NWU® Physical Activity, Sport & Recreation

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The Quarterly Pulse

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PhASRec Recap and Highlights

Special points of interest:

- Recap
- Graduates
- Projects, grants, and publications
- Meet the team

Although the first semester has come and gone in what feels like the blink of an eye, the past 6 months have been incredibly eventful here at PhASRec.

Dr Adele Broodryk managed a 2nd place finish in the prestigious Comrades Marathon. (find out more on page 2).

We also had the privilege of having Extraordinary Prof Lainie Cameron from University of Southern Queensland (Australia) visiting our department to impart her valuable knowledge and skills to staff and students alike (more on page 5).

The past months also saw several graduates walk the stage including 2 Masters and 3 PhD graduates. Most notably, we welcome Dr Retief Broodryk to the ranks (find out the specifics on page 4).

So far PhASRec has also published 11research articles in various impactful journals and we have provided a short highlight of a select few within this issue.

There has been plenty of globe trotting by our staff who visited approximately 6 different countries as part of knowledge and skill exchange programs (find out more on page 3).

The bar has clearly been set high regarding the overall achievements in the first 6 months, and we are set to keep the momentum going for the second semester!

There will be plenty of updates to watch out for the in the next installment of the newsletter where we will highlight several of the conferences, presentations, and community outreach

PhASRec: Focusing on Health and Fitness across the life-span

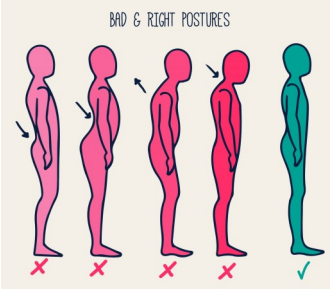
Inside this issue:

Problematic posture in our Children

Given the role that technologies play in our everyday lives, such as cellphones and tablets, a potential question centers on whether the posture of children is changing across time?

A study by Prof Monyeki and others, investigated exactly this question. They showed that ~35% of South African children exhibited abnormal postures such as forward head lean, forward shoulders, hip sway, lordosis, and uneven shoulders. Interestingly, boys were more likely to exhibit abnormal postures compared to girls, and that this held true across time.

As with any good research, more questions are raised than answers. For example, it is unclear exactly what accounts for these postures, whether poor postural habits tend to transfer to higher rates of injuries or affect other aspects of daily living, and whether specific interventions can correct these abnormal postures. All these would require further research.



Bits e-motion Project

Dr Alretha Du Plessis and Dr Sam Kahts-Kramer

Novel ways of developing computational thinking in children by including movement

The project focuses on the development of computational thinking and coding at primary schools through innovative approaches centered around movement.

Our approach aims to create a powerful synergy by linking digital literacy with physical activity. Not only will this enhance students' digital knowledge, but it will also have a positive impact on their overall well-being. Moreover, the project outcomes and reflections will contribute to the development of an inclusive toolkit, promoting digital literacy, inclusion, and equity in education.

To achieve the objectives of Bits e-motion, we have formed a Consortium comprising three universities, a management company, and partners from four countries. We firmly believe in the power of transdisciplinary learning to promote inclusion in education and are excited to collaborate with experts from various fields.

As we eagerly await grant approval, we anticipate the opportunity to implement this ground-breaking project. We encourage you to stay tuned for updates on the progress of the Bits e-motion project, as we embark on this transformative journey.

For more details, contact:

Alretha.DuPlessis@nwu.ac.za or Sam.Kahts@nwu.ac.za

Going for Gold

"Exercise is at least as effective as pharmaco-therapy in treating depressive symptoms"

Dr Adele Broodryk, a senior lecturer in the Sports Sciences program, recently completed the grueling 88km Comrades Marathon. She managed to complete the race in just under 6 hours (the 4th female in history to ever do so), landing her a coveted 2nd place finish which is a remarkable achievement!

Given that her Comrades debut was only in 2022, she used the experience as a learning opportunity to fine-tune and hone her skills for this year. Much of her preparation included experimenting with running shoes, sport supplements, race fueling, periodization and optimal recovery. During her most recent attempt, Adele successfully improved her performance by reducing her average pace by 12 seconds per kilometer, resulting in a 30-minute personal best for the race.

Such a result is a testament to her work as a sport scientist whereby she applies and integrates her knowledge in the most literal sense possible.

Where to next you might ask? Rumors are that her sights might be set on the Olympics, but only time will tell (pun intended).

Injury Risk Reduction in Netball

Netball players have a higher-than-average risk of knee and ankle injuries

Netball players are at a substantially higher risk of injury compared to other sports. The question is, what can be done to reduce this risk of injury and thereby potentially prolong the playing careers of netball players?

Dr Hammill and her team recently published a paper investigating this very question.

The study found that players experienced different ground reaction forces during landing, that their ability to stabilize when landing was partially dependent on the landing direction, and that knee strength is a factor that can mitigate the magnitude of landing forces.

These results have promising implications for strength and conditioning practices and show that players should be challenged with greater variety during their training practices.

Globe trotters

The team at PhASRec has been busy traveling the globe by attending and presenting at conferences, networking, and liaising with old and new colleagues alike.

Prof Anita Pienaar visited the University of Stirling in Scotland as the supervisor of her PhD student Xonne Muller. Prof Coetzee, Dr Kramer, and Dr Stofberg visited the University of Zagreb in Croatia as part of the Erasmus+ exchange program to deliver a series of lectures to both undergraduate, postgraduate and PhD students. The exchange has led to the initiation of new projects focused specifically on children and the elderly.

Prof Moss visited France and the UK as part of an effort to network with new colleagues at Reims University (France) and the University of Nottingham (UK) due to similarities in research areas. The trip was highly successful and has led to two symposia centered on knowledge exchange between subdisciplines between the respective universities. The next step is to set up a more permanent exchange program for staff and students alike, specifically at the post-graduate level.

Finally Dr Hammill and Dr Veldsman visited Galati in Romania as part of the *FIEPS Sports, Education, and Culture* congress where Dr Hammill was placed 2nd for her research presentation amongst new leaders.

Knowledge and skill exchange are an integral part of working at PhASRec

Can your heart rate reveal more about your fitness?

The recently minted Dr Thiart published a paper that explores whether the variability of your heart rate can be used to derive information about your fitness and/or training zones.

Traditionally the determination of fitness zones to guide your training would require sophisticated, and sometimes expensive, laboratory testing. The novelty of this study is that it showed that heart rate variability (HRV) can indeed provide valid estimates of the thresholds that distinguish sustainable from non-sustainable exercise.

There are only two requirements to obtain such information yourself : (i) wear a heart rate belt during training, and (ii) make use of the Kubios HRV software package. The implications here are substantial in that the average person would be able to determine useful and relevant information about their own training without the use of sophisticated equipment.

Whether substantial changes in fitness can be detected, and the extent to which changes can be tracked across time would require further research.

"HRV data can be used to derive training-related information about your fitness zones"

Reducing fall risks in Patients with Dystrophy

A recent study by Dr Gambelli, a researcher at PhASRec, showed that manual muscle testing was an effective method for identifying patients with tibialis anterior muscle weakness who were at a higher risk of tripping.

More specifically, patients with fascioscapulohumeral dystrophy tend to get weaker over time, thereby placing them at higher risk of falling when walking. The ability to manually assess the strength of key muscles associated with walking, such as the tibialis anterior, can therefore aid in the early detection of those at greater risk of falling.

This research also won Dr Gambelli the first prize for Emerging Researcher at the South African Society of Biomechanics (SASB) Conference in 2022.

The risk of falling is a real concern in those with muscle weakness

Graduation Celebration

Ms Bridget Grobler (left: MA Biokinetics) and Ms Adri Visser (right: MA Recreation Science) receiving their Masters degrees.

We are incredibly proud of all of our graduates! Having a diverse group of individuals specialize and obtain their degrees across a broad range of subject areas is truly wonderful.

We congratulate Ms Bridget Grobler and Ms Adri Visser on obtaining their masters degrees, specializing in the effects of schoolbag loading in children and the quality of life in those with lower-limb amputations respectively.

We also congratulate and welcome our newly minted Drs!

Dr Retief Broodryk who focused on the quiet eye in goal kicking for rugby.

Dr Sweetness Beteck with her focus on risk factors for non-communicable diseases in low-resourced communities.

Dr Ninette Thiart who focused on the autonomic nervous system determinants of performance in endurance athletes.

Thank you to all of the participants and most importantly all of the supervisors for their stellar work!

The future of our health sciences, sports sciences and recreation sciences are truly in safe hands with such high quality graduates coming through the ranks! Well done!

From left to right:
Prof Ben Coetzee, Dr Retief Broodryk, Dr Ankebe Kruger, Prof Hans de Ridder, Prof Hanlie Moss, Dr Sweetness Beteck, Prof Lainie Cameron, Dr Adele Broodryk, Dr Christo Bischoff, and Dr Ninette Thiart.

Coping under Pressure: Emotional Intelligence in Hockey

Is there a relationship between EQ and Coping Ability?

Are athletes better at coping with pressure than the average person?

This is a question that Dr Kruger recently addressed in her paper focusing on the influence of emotion intelligence (EQ) on the coping ability of female field-hockey players. The results were intriguing in that they showed players did indeed exhibit high-than-average levels of EQ and coping ability. There were also significant differences in the ability to manage their own emotions, utilize emotions, and cope with adversity.

It is however unclear what exactly contributes to this greater EQ. Is it is the type of person attracted to the sport, the coaching, years of practice? Clearly more research is needed and we look forward to the follow-up studies that will be conducted in this regard.

Sometimes upside-down is the right way up

Prof Lainie Cameron doing what she does best

Extra-ordinary Prof Lainie Cameron, from the University of Southern Queensland Australia, graced our campus by presenting a series of lectures and workshops in the field of Biokinetics.

Prof Lainie is both an exercise physiologist and an osteopath, and has been involved in both academia and clinical practice for all of her career, working across private practice, hospitals, and university clinics.

While here at PhASRec she presented clinical lectures to our 4th year Biokinetics students focusing on clinical exercise physiology. She also hosted a writing retreat for our academic staff to facilitate knowledge building and exchange.

We look forward to many more such interactions!

PhASRec currently has the following on-going projects that are actively seeking participants. If you would like to find out more, please select the relevant link to make contact with the study-leader:

Building K3, Fanie du Toit Sportsfields
c/o Thabo Mbeki and Meyer Str
North-West University
Potchefstroom

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Study	Contact Details
Schoolbag Project—effect of schoolbag mass on posture and pain	Dr Mark Kramerv (mark.kramer@nwu.ac.za)
The Depression Study—Effects of Exercise on improving depression	Prof H Moss (hanlie.moss@nwu.ac.za)
EXAMINE-youth Study	Prof Andries Monyeki (Andries.monyeki@nwu.ac.za)

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"Researching human movement: from the cradle to the grave"

Meet our Team

It goes without saying that the focus of "meet the team" for this edition is centered on Dr Adele Broodryk, given her most recent achievement. Adele is a senior lecturer in the Sport Science programme and certainly leads by example. She joined the PhASRec team in 2013 and has a special interest in recovery, sports physiology, and psychology.

Adele obtained her Ph.D. in 2018 where she focused on the effect of fatigue on the hormonal and psychological states of female soccer players.

In whatever spare time she has left, Adele really enjoys running, and as an elite road-runner she is understandably interested in research related to both road running and performance.

To find our more about Adele and her current research projects, please feel free to contact her at:

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Dr Adele Broodryk