergraduate student)

Background: Recent developments in the South African legal landscape makes it essential to engage with medical students and key role-players about their perspectives regarding PAS/ Euthanasia in an effort to inform policy .

Objectives: This study aimed to determine the views of medical students at Stellenbosch University on the topic as these future doctors will potentially be involved in the implementation of PAS and Euthanasia policies. It attempted to ascertain whether they believe euthanasia and physician assisted suicide should be legalised in South Africa.

Methods: A paper-based, semi-quantitative descriptive study design consisting of 16 questions, using a convenience sampling method of third to final year medical students at SU. First and second year students were excluded due to their lack of clinical exposure. Data collection occurred between April 2016 and March 2017, following institutional and ethics approval. Thematic analysis was used for the qualitative data while frequency tables' best capture the quantitative data. **Results:** The overall response rate of 69.25%. Most participants (57%) felt that patients should decide when they want to die. 52.7% felt that the practices of euthanasia and/ or PAS should be legalised in South Africa. However, 36.1% of participants stated that they would have no part in ending a patient's life while 35% said they would be comfortable with providing the patient with the correct means to end their life (PAS). The majority (80.1%) indicated that they would prefer that a dedicated ethics committee decide as to who receives euthanasia/ PAS. **Conclusion:** Medical students studying at SU are largely in favour of legalising PAS and euthanasia. Views of qualified medical practitioners and the views of the broader public needs to be ascertained in order to inform policy decisions regarding euthanasia and PAS practices in South Africa.

Mental Health & Neurosciences: POSTERS (1)

MENTAL HEALTH & NEUROSCIENCES (2)

META-ANALYSIS: RISK OF INSOMNIA AND SOMNOLENCE WITH SECOND GENERATION ANTIDEPRESSANTS

Chad Beyer (Stellenbosch University and the Yale Child Study Center)

Objective: Our goal was to quantify the risk of insomnia and somnolence associated with commonly used antidepressant agents and examine the impact of medication class, pharmacodynamics and dose on risk of sleep related side-effects. ⇔**Data Sources and Study Selection:** We conducted a PubMed search to identify double-blind, randomized, placebo-controlled trials examining the efficacy of second generation antidepressant medications for adults with depressive, anxiety disorders or OCD. ⇔**Data Extraction:** We used a random-effects meta-analysis to examine the pooled risk ratio of insomnia and somnolence reported as a side-effect with second generation antidepressants compared to placebo. We used stratified subgroup analysis and meta-regression to examine the effects of medication type, class, dosage, indication, and receptor affinity profile on the measured risk of insomnia and somnolence. ⇔**Results:** We identified 129 trials involving 24,458 adults. SNRIs (Relative Risk (RR) = 2.29, 95% CI: 1.97 – 2.67, $z = 10.75$, $p < 0.001$) were more likely to cause insomnia than SSRIs (RR = 1.77, 95% CI: 1.60 – 1.97, $z = 10.85$, $p < 0.001$). Risk of insomnia was inversely associated with medication affinity to the Serotonin Transporter (SERT) and M3 receptor. SNRIs (Relative Risk (RR) = 2.42, 95% CI: 2.08 – 2.80, $z = 11.7$, $p < 0.001$) were associated with a similar risk of somnolence as SSRIs (RR = 2.26, 95% CI: 2.04 – 2.51, $z = 16.8$, $p < 0.001$). Risk of somnolence was associated with medication affinity for the 5-HT_{1A} receptor. Increased dosing of SSRI was associated with significantly increased risk of insomnia (but not somnolence) whereas increased doses of SNRI were associated with significantly increased risk of both insomnia and somnolence.

Noncommunicable Diseases: ORALS (3)

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Doné Muller & Stephanie Rouillard



**Investigating Nutrition and Physical Activity
Behaviour of Adolescents in the School
Environment**

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NONCOMMUNICABLE DISEASES (1)

Investigating Nutrition and Physical Activity Behaviour of Adolescents in the School Environment

Doné Muller (Stellenbosch University - Division of Human Nutrition, Department Global Health), Stephanie Rouillard (Stellenbosch University - Division of Human Nutrition, Department Global Health), Lianne du Plessis (Stellenbosch University - Division of Human Nutrition, Department Global Health), Lynette Daniels (Stellenbosch University - Division of Human Nutrition, Department Global Health), Yolande Smit (Stellenbosch University - Division of Human Nutrition, Department Global Health), Evette van Niekerk (Stellenbosch University - Division of Human Nutrition, Department Global Health), Renee Blaauw (Stellenbosch University - Division of Human Nutrition, Department Global Health)

Introduction: Overweight and obesity in adolescents combined with low levels of physical activity raise public health concern for health of future generations. Overweight in children is a precursor of adult obesity which has many adverse effects on health. Aim: To assess the nutritional profile, obesogenic environment and physical activity (PA) behavior of adolescents in secondary schools in the Western Cape Province, South Africa. Methods: A descriptive, cross-sectional study was conducted in 9 secondary schools in the Cape Town Metropole.

Demographics, anthropometric measurements, dietary intake, nutritional behaviour, physical activity levels and environmental factors were investigated. Results: A total of 911 grade 8 learners, 40.7% (n=371) boys and 59.3% (n=540) girls, participated. The prevalence of overweight and obesity was 16.2% (n=148) and 9% (n=82) respectively. Significantly more girls than boys were either overweight or obese (p=0.036). Boys had a significantly (p=0.000) higher PA score (2.56) compared to girls (2.32). Twenty-five percent (n=222) reported barriers to PA. Academic commitments (n= 71; 7.8%) and illness (n= 46; 5.1%) were the main barriers. Seven schools had a tuck shop, with 36% (n=329) of learners purchasing from the tuck shop daily. A quarter (27%) of learners skip breakfast daily, girls significantly more than boys (p<0.001). Overweight and obese boys consumed more fruit and vegetable servings (21,8±0,8 SE) than girls (19,4±0,6 SE) (p<0.02.); whereas overweight and obese girls consumed more fatty food servings per week (18,6±0,8 SE) than boys (15,4±1,1 SE) (p<0.02). Barriers to optimal nutritional choices were cost, access to healthy food and preferences of the learners. Conclusion: The high prevalence of obesity combined with suboptimal levels of PA and poor food choices is concerning. The school environment pose opportunities for improvements toward promoting healthy eating and PA. Priorities need to be established in order to curb obesogenic behaviours in high schools in the Cape Metropole.

NONCOMMUNICABLE DISEASES (2)

Describing Occupational Therapy competencies for management of workers with Carpal Tunnel Syndrome (CTS) in the clothing industry, Cape Metropole

Lauren Smith, Elaine Jordaan, Nina Vermaak, Simoné Fuls , Carmen van der Vyver (Stellenbosch University - Occupational Therapy)

Occupational therapy services rendered within clothing factories in the Cape Metropole is a recent occurrence. Students are trained in clinical health settings to manage CTS, but not in the factory setting. To sustain with a successful occupational therapy service in the clothing industry, it is essential that relevant competencies for practice in the clothing industry be identified, and developed by undergraduate students during their practice learning placements. The objectives are to explore the competencies participants used when providing an occupational therapy service to workers diagnosed with carpal tunnel syndrome in clothing factories, in the Cape Metropole. Secondly to describe the competencies identified as being central to the successful management of workers with carpal tunnel syndrome in clothing factories. The researchers will be following ethnography within qualitative research. The phenomenon will be from the occupational therapist's point of view. The study population consists of two practitioners, identified through convenience sampling, who initiated and implemented the occupational therapy service in the clothing industry, at different stages of implementation over a four-year period. Data will be collected using semi-structured interviews. The researchers will conduct non-participant observation within the clothing factory to gather data about the work culture. Thematic data analysis will be conducted to identify patterns in the contents of the data. The transcribed data will be transferred into an electronic document, in preparation for data analysis.

NONCOMMUNICABLE DISEASES (3)

The efficacy of electrotherapy modalities compared to placebo electrotherapy for improving pain, physical function and quality of life in adults with Fibromyalgia Syndrome: A Systematic Review

C.A. du Toit (Stellenbosch University - Department of Health & Rehabilitation Sciences, Division of Physiotherapy), C.J.W. Herselman (Stellenbosch University - Department of Health & Rehabilitation Sciences, Division of Physiotherapy), D.S. Leclercq (Stellenbosch University - Department of Health & Rehabilitation Sciences, Division of Physiotherapy), S.C. Nel (Stellenbosch University - Department of Health & Rehabilitation Sciences, Division of Physiotherapy), C. van Eeden (Stellenbosch University - Department of Health & Rehabilitation Sciences, Division of Physiotherapy), A. Visser (Stellenbosch University - Department of Health & Rehabilitation Sciences, Division of Physiotherapy), J. Vogel (Stellenbosch University - Department of Health & Rehabilitation Sciences, Division of Physiotherapy), K. Berner (Stellenbosch University - Department of Health & Rehabilitation Sciences, Division of Physiotherapy)

BACKGROUND: Fibromyalgia syndrome (FMS) is the second most common rheumatological condition worldwide. It is characterised by chronic pain and associated with reduced quality of life. Limited research exists regarding the efficacy of electrotherapy (ET) versus placebo ET in the management of FMS. **OBJECTIVE:** To update, critically appraise and collate current evidence for the efficacy of ET versus placebo ET to decrease pain and increase physical function and quality of life in adults with FMS. **METHODOLOGY:** Seven computerised databases were searched from inception to April 2017, namely Pubmed, Cochrane Library, PEDro, Ebsco Host, Science Direct, Scopus and OTSeeker. Search terms included: Fibromyalgia Syndrome, physical therapy and/or physiotherapy and electrotherapy. Included articles had to meet specific eligibility criteria. Methodological quality was appraised using the PEDro scale. Data were extracted using the adapted JBI Data Extraction Form. Heterogeneity regarding the ET modalities and regimens between studies made statistical pooling inappropriate, thus results were described narratively. **RESULTS:** Three randomised controlled trials were included, with an average PEDro score of 6/10. Modalities evaluated were low-level laser therapy and pulsed electromagnetic field therapy. Results indicate that ET significantly improves pain, QOL and physical function. ET was favoured over placebo ET for physical function, while conflicting results regarding the superiority of ET over placebo for pain and quality of life were reported in two of the three studies. **CONCLUSION:** Level II evidence suggests that ET is beneficial in reducing pain and improving QOL and physical function in adults with FMS in the short-term, with benefits outlasting that of placebo. Evidence is conflicting on whether ET is more effective than placebo for some outcomes. Physiotherapists should offer ET as a supplementary treatment option for FMS, considering patient preferences and expectations. Further research is needed to establish the superiority of ET over placebo and to determine long-term effects.

Perioperative Sciences: ORALS (1)

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BRYAN CASTLE



**A RETROSPECTIVE STUDY ON THE EFFICIENCY OF
THE ORTHOPAEDIC EMERGENCY THEATRE.**

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PERIOPERATIVE SCIENCES (1)

A RETROSPECTIVE STUDY ON THE EFFICIENCY OF THE ORTHOPAEDIC EMERGENCY THEATRE

BW CASTLE* (Medical undergraduate student, Stellenbosch University)

RP LAMBERTS (Division of Orthopaedic Surgery, Stellenbosch University)

J DU TOIT (Division of Orthopaedic Surgery, Stellenbosch University)

Introduction: The division of Orthopaedics at Tygerberg Hospital is the busiest orthopaedic trauma unit within Southern Africa with an average of 45 patients awaiting emergency surgery on any given day. As it is important to treat these patients effectively, the aim of this study is to quantify the burden of orthopaedic related trauma procedures and highlight areas of inefficiency Methods: A retrospective review of the orthopaedic emergency theatre activities was performed over a 6-month period (October 2015 to March 2016). Basic descriptive data such as operation date, operative procedure performed, time under anaesthesia, length of operation (cutting time), presence of a delay between cases and reason for said delay, was collected. Results: A total of 1173 patients were operated in the emergency theatre. The mean duration of anaesthetic time was 114 ± 78 minutes, mean cutting time of 72 ± 65 minutes, with an average delay of 74 ± 94 minutes between cases. The mean time difference between initiation of anaesthesia and commencing surgery was 23 minutes. The reasons for delay between cases were predominantly due to nursing ($n=109$) as well as equipment related factors ($n= 62$) Conclusion: Theatre efficiency during said period was extremely poor with serious delays between cases. In a resource restrained setting with very restricted theatre availability, accelerated turnaround time is essential. Although the main cause for delay between cases was discovered to be nursing related factors, the equipment shortage was also highlighted as a major barrier to emergency theatre efficiency. Subsequently numerous theatre efficiency incentives were initiated, thus future research is indicated to assess the effect of these initiatives.

Violence, Injuries, Trauma & Rehabilitation: ORALS

(5)

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Shanita Chhiba, Shareefa Damon, Misha Fielies, Carlyle
Jacobs, Nabeelah Kader, Genevé Roderiques, Simone
Thompson



THE EFFECTIVENESS OF KINESIOLOGY TAPING COMBINED WITH
PHYSIOTHERAPY IN ADULTS WITH POST-MASTECTOMY
LYMPHEDEMA COMPARED TO PHYSIOTHERAPY ALONE TO
DECREASE UPPER LIMB SIZE AND PAIN AS WELL AS IMPROVE
SHOULDER RANGE OF MOTION AND HEALTH RELATED QUALITY
OF LIFE

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VIOLENCE, INJURIES, TRAUMA & REHABILITATION (1)

The effectiveness of kinesiology taping combined with physiotherapy in adults with post-mastectomy lymphedema compared to physiotherapy alone to decrease limb size and pain as well as improve shoulder range of motion and HRQOL

Shanita Chhiba; Shareefa Damon; Misha Fielies; Carlyle Jacobs; Nabeelah Kader; Geneve Roderiques; Simone Thompson (University of Stellenbosch, Faculty of Health Science - Physiotherapy)

"Background: Lymphedema is defined as swelling of the upper limb or breast due to dysfunction in the lymphatic system which results in an altered lymphatic flow. The function of the lymphatic system is impaired following breast cancer treatment, namely mastectomy and removal of the lymph nodes. This systematic review addresses the effect of KT in combination with physiotherapy in patients with post-mastectomy lymphedema compared to physiotherapy alone. To date, no systematic review has been undertaken. Objectives: To critically appraise and evaluate the effects of KT combined with physiotherapy compared to physiotherapy alone to reduce upper limb size and pain and to improve shoulder range of motion and HRQOL. Methodology: The following seven computerised bibliographic databases, accessed via the Stellenbosch University Library and Information Service, were searched: Cochrane Library, EBSCOHost: CINAHL, PEDro, ProQuest, PubMed, Science Direct and Scopus. The main search terms used were "Post-mastectomy lymphedema", "lymphedema", "Kinesiology taping", "KT taping", "K-tape", "Physiotherapy therapy", Physical Therapy", "Complex Decongestive Therapy (CDT)", "Pneumatic Compression" and "Manual Lymphatic Drainage". The quality of the trials was critically appraised using the PEDro scale. Results: Due to the heterogeneity of the studies, pooling of the results could not commence, leading to a narrative conclusion. The intervention (KT combined with physiotherapy) illustrated better short and long-term effects for both the reduction in pain and upper limb size (swelling/volume). In contrast to the former, ROM and HRQOL improved more in the control group (physiotherapy alone). Conclusion There is level II evidence to suggest that the use of KT and physiotherapy combined is more beneficial in reducing upper limb size and pain when compared to physiotherapy alone. Long term effects for these two outcomes were only found in two studies. An improvement in upper limb ROM and HRQOL was found to be better in the groups receiving physiotherapy alone."

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**Dane Witten, Peter Boateng, Hannah de Waal,
Michelle van Zyl, Jo-Anne Batt, Ernst-Herman
Jordaan, Michael Lockyer**



**EFFECT OF VIRTUAL REALITY, IN CONJUNCTION WITH
STANDARD ANALGESIA, ON PAIN, ANXIETY AND RANGE-
OF-MOTION IN PATIENTS WITH BURN INJURIES
UNDERGOING PAINFUL PROCEDURES COMPARED TO
STANDARD ANALGESIA ALONE**

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VIOLENCE, INJURIES, TRAUMA & REHABILITATION (2)

EFFECT OF VIRTUAL REALITY, IN CONJUNCTION WITH STANDARD ANALGESIA, ON PAIN, ANXIETY AND RANGE-OF-MOTION IN PATIENTS WITH BURN INJURIES UNDERGOING PAINFUL PROCEDURES COMPARED TO STANDARD ANALGESIA ALONE: A systematic review

Dane Witten (Stellenbosch University - Physiotherapy), Michael Lockyer (Stellenbosch University - Physiotherapy), Michelle van Zyl (Stellenbosch University - Physiotherapy), Peter Boateng (Stellenbosch University - Physiotherapy), Jo-Anne Batt (Stellenbosch University - Physiotherapy), Hannah de Waal (Stellenbosch University - Physiotherapy), Ernest-Herman Jordaan (Stellenbosch University - Physiotherapy), Linzette Morris (Stellenbosch University - Physiotherapy)

Objective: To conduct an updated search of the literature, identify, critically appraise, and evaluate the current evidence regarding the effectiveness of VR, in conjunction with standard analgesia, on pain, anxiety and ROM during wound dressing changes and physiotherapy management which patients with burn injuries have to undergo, compared to standard analgesia. Methodology: A comprehensive search was conducted from seven electronic databases. Articles published in English, which met specific inclusion criteria, were considered for this review. Methodological quality was appraised using the PEDro scale. For homogenous data, RevMan 5© software was used to pool results from the included articles and illustrate the combined data in the form of a forest plot. Heterogeneous data was narratively reported. Results: Nine articles, conducted between 2005 and 2014, were deemed eligible for inclusion in this systematic review. The articles had an average PEDro score of 6.67/10 and were conducted in developed countries. Results of the meta-analyses indicate a statistically significant reduction in pain when using VR in conjunction with standard analgesia during burn wound care ($p=0.0007$). Significant differences for pain during physiotherapy, anxiety and ROM were not found, ($p>0.05$) although VR, as an adjunct to standard analgesia was favoured. Conclusion: The findings of this updated systematic review suggest that VR in conjunction with analgesia significantly reduces pain during burn wound care, reduces pain during physiotherapy management of burn injuries and reduces anxiety and ROM in patients who have suffered burn injuries during wound care and physical therapy interventions.

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Anika Janse van Vuuren, Simoné le Roux,
Mart-Marié Lombard, Nadia Reuter,
Annabelle van der Watt, Marizé van Molendorff,
Heleen van Zyl, Tyla-Jade Voorhout



**THE EFFECTIVENESS OF CONTRAST WATER THERAPY ON DELAYED
ONSET MUSCLE SORENESS VERSUS PASSIVE RECOVERY IN
PERFORMANCE AND RECREATIONAL ATHLETES: A SYSTEMATIC
REVIEW WITH META-ANALYSIS**

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VIOLENCE, INJURIES, TRAUMA & REHABILITATION (3)

THE EFFECTIVENESS OF CONTRAST WATER THERAPY ON DELAYED ONSET MUSCLE SORENESS VERSUS PASSIVE RECOVERY IN PERFORMANCE AND RECREATIONAL ATHLETES: A SYSTEMATIC REVIEW WITH META- ANALYSIS

Anika Janse van Vuuren (Stellenbosch University - Department of Physiotherapy), Annabelle van der Watt (Stellenbosch University - Department of Physiotherapy), Heleen van Zyl (Stellenbosch University - Department of Physiotherapy), Marizé van Molendorff (Stellenbosch University - Department of Physiotherapy), Mart-Marié Lombard (Stellenbosch University - Department of Physiotherapy), Nadia Reuter (Stellenbosch University - Department of Physiotherapy), Simoné le Roux (Stellenbosch University - Department of Physiotherapy), Tyla-Jade Voorhout (Stellenbosch University - Department of Physiotherapy)

BACKGROUND: Delayed onset muscle soreness (DOMS) is a common condition, characterised by tenderness or stiffness to palpation or movement, influencing recreational and performance athletes' ability to participate and return to sport. Contrast water therapy (CWT) is a recovery intervention aimed to reduce DOMS. The evidence regarding the effectiveness of CWT for DOMS is inconclusive. **OBJECTIVE:** To systematically source, critically appraise and evaluate the efficacy of CWT on DOMS, in comparison to passive recovery, in recreational and performance athletes. **METHODOLOGY:** Seven computerised databases were accessed from July 2016 until March 2017 via the Stellenbosch University Library and Information Service, namely: PubMed, Cochrane Library, PEDro, ScienceDirect, Scopus, EBSCO: SPORTDiscus, EBSCO Host: CINAHL and pre-CINAHL. The main search terms were "contrast water therapy" and "delayed onset muscle soreness". Specific inclusion and exclusion criteria were applied. The PEDro scale was used to assess the methodological quality of the clinical trials included. Data was extracted and summarised using tables and analysed in a narrative form (heterogeneous data) or pooled in a meta-analysis (homogenous data). **RESULTS:** The search yielded four studies that qualified for this review, which were all randomised control trials (RCTs) with PEDro scores ranging from 4/11 to 9/11. The outcome measures used include: perceived muscle soreness, serum creatine kinase (CK) concentration, mid-thigh circumference and volume, joint range of motion (ROM) and flexibility and muscle strength. The results of the effect of CWT were found to be significant on perceived muscle soreness ($p=0.02$) and mid-thigh volume ($p<0.01$), while seen to be insignificant on CK concentration ($p=0.21$), mid-thigh circumference ($p\leq 0.05$) flexibility/ROM and muscle strength ($p<0.01$). **CONCLUSION:** Based on the pooled results, evidence suggests that CWT was clinically superior to passive recovery in decreasing DOMS with regards to VAS scores, while the overall effect of CWT was not more effective in decreasing DOMS than passive recovery.

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**Marlia Fivaz, Nicolise Goosen, Sumé Matthysen,
Herné Rautenbach, Sumeri Tromp
Supervisor: Dr M Unger**



**THE EFFECT OF WHOLE BODY VIBRATION AND
PHYSIOTHERAPY COMPARED TO PHYSIOTHERAPY
ALONE ON SPASTICITY AND FUNCTION IN PERSONS
WITH CEREBRAL PALSY: A SYSTEMATIC REVIEW**

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VIOLENCE, INJURIES, TRAUMA & REHABILITATION (4)

THE EFFECT OF WHOLE BODY VIBRATION AND PHYSIOTHERAPY COMPARED TO PHYSIOTHERAPY ALONE ON SPASTICITY AND FUNCTION IN PERSONS WITH CEREBRAL PALSY: A SYSTEMATIC REVIEW

Sumeri Tromp (Physiotherapy Division - Department of Health and Rehabilitation Sciences), Sumé Matthysen (Physiotherapy Division - Department of Health and Rehabilitation Sciences), Nicolise Goosen (Physiotherapy Division - Department of Health and Rehabilitation Sciences), Marlia Fivaz (Physiotherapy Division - Department of Health and Rehabilitation Sciences), Herné Rautenbach (Physiotherapy Division - Department of Health and Rehabilitation Sciences)

BACKGROUND: Whole body vibration is an intervention strategy gaining popularity in cerebral palsy to improve mobility and independence. This modality has been shown to affect spasticity, a primary impairment and a strong contributor to the dysfunction seen, however the results are conflicting. This systematic review aims to determine the effect of WBV on spasticity in CP. **OBJECTIVE:** To critically appraise, evaluate and establish the best available evidence for the effectiveness of WBV in combination with physiotherapy in comparison with physiotherapy alone in the management of spasticity and function in people with CP. **METHODOLOGY:** Seven computerised databases accessed through the Stellenbosch library were searched. The main search terms included: cerebral palsy, spasticity, hypertonia, whole body vibration, physiotherapy and physical therapy. Included articles had to meet specific criteria. The articles were critically appraised according to the PEDro scale. The adapted “JBI Data Extraction Form” was used to extract data from the included articles. Results are presented in narrative form. **RESULTS:** Four RCTs qualified for this review which scored around 50% on the PEDro Scale. There is moderate to weak evidence that WBV can decrease spasticity in the quadriceps, hamstrings and soleus muscles in CP. In other muscle groups, no change in spasticity was found. Two studies showed significant reduction in spasticity in the stronger limb, while one study reported a significant reduction in the weaker limb when the two limbs were compared. Similarly, for gross motor function there was moderate to weak evidence that WBV can improve activities such as standing, walking, running and jumping. **CONCLUSION:** There is level II evidence suggesting that WBV in combination with physiotherapy may be more effective than physiotherapy alone to reduce spasticity in selected muscles/muscle groups and improve gross motor function. Whether the effects on spasticity and function are maintained in the long term, needs further exploration.

VIOLENCE, INJURIES, TRAUMA & REHABILITATION (5)

Correlations of skull measurements and post-cranial measurements: a skeletal study on males of a South African population.

Johan Christian Marais (Division of Anatomy and Histology - Department of Biomedical Sciences), Amanda Alblas (Division of Anatomy and Histology - Department of Biomedical Sciences), Linda M. Greyling (Division of Anatomy and Histology - Department of Biomedical Sciences)

In forensics anthropology it is sometimes necessary to resolve the number of individuals within comingled remains from mass graves or mass disasters. Individuals are sorted by means of visual pair-matching, the process of elimination, articulation, taphonomy, DNA sequence data and osteometric comparison. By using metric comparison techniques this process of segregation is supported by statistics and eliminates observational bias to a large degree. This study aimed to assess correlations between various measurements within the cranium and post-cranial aspects to provide a basis for skull-body matching and derive regression models for the strongest correlations. South African Coloured male skeletons from the Kirsten Skeletal Collection (n=50) were assessed in terms of 25 skull and 18 post-cranial measurements, which included measurements from the long bones, of the vertebral canal, and articular components of the skull. The highest correlation coefficients were seen between the maximum vertebral foramen length (MVFL) of C1 with the MVFL of C2 and the foramen magnum length (FOL). $C1MVFL = FOL(0.06233) + 8.118$ is the most accurate when using single regression. Weaker correlations were seen for the averaged cranial cord lengths with the fibular length, basion-bregmatic-height with tibial length, and the articular facet lengths of C1 with the ipsilateral occipital condyle lengths. The high correlation of the vertebral foramen size of C1, C2 and the foramen magnum, with intermediate correlation of the C0-C1 joint facets shows that it is possible to use osteometric comparison of skeletal elements to match a skull with a body, in cases where full disarticulation of the skull has occurred.

**Violence, Injuries, Trauma & Rehabilitation:
POSTERS (2)**

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Krista-Lee Koen
Jean-Marie Cilliers
Minenhle Mthembu
Carla Bester
Suzanne du Toit



The Construct Validity of the Bishop Lavis Interest Checklist for use with Adults with Disabilities or Impairments receiving occupational therapy at the Bishop Lavis Rehabilitation Centre

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VIOLENCE, INJURIES, TRAUMA & REHABILITATION (poster 1)

The Construct Validity of the Bishop Lavis Interest Checklist for use with Adults with Disabilities or Impairments receiving occupational therapy at the Bishop Lavis Rehabilitation Centre

Carla Bester, Suzanne du Toit, Jean-Marie Cilliers, Krista-Lee Koen, Minenhle Mthembu (Stellenbosch University - Occupational Therapy)

Introduction: Interest checklists are used as one assessment measure of leisure activity participation by occupational therapists internationally. Research conducted in 2014 adapted the Modified Interest Checklist to develop a measurement instrument with content validity for residents of Bishop Lavis. Objective: The aim of the current study was to follow-up on the previous research by investigating the degree of divergent and convergent construct validity of the Bishop Lavis Interest Checklist for use with adults with disabilities or impairments receiving occupational therapy at the Bishop Lavis Rehabilitation Centre. Methods: Testing the divergent validity of the BLIC, by measuring the relationship between number of interests and quality of life and the relationship between the number of interests and degree of disability. Testing the convergent validity of the BLIC by measuring the relationship between number of interests and level of depression; the relationship between level of participation and quality of life; and the relationship between level of participation and degree of disability. In this study number of interests and level of participation were measured by the BLIC. Level of depression was measured by the PHQ-9, quality of life by the WHOQOL-BREF and level of disability by the WHODAS 2.0. Convenience sampling was used to recruit adults with disabilities or impairments who were at the time attending or had in the past attended the Bishop Lavis Rehabilitation Centre. Practice Implications and Conclusion: This research informs occupational therapists working in Bishop Lavis about the validity of the instrument; informs researchers of the implications and considerations for future adaptations of the interest checklist for other populations, and lastly, contributes to the literature regarding the interests and participation of adults with disabilities or impairments in low socio economic contexts.

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Melissa Coetzee Jonelle Du Plessis
Daniella Fernandes Liesl James
Emma J.v. Rensburg Siphosethu Zantsi



**THE EFFECT OF A HAND CYCLING EXERCISE PROGRAMME ON THE
CARDIOPULMONARY AND CARDIOVASCULAR FITNESS LEVELS IN
PEOPLE WITH SPINAL CORD INJURIES:
A SYSTEMATIC REVIEW AND META-ANALYSIS**

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VIOLENCE, INJURIES, TRAUMA & REHABILITATION (poster 2)

The effect of a hand cycling exercise programme on the cardiopulmonary and cardiovascular fitness levels in people with spinal cord injuries: a systematic review and meta-analysis

D Fernandes (Stellenbosch University - Physiotherapy), EA Janse van Rensburg (Stellenbosch University - Physiotherapy), L James (Stellenbosch University - Physiotherapy), M Coetzee (Stellenbosch University - Physiotherapy), Siphosethu Zantsi (Stellenbosch University - Physiotherapy), Sue Statham (Stellenbosch University - Physiotherapy)

BACKGROUND: Hand cycling is an exercise modality utilised in the rehabilitation of the spinal cord injury (SCI) patients. The cardiovascular and cardiopulmonary fitness levels are significantly reduced in people with spinal cord injuries (SCIs) due their sedentary lifestyle. To date, no systematic review has been conducted to determine if including a hand cycling exercise programme within rehabilitation enhances these parameters. **OBJECTIVE:** To critically appraise the best available evidence for including a hand cycling exercise programme within a rehabilitation programme to improve cardiopulmonary and cardiovascular fitness levels in people with SCIs. **METHODOLOGY:** Seven computerised databases, were accessed through the Stellenbosch Library including Cochrane Library, PEDro, EbscoHost: CINAHL and pre-CINAHL, PubMed, Science Direct, Scopus and OT Seeker. The articles were appraised using the PEDro Scale and the adapted "JBI Data Extraction form" was used to extract data from the included articles. The Revman© Review Manager Software was used to combine the results of VO₂peak (ml.kg.min) and PO_{peak} (W), where the data was then illustrated in the form of forest plots. Statistical pooling of heart rate data was not possible due to the heterogeneity amongst methodologies and presentation of the results of the included studies. **RESULTS:** Four studies were suitable for inclusion in this review. The pooled results showed that there was a statistically significant improvement in VO₂peak (ml.kg.min) ($p < 0.00001$) and PO_{peak} (W) ($p = 0.03$) of participants with SCIs when including hand cycling in a rehabilitation programme. **CONCLUSION:** In conclusion, this systematic review and meta-analysis of Level IIA and IIB evidence suggest that hand cycling is beneficial in improving cardiopulmonary fitness levels when analysing PO_{peak} (W) and VO₂peak (ml.kg.min) as outcome measures. The outcome of this review highlights the credibility of including a hand cycling exercise programme within the rehabilitation process for people with SCIs.