



SASP Congress 14 – 16 September 2018

Oral Presentation Abstracts

Friday 14 September: Congress Day 1

Breakaway Session: Ethics

1. **Extending Scope, Advancing Practice, and Transforming Patient Care.**

Scott Rickard

Purpose: There is increasing need for cost-effective healthcare service delivery across the public and private healthcare sectors. Task shifting and advanced training to extend professional scope of practice have been proposed and successfully implemented in various settings. While the training of assistants/technicians is generally accepted, recognition of extended/advanced scope of practice in SA remains a challenge. The aim of this study was to determine the clinical effectiveness, patient/clinician satisfaction, quality of care and cost effectiveness of advanced training in physiotherapy and other healthcare professions. Regulatory, policy and professional guideline documents were reviewed to help understand the barriers and facilitators for implementing extended scope of practice into various healthcare settings.

Methodology: A scoping review searching six databases - Science Direct, Cinahl, Pubmed, Ebscohost, Cochrane and PEDro accessed through Stellenbosch University and using primary keywords: 'extended' and/or 'advanced scope of practice' was conducted. All articles were critically appraised, before data extraction.

Results: More than 250 articles were screened and (about 30) were included. There is increasing evidence that extended scope of practice impacts patient outcomes, and patient and clinician satisfaction.

Discussion and conclusion: Results suggest that extended scope practicing allied health professionals may be a cost-effective strategy to increase access to health care and improve patient outcomes. Governance and risk management is considered critical to the implementation of extended roles; but with good planning and effective regulation controls in place, extending/advancing physiotherapy practice could broaden and increase the impact the profession has on healthcare delivery in South Africa.

Clinical relevance of study: Recognition of advanced practice and extension of scope has become a prominent topic of discussion in the South African context and a summary of evidence will help to determine the feasibility of this strategy to improve health care delivery in South Africa as well as to inform discussions and decisions regarding implementation

2. Perceptions of physiotherapists with regard to the role in the management of patients with mental health disorders

Sandy Lord

Purpose:

To determine the role of physiotherapy in the management of patients with mental health disorders. Both at undergraduate and postgraduate training levels, the role of physiotherapy in the management of patients with mental health disorders is not given much consideration. However, physiotherapists can play a key role in managing patients with mental health disorders. The aim of the study was to determine the perceived role of physiotherapists in the management of patients with mental health disorders as well as determine the perceived barriers and facilitators in the management of patients with MHD

Methodology: Physiotherapists working in mental health facilities were invited to participate in this qualitative study. Interviews were conducted in order to explore the participants' perceptions of their role in the management of patients with mental health disorders and to identify barriers and facilitators to their management. Inductive and deductive analysis was used to analyse the data.

Results: The analysis yielded two main themes – lack of consensus regarding the role of physiotherapy in mental health and barriers and facilitators to management.

Discussion and conclusion: Physiotherapists in this study are uncertain regarding their role in the management of patients with mental health disorders largely due to a lack of knowledge of mental health disorders and their management, at both an undergraduate and postgraduate level. The perceived barriers are largely due to an uncondusive work environment, and lack of knowledge of the role of physiotherapist. The perceived facilitators include a favourable work environment as well as the attributes of the physiotherapist.

Clinical relevance of study: This study will help describe the role of physiotherapy in mental health in South Africa. This study can be used to advocate for the inclusion of mental health in undergraduate training. This study will contribute to the body of knowledge and data from this research can be used as a basis for future research.

3. Social media and medical professionals: Ethical and legal pitfalls

Brenda Khubeka

Globally, the use of social media has increased exponentially, and the same trend is observed in South Africa. Medical professionals are utilizing social media for various reasons including social interactions, case discussions, establishing professional networks and for collaboration. The use of social media presents benefits and ethico-legal challenges for medical professionals. Professionals have no control of how far and fast information shared will spread thus calling for professionals to interrogate the content and question their intentions for sharing work and patient related information online. The paper seeks to address online challenges threatening professionalism, human rights, patient-professional relationship, employer-employee relationship, and potential online ethico-legal pitfalls. Lastly, the paper creates awareness about online disinhibition effect contributing to professionals' lapses in judgment during their online activity.

Published journal article: <http://www.samj.org.za/index.php/samj/article/view/11883>

4. Physiotherapy in the Medicolegal Sphere Do's and Don'ts

Philippa (Pip) Jackson

This is not a research-based presentation but focuses on the “how to” of physiotherapy in the medicolegal environment. It would lend itself to either a talk or a short workshop, as needed. It will address the following:

- evaluation of the client
- report preparation for medicolegal purposes in regard to personal injury/ RAF work for quantum
- report preparation in terms of the merits of a matter, particularly where you are asked to comment on these in regard to another physiotherapist's alleged misconduct or malpractice
- minute preparation
- court appearances

Discussion: Medicolegal practice is a complicated arena in which to work, because of the collision of law and medicine – or in our case, therapy. A brief review indicates that there is a dearth of literature in regard to the function of physiotherapy in the medicolegal sphere.

The standards of physiotherapists' medicolegal services vary, and some consider becoming involved in it, without knowing where to access appropriate physiotherapy-based information. Evaluations and opinions of functional experts like physio and occupational therapists play a key role in assisting courts to determine fair compensation, particularly in regard to future treatment, care and costs of disability (Luke 2009:83). Opinions should be based in objective evaluation findings and relevant literature (Uniform Rules of Court, 2009). To work effectively in this field rules of evidence and court procedures should be understood

One challenging aspect of medicolegal work is the meeting of physiotherapists on opposite sides of the matter, to narrow down their agreements and disagreements prior to trial. This is known as the production of a Joint Minute and experts must be “suitably prepared to discuss case management and formulate issues” (Civil Practice Directives, 2017). I have been involved in discussions for the purposes of drafting a minute where my counterpart has simply sent an email saying “send draft”, which precludes a real “meeting of the minds” (the whole purpose of a minute). Potentially, this could lead to charges of professional misconduct. This presentation would aim to provide information and discussion about how to conduct yourself and the pitfalls to be avoided in this exciting field.

Breakaway Session: Sport

1. Dynamic oscillatory stretching efficacy on hamstring extensibility and stretch tolerance: a randomized controlled trial

Arie Michaeli,

Background: While static stretch (SS), proprioceptive neuromuscular facilitation (PNF) and oscillatory physiological mobilization techniques are documented to have positive effects on a range of motion (ROM), there are no reports on the effect of dynamic oscillatory stretching (DOS), a technique that combines these three techniques, on hamstring extensibility.

Purpose: To determine whether DOS improves hamstring extensibility and stretch tolerance to a greater degree than SS in asymptomatic young participants.

Methods: Sixty participants (47 females, 13 males, mean age 22 ± 1 years, height 166 ± 6 centimetres, body mass 67.6 ± 9.7 kg) completed a passive straight leg (SLR) to establish hamstring extensibility and stretch tolerance as perceived by participants, using a visual analogue scale (VAS). Participants were randomly assigned to one of two treatment groups (SS or DOS) or a placebo control (20 per group). Tests were repeated immediately following and one hour after each intervention. Data were assessed using a two-way repeated measure analysis of variance (ANOVA) and Tukey's post hoc test.

Results: Immediately post-intervention, there was a significant improvement in the hamstring extensibility as measured by the SLR in both the SS and DOS groups, with the DOS group exhibiting a significantly greater increase than the SS group (Control $73 \pm 12^\circ$, SS $86 \pm 8^\circ$, DOS $94 \pm 11^\circ$, $p < 0.001$). One-hour post-intervention, hamstring extensibility in the DOS group remained elevated, while the SS group no longer differed from the control group (Control $73 \pm 12^\circ$, SS $80 \pm 8^\circ$, DOS $89 \pm 12^\circ$, $p = 0.001$). Furthermore, the stretch tolerance remained significantly elevated for the SS group, but there was no difference between the control and DOS groups, (Control 4.6 ± 1.3 , SS 5.9 ± 0.8 , DOS 4.3 ± 1.0 AU, $p < 0.001$).

Conclusion and Clinical Relevance: DOS showed a superior increase in extensibility immediately and one-hour post-intervention. DOS demonstrated an increase in stretch tolerance at the newly obtained range one-hour post intervention. The dynamic oscillatory stretching technique used in the current study could provide clinicians with an effective therapeutic stretching option for increasing extensibility with good tolerance of the technique.

2. The impact of anterior knee pain on the quality of life among runners in poor resourced peri-urban communities in Ekurhuleni, South Africa

Siyabonga Kunene

Background: Anterior knee pain (AKP) is the most common injury among runners and may impact on the quality of life (QOL) of many athletes. Objective: To determine the impact of anterior knee pain on the QOL among runners in poor resourced peri-urban communities in Ekurhuleni, South Africa.

Methods: A cross-sectional study design was used. A population of 73 runners with AKP were invited to participate in this study. Participants included runners aged 13 to 55 year-old with no history of degenerative or traumatic knee injuries. The standardised SF-36 questionnaire was used to collect data. Ethical clearance, permission from club managers and consent from participants were obtained. Data were collected over six weeks and analysed using SPSS. Descriptive

statistics included the calculation of frequencies, means, standard deviations and ranges. Inferential statistics included Spearman's rank correlation coefficient calculation.

Results: The lowest QOL scores were found among the following SF-36 scales: role functioning/physical (62), role functioning/emotional (59), energy/fatigue (59), emotional well-being (68) and pain scales (63). Males, youth and runners with least experience in running presented with the lowest scores. Significant correlation was found between the following variables: role functioning/physical and experience ($p = .030$, $r = -.221$), role functioning/emotional and gender ($p = .017$, $r = -.247$) and race ($p = .012$, $r = -.265$), general health and experience ($p = .021$; $r = -.239$), energy/fatigue and race ($p = .012$; $r = .264$), emotional well-being and age ($p = .020$; $r = .241$), general health and gender ($p = .013$; $r = .456$), social functioning and age ($p = .010$; $r = .271$) and energy/fatigue and experience ($p = .001$; $r = -.371$).

Conclusion & clinical relevance: AKP does indeed impact on the QOL of athletes indicating that a multidimensional rehabilitation programme is inevitable. This study will provide valuable knowledge that will assist clinicians in their development of rehabilitation programmes for AKP.

3. A kinematic analysis of the Star Excursion Balance Test and its ability to predict injury Taskeen Hoosen

Background: Recent studies have shown an increase in incidence and prevalence of injury in cricket. Successful injury prevention requires ongoing injury surveillance and injury screening for early intervention of at risk players.

This study aims to determine if the SEBT and 3D kinematics of the lower limb are predictive of lower limb injury in cricket and to determine the lower limb kinematics during the SEBT.

Methods: This study is an observational, longitudinal cohort study. 24 adult male cricket players participated in this study. Participants performed the SEBT while being analysed by 3D kinematics. Injury surveillance took place during the 2015/2016 cricket season in order to establish if there is a relationship between the SEBT, 3D kinematics and injury prediction.

Results: Twenty-two participants completed the study. 50% sustained injuries, 59% was in the lower limb. Lumbar injuries were the most prevalent. There were no statistically significant results between the injured and non-injured groups during the SEBT. Regression analysis revealed hip flexion angles and knee external rotation in the anterior direction accurately predicts 80% likelihood of injury. The ankle abduction angle was statistically significant when comparing injured and non-injured participants in the anterior direction of both limbs (Dominant $p = 0.035$; Non-Dominant $p = 0.022$) and in the postero-lateral direction of the dominant limb ($p = 0.035$). Knee abduction angles were statistically significant when comparing injured and non-injured participants in the postero-medial direction in the non-dominant limb ($p = 0.008$).

Conclusion: The SEBT is a reliable and inexpensive screening tool to identify neuromuscular dysfunction. The hip, knee and ankle angular kinematic angles can be used to supplement the findings in the SEBT and predict injury.

Clinical relevance: The SEBT can be used on all players in any sports team or individual. It is quick and can be used as a screening tool not only for injury prediction but also as a general neuromuscular assessment tool and for rehabilitative purposes pre-season. Assess ankle abduction and hip flexion for supplementary information for participants that demonstrate poor performance of the SEBT and rehabilitate players accordingly to reduce the risk of injury in season

4. The Association between Bowling Performance and Trunk Muscle Stability, Strength-Endurance and Thickness in Adolescent Pace Bowlers – A Cross-sectional Study

Franso-Mari Olivier

Aim: To investigate the association between bowling performance and trunk muscle stability, strength-endurance and thickness in adolescent pace bowlers. Trunk muscle stability and strength-endurance are associated with sporting performance. Asymmetrical sport-specific adaptation in the morphometry of the trunk muscles has been investigated and described in cricket pace bowlers, but not linked to or described in terms of the association with bowling performance.

Methods: Bowling performance (BP) – ball release (BR) speed and accuracy – was measured by means of a radar gun and accuracy target in the outdoor nets of the respective school, where the 46 pace bowlers, aged 13-18 years old, were invited from. Trunk muscle stability was measured as the level passed on the Sahrman Stability Scale and strength-endurance as the failing time in seconds according to the Bourbon Trunk Muscle Strength Test. Ultrasound imaging measured the thickness of external oblique (EO), internal oblique (IO), transversus abdominis (TrAb) and lumbar multifidus (LM) in millimetre. Spearman's correlations were used to determine associations between individual variables and a multiple linear regression analysis calculated predictors of bowling performance. Statistical significance was set at $p < 0.05$.

Results: No association was found between trunk muscle stability and BR speed ($r=0.278$; $p=0.061$) or accuracy ($r=0.026$; $p=0.866$). Stability, however, accounted for a 60.7% variance in BR speed ($p=0.004$). Strength-endurance of the trunk muscle chains did not correlate to BR speed ($r=-0.039-0.214$; $p=0.154-0.796$) or accuracy ($r=-0.062-0.131$; $p=0.385-0.801$). Thickness of bilateral TrAb at rest had an R-square value of .607 and BR speed increased with 5.133 and 4.677 units for each unit increase in the thickness of ND and D TrAb respectively. Accuracy did not correlate with any independent variable, but weight accounted for 20.7% variance in accuracy. Age accounted for 8.4% variance in BP.

Conclusion: A direct association between bowling performance and trunk muscle stability and strength-endurance was not found. Trunk muscle thickness accounted for the variance in ball release speed and weight for that of accuracy.

Clinical relevance: These findings implicate that adolescent pace bowlers may be able to improve BR speed by increasing trunk muscle stability and bilateral TrAb thickness.

Breakaway Session: Paediatrics

1. Use of the Infant Neuromotor Assessment Tool at a high risk neonatal clinic at a central academic level hospital in Soweto

Tracy Bulmer

Background: The Neonatal Follow up Clinic (NNFUC) at Chris Hani Baragwanath Academic Hospital (CHBAH) is a key component of Early Childhood Intervention Services. Physiotherapists are an integral part of the assessment team. The Infant Neuromotor Assessment (INA) was introduced as a more objective and validated tool for early identification of children at risk for developmental delay. We also revised the developmental checklist and the risk assessment checklist. The study aimed to review the implementation of the INA, looking at ease of use, sensitivity and correlation with the developmental checklists, postural tone and risk factors. Data collected also allows for profiling of the NNFUC population including demographics, age of first assessment, risk factors associated with delay and the overall percentage of children with delays.

Methods: Retrospective analysis of therapy records for babies seen in 2015 and 2016 was carried out. Quantitative analysis of data was used to gain information on the use of the INA and to profile the population being screened at the NNFUC. Variables included are birth history, ventilation needs, length of ICU stay, neonatal risks, corrected age, postural tone, the INA score and the Developmental Checklist score.

Results: Records of 189 children were analysed. 49% of children were 4 to 6 months old, with 25% being 1 to 3 months of age. 63% of children presented with some form of developmental delay. The INA was conducted on 55% of all children seen, and on 67% of children aged 4 to 6 months. 73% of the significant motor delay scores correlated with significant deviations on the INA while 36% of significant communication delay scores and 27% of sensory delay scores correlated with significant deviations on the INA. The most common risk factors presenting were Neonatal Jaundice, Respiratory Distress, Sepsis, Necrotizing Enterocolitis and Hypoxic Ischaemic Encephalopathy. Significant delays were seen in children with only single risk factors, many of whom were never in ICU or needing supplemental oxygen.

Conclusion: The INA is feasible for use in a busy high risk clinic. INA training for therapists has since expanded Provincially, including the rollout of training for Doctors at all levels. There was a high correlation between the scores obtained on the INA and those obtained on the developmental checklists. Efforts should be made to eliminate late referrals and to expand the use of the INA as part of the developmental screening tool at all levels of care.

Clinical relevance of the study:

- To substantiate the ongoing need for a High Risk Screening Clinic and the resources required.
- To guide the use of the revised NNFUC assessment tool and the INA tool as part of ECI services, in an attempt to develop a tool that is easy to use and sensitive to the population. Best practice can be benchmarked Provincially.
- To gain insight into the most common risk factors related to developmental delay in order to optimise early developmental screening and identify risk factors that may have been overlooked in the past.
- To highlight shortfalls in the NNFUC service, for example delayed referrals.

2. Developmental status of HIV exposed premature infants

Charné Cox

Aim of study: The aim of this study was to determine if there is a difference between the development of premature infants that are HIV unexposed uninfected compared to HIV exposed uninfected. Other objectives included to determine whether clinical and demographic factors are predictive of developmental status. HIV can have a negative impact on the development of children, but it remains uncertain whether HIV and ARV exposure in-utero have an impact on the developing foetus.

Methodology: This non-experimental cross sectional quantitative study was done in a regional state hospital in Gauteng, SA. A once off assessment was done on 30 HIV exposed uninfected infants and 30 unexposed uninfected infants born between 28 and 36 weeks gestational age. Infants were assessed using the Bailey Scales of Infant and Toddler Development III when they were between 16 days and six months corrected age. Cognitive, language and motor development was assessed.

Results: The two groups were well matched for demographic and clinical variables. The mean developmental scores for both groups fell within the normal range. HUU infants were more likely to present with neonatal complications such as meningitis and NNJ and are more likely to present with language and motor delay when compared to the HEU infants. There was some evidence that HEU infants may present with mild motor delay, but the neonatal complications had more effect of the neurodevelopment of infants than the HIV and ARV exposure in-utero. Socioeconomic factors such as housing, water, electricity and family structure did not have a significant effect on the infant's development.

Discussion and Conclusion: This study suggests that HUU infants with neonatal complications are more delayed when compared to HEU infected infants. Neonatal complications such as meningitis and NNJ have more impact on infant development than in-utero HIV and ARV exposure. These complications influence expressive language, gross motor and fine motor development. It is of utmost importance for all premature infants to be screened on a regular basis to determine delays early on during development to ensure early intervention and improved quality of life.

Clinical Relevance of study: Premature infants should be followed up by healthcare professionals post discharge for early intervention. Premature infants should be monitored post birth for complications such as meningitis and NNJ. ARVs in pregnancy are important to ensure PMTCT. Doctors and nurses should be educated on development in infants and provided with screening tools.

3. Prevalence of Disability in a Cohort of HIV-Infected Children Attending an Urban Paediatric HIV Clinic in Johannesburg, South Africa

Shane Brassel

Background: With the success of evolving antiretroviral therapy (ART), human immunodeficiency virus (HIV) has become a chronic condition, however, children infected with HIV have been shown to have developmental difficulties and disabilities. This study aimed to investigate the extent of disability among a cohort of HIV infected children in South Africa and whether they are being referred and accessing support services.

Methods: A cross-sectional study was conducted at an HIV clinic in Johannesburg. Caregivers/parents were interviewed about their child, using the Ten Question Screen for Disability Questionnaire (TQSD) along with a general additional questionnaire on medical history, services referred to and accessed and socioeconomic status (SES). Data from the child's clinic file were recorded.

Results: Of the 200 children whose caregivers/parents were interviewed, 50.5% experienced disabilities where 58.4% of those had more than one co-existing disability. Reported disabilities included, developmental delay (54% of those who were positive on the TQSD), cognitive and behavioural difficulties (41%), communication difficulties (34%), physical disabilities (25%), hearing impairment (18%), visual difficulties (17%) and seizures (5%). Of the children who reported disability only 46% had been referred to one or more of the following support services; audiologist, physiotherapist (PT), psychologist, occupational therapist (OT) and/or speech and language therapist (SLT). Previous diagnosis of tuberculosis (TB), lower respiratory tract infections (LRTI) and low pre-combination ART (cART) CD4% were found to be associated factors in the presence of developmental disability and/or delay.

Conclusion: The prevalence of children with HIV and disability is high and these children are not being referred to and/or accessing the appropriate support services. Government policy and clinic practice need to shift their focus of management of children living with HIV, in order to integrate services that can assist children reach their developmental potential and improve their quality-of-life.

Clinical Relevance:

- Universal screening and assessment of children with HIV by audiologists, occupational therapists, optometrists, PT, psychologists and speech and language therapists should be a regular part of the management of children with HIV.
- The TQSD is an effective screening tool that could be used to assist identify difficulties in low-resource environments.

4. The efficacy of a task-orientated group intervention for children with Specific Learning Disorder and co-morbid Developmental Co-ordination Disorder.

Gillian Ferguson

Purpose: Children with Specific Learning Disorders (SLD) and co-morbid Developmental Coordination Disorder (DCD) (SLD/DCD) experience significant, negative impacts on daily function. While Neuromotor Task Training (NTT) has been reported to reduce activity limitations in children with DCD, its efficacy has not been investigated in learners with SLD/DCD. This study investigated the efficacy of a NTT -based programme on motor performance, behavioural profile and health related quality of life (HRQOL) of children with SLD/DCD attending a School for Learners with Special Education Needs (LSEN) in Cape Town, South Africa.

Methodology: A quasi-experimental design was followed with pre- and post-testing utilising the Movement Assessment Battery for Children-2, Strengths and Difficulties Questionnaire (SDQ). Learners, aged 6–10 years presenting with a primary or secondary diagnosis of SLD plus DCD (scoring at or below the 16th percentile on the MABC-2) and a functional motor problem) were included. Learners were allocated to either NTT (n = 18) or Usual Care (n = 18) groups. The Usual Care group (UC) received no physiotherapy. The NTT program was implemented for nine weeks, twice a week for 45-60 min. The General Linear Model was used to test the intervention effect, using pre- and post-intervention as within-subjects factor and group allocation as between-subjects factor.

Results: The mean Total Standard Score (TSS) ($p < 0.001$) and Balance score ($p = 0.02$) of the MABC-2 significantly improved in the NTT group. The control group did not show any significant changes. NTT and UC groups showed a significant difference in TSS ($p = 0.048$). The intervention group did not show significant changes in Behavioural Profile (SDQ), according to teachers, but showed significant change in the Behaviour/Conduct domain ($p = 0.01$), according to parents.

Discussion and conclusion: The results of this study showed that a task- orientated group-based programme (NTT), presented in small groups, had a positive effect on motor performance in learners SLD/DCD.

Clinical relevance of study: This study provides evidence for effective implementation of NTT in a LSEN school, significantly improving motor performance in learners with co-morbid DCD. It demonstrated that group-based NTT can be a cost-and-time-effective approach in an under-resourced setting where there is a serious need for intervention in the DCD population.

Saturday 15 September: Congress Day 2

Breakaway Session: Stroke and Spinal Cord Injuries

1. The state and call for Social Support Organisations in South Africa, with special reference to Stroke

Ingrid Vorwek-Marren

Purpose: There is a dearth of knowledge concerning the need for social support organizations in South Africa. When physiotherapists take cognizance of these organizations, they could add value by doing community service in such organizations and also by encouraging their patients to join support groups to benefit from the different services provided by them.

Methodology: Stroke support organizations, interested Rehabilitation Centres or Hospitals, and other concerned individuals were asked via open-ended questionnaires to comment on their efforts to reintroduce patients into society and to comment on their missions and continuous efforts in managing such a support group. Participation was voluntary. Information was handled confidentially and evaluated qualitatively into themes. Literature was used to support some of the findings and to provide statistics to demonstrate the need for support groups as part of the SA National Development Plan.

Results: SSOs are all under tremendous pressure concerning succession, finances, available volunteers (both lay persons and professionals) whilst having to deliver an important service to those most in need in South African society.

The South African Department of Statistics (SADS) regularly reports on the aged, poor and disabled, but does not report on particular diagnoses individually. However, statistics of the South African Society of Physiotherapy indicate that 28% of treatments are for neurologically affected individuals. Only Nigeria in the entire African continent makes statistics on strokes available to the world Stroke Organisation. SADS as well as the National Development Plan asks the public to aid in the shortfall of aiding the aged, poor and disabled part of society. Many of these individuals do not have any recourse to social interaction or re-integration nor education concerning their diagnosis in the chronic stage. However there are a variety of support groups which offer many of these services, many of which are in dire straits and many of which have to close doors (and others which has done so) leaving a sensitive and frail part of the South African population in the lurch. Qualitative research was done in the form of open ended questions to some support organisations. These revealed their objectives, missions, logistic problems, financial constraints, problems with succession, and the need for recruiting of and marketing to the professional fraternity in particular, and the public in general, for volunteers. Additionally, information was collected from websites, acute facilities and a national foundation.

Conclusion: In conclusion the research indicates the contribution volunteers and professional volunteers have made, still make and could make, with special reference to physiotherapists.

2. The association of self-efficacy and physical activity in people living with spinal cord injuries

Joyce Mothabeng

Purpose: Physical activity (PA) is important for promoting health and preventing non-communicable diseases in people living with spinal cord injury (PWSCI). People with spinal cord injury (PWSCI) tend to lead sedentary lifestyles which predispose them to health risks. The contribution of self-efficacy to PA in PWSCI has not been adequately researched. The purpose of this study was to determine the association of self-efficacy and PA in PWSCI.

Methodology: A descriptive cross-sectional study was conducted with consenting PWSCI residing in the Tshwane metropolitan area. The spinal cord injury exercise self-efficacy scale (SCI-ESES) was used to measure participants' self-efficacy regarding physical activity. The Physical Activity Scale for Individuals with Physical Disabilities (PASIPD) was used to measure participants' PA levels. Socio-demographic and SCI data were also collected. Descriptive and inferential analyses were conducted in the SPSS-20 programme, at 0.05 level of significance.

Results: Sixty-three (63) PPWSCI with a mean age= 40.43 participated in the study. On average, both the PA and ESES levels of the participants were found to be low. Physical activity was significantly associated with self-efficacy ($p < 0.05$).

Discussion and conclusion: This study highlights the need to enhance self-efficacy in order to improve PA levels in PWSCI in order to promote healthy living. Physiotherapists as members of the SCI rehabilitation team need to put educational programs in place to improve the knowledge and understanding of PWSCI regarding the importance of PA, in order to improve their self-efficacy in performing PA.

Clinical relevance of study: Research has found that Physical activity is closely associated with self-efficacy, and that people who hold high self-efficacy beliefs tend to show better adherence to exercise regimens, hence the need to establish and improve self-exercise self-efficacy in PWSCI.

3. Management of visual impairment and vestibular dysfunction in Post-stroke patients in the sub-acute phase

Andoret van Wyk

Purpose: To determine the effect of the combination of vestibular rehabilitation therapy (VRT) and visual scanning exercises (VSE) integrated with task-specific activities as an intervention approach for patients in the sub-acute phase post-stroke compared to patients who received task-specific activities alone as an intervention approach on their (a) visual impairments; (b) central vestibular dysfunction; (c) cognitive function; (d) residual oculomotor visual performance; (e) visual-perceptual system; (f) functional balance; (g) ability to modify gait in response to changing task demands; (h) functional ability; and (i) presence of anxiety and/or depression after the intervention period of two weeks.

Methodology: Cross-sectional RCT ($n=60$) which included male and female patients that suffered either an ischaemic or haemorrhagic stroke and presented with visual impairments and central vestibular dysfunction post-stroke.

Results: VRT and VSE integrated with task-specific activities resulted in statistically significantly improved (i) latency ($p=0.0094$), velocity ($p=0.0131$) and accuracy ($p=0.0187$) of saccadic eye movements; (ii) gain of smooth pursuit eye movements ($p=0.0021$); (iii) static ($p=0.0001$) and dynamic ($p=0.0005$) visual acuity; (iv) cognitive function ($p=0.0000$); (v) visual-perceptual function ($p=0.0000$); (vi) residual oculomotor visual performance ($p=0.0007$); (vii) functional

balance (p=0.0000); (viii) functional ability (p=0.0000); (ix) gait (p=0.0000); (x) anxiety (p=0.0001); and (xi) depression (p=0.0000) post-stroke.

Discussion and conclusion: Statistically significant improvement observed may have occurred through the process of sensory substitution. Sensory substitution is the mechanism that involves the reweighting of extra-vestibular input facilitated by VRT. Input from the visual system compensates for the loss of vestibular information and is thus a substitute as a reference for Earth vertical in controlling posture and trunk stability.

4. Addressing patients' understanding of a specific physiotherapy home exercise programme through pictorial support

Karien Mostert

Purpose: Healthcare practitioners, including physiotherapists, tend to use medical terminology that patients may not understand, leading to non-adherence to treatment.

The aim was to identify:

- Exercises that could be included in a home exercise programme to address chronic non-specific low back pain
- How the exercises could be simplified through pictorial support to assist patients with low health literacy' understanding
- The impact of pictorial support on accurate performance of exercises.

Methodology: In Phase 1 of this multi-method study, an explorative qualitative design was used to develop a visual schedule based on the input from stakeholders, namely purposively selected physiotherapy experts (n=19), an alternative and augmentative expert, and conveniently selected persons with low health literacy (according to the BRIEF scale) (n=18). Methods included surveys with Likert-scales, interviews and focus group discussions. In Phase 2 (underway), a cross-over design is carried out with persons (n=30) with low health literacy to determine if the intervention (pictorial support of a specific home exercise programme) assist participants to understand and perform the exercises correctly. A blinded assessor will use a standard scale to quantitatively measure performance of the exercises.

Results: Core exercises for the home programme were identified. Three rounds of photos were taken and improved based on input from stakeholders. Incremental improvements included adding intermediate photos and double-sided arrows. Initial results from Phase 2 indicate that the experimental intervention leads to higher scores than the control.

Discussion and conclusion: The use of pictorial support to assist communicatively vulnerable patients' understanding is important. The pictorial aid developed in this study will be made available to practitioners. Its effectiveness in clinical practice needs to be investigated.

Clinical relevance: This visual schedule help to improve patients' understanding and accurate performance of a home exercise programme – especially those with low health literacy.

Breakaway Session: General Musculoskeletal Sport

1. The Intra- and Inter-rater Reliability of Six Musculoskeletal Pre-Participatory Screening Tests

Nosipho Zumana

Purpose: To investigate the intra- and inter-rater reliability of the one-legged hyperextension test (1LHET), empty can test (EC) and full can tests (FC), standing stork test (SST), bridge hold test (BHT) and the 747-balance test (747BT).

Methodology: A reliability study conducted at the cricket and football sporting grounds of a tertiary institution in Johannesburg, South Africa.

Participants: 35 healthy, injury-free, male athletes (cricket and soccer players) aged 18-31 years were evaluated by two physiotherapists.

Procedures: For each of the tests, participants were evaluated twice (once on two consecutive days) by each physiotherapist. Inter- and intra-rater reliability were concurrently assessed.

Data Analysis: Cohen's kappa (k) was calculated for the 1LHET, EC, FC and SST tests. The Intra-class correlation coefficient (ICC) was used for the BHT and the 747BT. A confidence level of 95% ($p \leq 0.05$) was applied as the criterion for determining statistical significance.

Results: The SST had the lowest degree of intra-rater agreement (ICC = -0.20-0.10). The EC test was the only test where one rater achieved excellent inter-session agreement ($k = 0.80$; CI 95% (0.40-1.20)). Substantial to excellent inter-rater agreement for both sessions were recorded for the 1LHET ($k = 0.70-0.90$) and the BHT (ICC = 0.70-0.90).

Conclusions: A more refined description of the testing procedures and criteria for interpretation might be necessary before including the six screening tests investigated in this study in formal screening protocols.

Clinical relevance: Establishing the reliability of screening tests, enable sport professionals to make informed decisions when designing pre-participatory musculoskeletal screening tools as well as the injury risk management of athletes.

2. The Ability of Physiotherapists and Physiotherapy Students to Evaluate and Classify Lumbar Movement Control by using Lumbo-Pelvic Movement Control Test

Cornelia Huysamen

Purpose: The aim of this study was to establish which tests physiotherapists use to assess lumbo-pelvic movement control; and their and physiotherapy students' ability to evaluate lumbar movement dysfunction in patients with non-specific low back pain (NSLBP).

Methodology: Physiotherapists completed part of a questionnaire to determine tests they used to assess lumbo-pelvic movement control. An information session followed explaining how to evaluate lumbar movement control tests. Thereafter the questionnaire was completed by both the physiotherapists and physiotherapy students while observing videos of individuals with NSLBP with flexion or extension patterns. The data were statistically described, and comparisons made between the physiotherapists and students with Fisher's exact test; $p \leq 0.05$. Odds ratios were calculated.

Results: Ninety-three physiotherapists and 96 fourth year physiotherapy students participated. Eighty six percent of the qualified physiotherapists were familiar with lumbo-pelvic movement control tests but only 13% used waiters bow, 17% rocking forwards, 18% rocking backwards,

34% sitting knee extension, 37% prone knee flexion and 75% posterior pelvic tilt. More students judged three out of 24 videos correctly ($p=0.001$, $p=0.007$ and $p=0.033$) respectively when compared to qualified physiotherapists. For the overall classification of flexion or extension patterns the physiotherapy students' odds of getting the assessment wrong were 0.57 in relation to the physiotherapists ($p=0.078$, CI 0.185-1.597).

Discussion and conclusion: Although the majority of physiotherapists were familiar with lumbo-pelvic movement control tests only a few used them. Both physiotherapists and physiotherapy students seem able to classify patients with NSLBP into flexion or extension patterns after minimal training.

Clinical relevance of study: The tests chosen for this study are reliable even when inexperienced physiotherapists or students use them with minimal training. It is beneficial for educators to know which tests are used by physiotherapists. It also creates awareness of potentially more reliable tests in current usage.

3. Prevalence and nature of joint pain within adult middle-aged women, attending a community clinic in the Free State: an epidemiological study.

Barnes R.Y.

Background: Musculoskeletal diseases (MSD) are a major cause of disability in both low- and high- income countries and consume a large amount of health and social resources. The field of musculoskeletal disease is hampered by a lack of epidemiological knowledge, particularly in low and middle income countries.

Purpose: This study investigated the nature and prevalence of joint pain and co-morbidities in women between the ages of 40–64 years who attended a community clinic in the Free State.

Methods: A sample of convenience was utilised. Five trained health care workers conducted the survey. A self-designed questionnaire was used to gather demographic and medical information, the COPCORD questionnaire to screen for joint pain and the EQ-5D-3L to monitor Health Related Quality of Life. Body Mass Index (BMI), blood pressure measurements and random serum glucose levels were also determined. Descriptive statistics, namely frequencies and percentages, were calculated for categorical data. Non-parametric tests were used for ordinal data.

Results: A total of 1376 participants were enrolled. The prevalence of joint pain was 62% and 53% had joint pain in conjunction with either co-morbid hypertension and/or diabetes mellitus type II. There was a weak association between hypertension and joint pain. The BMI was significantly higher in those with joint pain. Those with joint pain reported a poorer quality of life.

Conclusion: As two thirds of all the respondents reported joint pain and in most cases co-morbid conditions were present, it is clear that joint pain, in conjunction with CDL is a major problem in disadvantaged middle-aged women in peri-urban Free State. In addition, joint pain is associated with poorer functional outcomes and quality of life.

Implications: Primary health care systems in South Africa need to urgently put systems in place for the effective identification and management of the functional impact of chronic diseases of lifestyle and joint pain. It is time for physiotherapist to actively participate in the development of appropriate methods of intervening at community level to address the negative impact of joint pain on functioning and quality of life of individuals living with the diseases.

4. Impact of a non-pharmacological intervention program for middle aged women presenting with joint pain and either/or chronic disease of lifestyle: A randomised controlled trial.

Barnes R.Y.

Background: Musculoskeletal conditions and chronic diseases of lifestyle impact negatively on physical health and individuals living with these conditions are more likely to have activity limitations.

Purpose: The trial assessed whether a six weeks non-pharmacological intervention programme for women with joint pain attending a clinic in a poorly resourced area was more effective than usual care.

Methods: All participants who screened positive for joint pain during a survey of a community clinic and indicated their willingness to participate were invited to enrol. A weekly educational program was developed based on published evidence and needs of the target community. The two hour programme utilised a workbook; discussion group and exercise class. The primary outcomes were health related quality of life (EQ-5D-3L), Self-Efficacy for Managing Chronic Disease 6-Item Scale, Brief Pain Inventory (Short Form) and Simmonds battery of functional tests, collected at baseline and after six weeks.

Results: 42 participants were randomised to the intervention group (22 participants) or the control group (20 participants). The EQ-5D Index Score indicated that if the intervention group maintained their improved health status for a year, they would have gained one third of a healthy life compared to those in the control group.

Conclusion: The positive impact of the intervention programme suggests that the program should continue at the clinic in question but as there was no impact on the health conditions of the participants, the duration of the programme might need to be extended and/or offered more than once a week.

Implications: The participants in this study were drawn from the group most disadvantaged by the apartheid policies that were in force for most of their lives, who need the support of the health care system but often do not receive the care they deserve. It is suggested that the positive impact justifies the continuation of the programme, but research should be undertaken in a bigger sample size before the intervention is rolled out to other clinics in the Free State.

Breakaway Session: Cardiopulmonary/Paediatrics

1. Physical function capacity in an African cohort of people living with HIV: Does a history of pulmonary tuberculosis play a role?

Ronel Roos

Purpose: Physical function capacity in people living with the human immunodeficiency virus (PLWH) is influenced by a variety of factors and often assessed with the six-minute walk test (6MWT). This study investigates the 6MWT findings of a cohort of PLWH to determine whether a history of pulmonary tuberculosis (PTB), anthropometric measures, age and gender predict physical function capacity.

Methodology: Secondary analysis of data collected from eighty four PLWH on antiretroviral therapy who participated in a physical activity programme was done. The following information was collected: physical function capacity (6MWT), anthropometric body measurements, vital signs and demographic profile. Descriptive and inferential statistics were used to determine the impact of PTB on physical function capacity. Regression analysis was used to determine predictive factors for 6MWT distance achieved. A p-value ≤ 0.05 was deemed significant.

Results: The study sample consisted of 66 (78.6%) women and 18 (21.4%) men with a mean age of 39.1 (± 9.2) years. The majority of the sample did not report a history of PTB (n=67; 79.8%). PTB was not associated with 6MWT distance walked ($r=0.11$; $p=0.31$) but association with gender and height were of moderate strength. Physical function capacity of women was less and they experienced higher physical effort than male participants. The regression equation generated with the stepwise multiple regression analysis included age and gender. This model was statistically significant ($p<0.00$) and accounts for 34% of the total variance observed for 6MWT distance.

Discussion and conclusion: Age and gender, but not a history of PTB, were predictive factors of physical function capacity. Further research regarding the association of a past medical history of PTB and distance walked during the 6MWT in PLWH is necessary with a larger study sample and possible age and gender matching to support current study findings.

Clinical relevance of study: This study provides information regarding the physical function capacity of a South African cohort of PLWH and provides information on a suggested 6MWT reference equation. The 6MWT prediction equation generated with this study is $y = 699.50 - 80.95 (\text{gender: women} = 1; \text{men} = 0) - 2.35 (\text{age})$.

2. Does Active Cycle Breathing Technique alleviate shoulder-tip pain in post-laparoscopic general surgery patients?

Lania Alberts

Purpose/Aim: Post laparoscopic shoulder tip pain (PLSP), a painful condition with onset after laparoscopic surgery, affects about thirty-five to eighty percent (35-80%) of patients undergoing laparoscopic surgery. The pain is often debilitating with moderate to severe intensity and can last from seventy-two hours to 5 weeks post-laparoscopic surgery (Kreindler et al., 2014, Shin et al., 2010, Tsai et al., 2011). Multiple solutions

from use of non-steroidal anti-inflammatories to creative methods of insufflation and desufflation have not decreased the numbers of patients suffering from PLSP. We test an alternative breathing technique, Active Cycle of Breathing Technique, to decrease PLSP.

Methodology: We recruited 108 participants experiencing PLSP into a pragmatic random controlled trial with an intervention group receiving ACBT and a control group receiving the usual chest physiotherapy. All participants were consented. Each participant received treatment on Day 1 and Day 2 following laparoscopic surgery. Participants received a follow-up call at 3 weeks to determine how long the PLSP lasted. We report both Measures of Central Tendency and t-tests for hypothesis testing. We set a p-value for hypothesis testing of 0.05.

Results: The pain lasted from 21 days in the intervention group to 35 days in the control group. The mean of the days lasted was 5.08 in the intervention group and 8.22 in the control group. The mean NPRS on Day 1 pre-intervention was greater than 6 for both groups. The mean NPRS on Day 2 post-intervention was less than 2 for both groups.

Discussion and conclusion: ACBT can reduce the days PLSP lasts. ACBT is a natural technique with minimal risk. Future work in the US is focused on using ACBT to decrease the prescription of opioid medications for PLSP. Future work will include a control group receiving no intervention to fully test the hypotheses.

Clinical relevance of study: ACBT is a natural technique and can easily be added to any current chest physiotherapy program. ACBT poses minimal risk. ACBT provides an evidence-based alternative to the use of opioid medications for PLSP.

3. Breathing is life! Inspiratory muscle training in children and adolescents living with neuromuscular diseases: a pre-experimental study

Anri Human

Background: People with neuromuscular diseases (NMD) have high risk of morbidity and mortality caused by respiratory muscle weakness and an ineffective cough. Inspiratory muscle training (IMT) aims to preserve or improve respiratory muscle strength; reduce morbidity; optimise ventilation and ultimately improve health-related quality of life (HRQoL), however scientific evidence is lacking.

Aim: To describe the effect of a six week IMT program on pulmonary function, motor function, coordination and HRQoL in children and adolescents with NMD.

Methodology: A pre-experimental, observational pre-test post-test study design was used to determine changes in measures of spirometry; peak expiratory cough flow (PECF); inspiratory muscle strength; upper limb function and coordination; adverse events and HRQoL (using PedsQL tool). Training consisted of 30 breaths, twice daily, five days a week, for six weeks with an electronic threshold device (Powerbreathe K3, HaB International Ltd, Southam, UK). Appropriate parametric and non-parametric descriptive and inferential statistical tests were conducted.

Results: Eight participants (n=4 boys; mean age 12.71 ± 3.53 years) with a variety of NMD were included. There were no significant changes in spirometry measures, PECF or

HRQoL. Upper limb function and coordination, using the Motor Function Measurement (MFM) score improved from pre- to post intervention ($p < 0.04$). Measures of inspiratory muscle strength also improved significantly: maximal inspiratory pressure (P_{imax}) ($p < 0.02$), strength-index ($p < 0.02$), and peak inspiratory flow ($p < 0.03$). Median (IQR) patient satisfaction with the IMT program, on a 10-point visual analogue scale, was 9 (9-10). No adverse events occurred.

Discussion and conclusion: Preliminary findings suggest IMT may be a safe and effective adjunct intervention for children and adolescents with NMD. This requires confirmation in larger, longer-term randomised controlled trials.

Clinical relevance: Short term IMT appears to be feasible and well tolerated, and may improve inspiratory muscle strength, upper limb function and coordination in children and adolescents with NMD.

4. Cardiac considerations in Aquatic Exercise: The Evidence.

Gillian Adams

Purpose: To provide colleagues and other health professionals with an up to date evidence base for cardiac considerations and precautions as currently presented in the AQPG Aquatic Physiotherapy Foundation Course.

Methodology: A literature search was performed to consolidate the current knowledge base and was targeted at guidelines, articles and systematic reviews between 2008 and 2018. The Australian Physiotherapy Association (APA) had provided the AQPG with an extensive review and clinical guide from evidence between 1997 and 2007.

The following databases were searched:

PEDro, Pubmed, Physiopedia, EWAC Medical and Cochrane Reviews.

In addition, the author researched the availability of aquatic facilities in South Africa.

The results of the search were reviewed by the author.

Results: Clinical trials, systematic reviews and clinical guidelines were found to further contribute to the understanding of the following cardiac considerations: The effect of hydrostatic pressure on cardiac preload and filling; the role of the Frank-Starling reflex
Chronic Heart Failure (CHF) and Coronary Artery Disease (CAD) precautions

The effect of sympathetic nervous system suppression

Physiological compensatory mechanisms.

Swimming technique

Adherence.

Beneficial changes in cardiac function.

Discussion and Conclusion: There has been ongoing study on making exercise in water safe for more compromised cardiac patients who prefer or need to explore other options to maintain a state of optimal wellness. Advancing technology has improved monitoring of cardiac behaviour and compensatory mechanisms. The effects of training and detraining on the myocardium are well described and emphasize adherence. A new study was published on the acute effects of immersion. Some references still include basic reliable studies that have stood the test of time. Diversity of study designs remains a problem in the systematic reviews. Guidelines from other countries are increasing.

Appropriate aquatic exercise can be an enjoyable and safe form of exercise for a patient with cardiac pathology.

The Clinical Relevance of the Literature Review: Access: In South Africa, 950,000 pools are privately owned, in addition to municipal and tidal pools. Heated pools are accessible at aquacise classes and some gymnasiums.

Wellness: This review will be used to contribute to an official SASP Guideline to assist cardiac patients in maintaining a satisfactory wellness state using aquatic exercise.

Sunday 16 September: Congress Day 3

Breakaway Session: Education/ Community

1. The Development of an Assessment Tool to Evaluate the Effectiveness of an Undergraduate Physiotherapy Clinical Education Programme: Part 1 and 2

Vaneshveri Naidoo

Purpose: This study aimed to develop, validate and test the reliability of an assessment tool that objectively evaluates the clinical education component of a physiotherapy curriculum. Phase 1 and 2 of this study is presented in this abstract. Phase 1, aimed to determine the items and domains that need to be included in the tool and phase 2 aimed to determine the face and content validity of the preliminary tool.

Methodology: Qualitative (phase 1) and Quantitative (phase 2) methodology was used.

Phase 1:

Focus group discussions were held nationally with physiotherapy academics; clinical supervisors/educators; clinical managers and newly qualified physiotherapists. Tesch's method of data analysis for qualitative data was used to determine emerging themes/domains. Triangulation and Trustworthiness was established.

Phase 2:

A survey-based study using the Delphi Technique. Participants in phase 1 of were invited to participate in this phase. The domain questions were emailed to all the participants. The Delphi rounds continued until 80% consensus was reached according to the aim of this phase.

Results: The results of phase 1 suggested that the following domains should be included in the tool: *Governance; Academic Structure and Operational Structure.*

Phase 2 of this study is near completion; the third Delphi round is in process. The results of this phase will produce the preliminary tool, a scoring system and a name for the tool.

Discussion and conclusion: These results suggest that the aforesaid stakeholders are in agreement regarding key components that should be included in the tool. The clinical education *experience* is a vital component affecting the graduate career path and the future of the profession. Therefore, there is a need for such a tool that discretely evaluates the clinical education component of a physiotherapy undergraduate curriculum. The preliminary tool should be available within the next two months.

Implications for education: Improvements required in an undergraduate physiotherapy clinical education programme, as well as quality assurance factors, should be determined through this tool.

2. Teaching and learning perspectives of physiotherapists regarding the gross anatomy curriculum and pedagogy for undergraduate physiotherapy students

Dorothy Shead

Purpose: Learning of gross anatomy is integral and essential to the competency of physiotherapists in clinical practice. This study explored what South African physiotherapists, in different service delivery spheres, perceive as necessary content for undergraduate anatomy curriculum and pedagogy for physiotherapy students.

Methodology: Qualitative focus group discussions using grounded theory approach and theoretical sampling of physiotherapy lecturers, physiotherapists working in public hospitals and private practices in Gauteng were undertaken. Theoretical saturation dictated number of participants and focus groups. Demographic data of participants were analysed using descriptive statistics e.g. means (SD). Coded data were collapsed into subcategories and then further aggregated into categories and final themes.

Results: Five focus groups were held with 32 study participants. The mean age of participants was 29.9 (± 7.8) years with public sector physiotherapist being younger [24.2 (± 2.4) years] than the private sectors physiotherapists [private practice, 34.6 (± 8.0) years and academics, 33.9 (± 7.8) years]. Physiotherapy years of experience ranged from public 1.4 (± 0.6) through private 12.7 (± 7.3) to academic 11.1 (± 8.1) and clinical work areas were diverse. Seven themes listed in no order of preference emerged from the focus groups discussions: 'Bare bones of anatomy', staff matters, 'students' embodiment in anatomy', anatomy: 'a touching experience', 'time is of the essence', anatomy classes and 'anatomy know how' for physiotherapy practice.

Discussion and conclusion: The theme 'bare bones of anatomy' illustrates that physiotherapists perceive muscles, brain, spinal cord and lungs as necessary course content. The theme 'anatomy: a touching experience' identified 'hands on' dissection, prosection observation and surface anatomy as necessary and embraced student sensitivity to cadavers and the pressure of coping with 'anatomy information overload'. This study offers a new clinically directed perspective on anatomy education for physiotherapy students.

Clinical relevance of the study: Anatomy education for undergraduate physiotherapy students in South Africa is the foundation for safe clinical practice. There is no uniform gross anatomy curriculum and pedagogy for this student population across the country. This needs to be rectified in line with clinical relevance as established using opinions of qualified physiotherapists.

3. Impact of community-based education: community preceptor's perception

Karien Mostert

Purpose: With the move to primary health care it is imperative that students are prepared to work in community-based settings. The purpose of this study was to investigate the perceptions of preceptors in the community-based placements of final-year students of a South African university.

Methodology: An explorative mixed-method design was applied. All preceptors (n=19) were invited to participate. They were from various settings, including community health centre, a community forum, a hospice, a shelter for people who are homeless, an informal settlement and luncheon clubs. A quantitative survey with both Likert-scale items and open-ended questions were administered. Individual interviews were conducted, transcribed and thematically analysed according to the method by Tesch.

Results: The majority of participants found the involvement of students beneficial and having a sustainable impact on their organisations/services. Benefits included improved reported knowledge through health education on various topics with different target groups, raised community awareness specifically about the importance of physical activity at an annual community health fair, promotion of health through side-walk exercise classes, clinical care during home visits and in clinics and peer-education of home-care workers, clinical associates and students from other professions. Close cooperation with the university supervisors are essential in the success of the clinical placement.

Discussion and conclusion: Service-learning is an approach where students offer a meaningful service to, and learn from a community, as part of a credit-bearing course. Preceptors in the community had a positive view of the student involvement and the student services' impact. Future studies could investigate more objective outcomes of the impact.

Clinical relevance:

Community-based student placements as part of public health physiotherapy has a positive impact according to preceptors in different settings of one South African university. The impact imply that training prepare students relevantly for working in community settings.

4. Community based training in primary health care for undergraduate physiotherapy students in Kwazulu-Natal: perceptions of participating physiotherapists

S. Blose

Background: The shifting healthcare dynamic which includes changes in demographics and disease epidemiology as well as resource constraints have affected health care education at tertiary level globally. The intake of increasing numbers of undergraduates and a shortage of clinical placement facilities have further challenged health care education. These changes have necessitated novel approaches to clinical education for health care professionals. Currently, there is a move from the traditional training methods that uses urban tertiary health facilities for training towards a more decentralized clinical training (DCT) that incorporates community-based primary health care approaches. South Africa has responded to the call to address the new needs of clinical education by adopting community-based primary health care approaches in order to prompt curriculum reform. The University of KwaZulu-Natal (UKZN), a tertiary institution in the province of KwaZulu-Natal, has recently introduced DCT for allied health care undergraduates. The discipline of Physiotherapy, within the School of Health Sciences, implemented this approach in their undergraduate programme for the first time in 2018.

Objectives: To explore the perceptions of physiotherapists supervising undergraduate physiotherapy students on the DCT platform in order to optimize the implementation of this novel programme.

Methods: An explorative qualitative approach using semi-structured interviews was employed in this study. Ten physiotherapists employed at public sector hospitals where the undergraduate physiotherapy students received clinical training were purposively selected for this study. Full ethical approval was received from the UKZN Biomedical Research Ethics Committee on the 28 June 2017 and has reference number HSS/0727/017. Data were transcribed and analysed using thematic analysis. Rigour was maintained in the study within the context of relevant ethical principles.

Results: Thematic analysis of the interview data revealed seven themes; namely curriculum redress, organisational factors, stakeholder dynamics, barriers and enablers to decentralised clinical training, perceived preparedness for practice and recommendations.

Conclusion: To respond effectively to health care needs of the country, there is a need to increase the number of health care professionals. Training methods that are innovative for undergraduate student clinical education are required. Decentralized training as a platform within the transforming health systems provides an option, which has been perceived as a valuable framework to incorporate competencies required for community-based primary healthcare practice as explored within this study. Supervising physiotherapists in the study context believed that the curriculum needs to be aligned further to include community-based approaches. Furthermore, strengthening partnerships between academic staff and clinicians was seen to be imperative for optimal clinical education of undergraduate physiotherapy students.

Breakaway Session: Paediatrics

1. Patient journeys of prematurely born infants in the public and private health sectors in South Africa.

Janeske (PJ) van der Walt

Purpose/Aim of the study and paper: A patient journey describes the route of care from first contact with health care providers until discharge from the health care service. Patient journeys of specific patient populations need to be described and understood during contextualisation of clinical practice guidelines (CPGs). In this presentation the patient journeys for prematurely born infants, born in the different health care sectors in South Africa (SA), or at home are discussed. The patient journeys form part of the contextualisation process of a CPG for physiotherapists to treat prematurely born infants in SA.

Methods: Five focus group discussions and seven key informant interviews were conducted with multidisciplinary team members (n=30) who currently manage prematurely born infants in the greater Tshwane region of Gauteng province. Audio recordings were transcribed and open and axially coded. To ensure trustworthiness the collated diagrams of the patient journeys were presented to three of the focus groups to verify correct interpretation of the interviews.

Results: Four possible patient journeys were identified namely, infants born at home, at a private hospital, at a district or secondary hospital or at a tertiary or academic hospital. These four patient journeys differ in terms of the hospitalisation phase, short-term follow-up, and long-term follow-up phases.

Discussion and conclusion: The researcher found that physiotherapists, who work in a multidisciplinary team, have access to the infants in the NICUs in the public health care sector without referral, but not in the private health care sector. Similarly, prematurely born infants have a standardised follow-up with the multidisciplinary team for one to two years post-corrected age in the public health care sector.

No routine standardised follow-up was found in the private health care sector. This disparity in patient journeys highlights the need for a CPG to standardise care for all prematurely born infants in SA.

Clinical relevance of study: International CPGs for care and management of the prematurely born infant exist, which can be contextualised for the South African health care context. A clinical practice guideline is needed to standardise care of the prematurely born infants and their follow-up by the physiotherapist to optimise their health outcomes.

2. The effect of an in-patient physiotherapy programme in the neonatal intensive care unit on long-term developmental outcomes of pre-term infants

Diana Coetzer

Aim of the Study: Infants who are born prematurely have enormous odds to overcome. These challenges range from immediately life-saving to long-term developmental outcomes. There are various early physiotherapy intervention programmes but they are costly and not easily available in all countries. The aim of this study was to develop and assess the effect of a NICU developmental programme on the developmental outcome of premature infants at six, 12 and 18 months.

Methodology: The programme development consisted of an expert group panel discussion where the proposed programme was discussed and amended accordingly. The programme was

implemented in one NICU on premature infants. These infants became the experimental group. A neighbouring hospital NICU was used as the control group. Seventy infants were recruited in each group. These infants were then assessed at six, 12 and 18 months corrected age using the Bayley Scales of Infant Development III (BSID III) to determine the developmental status of these infants by a blinded assessor. This early intervention developmental programme consisted of passive movements and joint compressions, massage and nesting with specific positioning done. These various components were discussed with an expert panel on neonates. Caregivers signed informed consent for their infants to participate. Ethical clearance for the study was obtained from the University of the Witwatersrand. Data was analysed using Chi-square tests.

Results: The groups were well matched for gestational age. The mean gestational age was 32.8 in the experimental group and 32.5 in the control group ($p=0.53$). The results of this study showed that the experimental group had an improved developmental status when compared to the control group. This was the result in all developmental areas that the BSID III tests namely, gross and fine motor ($p<0.0001$ at all testing ages), expressive and receptive communication ($P<0.0001$ at 12 and 18 months) and cognitive ($p<0.001$ at six months) developmental areas.

Discussion and Conclusion: This study shows there is an effective programme to decrease the risk of developmental delay that this population group can suffer from. The results of this study are important as the programme can be implemented into various hospitals with NICUs to aid in the improvement of the morbidity of this population group. The results of this study are important as the programme can be easily implemented into any NICU that has a physiotherapist.

Clinical relevance of the study: Premature infants are at risk for developmental delay. This places increased strain on the health care system in South Africa. The results of this study are important as the programme can be easily implemented into any NICU that has a physiotherapist.

3. Intervention for children living with HIV (CLWHIV) that have HIV sensory neuropathy

Natalie Benjamin

Purpose: Sensory neuropathy is one of the complications associated with HIV. The prevalence of HIV-SN is known to be increasing with more children living longer in the Anti-Retroviral Treatment (ART) era. The aim of this study was to determine the outcome of an intervention programme on the gross motor function of CLWHIV that develop HIV-SN.

Methods: Children attending the Rahima Moosa Mother and Child Hospital were screened for signs and symptoms of PN using the Brief Peripheral Neuropathy Screen and gross motor function was assessed using the Movement ABC-2. Twenty-eight CLWHIV agreed to participate. Data analysis of mean and standard deviation was used. A linear model logistic regression was used to determine differences in MABC zones.

Results: Of the total number of participants $n=28$, 50% ($n=14$) were female. The mean age of the children was 8.6 years ($SD = 1.7$). The intervention started with 11 participants (45.8%) being classified as being 'at risk' (red and amber zones) to only three (15.8%) on completion. A stepwise linear regression model was used to determine differences at each point of assessment. The results were statistically significant, $p = .023$, where baseline scores were the lowest, indicating an improvement during the intervention period.

Discussion and conclusions: The intervention programme yielded positive results with balance as well as aiming and catching scores showing statistical significance. A more rigorous clinical trial is recommended. Currently CLWHIV are not routinely screened or managed for HIV-SN or

motor deficits. This study highlights the importance of physiotherapy intervention for this specific study population.

Clinical relevance of study: This study has highlighted that CLWHIV do have motor ability deficits and are more likely to develop HIV-SN. It is important that physiotherapists screen for these motor deficits and manage HIV-SN early in order to prevent further loss of motor skills.

4. Preoperative neurodevelopmental assessments in young children undergoing cardiac surgery in central South Africa: feasibility and clinical value

Robyn Smith

Aim: Congenital heart disease (CHD) survivors are at heightened risk of neurodevelopmental morbidity. Early pre-operative neurodevelopmental assessment assists in the identification of children at risk of or presenting with developmental delay, requiring referral to early intervention therapies. This study aimed to determine the pre-operative neurodevelopmental status of children undergoing cardiac surgery in central South Africa. In addition, the feasibility and clinical value of pre-operative neurodevelopmental assessment were evaluated.

Methods: Children, 30 months and younger, scheduled to undergo cardiac surgery were included in this observational descriptive study. The Bayley Scales of Infant and Toddler Development, Third Edition and neuromotor examination were used to establish pre-operative neurodevelopmental status. Variables associated with pre-operative developmental performance were determined using analysis of variance. Sociodemographic data was collected from the medical record and parent interview.

Results: Forty-one children were included in the study with pre-operative neurodevelopmental assessments completed for 40 children at a median age of 7.4 months. Four children were ineligible due to critical illness. The inclusion rate for pre-operative neurodevelopmental assessment was only 68% due to environmental barriers. There was a high prevalence of developmental delays (n=14) and neurologic abnormalities (n=18) prior to cardiac surgery. Children with Down syndrome tended to have poorer developmental performance. More than half of the children qualified for referral to early intervention therapies.

Discussion and conclusions: Child and environmental barriers challenge the feasibility of pre-operative neurodevelopmental assessment. A high number of children are at risk of or present with developmental delays preoperatively requiring early referral to early intervention therapies to optimise outcomes.

Clinical relevance of the study: Pre-operative neurodevelopmental assessment proved clinically valuable in identifying children at risk of or those presenting with developmental delays requiring early referral to intervention therapies. Pre-operative neurodevelopmental assessment proved unfeasible where children were critically ill or required emergency cardiac surgery. Pre-operative neurodevelopmental assessment may be of high importance in South Africa where there are often extended waiting periods for cardiac surgery and where neuroimaging is a limited resource.

Breakaway Session: General Musculoskeletal/ Pain

1. The prevalence and nature of work related musculoskeletal disorder amongst physiotherapists in Zimbabwe

Douglas Maleka

Purpose: Work related musculoskeletal disorders (WMSD) are induced or aggravated by work and the circumstances of its performance. Physiotherapists are at risk of work related musculoskeletal disorders (WMSD) due to the physically demanding nature of their job. Therefore, the purpose of this study was to establish the prevalence and nature of WMSD amongst physiotherapists in Zimbabwe.

Methodology: A cross-sectional quantitative descriptive study design was used and data was collected using a self-administered questionnaire that was either emailed, hand delivered or posted to participants.

Results: There were 101 participants making a response rate of 56.4%. The career prevalence of WMSD amongst physiotherapists in Zimbabwe was 86.1% (n=87). The highest prevalence of WMSD was in the low back (79.3%) (n=69). The major risk factor to WMSD amongst physiotherapists in Zimbabwe was “treating a large number of patients a day” and “inadequate training in injury prevention” was a minor risk factor. The most common coping mechanism used by physiotherapists in Zimbabwe to reduce strain on their bodies when working was “modifying the patient’s/physiotherapist’s position”. It was found that physiotherapists in Zimbabwe only “sometimes” used coping mechanisms thought to be effective in reducing strain on their bodies.

Discussion and conclusion: The prevalence of WMSD was found to be high amongst physiotherapists in Zimbabwe and the low back was the area of the body most affected. Despite the high career prevalence of WMSD amongst Zimbabwean physiotherapists, they were neither changing their duties nor considering leaving the profession or retiring early.

Clinical relevance of study: It is recommended that risk assessment and control of WMSD be on-going in Zimbabwean health institutions to help minimize them and their effects amongst physiotherapists.

2. Scapular stability through optimal force couple ratios

Sonia Briel

Purpose: The main purpose was the determination of normative values for the force couple ratios between the upper trapezius versus the lower trapezius, the middle trapezius versus the serratus anterior upper fibres, the serratus anterior lower fibres versus the rhomboids, the serratus anterior lower fibres versus the lower trapezius and the lower trapezius versus the rhomboids, in both sexes, comparing sides, and comparing sexes.

Methodology: This was a cross sectional quantitative study design. There were 58 participants (29 women and 29 men) with healthy shoulders recruited for this study. Both shoulders of the participants were tested. Force measurements were collected of the serratus anterior upper fibres, the upper trapezius, the middle trapezius, the serratus anterior lower fibres, the rhomboids and the lower trapezius. This study utilized largely descriptive analysis. The means, standard deviations and ranges were calculated for all force measurements.

Results: The mean force couple ratio for upper trapezius versus lower trapezius was found to be higher in value in both the non-dominant and the dominant sides in the females ($p < 0.001$). The

ratio between the middle trapezius versus serratus anterior upper fibres in the both the non-dominant side and the dominant side of the females was lower compared to the males ($p < 0.001$).

Discussion and conclusion: To effectively treat the scapulohumeral complex, a normal baseline figure needs to be established for the scapular stabiliser ratios in a healthy population. Testing only the individual scapular stabilisers, and not taking the proposed force couple ratios into consideration can be deceptive in the evaluation and rehabilitation process of the scapulohumeral complex. The disruption of the before mentioned force couples could lead to dyskinesia.

Clinical relevance of study: Therefore, establishing a baseline figure for the force production ratios of the scapular stabilisers can aid in an improved understanding of the shoulder complex, resulting in the implementation of measurable, scientific based, evaluation and rehabilitation strategies. Using the dynamometer as the tool for the evaluation process, a scientific assessment tool can easily be implemented in the clinical setting.

3. The effect of neural mobilisation on cervico-brachial pain

Annalie Basson

Purpose/Aim of the study: Cervico-brachial pain syndrome is an upper quarter pain syndrome where neural tissue sensitivity to mechanical stimulus may play a role. Neural mobilisation (NM) is used in nerve-related conditions and it seems reasonable to use NM in cervico-brachial pain. The optimal intervention for cervico-brachial pain is not established. The aims of this study were to establish the effect of NM on pain, function and quality of life of patients with cervico-brachial pain and to establish if high catastrophising scores and neuropathic pain have an influence on treatment outcomes.

Methodology: A randomised control trial was undertaken. The intervention group (IG $n = 60$) received cervical and thoracic mobilisation, exercises, advice and NM. The usual care (UC $n = 26$) had the same treatment without NM. Outcomes were assessed at 3 and 6 weeks, 6 and 12 months. Patients were included if they were over 18, had cervico-brachial pain and a positive upper limb neurodynamic test.

The groups were compared with respect to change from baseline in the pain, function and quality of life using analysis of covariance (ANCOVA). Catastrophising and neuropathic pain were covariates. An intention-to-treat analysis was performed. Level of significance was set at 0.05.

Results: Pain, function and quality of life over the 12-month period improved in all participants. The IG had significantly less pain than the UC at 6 months ($p = 0.03$), and more so in patients with neuropathic pain ($p = 0.01$). Function and quality of life did not differ.

Patients with neuropathic pain had significantly more pain at 6 and 12 months than those without. Neuropathic pain affected function negatively at 12 months. Catastrophisers had more pain at 6 and 12 months with no difference in their function or quality of life.

Discussion and conclusion: Adding NM to usual care is an effective way of managing patients with cervico-brachial pain.

Clinical relevance of study: Targeting the neural structure in the treatment of nerve-related conditions such as cervico-brachial pain can improve treatment outcomes

4. Minimum standards on dry needling for physiotherapists in South Africa

Bruce Barker

Purpose: Dry needling is a widely used and HPCSA accredited treatment modality within physiotherapy. It is almost exclusively taught as a post qualification CPD activity. However, there are currently no national standards that exist for the modality. There is consequent confusion between clinical and non-clinical role players around the practice and training of dry needling among physiotherapists in South Africa.

This document was established in conjunction with the key physiotherapy role players in SA, SASP and its malpractice insurers. It is intended as an expression of the acceptable minimum standards for the practice of Dry Needling in South Africa.

Methodology: The document was compiled from standards historically used in South Africa, and benchmarked against international best practice. These were then analyzed by the malpractice insurers and the suggested changes made to align the understanding of the clinical and non-clinical role players understanding of the modality and its implementation.

Results: The document has been adopted as the official position paper of the SASP on the acceptable minimum standards for the practice of Dry Needling in South Africa.

Discussion and conclusion: This document facilitate the development of dry needling amongst physiotherapists in South Africa by setting world class standards against which to measure both training and performance. It sets out clear definitions of the technique which will clarify research avenues. It sets standards by which physiotherapists can be assessed in legal matters.

Clinical relevance of study: This document sets out the acceptable minimum standards for training in and practice of dry needling in South Africa. This will provide a basis against which to assess undergraduate and post-qualification

Poster Presentation Abstracts

1. Motor development in six to seven-year-old children with identified intrinsic barriers to learning: a cross-sectional study

Richard Marsh

Purpose: To determine whether children with intrinsic barriers to learning have specific motor development deficits.

Methods: Twenty-seven grade one participants were assessed using the Movement Assessment Battery for Children second version (M-ABC 2). The children were from a private remedial school in Gauteng and were identified as having intrinsic barriers to learning. The tool assesses Aiming and Catching, Balance and Manual Dexterity. Each participant was assessed once. These results were analysed by looking at the prominent deficit and associations to demographics or diagnosis. An ANOVA analysis was done to compare the difference between the conditions.

Results: There were 10 females and 17 male children in the study. The mean age was seven years three months and fourteen days. The most common diagnosis was ADHD (48%) followed by speech problems (33%).

A mean score of 10 falls into the 50th percentile. The mean score for Manual Dexterity was 7.82 (± 2.22), Aiming and Catching was 9.78 (± 3.28) and Balance was 7.59 (± 2.91). The total mean score was 7.63 (± 2.84). Manual dexterity and Balance scores were both significantly lower than the Aiming and Catching scores ($p=0.02$ and $p=0.01$, respectively). There was no significant difference between Manual Dexterity and Balance scores ($p=0.55$).

The ANOVA analysis indicated children with speech problems scored higher in Manual Dexterity but the difference with the other conditions was not significant ($p=0.52$). Children with ADHD and speech problems scored higher in Aiming and Catching but again not significant enough to the other conditions ($p=0.15$). Children with processing problems scored significantly higher ($p=0.03$) in Balance than children with the other conditions.

Conclusion: Children with intrinsic barriers to learning presented with motor deficits. The results of this study found that Manual Dexterity and Balance are motor components that were the most affected. Children with processing problems were the only condition to score significantly higher in their Balance than the other children.

Clinical Significance: If we can implement an early intervention then a child can achieve their tasks. This will increase their confidence and participate in activities. This research indicates that children with intrinsic barriers to learning have specific motor deficits. Further research can be done on specific intervention program for these children.

2. The history of “Strokies’ Stories”

Ingrid Vorwerk-Marren

Purpose:

To motivate and inform physiotherapists and their patients of the value of a project such as this; its availability, and the examples given by stroke survivors as to how the project and programmes have enabled and encouraged them to manage their post-stroke condition.

Methods: Individuals who were willing to voice their stories after a life-changing event.

Results: Main findings derived:

A collection of motivational stories of individuals available to serve as motivation to therapists, volunteers, family and (newly) affected individuals.

Discussion and conclusion: There is life after a life-changing event. Professionals and volunteers also benefit by joining a support organisation. Physiotherapists will take cognisance of and motivate their patients to join such support groups.

Relevance of study:

To motivate and inform physiotherapists and their patients of the value of a project such as this; its availability, and the examples given by stroke survivors as to how the project and programmes have enabled and encouraged them to manage their post-stroke condition.

3. Physical activity and health status among undergraduate Therapeutic Science students at University of the Witwatersrand

Temitope Ojelade /Hellen Myezwa

Purpose: The aim of this study was to evaluate the physical activity level and health status among university students

Methodology: This study was a cross-sectional descriptive study. Physical activity levels were measured using the International Physical Activity Questionnaire (IPAQ) and a pedometer to measure the number of steps for a period of 7 days. Blood pressure and anthropometric indices (height, weight, waist circumference, and BMI) were measured. Health status was identified using the Medical Outcome Study Short Form - 12 Health Survey. Descriptive statistics of averages were used to summarize the data and multivariate linear regression was used to determine the predictors of physical activity. Data was analyzed using Stata 13.0

Results:

A total of 242 undergraduate students from the School of Therapeutic Sciences participated in this study. Physical activity level was low using the IPAQ and the pedometer in 22.5% and 48.5% of the population respectively. The average score of the IPAQ and the number of steps was 3855(1866-5493) and 6057(4828-7482) respectively. Predictors of physical activity using the pedometer in this population were age, department, health status and waist to hip ratio for number of steps. Predictor of physical activity using the IPAQ in this population was health status.

Discussion and conclusion:

Participants walked less than the recommended average number of steps per day (10,000 steps) which showed that the students are less active than standard recommendations. Health status was a significant predictor of physical activity using both the IPAQ and the number of steps. This implies that the work schedule of the students, age as well as the health status of the students is a significant predictor of the number of steps taken per day.

Clinical relevance of study:

Occupations that involve a lot of walking and sporting activities contribute to the overall physical activity level and health of individuals. Therefore, incorporation of regular walking in activities of daily living among students should be encouraged.

4. The nature and management of lower limb injuries among high school rugby and soccer players in the Benoni district, Gauteng Province

Thobeka Zilwa

Background: High school learners participating in sports are at high risk of injury. Literature has described rugby and soccer as two of the most popular sporting codes in the world and lower limb injuries are common in these sports. Management of sporting injuries may be dependent on the mechanism of injury as well as the socio-economic circumstances of the patient.

Purpose and methodology: The purpose of this study was to determine the nature and management of lower limb sport injuries among high school rugby and soccer players in the Benoni district. This retrospective, cross-sectional, descriptive study used a questionnaire with closed and open-ended questions to collect data on the age, socio-economic profile, level of participation, mechanism and management of injuries. The inclusion criteria for participation in this study were that participants were males and females between the ages of 14 and 20 who represented their school soccer or rugby teams in the year 2013–2016 and who sustained a sporting injury during training and/or competition.

Results: The study sample consisted of 63 participants from 10 high schools in Benoni, with a mean age of 16.25 years (SD= ±1.32). Forty-four participants, all male were rugby players. Nineteen participants were soccer players, four females and 15 males. Of the 63 participants, 22 (35%) did not have a medical aid. The sites of injury most commonly reported were the knees and ankles, with the rugby group having 13 (29.5%) knee injuries and eight (18.2%) ankle injuries and soccer group six (31.6%) knee injuries and eight (42.1%) ankle injuries. The mechanism of injury described by players, more in rugby than in soccer, was injury during a collision with another player during a tackle. Rugby players reported 35 (79.5%) contact and nine (20.5%) non-contact injuries, while soccer players reported seven (36.8%) contact injuries and 12 (63.2%) non-contact injuries. The anatomical structures mostly injured among the rugby group were 20 (45.5%) muscles and 20 (45.5%) ligaments. The soccer group reported 11 (58%) muscle and 6 (31.6%) bone structures most commonly injured. Physiotherapy was reported to be the service most used in the management of injuries in rugby, followed by medical management. Management of injuries reported by soccer players was mostly self-management, with physiotherapy being the least common management option. Twenty-one of the injured rugby players (47%) took time off from playing; while 11 (57.9%) of injured soccer players took time off. Prevalence of a recurrence of injury was 23 (52.3%) among rugby players and eight (42.1%) among soccer players.

Conclusion: The knee and ankle were the sites most commonly affected and muscles were the anatomical structure most often injured in contact type injuries. Management of these injuries seem to be dependent on the socio-economic background of the player. Players with a medical aid managed their injuries better than players without a medical aid.

Clinical relevance: Knowledge of the nature and causes of lower limb sporting injuries can inform healthcare professionals such as physiotherapists, parents of players, trainers and coaches. Increased knowledge and awareness can assist in identifying and implementing measures to manage and prevent sporting injuries among high school rugby and soccer players.

5. The effect of upper trunk postural stability training on upper limb function of stroke patients a pilot study

Helena Nel

Purpose: Stroke is a major cause of long-term adult disability and has a significant physical and psychosocial impact on individuals. Stroke affects upper trunk postural stability and upper limb function in about 85% of stroke survivors. Upper trunk postural stability is essential for optimal functioning of the upper limb and is a pre-requisite for effective hand function and the execution of activities of daily living. The rehabilitation of upper limb and upper trunk post-stroke, however, remains challenging. The aim of the study was to determine the effect of upper trunk postural stability training on upper limb function in patients with hemiplegia post-stroke.

Methods: The study utilised a quantitative longitudinal randomised control trial design with single blinding. Ethical clearance was obtained from the University of the Witwatersrand (M 130405) and the University of the Free State (79/2013). Participants were screened for inclusion into the study. After screening, eligible participants gave informed consent and were assigned to the experimental or the control group – using computer-generated random numbers with concealed allocation. In addition to usual care, upper trunk postural stability training was given to the experimental group. Assessments were done by the research assistant.

Results: Seventeen participants were included after screening and 53% were males. The median age was 53 years. The control group comprised of five female and two male participants, while the experimental group comprised of seven male and three female participants. There was no significant difference in upper limb function (baseline $p=0.5$, one month follow-up post-baseline $p=0.93$) between the groups for the entire study period. The severity of the impairment of upper limb function for both groups was comparable at baseline and improved from moderate (56 – 79) to mild (>79) for the study.

Conclusion: Upper trunk postural stability training did not result in significant improvements in upper limb function in this cohort.

Clinical relevance: An awareness of possible alternative application of the Biodex© beyond balance retraining and lower limb rehabilitation was created with the supplier/agent and the therapists working at the Life Rehabilitation Unit (Pasteur Hospital) who have access to the apparatus. Alternative positioning as well as using it with other patients, for example, the visually impaired, should be explored applying the same principles and the therapist compensating with facilitation and verbal feedback to achieve the proprioceptive input and the co-contraction of the muscles.

6. Level of knowledge of pain attitudes and beliefs about patients with chronic low back pain

Grace Mukoka

Purpose: The level of knowledge of pain is found to influence the attitudes and beliefs about patients with chronic low back pain among health care providers, which affects the choice of management approach. However, little is known about this topic among students pursuing various undergraduate health science programmes. The purpose of this study was to determine the level of knowledge of pain, attitudes and beliefs about patients with chronic low back pain among final year undergraduate students of the School of Therapeutic Sciences at the University of the Witwatersrand in South Africa as well as to establish a relationship between demographic details, knowledge pain as well as the attitudes and beliefs about patients with chronic low back pain.

Methods: This is a descriptive cross-sectional study where two self-administered questionnaires (HC-PAIRS for attitudes and beliefs and NPQ for knowledge of physiology of pain) were distributed to the study population of 224 students, and the demographic details of participants were collected.

Results: There was a 65% (n = 145) response rate and it was dominated by female students (n = 115, 79%). Analysis of data showed significant difference between males and females of their attitudes and beliefs about patients with chronic low back pain (p-value = 0.05). Pharmacy (p = 0.02) and occupational therapy (p = 0.04) students had negative attitudes and beliefs about patients with chronic low back pain. There was no significant difference between the level of knowledge of pain and age, gender, and history of pain. However nursing students had significantly lower level of knowledge of pain than the other students (p = 0.05). There was a significant difference between knowledge of pain and attitudes and beliefs about patients with chronic low back pain (p-value = 0.003).

Conclusion: There is an average level of knowledge of neurophysiology of pain among the final year health science students and their attitudes and beliefs regarding patients with chronic low back pain are negative. Knowledge of pain influences the attitudes and beliefs about patients with chronic low back pain. Therefore, changing the attitudes and beliefs of students would require improving their knowledge of neurophysiology of pain by updating their curricula for chronic pain content with the current management recommendations.

7. Lessons Learnt: what the biopsychosocial pain paradigm tells us about wellness and access to care in persons Living with HIV/AIDS

Cameron Reardon

Purpose: In the modern treatment era HIV has been reconceptualised from a terminal illness to a chronic disease. Subsequently this has necessitated a shift in treatment focus from care that is primarily curative to care that promotes HRQoL and “enhances wellness”. One of the most burdensome symptoms frequently reported by persons living with HIV/AIDS (PLWHA) is pain. Previous research has highlighted the promise of biopsychosocial pain management interventions in managing pain in PLWHA and requires further investigation, particularly in rural South African communities which form the epicentre of the HIV pandemic.

Methodology: HIV+, amaZulu males residing in the rural community of Manguzi, experiencing chronic pain were recruited (n=47). Participants were allocated to either a multimodal intervention group (MIG) (n=28) or a therapeutic relationship intervention group (TIG) (n=19). The MIG participated in a 6 week peer-facilitated education and exercise intervention as well as regular contact sessions at frequent intervals to facilitate the development of a therapeutic relationship. The TIG participated in the regular contact sessions only. Primary outcome measures were pain severity and pain interference, while secondary outcomes included HRQoL, physical function, depression and self-efficacy. Participants were assessed initially at baseline, week four, eight and 24.

Results: No changes in primary pain and secondary outcome measures were detectable across intervention groups.

Discussion and Conclusion: Unanticipated contextual factors precluded the study sample to high rates of non-participation and as such no conclusions regarding treatment efficacy were determinable. High levels of population migration and mobility, informal employment and HIV-associated stigma are critically identified contextual factors which contribute to the persistence of unrelieved pain in this population. In the context of this country where 35% of

the population reside in rural areas identifying these factors and accounting for them from a service delivery standpoint is a necessity if we are going to be serious about “improving physiotherapy access and enhancing wellness” in our quest to achieve “universal access to healthcare”.

Clinical Relevance: The results of this study indicate that currently the complex healthcare needs of PLWHA are not being met. The influence of the aforementioned contextual factors is clinically relevant in that it highlights current barriers to access to care. In particular these factors highlight the importance of cohesive, systemic responses that promote managerial and informational continuity in highly mobile populations.

8. Influence of cardiac intervention on neurodevelopment in young children with congenital heart disease in central South Africa: three-month and six-month outcomes - Robyn Smith

Purpose: CHD survivors are at risk of neurodevelopmental morbidity. The neurodevelopmental outcomes of children with CHD in South Africa (SA) are largely unknown. The aim was to determine the neurodevelopmental outcome of young children with CHD following a cardiac intervention.

Methods: Forty-eight children, 30 months and younger, were recruited into this observational descriptive study. Children who had previous or emergency cardiac surgery were excluded. Development was assessed using the Bayley Scales of Infant and Toddler Development, Third Edition (BSID-III) before, at three-month and six-month post-cardiac intervention. Developmental outcomes were compared over time, and variables associated with developmental performance determined.

Results: Baseline data was collected for 40 children. The majority of children (n=26) underwent open-heart surgery in infancy with cardiopulmonary bypass. Most children (n=30) had moderate disease severity, with 20% (n=8) having cyanotic lesions. A quarter of the children (n=10) had Down syndrome (DS). Motor delays were prevalent (27.5%) prior cardiac intervention. Motor performance improved, but language and cognitive performance declined post-cardiac intervention, with age and increasing skill complexity. Hypotonia presented in 45% of children prior to cardiac intervention, resolving post-cardiac intervention in all children without DS. Fifty-nine percent of the children were at-risk of, or presented with developmental delays: 42.5% requiring occupational therapy, 55% physiotherapy and 59% speech therapy services. There was no significant change in the developmental outcome over time. BSID-III subscale scores remained below the test mean of 100. The presence of DS ($p < 0.001$), disease severity ($p=0.02$), maternal age ($p < 0.001$), age at first surgery ($p < 0.01$), and growth prior to cardiac intervention ($p=0.04$) were significantly associated with developmental performance. Social disadvantage negatively impacted developmental performance.

Discussion and conclusions: Neurodevelopmental delays prior to, and post cardiac intervention were prevalent in this study sample. The majority of the children were at risk, or had developmental delays requiring early referral to therapeutic services.

Clinical relevance of the study: Children in the current study performed below expected developmental levels for children with CHD. The greater extent of the developmental delays is likely attributable to social disadvantage. Cardiac neurodevelopmental follow-up should therefore form part of routine cardiac care in South Africa with early referral or early intervention services to optimise developmental outcome.