

the

MEDALIST

sport, science, knowledge

YOUR
COMPLEMENTARY
ISSUE



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

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Denkleiers • Leading Minds • Dikgopolo tša Dihlalefi

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from the CEO'S OFFICE



Our plan for 2016 and beyond.

When Mr. Gideon Sam announced the strategy towards London 2012 the hpc at the University of Pretoria was the only Institution that put its hand up and publicly committed its time, money and resources to assist SASCOC in achieving its goal.

The results speak for themselves and this Institution delivered 50% of the medals won in London with a Gold, Silver and Bronze through our Rowing 'Oarsome Foursome', Caster Semenya and Bridgitte Hartley.

We understand that people say that winning once may just be luck, but the true test comes in sustaining and building on these outstanding performances. We sincerely believe that sustaining competitiveness comes from good planning, good management, good vision and hard work.

In sustaining our competitiveness we need to develop and understand our own unique performance culture and we then need to bring in people, ideas and resources etc which either sustain our performance culture or add value to it.

We need to work harder, more consistently and ensure that we endeavour to be smarter than anyone else, while at the same time accelerating our performances through better learning.

Our aim is to create a sustainable and successful high performance environment and to ensure that our organization, the hpc, always remains competitive whilst delivering the Gold Medal Lifestyle to our athletes through our Sport, Science and Knowledge.

Success is not a destination ... success is a moving target... our aim must be continually be adjusted if we want to keep it in our sights!!!

If we look at our value proposition then we are firmly of the opinion that we have the **Brains** behind our athletes, our past performances prove this, the medal talent (our **Face**), the gold medal preparation (the **Heart**), and finally our Gold medal lifestyle which is the **Spirit!**

Our Core Purpose states that "The application of science and knowledge is the journey, while success is our goal." We also believe that the athlete is 90% of the real deal and they need to have the dedication, the commitment, desire, discipline, be result driven and be committed to hard work. We will then from the hpc's sport science and medical unit in partnership with the Institute for Sports Research of the University of Pretoria and the Sports Medicine department, which consists of some of the finest scientists and practitioners in South Africa, ensure that our athletes receive all the support and assistance they need to perform at the highest level. You only need to speak to our Olympic medalists of last year to confirm what I am saying and we put our money where our mouth is. The high performance centre is unique in offering a truly multi-disciplinary sport scientific approach and demands close co-operation with the coaches and athletes.

All efforts are directed at empowering the coach and thus eventually improving the performance of the athlete. The hpc's sport management tool

Peformax has been developed in conjunction with Braxton Consulting to enable us to monitor our athletes on a daily basis and forms the backbone of the planning, integration and interventions that will be made available to the sponsored athletes and their coaches.

The hpc and TuksSport have identified 57 athletes who we believe are capable of doing the Country proud on the podiums around the world in their respective disciplines. We will be throwing all our resources and efforts behind these athletes to ensure that these young sportsmen and women will be given every opportunity to perform at the highest level and to do the University of Pretoria, the hpc and the Country proud. A number of these athletes were also on the Road to London and beyond programme and we believe that their time in the sun is just around the corner. The hpc is proud to say that these athletes choose to base themselves at the University of Pretoria's hpc and actively make use of the sport science support provided to them and their coaches on a daily basis.

Toby Sutcliffe

Money, drugs and love

Text: Vata Ngobeni, Chief sport writer for the Pretoria News

Could all three have stripped us of our sporting icons and robbed the world of true sporting heroes, if they exist at all?

Once upon a time former Proteas captain Hansie Cronje could do no wrong.

Cronje was the darling of a nation still torn apart by racial and historic divisions but it was Cronje's love for Nelson Mandela, his country and ability to make the likes of Herschelle Gibbs, Makhaya Ntini and Paul Adams feel part of the team that endured him to all of South Africa.

The cherry on top was that the Proteas were winning and beating some of the more established teams in international cricket.

There was the issue of the World Cups that were never won, ending in the quarterfinals in 1996 against the West Indies and that dramatic and heartbreaking loss to Australia in 1999 but the nation accepted it as long as Hansie was at the helm.

More than just his loveable demeanour Cronje had plenty of cricket street credibility to back him

up and it was him who led South Africa to their only five Test series whitewash over the West Indies while his record of 99 wins as captain in One Day Internationals makes him the third most successful captain of all time.

Cronje still holds the record for playing 162 consecutive ODI's between September of 1993 until March 2000.

Cronje was a hero, not just to the lads coming out of Grey College in Bloemfontein but to all aspiring cricketers from all walks of life in South Africa.

But it all came crashing down on April 7, 2000 when Delhi police revealed they had a recording between Cronje and Sanjay Chawla, a representative of an Indian betting syndicate, over match-fixing allegations.

After the King Commission had come and gone, Cronje banned from playing or coaching cricket for life and the South African nation's anger

subsided, Cronje resembled a shadow of his former self.

Unfortunately Cronje lost his life in a plane crash at the Outeniqua Mountains in George at the age of 32 and with him went the hopes and aspirations of a nation desperate for heroes to mend its broken past.

Then there is Lance Armstrong, arguably the greatest man ever to ride a bike and the man who defied logic by winning the battle against cancer and then going on to win seven consecutive Tour de France titles.

Armstrong's miracle story of surviving cancer and achieving a sporting feat that had never before been done inspired millions around the world.

This was followed by Armstrong founding Livestrong, a cancer foundation which provides support for cancer patients and cancer research.

To the world Armstrong could do no wrong and to the millions of cancer sufferers and survivors, Armstrong was the epitome of their battle



against the dreaded disease.

But this all came crashing down last year when after years of allegations and accusations of doping USADA charged Armstrong with having used performance enhancing drugs and Armstrong was banned for life from all sports as well as stripping him of all the titles he won since August 1998.



In October of last year the UCI (Union Cycliste Internationale) accepted the findings of USADA and in an interview with talk show queen Oprah Winfrey, this year, Armstrong eventually admitted to doping.

The death defying, invincible bike rider called Lance Armstrong had fallen from grace, disgraced his ardent followers and damaged the sport of cycling.

It may not have been match-fixing or banned performance enhancing drugs but the love for women that brought Eldrick Tont "Tiger" Woods sparkling career to its knees.

Up until December of 2009, Woods' rise had been meteoric to say the least and he was well on his way to becoming the greatest and most successful golfer of all time.

Woods had won an astronomical 14 majors the second highest of any player behind Jack Nicklaus and his 18 majors, was the highest paid athlete in the world and was almost bigger than the sport of golf that had made him famous the world over.

He has more career major wins and career PGA Tour wins than any other active golfer. He is the youngest



player to achieve the career Grand Slam, and the youngest and fastest to win 50 tournaments on tour. Additionally, Woods is only the second golfer, after Jack Nicklaus, to have achieved a career Grand Slam three times. Woods has won 17 World Golf Championships, and won at least one of those events in each of the first 11 years after they began in 1999.

But it was during his dominance of world golf which saw him spend 264 weeks from August 1999 to September 2004 and 281 weeks from June 2005 to October 2010 as world number one that Woods hid a deep and dark secret.

Woods' secret unravelled in a dramatic night in November 2009 after Woods crashed his car near his home and suffered minor injuries.

This was no ordinary crash, it involved a golf club, an unconscious Woods and an enraged wife, Elin Nordegren.

This had nothing to do with golf but more on how Woods lived a double life with as many women as titles.

In the end Woods' infidelity almost cost him everything as some of his sponsors abandoning him, his wife leaving with a whopping \$100million in the divorce settlement and a golf

career that was almost ended by a sabbatical that saw Woods drop from number one in the world to a lowly 58 in November 2011.

Fortunately, Woods has bounced back and at the time of going to print was ranked number two in the world after winning WGC-Cadillac Championship.

For all these three ills that have brought down some of the most loved sports personalities of our time, the question beckons if there are any heroes left in sport.

Certainly.



World and double Olympic record holder Usain Bolt, Olympic 5000metre and 10000metres champion Mo Farah, Proteas batsman Hashim Amla, Olympic swimming gold medalists Chad Le Clos and Cameron van der Burgh, South Africa's Olympic gold medal lightweight coxless fours Sizwe Ndlovu, Matthew Brittain, John Smith and James Thompson, Olympic 800metres silver medalist Caster Semenya, multiple Paralympic medalist and star Natalie du Toit are just some of

the heroes and heroines that continue to make us addicts and lovers of sport.



Initiatives to eradicate steroid use amongst our school athletes

Steroids in Schools

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Associate, Institute for Development and Labour Law (UCT)
Chairperson, SAIDS Anti-Doping Tribunal
Legal and Player Advocacy, South African Cricketers' Association*

Doping in sport has been front page news over the past number of months, thanks to Lance Armstrong – a legend who was found to be a cheat. Books have been written; millions of dollars spent on pursuing the truth, and a movie deal is in the offing. It is a fascinating, but sad, story of a sportsman pursuing glory above fair play. A hero no more.

Put into perspective however, it is not as sad as the fact that South Africa has the unenviable record of having one of the youngest athletes on record to have tested positive for steroids. She was a fifteen year old track athlete. By taking the steroid, the young girl started destroying her body, exposing herself to severe acne, smaller breasts, deeper voice, irregular periods, excess facial and body hair, depression, paranoia, fits of anger and stunted growth amongst other horrendous side effects. More recently, a seventeen year old school boy tested positive for the steroid Nandrolone at the 2012 Craven Week Tournament. There can be no doubting, that steroid use (as well as the use of other prohibited substances) amongst our junior athletes is on the rise. Dr Glen Hagemann of the Sharks Medical (Pty) Ltd works extensively in this field and in his survey amongst more than 9000 male learners in 2011, determined that 4.6% of these learners had used steroids at some point in their lives, and 2.7% had used steroids in the preceding month. These figures are alarming.

Doping in sport is not confined to the high profile athletes – it happens at every level of sport and at all ages. Amongst junior athletes, it is not always the first team players who use these substances – in many cases it is the second or third team player who is willing to risk prohibited substances to reach the higher level. The use of steroids for cosmetic purposes (the so-called “Clifton look”) is also common amongst our teenagers.

Many of the positive tests that are recorded worldwide are due to the use of contaminated supplements (think of Chilliboy Ralaphelle and Bjorn Basson). There is no doubting that sportsmen/women are constantly being informed that some form of supplementation is necessary if they are to reach the highest level. Junior athletes are especially impressionable and in many cases the step from over-the-counter supplements to more hard-core steroids is a natural progression for these athletes.

The issue of how to deal with steroid use in our schools has been debated for a number of years. The South African Institute for Drug-Free Sport (SAIDS) has the jurisdiction to test sportsmen/women competing under specific federations (e.g. South African Rugby Union, Cricket South Africa, Athletics South Africa, etc). This jurisdiction includes junior competitive sports (Craven Week, SA Junior Swimming Championships etc), but does not cover testing at the schools level. Sport at this level, falls under education and as such within the jurisdiction of the National and Provincial Departments of Education.

Over the past 18 month period, SAIDS has engaged in consultations with various stakeholders in the school sports arena. This culminated in the drafting and implementation of the Schools

Anti-Doping Protocol. The protocol is based on the provisions of the South African Schools Act 1996, which empowers the Headmaster or his delegate, to initiate drug testing where reasonable suspicion exists that substance abuse is occurring. The initial focus is on steroid use in schools, although the protocol may be expanded in future to cover for other prohibited substances.

In terms of the protocol, schools voluntarily sign the protocol and are then classified as a “SAIDS Accredited School”. The school will have access to training and support, as well as formal testing protocols. There will be no cost to the school as SAIDS will cover the costs of education and testing. In the event of a learner returning a positive test, the onus will be on the school to initiate disciplinary action which could lead to a suspension from school sport to an expulsion. SAIDS Accredited Schools will be expected to respect sanctions imposed by other SAIDS Accredited Schools. The protocol was introduced to schools during a recent national SAIDS roadshow – the support and enthusiasm of the schools has been superb, and it is evident that all stakeholders recognise the seriousness of the problem amongst out junior athletes.

The Schools Anti-Doping Protocol is open to all schools, and not just the traditional rugby schools. It is also a world first with the World Anti-Doping Agency (WADA) giving SAIDS special permission to proceed with the protocol, given that the nature of the process differs from that of the normal anti-doping protocols of WADA. Various countries have already expressed interest in the protocol and have requested feedback on the impact it has on steroid use in schools.

It is hoped that this initiative will be the first in ensuring that our junior athletes develop, grow and compete in a drug-free environment - a first step in ensuring that we do uncover true sporting heroes for the future.

South African Institute for
Drug-Free Sport



Faf Du Plessis

Text: Rob Walter Images: Gallo Images

For many Faf Du Plessis's arrival on the international stage was unexpected and surprising but like many Protea cricketers Faf did his apprenticeship through the age groups teams, amateur and Franchise cricket. During that time he also attended the National Academy based at the High Performance Centre (hpc) at the University of Pretoria. All of these steps played an integral part in his development as a cricketer and ultimately his ability to deal with the pressures that international cricket would eventually provide.

Faf attended the South African National Cricket Academy and attributes a portion of his current success to the programme. For Faf the programme's strength lay in numerous areas that allowed him to develop his physical, tactical, technical and mental cricketing skills.

The National Academy like many of the other national sporting programmes based at the hpc aim to provide their athletes with the necessary professional services that will give them the best opportunity to succeed at the highest level.

The fact that all such services are housed under one roof has made the hpc an appealing stop for many sportsmen and women and it was no different for Faf. "The professional environment created by the staff and the dedication of the athletes around you is a great motivator to developing your own game and with the world class facilities available to the athletes there really is no excuse not to develop your game."

Faf recalls going to breakfast on the chilly winter mornings in Pretoria and seeing the swimmers going about their work, "they had been training for an hour already when we went to breakfast and it felt as if the didn't stop all day, then going into the gym during the day you would inevitably see the rowers killing themselves on the rowing machines, seeing all these athletes working this hard to achieve success was a huge motivation for me personally to work harder on my own game in order to make it at international level."

There is no doubt that this is one of the significant strengths of the High Performance Centre. The influence that international athletes have on

each other in so far as their work ethic, professionalism and drive to succeed is of vital importance to their development and will always be one of his highlights.

The National Cricket academy is unique in that it provides an opportunity for cricketers from all areas of the country to come together and play as a national representative team/squad. They live and train together and in many instances close friendships have been formed at the hpc during the national academy programme. Furthermore many of these partnerships have continued through to playing for the more senior representative teams in the country. Often the ability to feel comfortable in one's environs is a key component to successful on-field performances thus even further enhancing the importance of the friendship fostered during the time at the National Academy.

Another vital component to performance is nutrition and Faf like most others was impressed by the quality of the food during his stay at the hpc. But beyond the quality of



the performance nutrition was the friendliness of the staff that went out of their way to ensure the hpc was in essence a “home away from home” for these athletes who had to spend large periods of time away from their homes.

“The staff at hpc were always accommodating and sought all possible means to ensure that we as athletes were comfortable and enjoying our time there. All the staff would go out of their way to look after us and take care of our sporting needs with a smile on their faces.”

Finally the physical well being of the athletes is arguably the most important part of any sports driven facility and for Faf the quality and accessibility of the staff in the Sports Science Unit was hugely important

to his development throughout the duration of the programme.

“The quality of the physios, doctors and massage therapists available to us throughout our time at the hpc was awesome, those of us who struggled with injuries along the way were looked after amazingly well and everything was done to ensure our speedy recovery and return to the field of play. No sportsman enjoys missing game time and the staff were brilliant in understanding our needs as sportsmen and working tirelessly to get us back on to the park.”

“All I can say is that whenever I look back on my career I am grateful for the opportunity I had to attend the National Academy based at the hpc. Any success that I enjoy can be in

some part be attributed to my time there. My ability to work on my game on world class facilities with quality sports professionals doing their best to help me achieve my goals was invaluable to where I am in my career now”. Strong foundations are always the keys to a successful sporting career and my time there will forever be a part of those foundations and any successes that I have enjoyed so far and may enjoy in the future. I am very grateful to all of those who had an influence on my time there.”

Just recently Faf has enjoyed some very memorable successes for the Proteas, lets hope that these are just the beginning of a very fruitful international career.



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A PERSISTENT PRESENCE

South African marathon legend Charné Bosman is switching gears. *The Medalist* asks her about new goals, new directions and the secret to staying ahead of the pack.

Text: Rick de Villiers Images: Reg Caldecott and Charné's own collection

Everyone Googles their own name from time to time. If links to websites other than Facebook or Twitter pop up, then you've probably had some small measure of success. It's proof that you have done something or been somewhere. But a whole different tier of internet fame is reserved for those whose achievements *and* absences are recorded.

Charné Bosman falls into the latter camp. After her name is sent through a maze of daedal algorithms, the first page of results delivers a host of newspaper and magazine articles on her decision not to defend her title at the 2013 SA Marathon Champs in Oudshoorn this past February. Respectively, these clippings convey shock, surprise and speculation; collectively they suggest one thing: Bosman's absence was felt.

The reaction is hardly surprising. In a career that spans more than 15 years, she has made an indelible impression on the South African running scene. Bosman is a three-time SA Marathon champion, has won the Soweto Marathon twice, competed at six World Cross Country Championships, and has represented South Africa 23 times. Now, at 37, she is shifting her focus to ultra-distance racing. Far from signalling retirement, her absence from the SA Marathon Champs was a strategic

decision and evidence of her commitment to the new discipline.

'It was a very difficult decision to make,' Bosman explains. 'If I competed and won the SA Marathon, I would have been the first woman to do so four times. But I've set my sights on the Two Oceans Marathon. I thought it best to spare myself and focus on that event alone.'

Having spent the last two weeks at a training camp where the athletes laid down an average of 320 running kilometres, there seems to be little self-sparing for Bosman. And yet, dressed smartly-casual in jeans and a red blouse, she appears a study of ease and self-possession. The ice-baths and massages at hpc, she confesses conspiratorially, perform wonders of restoration.

'It's very important to know how to take care of yourself and to know your body,' she says. 'Between 2005 and 2009, for instance, I had a dip in form for no apparent reason. Eventually I had blood tests done that showed I suffered from high cholesterol and low bone-density. Once I started on meds to remedy those problems, my performance picked up again.'

Bosman says that she has never felt better, and her latest performances prove as much. This year alone

she took gold at the Pick 'n Pay Marathon and claimed a personal best (74.69) at the McCarthy Toyota Half-Marathon. Last year, competing in her maiden ultramarathon (City2City), she missed out on a win by only the narrowest of margins.

'I always thought that switching to ultras would make me slower, but the longer distances have had the opposite effect: I'm getting stronger. While I was away with my club (Bonitas) at the recent training camp at Graskop, I was in particularly good shape. In fact, I kept pace with the men. They didn't like that. They rapped me over the knuckles and asked if I wanted to make them look bad at Two Oceans!'

Perhaps the answer to their question is yes. With new drive and direction, Bosman is motivated to become one of South African's best ultramarathon athletes. Her training is of military intensity (she depletes a pair of shoes every four weeks = 600km), her focus is diamond sharp, and, with the encouragement of her husband (Carel) and dog (Menace – 'he isn't one at all'), her support-network is intact. So by the time you read this article and Google her name, you will probably have to skip a few pages to find any mention of her missing an event. Charné Bosman is here to stay.





The Medalist caught up with the recently crowned junior triathlon world champ, Wian Sullwald, to discuss his method, motivation and milestones.

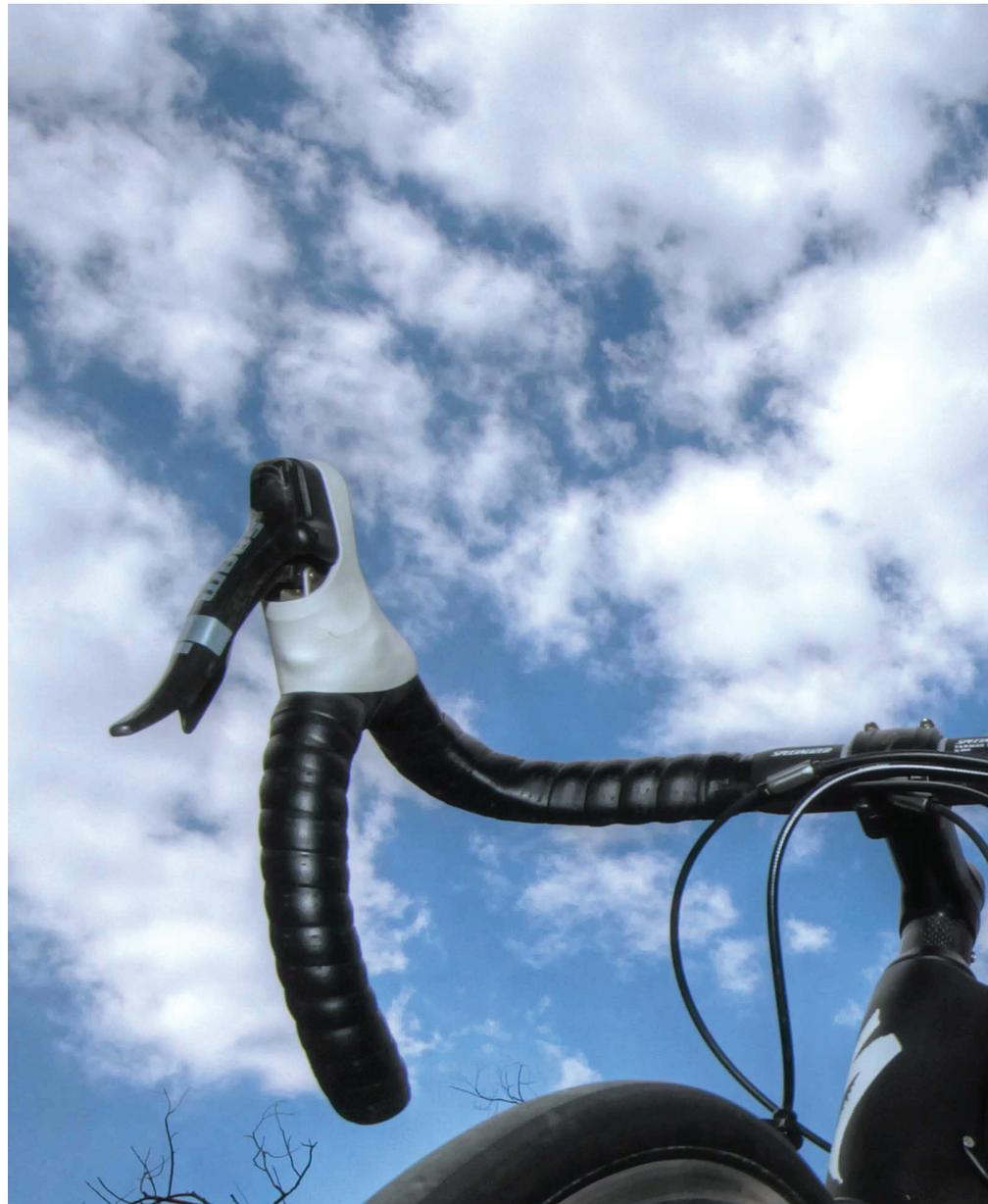
Rule of Three

Text: Rick de Villiers Images: Reg Caldecott

It's not unfair to say that triathletes are commonly afflicted by PADHD - physical attention deficit hyperactivity disorder. They are not satisfied with the muscle memory built up through one activity. Their desire to go forward is not appeased by a single mode of movement. Their bodies are religiously driven beyond the threshold of pain: not once, not twice, but three times over.

More than most, Wian Sullwald lives by the rule of three – except when it comes to winning. It was on an unsurprisingly sodden day in Auckland last year that the 20 year-old competed at the International Triathlon Union (ITU) Junior World Championships. While his previous appearances at the event (Australia, Hungary and China) produced solid but unremarkable results, his showing in New Zealand had the aura of auspiciousness about it. In spite of bad weather and fierce competition, Sullwald took the gold to become the first African junior world champion.

'It was something I had been working towards for a long time,' Sullwald explains. 'It's not good enough just to participate – you need to compete to win, and you've got to believe that you can do it. Every time I trained, I had the World Champs in mind. I made an effort to make each session count instead of just clocking empty



kilometres.'

With the same singleness of purpose, the self-described 'plaasseun' from Bela-Bela is now preparing to defend his title in London later this year. Under the direction of his coaches, Rocco Meiring and Lindsey Parry, Sullwald splits 30 hours and six training sessions between swimming, cycling and running each week. Well before most people hit the snooze button, he hits the road. But there are days, he admits, that getting up is not easy.

'My body is often so sore that I don't want to get out of bed. There is a fine line between pushing yourself

and taking a needed break, but more often than not I get up and put on my shoes: that's half the battle won. After all, this is my job. And it's a job I'm passionate about and feel privileged to do. Sometimes I'd be running or cycling as the sun rises or sets, and I realise how lucky I am to be healthy and to do what I love. And, of course, I'm also driven by what lies ahead.'

What lies ahead is Rio de Janeiro, 2016. For Sullwald (already a youth Olympian), the Olympics is the subject of all his dreams. It is the motivation behind each session, the balm during the burn. 'My

first goal is to qualify for Rio. But, again, I don't just want to say "I was there". I want to do well and get in among the top guys.' That he is already regarded as one of the 'top guys' is proven by the attention coming his way. With half a dozen sponsorships to his name, 400 followers on Twitter, and a freshly signed contract with French triathlon club Valence, Sullwald is a sought-after man. Reassuringly, he says that he is firmly rooted. 'I'm grateful for all the opportunities coming my way and look forward to racing in Europe. But South Africa will always be my home, and I can't wait to represent our country on the biggest stage.'



He's not called Jubilant for nothing. With a big smile and a hearty laugh, the triple jump athlete shoots straight from the hip.

Q&A

With Jubilant Motlhake

Text: Rick de Villiers Images: Reg Caldecott

Med: Tell us a bit about yourself. How did you get into athletics?

J.M.: I grew up in Mabopane. And if you know anything about Mabopane, you'll know that soccer is the big thing. Everyone plays soccer there! But both my parents were decent athletes in their day, which is probably the reason I got into athletics. In primary school (Robert Hicks) I did all kinds of sports, but athletics was my passion. I wanted to be a sprinter, South Africa's next Usain Bolt. But my coaches nudged me in the direction of long jump, which suited me better.

Med: You recently made the leap (excuse the pun) from long jump to triple jump. Why?

J.M.: Triple jump just fits me like a glove. People say it's more technical than long jump, but to me it feels like a very natural thing. I only switched over about two years ago, but it was a positive change. I've managed to improve a lot in a short time. In May last year at the Southern Region Youth Championships I represented South Africa for the very first time. I won the gold and achieved a personal best of 15,10m. Later in October I won another gold at the Prisma Prestige Championships. The only downside is that I also picked up an injury.

Med: What happened?

J.M.: I pulled my hamstring on my fourth jump – a grade-two tear. Luckily I had already landed a 13,60m jump, which was good enough for a win in the end. I've now been out of action for four months. But I'm almost back to 100%. The hydro-therapy at the hpc has done the trick, and I hope to be ready for the SA Champs in April.

Med: What lies beyond the SA Youth Championships?

J.M.: Well, hopefully I can qualify for the World Youth Champs in Ukraine, I think. It's my last year competing as a youth, which means I'm probably one of the strongest athletes in the group. I'm just going to do my best. Who knows, I might even challenge Khotso's (Mokoena) record of 16,03m. [Laughs].

Med: Do you have any pre-event rituals?

J.M.: Not really. I just try and block the outside world. I would like to start working on a kind of trademark image: a long sock on the right leg, a short one on the left. And just to make me stand out a bit more, I'll always wear a pair of those Michael Jackson mirror glasses. Even if people don't know my name, they will be able to say something about the guy with the socks!

Med: You are now in Grade 10 and have been a learner at TuksSport High School since 2011. Why is this the place for you?

J.M.: TuksSport High School is awesome. In primary school you never had time to practice before *and* after school. But here, because the programme is so flexible, I can get the most out of a day. I'm actually in the process of writing a song about the school called 'Put on your TuksSport High School shirt'.

Med: Tell us more...

J.M.: I'm in a hip-hop crew with a bunch of my friends. One of my hobbies is building beats on a programme called FruityLoops. Hopefully we'll have the song ready for the school's upcoming talent show later in the year.

Med: Next, you're probably going to tell us that you're mad about maths.

J.M.: I am! Maths is my favourite subject. If I could have maths all day I'd be very happy!

Med: Okay, Jubilant, time for some word association. Just say the first thing that pops into your head when I say...

Jump - Triple

School - Maths

Fear - Dying / spiders

Dream - Olympic gold

Girls - Pretty, model type.



Jubilant Motlhake: Fast facts

DoB: 29/02/1996

Favourite music:
House, hip-hop

Favourite pastimes:
playing games
(GTA, Fifa);
making beats



For all the toil Michael Seme has invested into South African athletics, it is not the accolades and adoration that he seeks but rather seeing his athletes stand on top of the world as the best.

Outside of the athletics world not too many people in South Africa know who Michael Seme is and that is exactly the way Seme wants it to be because it has never been about him but the athletes.

But without Seme, South Africa and the world could have been denied the talents of the likes of world renowned former 800metres world champion Caster Semenya and South Africa's rising star middle distance runner Stephen Mokoka.

It was Seme, after all, who helped catapult Semenya onto the world stage and in assisting Semenya rise from obscurity to stardom in 2009 at the World Championships in Berlin.

And even though Semenya parted ways with Seme at the end of 2011, it hasn't stopped Seme in working harder to produce another world star.

Semenya was not the first star Seme had produced and judging by his long and impressive coaching record, there are still more South African and world champions still to come from Seme's coaching ways.

In a cruel twist of fate, Seme himself could have been an athletics great in his young running days had he had the adequate coaching and access to facilities but his budding career as a runner was cut short because of the need to help other athletes reach their potential.

Never a slouch or one to rely on talent alone, Seme was a credible middle and long distance runner clocking a best time of 3:57 in the 1500metres as well as a 1:09 for the half marathon.

"I'm happy that I am able to help athletes represent South Africa especially in the middle distance events," Seme said.

"I have no ill feeling to how my career ended but it did not turn out the way I had hoped it would. Fortunately I was able to start coaching from a very young age and most people know me as a coach. I ran while I was in KwaZulu-Natal and represented my province but we struggled with coaches in those days as Kenneth Zondi was the only coach available to us. It was then that I decided to help him and I achieved good results with my athletes. That is how I started," Seme said.

Born in Soweto, Seme established the PUNA Athletics Club in the largest township in South Africa in 1983 but it was his prowess in identifying and nurturing talent that saw Seme concentrate on his coaching abilities which have yielded great results.

Seme unearthed top male athletes in Lunga Zungu, Daniel Nkone and Joshua Peterson but it has been mainly his female athletes that have made great strides in the athletics world.

The emergence of Mpho Mabuza, who was Seme's first female athlete to compete for South Africa, and other international stars like Prudence Zwane, multiple national 10000metres champion Poppy Mlambo and Semenya have highlighted Seme's brilliance.

But the 53-year-old Seme believes that it is not in his female runners that his best athlete has emerged but rather in the diminutive stature of Mokoka who Seme worked closer with after taking up a coaching position at the University of Pretoria in 2007.

"I won't say that I work better with female athletes or male athletes. I have been blessed to have coached some very talented men and women. There have been some great athletes in both categories but I must admit that a guy like Stephen Mokoka can go very far. We have a 10 year plan for Stephen which started in 2004 and we will continue working hard at it until we outrun the other athletes in the world. Even though Stephen

is doing well at the moment we need to keep on planning because there are still records being broken around the world meaning that there is still a lot of work for us to do. I'm really happy with Stephen because he has managed to break through and not only compete with the Kenyans and Ethiopians but is beating them," Seme said of the rare talent of Olympian Mokoka who in 2010 achieved the unique double at the SA Championships of winning the 10000 and 1500metres races.

Under Seme's guidance Mokoka qualified for the London Olympics in both the 10000metres on the track and marathon while his 15th place finish at the 2011 World Cross-country in the 12km race equaled Shadrack Hoff's best placing by a South African at the event.

So what is Seme's secret?

Is it the fact that he is the first coach in the world to be bestowed with the IAAF Level 5 Academic Coaching diploma or is he just a good man manager?

"The biggest problem facing coaches in South Africa is that they believe everything is in books. One has to use their mind, common sense and know their athlete as well. It is important to know what programme your athlete should be on and even then you must be able to adjust the programme to suit your athlete. You need to understand how the muscles of your athlete work and know when to maximize on them be it in training or during competition. Many coaches don't take notice of these things and end up killing the athletes."

"What is important is that you must help build the athlete to run at their best during competitions instead of at training. It is also important to ask if you don't know or understand and make sure that you always attend courses. For me the biggest thing is the athlete and to make sure that you break the wall. It is the coach's responsibility to help the athlete break the wall. You must break the wall if not then the athlete must go look for another coach," Seme said.

Michael Seme

Text: Vata Ngobeni, Chief sport writer for the Pretoria News

Images: Reg Caldecott

As hard lined as Seme is with his athletes, there is also a softer side to Seme which has probably succeeded in getting the best out of his athletes but has also ensured that his own children are not pressured into becoming athletes.

Seme has four children with the eldest Sikhumbuzo the one who had shown the most interest towards running until a near fatal shooting put paid to his talent as a steeplechase athlete.

“Sikhumbuzo was shot in the head during a robbery in 2007 and can no longer run in the steeplechase as the hole in his head is affecting him a lot. He is still active in running half marathons and marathons participating in the Two Oceans and SA champs and his first place finish at the SA champs helped Athletics Gauteng North to first place. My other kids were once interested in athletics with the twin girls (Busisiwe and Makhosazana) doing high jump and middle distance but they are all grown up now and have other interests. My other son loves football so he is playing what he loves to do. I am not the type of father that will force them into doing what they don't want to do. Instead they must choose for themselves what they want from life,” Seme said.

Seme doesn't claim to have the secret for his success but it becomes clear at the end that by being true to himself, working hard, studying, listening and asking have all contributed to Seme's legendary status.



hpc sponsors the best

Text: Wilhelm de Swardt

After the 2012 Olympic Games in London, the High Performance Centre of the University of Pretoria (hpc) has acquired a reputation for being the place where good athletes become world beaters.

There can be no argument about this. Three of the five medals (1 gold, 1 silver and 1 bronze) that were won by South Africa in London can be credited directly to the input of the hpc staff (sports scientists, physiotherapists, biokineticists and dieticians).

One of the most prominent Olympic success stories was without doubt the “golden” performance by South Africa’s four-men rowing team, Sizwe Ndlovu, John Smith, Matthew Brittain and James Thompson.

Their ability to win a gold medal in London, is prove of the success that can be achieved if athletes and coaches are prepared to work along with sport scientists to ensure success.

This is textbook stuff.

For the past eight years South Africa’s rowers and the scientists at the hpc had just one goal and that was to win at least one medal at the Games.

Bridgitte Hartley’s spontaneous tears when she received her bronze medal in the sprint canoeing was certainly one of the more endearing moments of the Games.

Her tears were justified. It took nearly eight years of hard work, together with lots of sacrifices and dissapointments, for Hartley to, at long last, earn her place on the Olympic podium.

Caster Semenya’s silver medal is

another hpc success story. Her brute force of power over the last 400m of the women’s 800m final is the stuff that legends are made off.

You can be assured that she was not running on pure raw natural talent.

In total 17 athletes who are supported by the hpc represented South Africa at the London Games.

Another hpc success story is that of Wian Sullwald. He made international triathlon history in Auckland, New-Zealand in October by becoming the first Afrikaans-speaking world champion.

Despite the dismal conditions, the 19-year-old Tukkie ensured that he won the ITU Triathlon Junior World Championship with an excellent all-round performance.

It was the first time that a South African tri-athlete won a medal at a World Championship in one of the elite categories (not the age-group categories).

2012 was actually a coming-of-age season for Sullwald. He won the African junior title in Mauritius as well as the South African senior championships.

The improvement in the performance of the mountain biker, Philip Buys (Scott), is another example of the difference that the hpc scientists can make once they become involved with an athlete.

Last year Buys won the African Continental African Cross Country title for the first time. He also represented South Africa at the Games, but unfortunately had some bad luck.

In Cape Town, in February, he won the first of the UCI-sanctioned cross-country races by beating Switzerland’s Florian Vogel and Ralph Naef.

The women’s golfer, Kim Williams, is also supported by the hpc.

Last year she was runner-up in the Gauteng North Championship, the Southern Cape Open and the Ackerman Championship.

Williams also finished as the leading qualifier in the Gauteng Amateur Championship. She represented South Africa in the World Amateur Team Championship in Turkey.

Marc Mundell’s performance in the 50km race walk is another success story.

He bettered the South African record twice. The first time was in Saransk, Russia, at a World Cup Meeting. Mundell’s time was 4 hours 4 minutes and 42 seconds.

At the Games in London he improved his time to 3:35:59.

“Being able to take almost two and a half minutes off my previous best time is testimony to how hard we had worked,” Mundell said afterwards.

Mundell was the first South African male who competed in the 50km race walk event since the country’s return to the Olympics at Barcelona in 1992.

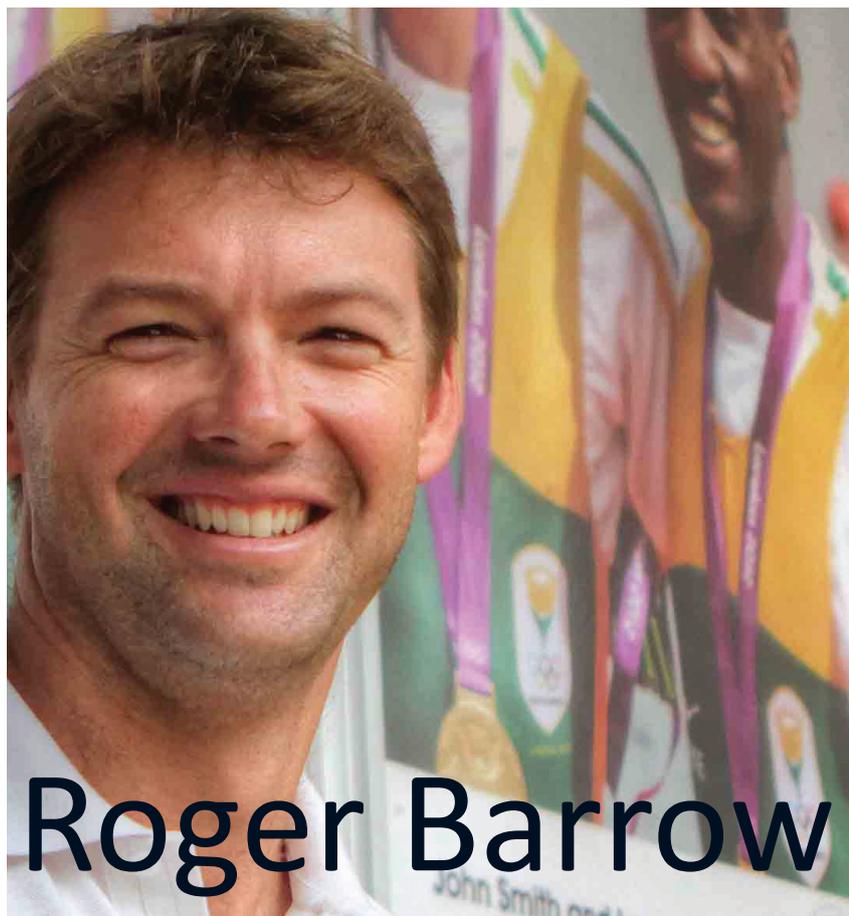
The following athletes are being supported by the hpc this year:



The hpc's sponsored athletes for 2016 and beyond...

ATHLETICS		
1	Jacques de Swardt	Athletics
2	Charne Bosman	Athletics
3	Willem de Beer	Athletics
4	Cornel Fredericks	Athletics
5	LJ van Zyl	Athletics
6	Wenda Theron	Athletics
7	Stephanie Wicksell	Athletics
8	Caster Semenya	Athletics
9	Khotso Mokoena	Athletics
10	Craig Canham	Athletics
11	Albert Janki	Athletics
12	Petunia Ndyombo	Athletics
13	Duwayne Boer	Athletics
14	Reabetswe Moloji	Athletics
15	Jubilant Mothlhake	Athletics
16	Ntokozo Sabelo	Athletics
17	Thando Roto	Athletics
18	Jacob Tseko	Athletics
CANOEING		
19	Bridgitte Hartley	Canoeing
GOLF		
20	Magda Kruger	Golf
21	Kim Williams	Golf
22	Zander Lombard	Golf
JUDO		
23	DJ le Grange	Judo
24	Vaughan du Preez	Judo
25	Jacques van Zyl	Judo
26	Dale Whittaker	Judo
27	Zack Piontek	Judo
28	Christiaan Boshoff	Judo
29	Geronay Whitebooi	Judo
30	Matthew Chase	Judo

MOUNTAIN BIKING		
31	Philip Buys	Mountain Bike
RACE WALKING		
32	Marc Mundell	Race Walking
ROWING		
33	David Hunt	Rowing
34	Kate Johnstone	Rowing
35	Lawrence Brittian	Rowing
36	Shaun Keeling	Rowing
37	James Thompson	Rowing
38	John Smith	Rowing
39	Lawrence Ndlovu	Rowing
40	Lee-Ann Perse	Rowing
41	Matthew Brittian	Rowing
42	Naydene Smith	Rowing
43	Michael Voerman	Rowing
44	Lloyd Bemelman	Rowing
SWIMMING		
45	Darren Murray	Swimming
46	Karin Prinsloo	Swimming
47	Suzaan van Biljon	Swimming
48	Emily Gray	Swimming
49	Caydon Muller	Swimming
50	Rita Naude	Swimming
51	Marlies Ross	Swimming
52	Nico Meyer	Swimming
53	David de Villiers	Swimming
TRIATHLON		
54	Rudolf Naudé	Triathlon
55	Wikus Weber	Triathlon
56	Wian Sullwald	Triathlon



Roger Barrow

staff excellence

Text: Wilhelm de Swardt Image: Reg Caldecott

One of the best things that ever happened to South African rowing was when Roger Barrow decided to switch from playing cricket to rowing.

Barrow might not have been one of South Africa's best rowers, but as the national coach he is unequalled.

During the past six years he was the instigator who led the South African rowers, James Thompson, Lawrence Ndlovu, Matthew Britain and John Smith to their golden moment at the 2012 Olympic Games in London when they achieved their historic victory in the lightweight fours.

It would seem that 'success begets success'. Barrow and the 'Fantastic Four', as the winning team of the gold medal was dubbed, have already started in all earnest to train for the 2016 Olympic Games in Rio.

Barrow obviously wants to keep this

crew together for as long as possible.

"Considering how young they still are, it is actually scary that they were able to do this well. They still have a long future ahead. This is confirmed by the fact that one of the Danish guys is 40 years old and still active.

"There's no shortage of motivation among these guys. They know that they still have room for improvement. In fact, they would love to have won by a longer distance."

Barrow set himself quite a stiff challenge for the 2016 Games. He wants South Africa to qualify to take five boats to Rio.

He honestly believes that it is a realistic goal.

"People should understand that when I talk about qualifying five boats for the Olympics, I am not

talking about winning five medals.

"As a coach I don't believe in making predictions about medals. The only goal I will ever set for my rowers is to get to the final of a World Championship or the Olympic Games.

"Once you have reached the final, you have a one-in-six chance of medalling. But then it is up to the rowers themselves. All will depend on how much they really want victory."

Barrow said he fell in love with rowing when he was at Saint Andrews College in Grahamstown.

"I was quite good as a cricketer. Batting was my forte. But the moment I tried rowing, that was it. I totally lost my passion for cricket."

"I found it too boring to be on a cricket pitch for hours on end when

I could have been on the water and rowing.

“Right from the start the challenge presented by rowing fascinated me. It is such a complex sport and there are so many variables that have to be taken into account to be successful.

“My passion for rowing caused quite a dilemma, because I did not know how to tell my parents that I did not want to play cricket any longer.

“They were both passionate about cricket and my brother was a good cricketer. It took me six months to muster the necessary courage to tell them that I was not playing cricket any longer.

“My parents were at first very disappointed about my decision, but they learned to accept it.

“I rowed ‘fours’ and ‘eights’ at school. In my senior year, when I was a member of the first team, we managed to win a bronze medal at the national championships.

“I was then invited to London to row for a British school and we managed to win the national championships.

“Another highlight was when I was invited by the Leander Club to row for them.

“The club was founded in 1818 and it is one of the oldest rowing clubs in the world. It is based at Remenham, in the English county of Berkshire, adjoining Henley-on-Thames, and is considered to be one of the best boating clubs in the world.”

“I spent two years rowing for them before I came back to South Africa. My goal was to qualify for the national team that was to represent South Africa at the 2000 Olympic Games.

“I did not make the team, but it was not the end of the world for me because I had already started coaching and was achieving some success.”

Barrow admits that he does not hold a sports qualification.

“I have a B.Comm degree, but to be a rowing coach is my passion.

“I firmly believe that, as a coach, the day will never come when I will be able to sit back and claim that I now know everything.

“I try to keep abreast of the latest developments in international rowing by doing daily research on the internet.

“I was fortunate to have had many good mentor coaches, and I still learn from the coaches with whom I work.

“Christian Felkel, who is now involved with the British national rowing squad, was my coach when I was rowing in South Africa.

“He is a true mentor to me. I phone him at least once a week to talk about rowing and rowing strategies and I learn something new every time.”

Barrow said that, as a coach, he believes in teamwork.

“As I have said before, no coach will ever know everything. Therefore I am always prepared to listen to the ideas of other experts and this is why we are successful as rowers.

“I am fortunate that there are so many passionate volunteers in the South African rowing community who are prepared to help.

“In many instances they do it totally free of charge, without expecting anything back for their time and contribution to the success of the rowers.

“Andrew Grant works full-time with me and he does things for the right reasons.

“Paul Jackson, a former national coach, is one of the volunteers. He was involved hands-on with the Olympic preparation of the lightweight-four team.

“Paul brings new and exciting ideas to the table all the time and he is a valuable mentor to me.

“Danielle Brittain volunteered her services as team-doctor free of charge.

“She was the one who treated every little niggle of the Olympic rowers last year and, in doing so, ensured that they reached the Olympic final without any injuries. What’s more, she is also like a mom to the rowers.

“Jimmy Clarke, sports scientist, is my guru. He always has new ideas of how we can get a boat to go that little bit faster. He just keeps on pushing the boundaries.

“Nicola McLeod is the team’s gym trainer. She is ruthless with the guys and knows how to get them to work that little bit harder.”

Barrow does not want to make a big issue of it, but at the moment South Africa’s top rowers do not have a penny to their names with which to compete internationally or buy state of the art equipment.

In spite of being Olympic champions, the lightweight-four team is still training with an outdated old boat.

There is also no money available for the rowers to compete at any of the World Cup regattas.

“I would have loved my rowers to compete at least at the Lucerne World Cup, but as things stand at the moment, it is not going to happen.

“If we are not able to compete internationally before the World Championship in Korea, it will not be the end of the world.

“Luckily, the quality of the competition within the squad is such that rowers tend to push each other to the limit during our training sessions.

“It is important that we, as rowers, have realized and accepted a long time ago that there will never be any real kudos for what we achieve. This will never deter us, because we have learned to rely on pure guts and determination to succeed, no matter what.”



The Power of Pictures in Coaching

Text: Maurice Aronstam & Monja Human

In this article the powerful effects of using metaphors in coaching is introduced. I'm sure many of you have used pictures or stories in your coaching. If you are using them, you're on the right track!

A metaphor can be seen as understanding that is transferred from one situation to another. Metaphors can use any picture or story that will help to bring understanding to a concept that you want to bring across to your athlete(s). Research seems to indicate that the use of metaphors is strongly linked to our capacity to process concepts and understanding. This capacity allows you and your athlete(s) to verbally elaborate on the metaphors, enhancing the understanding of the concept you want to bring across.

For example, the metaphor of "earning" in the context of a profession has associated with it that through hard work you earn a living by being rewarded financially. This metaphor can easily be applied to the concept of confidence in sport. An athlete must put in the hard work and so earns his/her confidence. This metaphor can be elaborated on even further. A certain amount of self-confidence is expected for an athlete to perform well in a high pressure situation. If the athlete has worked hard, earned confidence, and saved all this confidence in a confidence bank account, he/she will be able to withdraw the confidence required to stay calm and do well when the pressure situation arises.

Metaphors are also a creative way to encourage and facilitate change in athlete(s). The flexible nature of metaphors allows for understanding as well as behaviour to be changed. Certain metaphors will have certain behaviours associated with them. By altering or changing the metaphor the behaviours associated will also be changed.

For example, using the metaphor of a Spanish bullfight where the bull gets charged up by the matador using the red cape likely has associated with it behaviours of high energy, short bursts of speed, and an almost 'mindless' form of attack from the bull. An athlete that tends to get worked up before competing and that participates in a sport that requires constant tactical thinking will not benefit from the associated behaviour of this metaphor. A metaphor that portrays calm, analytical behaviour will facilitate change in the athlete that will have a positive effect on performance.

Metaphors can create positive conversations between coaches and athletes. If a coach needs to challenge an athlete's thinking or behaviour, doing so as part of the metaphor will be much less provoking and likely be met with a less defensive response. Examples can include questions like; did you play according to the metaphor we discussed; what would you change about how you employed your metaphor today, was your behaviour towards the opponent in line with the metaphor we discussed?

Metaphors can be generated by both the coach and the athlete. Coach generated metaphors will be used more for educational purposes where a concept is presented to a player and then the players understanding of the metaphor can be assessed. If the athlete does not buy into or understand the metaphor it will not serve its purpose. Player generated metaphors will be used by a coach to better understand the players understanding and perspective of the sport, tactics or concepts. When working with a player generated metaphor it is important for the coach to show respect, understanding and empathy for the players' metaphor, helping the player further develop their own metaphor rather than forcing his/her own opinions.

The following steps have been identified in the use of players' metaphors:

- Identify the metaphor.
- Explore the understanding of the metaphor.
- Expand on and develop the metaphor to allow for change to occur.
- Bring the metaphor back to reality.

Metaphors are also easy to remember. Instead of the athlete having to remember steps 1-5 in a competitive situation, if a shared understanding exists of the associated thinking and behaviour of the metaphor the athlete might only need to be reminded of the

metaphor and when successfully applied, understanding and behaviour will fall into place.

To further illustrate the use of a metaphor let's look at a metaphor that came to mind in a cricket context when watching Chris Gayle construct his innings' in the 2012 IPL tournament. There is little arguing the impressive feats that Chris Gayle reached in the IPL 2012. He was the top run scorer in with 733 runs at an average of 61.08 and a strike rate of 160.74.

The metaphor that came to mind is that of driving a Ferrari and seeing what the top speed is. To start moving forward you need to put the Ferrari in 1st gear and start to accelerate. You then proceed to move through the gears, each time unleashing another 20% of the Ferrari's capabilities, until you can push the Ferrari to the limits of what it can do. Gayle's approach to his innings' seems to follow this same process. He starts off in 1st gear (60%), changing gears when he feels the time is right, until he can approach his innings in 5th gear, batting at 100% of what he's capable of. This approach to his batting made him effective because it struck the balance between taking his time to get himself in and ending with a destructive display of boundary hitting.

Some of the finer elements in the Ferrari metaphor to construct an innings could include:

- To give the batsman the best chance of consistent success by getting in first, start in 1st gear at 60% of your capabilities. This does not mean at a 60% strike rate, on the contrary, you can bat at a 100+ strike rate. It simply means to play your percentage shots and leave the high risk shots for later.
- As the batsman moves through the gears he/she starts kicking on and scores more freely, reaching 5th gear in the last few overs of the innings.
- Changing gears is determined by the team's game plan and reading the state of the game. At 150/0 you would expect the two batsmen to bat in at least 3rd or 4th gear. At 150/6 the two batsmen would need to stay in 2nd gear for longer before changing gears towards the end of the innings.
- This metaphor is equally relevant for an opener as it is for someone in the middle order. All that will change is the amount of balls you can face in a certain gear before changing up a gear. (Consider for

a moment a very clever Indian player in M. S. Dhoni and how often he adapts to the state of the game, some days spending only a few balls in 1st gear, and other days fighting a troubled start of innings by spending any number of overs in 1st gear).

In summary, the benefits of metaphors in your coaching include:

- To help understanding and applying of concepts.
- To facilitate change in understanding and behaviour.
- To help coaches and athletes collaborate and come up with a solution together.
- To create a positive conversation when critically reflecting after a performance.
- Easy to remember.

I hope that including more metaphors in your coaching helps your players respond and continue with the positive changes in their game!



The Effect of Kinesio Taping on the Explosive Muscle Power in Male Athletes

Text: Jaco Swart, Physiotherapist, hpc

Kinesio tape have made numerous claims as to its efficacy and to a great extend this has been proved by research. One claim remained to be tested. Does Kinesio tape have an effect on healthy, uninjured athletes? Research into the explosive muscle of athletes have been done at the High Performance Centre (hpc) to determine just that.

The research was done by Mostert Wentzel et al (2012)¹ on university male athletes. The goal of the research was to determine the short term effects of kinesio tape on the explosive power of the main hip extensor muscle (Gluteus Maximus) of male athletes in a vertical jump.

The sample size included sixty male university athletes with no musculo-skeletal injuries in the past six months before the screening, no medical condition(s) in the previous six months and not having any metabolic conditions affecting joint integrity.

The study used two groups of participants with different interventions. Group one received a y-strip kinesio tape application, on both sides over the gluteus maximus muscle applied with tension according to the kinesio application principles.

Y-strip application



I-strip application



Group two received taping that was applied in a neutral way with no tension in the application. This method was based on other studies and was used with the aim as a placebo. The I-strips were applied horizontally to the middle of the gluteus maximus muscle.

The results of the study were determined by looking at the time influence of the application of the tape and the height displacement during a vertical jump on a level, non-slip concrete surface. Subjects completed a standardised dynamic warm-up of 10 body weight squats, lunge walks for 10 meters and buttock kicks for 10 meters.

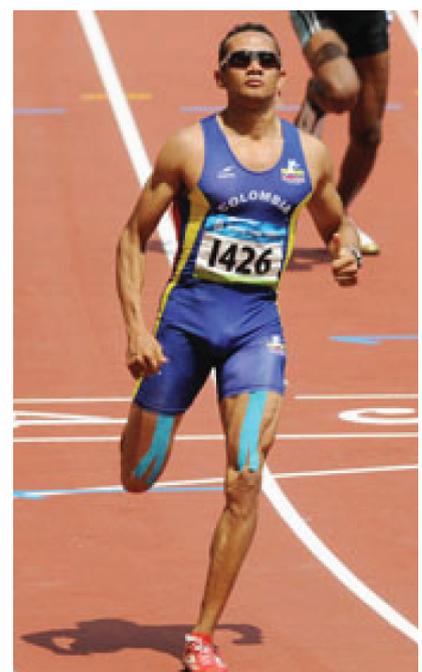
¹ Mostert Wentzel K, Swart JJ, Masenyetse LJ, Sihlali B, Cilliers R, Clark L, Martiz J, Prinsloo E, Steenkamp L 2012 Effect of kinesio taping on explosive muscle power of gluteus maximus of male athletes SAJSM 3:75-80



The Vertec (Sports Imports Inc 2004) was used to measure the height displacement during a vertical jump. The first recording included 3 jumps at maximal effort, 2 minutes apart, with no taping applied. There after subjects were strapped according to their group. Immediately after taping, 3 jumps were performed followed by a 30 minute rest period. The warm-up was repeated again and the last 3 jumps were performed, 30 minutes post taping.

The outcome of the study showed that the timing after the taping made a big difference on the results. The main findings was that kinesio tape improved short-term muscle power of the gluteus maximus muscle directly after the application and 30 minutes after, increasing the height displacement during the vertical jump. The main effect of the kinesio tape is applying the tape with tension as in contrast to the placebo used. The sensory input given by the tape modulates the gamma-motor firing, which in turn leads to increased muscle tone and increased explosive muscle power of the gluteus maximus muscle of male athletes.

The result of this study reveals that athletes may improve their vertical jump by up to 2.35cm at the 30 min post application mark. This study appears to be the first to test explosive muscle power in healthy subjects and may start the debate on whether kinesio taping can be seen as a performance enhancer.



Spondylolysis/isthesis in athletes:

Prevention better than cure

Text: A.Smuts, B.Physt,M.Physt (sport)

What is spondylolisthesis?

Spondylolisthesis (spon + dee + lo + lis + thee + sis) is a condition of the spine whereby one of the vertebra slips forward or backward compared to the next vertebra. Forward slippage of one vertebra on another is referred to as anterolisthesis, while backward slippage is referred to as retrolisthesis. Spondylolisthesis can lead to a deformity of the spine as well as a narrowing of the spinal canal (central spinal stenosis) or compression of the exiting nerve roots (foraminal stenosis).

What causes spondylolisthesis?

There are five major types of lumbar spondylolisthesis.

1. Dysplastic spondylolisthesis:

Dysplastic spondylolisthesis is caused by a defect in the formation of part of the vertebra called the facet that allows it to slip forward. This is a condition that a patient is born with (congenital).

2. Isthmic spondylolisthesis:

In Isthmic spondylolisthesis, there is a defect in a portion of the vertebra called the pars interarticularis. If there is a defect without a slip, the patient has spondylolysis. Isthmic spondylolisthesis can be caused by repetitive trauma and is more common in athletes exposed to

hyperextension motions including gymnasts, and football linemen.

3. Degenerative spondylolisthesis:

Degenerative spondylolisthesis occurs due to arthritic changes in the joints of the vertebrae due to cartilage degeneration. Degenerative spondylolisthesis is more common in older patients.

4. Traumatic spondylolisthesis:

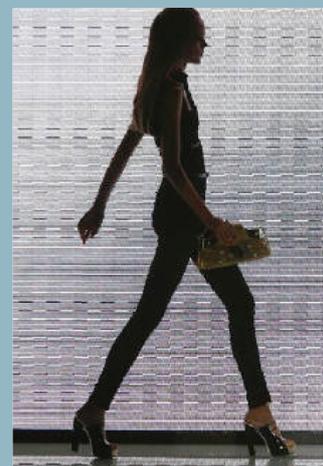
Traumatic spondylolisthesis is due to direct trauma or injury to the vertebrae. This can be caused by a fracture of the pedicle, lamina or facet joints that allows the front portion of the vertebra to slip forward with respect to the back portion of the vertebra.

5. Pathologic spondylolisthesis:

Pathologic spondylolisthesis is caused by a defect in the bone caused by abnormal bone, such as from a tumor. In children, spondylolisthesis usually occurs between the fifth bone in the lower back (lumbar vertebra) and the first bone in the sacrum (pelvis) area. It is often due to a birth defect in that area of the spine or sudden injury (acute trauma).

Bad postural habits can lead to spondylolisthesis.

Bad postural habits:



Symptoms

Spondylolisthesis may vary from mild to severe. A person with spondylolisthesis may have no symptoms. The condition can produce increased lordosis (also called swayback), but in later stages may result in kyphosis (roundback) as the upper spine falls off the lower spine.

Symptoms may include:

- Lower back pain
- Muscle tightness (tight hamstring muscle)
- Pain, numbness, or tingling in the thighs and buttocks
- Stiffness
- Tenderness in the area of the slipped disc
- Weakness in the legs

How is spondylolisthesis diagnosed?

In most cases it is not possible to see visible signs of spondylolisthesis by examining a patient. Patients typically have complaints of pain in the back with intermittent pain to the legs. Spondylolisthesis can often cause muscle spasms, or tightness in the hamstrings.

Spondylolisthesis is easily identified using plain radiographs. A lateral X-ray (from the side) will show if one of the vertebrae has slipped forward compared to the adjacent vertebrae. Spondylolisthesis is graded according to the percentage of slip of the vertebra compared to the neighboring vertebra.

1. Grade I is a slip of up to 25%,
2. grade II is between 26%-50%,
3. grade III is between 51%-75%,
4. grade IV is between 76% and 100%, and
5. Grade V, or spondyloptosis occurs when the vertebra has completely fallen off the next vertebra.

If the patient has complaints of pain, numbness, tingling or weakness in the legs, additional studies may be ordered. These symptoms could be caused by stenosis or narrowing of the space for the nerve roots to the legs. A CT scan or MRI scan can help

identify compression of the nerves associated with spondylolisthesis. Occasionally, a PET scan can help determine if the bone at the site of the defect is active. This can play a role in treatment options for spondylolisthesis as described below.

Your doctor or nurse will examine you and feel your spine. You will be asked to raise your leg straight out in front of you. This may be uncomfortable or painful. X-ray of the spine can show if a bone in the spine is out of place or broken.



What is the treatment

Aims:

- Relief pain
- Work into flexion
- Spinal articulation
- Gluts activation
- Stretching
- Strengthening
- Psoas rehabilitation

The initial treatment for spondylolisthesis is conservative and based on the symptoms.

- A short period of rest or avoiding activities such as lifting and bending and athletics may help reduce symptoms.
- Physical therapy can help to increase range of motion of the lumbar spine and hamstrings as well as strengthen the core abdominal muscles.
- Anti-inflammatory medications can help reduce pain by decreasing the inflammation of the muscles and nerves.

- Patients with pain, numbness and tingling in the legs may benefit from an epidural steroid (cortisone) injection.

- Patients with isthmic spondylolisthesis may benefit from a hyperextension brace. This extends the lumbar spine bringing the two portions of the bone at the defect closer together and may allow for healing to occur.

For patients whose symptoms fail to improve with conservative treatment surgery may be an option. The type of surgery is based on the type of spondylolisthesis. Patients with isthmic spondylolisthesis may benefit from a repair of the defective portion of the vertebra, or a pars repair. If an MRI scan or PET scan shows that the bone is active at the site of the defect it is more likely to heal with a pars repair. This involves removing any scar tissue from the defect and placing some bone graft in the area followed by placement of screws across the defect.

If there are symptoms in the legs the surgery may include a decompression to create more room for the exiting nerve roots. This is often combined with a fusion that may be performed either with or without screws to hold the bone together. In some cases the vertebrae are moved back to the normal position prior to performing the fusion, and in others the vertebrae are fused where they are after the slip. There is some increased risk of injury to the nerve with moving the vertebra back to the normal position.

What is the outlook

The outlook for patients with spondylolisthesis is good. In most cases patients respond well to a conservative treatment plan. For those with continued severe symptoms, surgery can help alleviate the leg symptoms by creating more space for the nerve roots. The back pain can be helped through a lumbar fusion.

Expectations (prognosis)

Exercises and changes in activity are helpful for most people with mild spondylolisthesis.

Complications

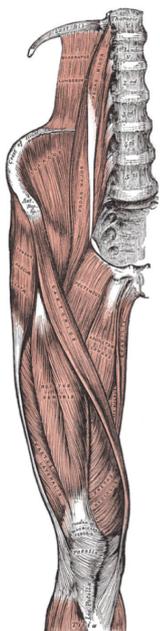
If too much slippage occurs, the bones may begin to press on nerves. Surgery may be necessary to correct the condition.

Other complications may include:

- Chronic back pain
- Infection
- Temporary or permanent damage of spinal nerve roots, which may cause sensation changes, weakness, or paralysis of the legs

Why is it so important to strengthen the psoas muscle?

Psoas minor originates from the vertical fascicles inserted on the last thoracic and first lumbar vertebrae. From there, it passes down onto the medial border of the psoas major, and is inserted to the innominate line and the iliopectineal eminence. Additionally, it attaches to and stretches the deep surface of the iliac fascia and, occasionally, its lowermost fibers reach the inguinal ligament. Variations occur, however, and the insertion on the iliopubic eminence sometimes radiates into the iliopectineal arch.



The psoas major is divided into a superficial and deep part. The deep part originates from the transverse processes of lumbar vertebrae I-V. The superficial part originates from the lateral surfaces of the last thoracic vertebra, lumbar vertebrae I-IV, and from neighboring intervertebral discs. The lumbar plexus lies between the two layers. Tightness of the psoas can result in lower back pain by compressing the lumbar discs.

**Case studies:
17 year old fly swimmer**



- Bilateral pars interarticular stress fractures L5/S1
- Non union of stress fracture after 12 months follow up MRI
- Bilateral pins and needles legs
- Clicking sound when patient flexes
- Too young for fusion

16 year old high jumper



Symptoms

- Pain with jumping after 3 jumps
- Pain took 3 days to subside
- Tight feeling in the hamstrings
- Pain worse on push off leg
- Pain in buttocks
- Stiffness in lowerback
- Lumbar spine fixated in extension

Clinical findings

- R pars interarticular stress fracture L5
- Abnormal gluteal activation problem
- Overactive lower lumbar extensors
- Weak core stabilizers
- Decrease range of motion hamstrings
- No intersegmental movement lumbar spine
- Tight latissimusdorsi muscle

21 year old sprinter

Clinical findings

- MRI :There is evidence of an acute stress fracture of the left pars interarticularis at the L5 level with bone oedema present.
- Increased lumbar lordosis
- Gluteus maximus sequencing wrong
- No core stability



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The role of Biomechanics in High Performance Sport

Is there actual value in this component of sport science?

Text: Jaco Liebenberg, Sport Biomechanist, hpc

First things first. What is Biomechanics? Biomechanics is the area of sport and exercise science where the laws, principles and methods of mechanics are applied to the structure and function of the human body.

That being said, **why** do coaches and scientists study and investigate biomechanics in high performance sport, and what is the role of a Biomechanist?

Let's start with uncle Newton. Newton's Laws are physics-based rules that determine how an object moves through space. These laws are set in stone. Athletes are nothing other than complex objects that moves through space. Consequently, Newton's laws will determine how each athlete will move during a specific task. (Considering all other factors influencing performance stays **equal**). It's important for coaches and athletes to know that when technical coaching and analysis is being done it should be based on facts (laws of physics) not only on personal opinion and insight. During a scientific and detailed analysis a skill is broken down into its fundamental components in order to find any movement error in the technique that may lead either to injury or a decrease performance, or visa versa. Importantly, the opposite can also be true by obtaining information on what a certain athlete are doing right relative to a specific movement. Below are a few

specific steps on the approach taken during a biomechanical analysis:

1. Literature Review: First but foremost, a proper literature review is done to reinsure that the sport scientist got a proper understanding of the relevant biomechanics of the sport code. This is a component that is often neglected in both the coaching and sport science realm of biomechanics. Due to the large amount of data being collected today, the sport scientist's roles are to gather, filter and apply any new "findings" to a specific athlete or athlete group. Despite this, certain basic biomechanical fundamentals (Newton Laws) will never change irrespective of any "new" findings.

2. Utilization of Data: Detailed data does not only need to be collected, but more importantly, it must be correctly utilized and analyzed to promote performance. Biomechanical data can be used in different ways.

a. *Norms and Standards:* Normative data is one of the key components in utilizing biomechanical gathered data correctly. Over the years copious amounts of technical data has been collected on elite performances and what sets elite athletes apart. This normative data provides the foundation from which to assess the validity, accuracy and value of newly collected data relevant to performance.

b. *Within Subject Trends:* It is important to acknowledge that each individual athlete is different, despite the normative data available. Biomechanical data tracking enables the sport scientist to investigate if any technical trends are present in an athlete's technique which in return can be correlated to specific performance levels. For example every time athlete X performs well, certain biomechanical characteristics/ trends are present that are unique to athlete X, irrespective if it falls within the norms and standards or not. These trends can provide valuable information on where to make biomechanical changes that are relative to each individual athlete's technique. Athlete X may be stronger in utilizing parameter 1 to reach a certain outcome compared to athlete Y that utilizes parameter 2 better in reaching the same goal.

c. *Newton's Laws relative to the coaches' eye:* As previously mentioned, a large part of elite performance is determined by how well you can apply "Newton's Laws" to your sport specific movement. The main difficulty, especially with technical events, is that it is mostly impossible for the coach to see how well "Newton's Laws" are implemented during an event, i.e. exact ground contact times, average vertical push-off, recovery time from take-off to max knee lift, etc. An experienced coach often had a

good “feel” as to how well these parameters are executed, but overall it is close to impossible to gather such information with the naked eye. This is exactly where biomechanical data capturing comes in to place. Biomechanical data capturing provides the opportunity to access data that was previously unavailable and make informed technical coaching decisions.

d. Between Subject Trends: Biomechanical research also provides the coach not only with technical information on how to possibly increase performance, but also technical information on what the possible biomechanical reasons are for specific players to reach higher levels of performance compared to others. It’s not always about finding a method on how athletes can technically reach a higher level of performance, but more so on **why** certain athletes reach a higher level of performance than other. If biomechanical research can assist in finding possible technical reasons for an increase in the level of performance by certain players, coaches may use this information by incorporating some of these technical components on to other athletes with goal to increase performance.

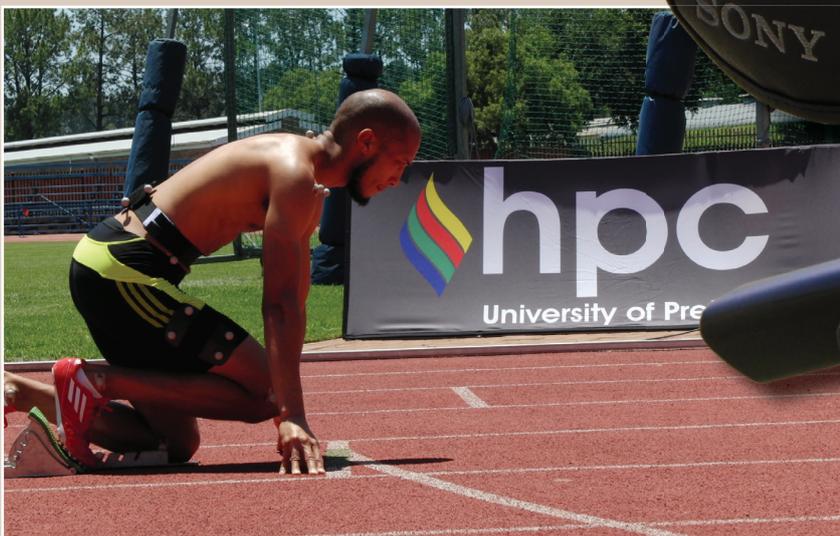
e. Relation to injury: Coaches want players to be in a physical condition where they are able to perform at

their highest level of performance. By analyzing players through mechanical testing, Biomechanist’s can provide supplementary in-depth technical information and data to a coach and strength and conditioning specialist on what the possible cause might be for players obtaining certain injuries as well as possible prevention methods for other players not to obtain the same injuries. This information and data are not always possible for coaches to observe with the naked eye, but biomechanical research can make such observation possible. If coaches have the edge by having direct access to this kind of information, they can, **together** with a full medical and conditioning team adapt training and coaching methods in such a way where an attempt can be made to reduce and prevent injuries in a group, team or individual player. One of the questions to be answered through biomechanical research is whether the **perceptions** of what causes injuries in elite players are indeed the true cause for injuries or not.

3. Data Tracking: Looking at the broader picture, one of the more important components in biomechanical analysis is to use the test data to track and determine success. Is the athlete able to adjust and implement new biomechanical requirements?

It is CRUCIAL to remember that it is one thing to find mistakes or areas for improvement through biomechanical testing, but it is something else to teach the athlete how to successfully make changes. This is where the KEY to success lies; you need a GOOD coach who will be able to make these changes successfully. The only way to track changes is by continually repeating the same protocol after optimal time periods are given for motor learning. At the same time it is important to know that the athlete needs adequate time to learn and apply changes.

In conclusion, it is important to understand that the role of a Biomechanist is not to dominate and change the way coaches coach players, but rather to provide technical assistance in such a way that coaches have access to in-depth technical knowledge and information they would not have had previously, ultimately giving them the ability to improve technical coaching at **their discretion**.



Active versus Passive Recovery Techniques

Text: Menzi C. Ngcobo, Biokineticist, Institute for Sport Research, University of Pretoria

Athletes training for competitive sports particularly at elite level are frequently exposed to demanding training sessions two or three times a day as well as exhaustive competition. Failure to appropriately recover between large volumes of intense training sessions can result in physiological and psychological stresses that can impair performance and increase the risk of injury. Adequate recovery after training sessions decrease fatigue, accelerates the rate of physiological regeneration, facilitates overload and enhances super-compensation thus improving fitness levels. Recovery can therefore be considered as a significant component of athletic training and performance.

Various recovery modalities are currently being used by coaches and athletes in an attempt to accelerate recovery and enhance performance. Numerous studies have investigated the effectiveness of active (light exercise) and passive (resting) recovery modalities.

Current literature strongly supports the superiority of active recovery methods over passive recovery. The main objective of active recovery is to return "pooled" blood from the previously working muscles back to the central circulation.

This process also facilitates the removal of blood lactate from circulation post exercise. The main metabolic pathway for lactate removal is oxidation in the tricarboxylic acid cycle. The functioning of the tricarboxylic acid cycle is a topic for another discussion, what is important to note is that lactate oxidation predominantly occurs in active skeletal muscle. A secondary pathway for lactate elimination is its reconversion to glycogen via gluconeogenesis; this is a metabolic pathway that results in the generation of glucose from a non-carbohydrate carbon substrate. Reports indicate that 13 to 27% of lactate may be converted to glycogen during recovery. The body uses glycogen as the preferred energy

source for the working muscles during exercise. The majority of the literature advocates that active recovery may be the most preferred recovery method as opposed to passive recovery due its enhanced ability to lower blood lactate concentration. However, further research is required to examine the effects of active recovery on other physiological processes in the post exercise recovery period before a definite conclusion can be made on the relative merits of active recovery versus passive recovery.

Passive recovery still has an important role to play in the recovery continuum. The principle of overload requires the training program to stress the organ system such as the skeletal muscle above the level to which it is accustomed. This process results in structural damage to the skeletal muscle and perhaps the connective tissue as well. Although this sounds harmful or counterproductive, an organ system increases its capacity in response to training overload.

Training gains or adaptation occurs while resting during the physiological regeneration process. Research indicates that passive recovery enhances super-compensation during regeneration in order to facilitate adaptation to training overload. Having a good night sleep after a hard training day or taking one day off for rest in a training week will enhance the physiological regeneration process and also prevent overtraining.

Overtraining may result in injury or reduce the athlete's resistance to disease. Furthermore, overtraining may result in a psychological staleness, which can be identified by a general lack of enthusiasm on the part of the athlete.

Irrespective of the type of recovery method used, rest and recovery forms part and parcel of training. If integrated properly into the training regime and at the appropriate time, it will aid to enhance performance. Failure to implement a well balanced training programme interspersed with appropriate rest and recovery cycles is a recipe for disaster.

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Shoulder injuries and rehabilitation

Text: Rochelle Louw, Biokineticist at the Institute for Sports Research

The shoulder is a unique joint in the human body as it mainly relies on a variety of muscles for stability, rather than bones and ligaments. Therefore, the joint has limited skeletal stability and a high degree of mobility. It is due to this uniqueness that injuries – specifically chronic instability and repetitive stress injuries – commonly occur in the shoulder (Shultz, Hougum and Perrin, 2010).

Because the shoulder relies so heavily on musculature for support, muscle weakness, dysfunction and imbalance commonly cause joint injuries. The shoulder is also capable of moving at high velocities, for example when throwing a ball or javelin. These actions, and the velocity at which they are conducted, expose the joint to considerable eccentric forces over a broad range of motion which may result in many types of injuries (Shultz, Hougum and Perrin, 2010).

Common shoulder injuries include:

- Impingement syndrome:** This is caused by a decrease in the area in which the supraspinatus muscle and the subacromial bursa pass. This area is under the subacromial arch. The syndrome commonly occurs in activities involving repetitive overhead shoulder motions.
- Rotator cuff tear:** The rotator cuff is a group of muscles that internally and externally rotate the shoulder and provide it with dynamic stabilisation. Cuff tear injuries are commonly found in overhead throwing sports.

- Dislocation and subluxation:** A partial dislocation (subluxation) means the head of the upper arm bone (humerus) is partially out of the socket (glenoid). A complete dislocation means the humerus is entirely out of the socket. Such dislocations may result from a traumatic event (rugby tackle) or chronic shoulder instability.

- Glenoid labrum tear:** The glenoid labrum is a fibrocartilaginous rim attached around the margin of the glenoid cavity (socket). Tears can be caused by acute trauma (such as falling when outstretched), dislocations, or chronic instability.

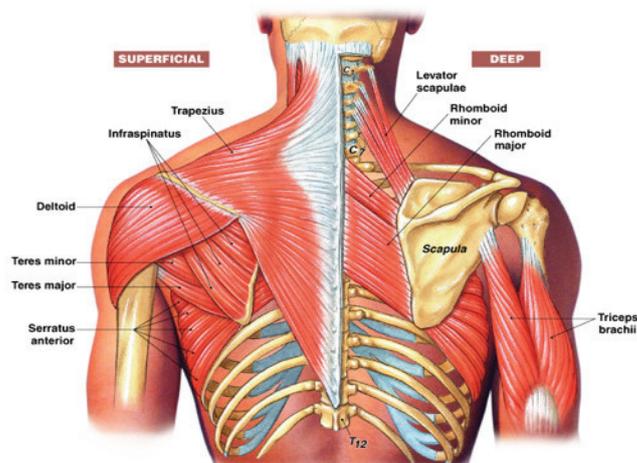
If you suffer from shoulder pain, the first step in your rehabilitation is to get the condition diagnosed. Depending on the condition, you may require physiotherapy or biokinetics. Surgery may be required for severe cases. In the case of

biokinetics, an evaluation will be conducted to assess the condition of the shoulder. This requires a postural analysis, range of motion tests, strength tests, functional tests and any special test specific to the shoulder's condition.

A scientific biokinetic exercise programme will then be prescribed, based on the results of the evaluation. Programmes usually run for six weeks – after which the injury is reassessed to identify progress levels and future management strategies.

If you (or anyone you know) suffers from shoulder pain, please have it examined as soon as possible. The sooner you begin your rehabilitation, the better your chances of recovery.

For any further information, please feel free to contact a biokineticist at the ISR.



Human Anatomy, 5e
by Frederic H. Martin/Michael J. Timmons/Robert B. Tallitich

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Shultz, S.J., Hougum, P.A. and Perrin, D.H. 2010. *Examination of musculoskeletal injuries*. Human Kinetics. Third edition. Champaign, United States of America. Illustration: www.examiner.com

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Sudden cardiac death in sport

Text: Dr Orgy Straus, hpc

The sudden death of two seemingly healthy competitors in this year's Ironman 70.3 in East London has sparked the debate on this topic again.

The true incidence of sudden cardiac death (SCD) in sports people is widely debated. The reported incidence of SCD varies and it is challenging to compare different studies reporting on this topic. The incidence differ from 1 in 9 000 to 1 in 300 000 athletes found in populations like high school-, college- and young adult athletes. For this reason we will focus more on the causes of SCD in sports people in this article and give some practical guidelines to sports people to identify risk factors on when it is dangerous to train or compete in sport.

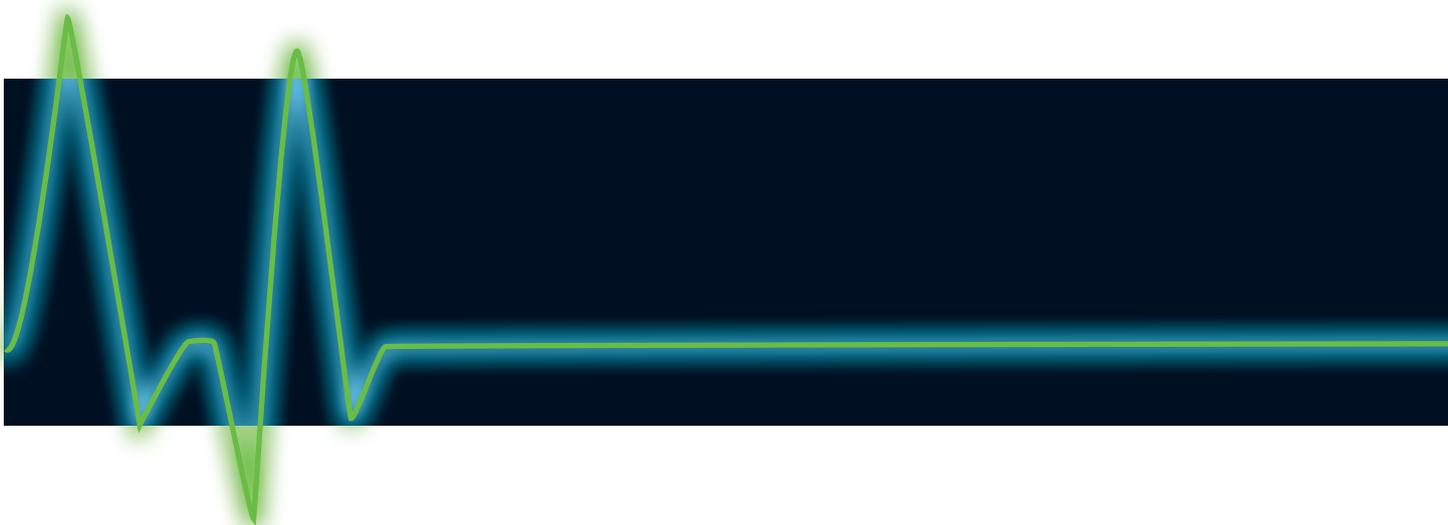
The causes of SCD in the United States are congenital and anatomical anomalies (37%), cardiomyopathies (36%), arrhythmias (14%), infectious cardiovascular disease (9%), degenerative cardiovascular disorder (4%), undetermined causes (1%), acquired cardiovascular disease (<1%), normal heart (<1%).

Athletes with a family history of SCD should seek medical advice and go for a medical screening before they do vigorous exercise. A thorough clinical examination and special investigations like a heart sonar and electrocardiogram should identify any underlying congenital or structural cardiac problems.

The most important conditions that will be identified by a thorough medical are hypertrophic

cardiomyopathy, arrhythmogenic ventricular cardiomyopathy, dilated cardiomyopathy, congenital coronary artery anomalies, premature atheromatous coronary artery disease, Wolf-Parkinson-White syndrome, right ventricular outflow tachycardia, mitral valve prolapse, congenital aortic stenosis, Marfan syndrome, congenital long QT syndrome, catecholaminergic polymorphic ventricular tachycardia.

The most common acquired cardiac abnormalities are myocarditis and commotio cordis. Myocarditis refers to inflammation of the cardiac muscle usually due to a viral illness. It accounts for 7% of SCD in sportspeople. The inflammation and subsequent necrosis of the myocardium is thought to be the substrate for malignant ventricular



tachyarrhythmias causing sudden death. Most affected individuals experience coryzal symptoms and a mild febrile illness, however sudden death in a relatively asymptomatic athlete is the most common presentation. Overt cardiac symptoms are rare and include chest pain, dyspnea and palpitations.

Athletes with proven myocarditis should abstain from strenuous exertion and competitive sport for six months. The practical implication for athletes to prevent myocarditis or SCD because of this condition, are that they should never do exercise or compete in sport when they have flu or any other illness that cause fever. It is also not advisable to exercise or train when you are on flu medication or strong antibiotics. The best way to determine whether

you are fit to compete is called the “Head check”. If you have symptoms that are only localised to your head like rhinitis or sinusitis with no fever and a normal resting pulse rate, you should be fit to train or compete without complications. If, however, you have body aches, joint pain, fever and a resting pulse rate raised by more than ten beats per minute, you should not train or compete. In cases like this or when you are not sure you should always seek medical advice.

Comotio cordis refers to SCD from ventricular fibrillation resulting from blunt trauma to the chest wall. Sports associated with this condition are baseball, field hockey, lacrosse, ice hockey, karate and judo. The victim is usually struck by an innocent appearing blow to the

chest, which is part of the normal conduct of the sport. This condition is difficult to prevent and impossible to detect with medical screenings. The use of certain chronic medication and recreational drugs can also cause SCD and should be done with caution and not without medical advice.

The take home message is that it is dangerous to train or compete when you don't feel well, or if you are using medication for acute or chronic illness which has not been subscribed by a doctor, or if you have a family history of SCD and you haven't been screened by a doctor. The best thing to do is seek medical advice when you are not sure whether you can train or compete or not.



Exercise & Diabetes

Text: Dr P (Cele) Zondi, hpc

Diabetes Mellitus is an excellent example of a medical condition in which exercise contributes to both prevention and management of an illness, and where regular exercise can significantly improve quality of life.

Diabetes Mellitus is a metabolic disorder characterised by high blood glucose. When one eats, food is broken down to carbohydrate, protein or fat. Carbohydrates are further broken down to glucose, the primary energy source used by the body. Insulin is a hormone produced by the body (pancreas) to facilitate uptake of glucose into the cells. In Type 1 diabetes, the body does not produce enough insulin. In Type 2 diabetes, the body does produce insulin but the cells are resistant to its action. Both Type 1 and Type 2 diabetes result in too much glucose circulating in the blood and too little being absorbed into the cells, which is where it is needed. Exercise plays a fundamental role in preventing and managing diabetes by influencing glucose uptake into the cells.

Type 1 diabetes is usually genetic and often presents in childhood with symptoms of increased urine, increased thirst and increased hunger. Because the body cannot

produce its own insulin, patients with Type 1 diabetes (DM1) need external sources of insulin, often in the form of an injection. Type 2 diabetes (DM2) is often related to a sedentary lifestyle. It associated with hypertension, obesity and heart disease. These patients typically require the use of oral medications to control their blood glucose levels. In both Type 1 and Type 2 diabetes, exercise plays a fundamental role in maintaining stable glucose levels via two mechanisms. Firstly, glucose is the primary energy source in the metabolic processes required to sustain activity; it is steadily used up as one exercises so naturally decreases circulating glucose. Secondly, exercise increases the expression of glucose receptors in muscle and tissue cells. More receptors means more channels for glucose to enter the cells. In both these ways, exercise helps maintain stable blood glucose levels and in so doing, the amount of exogenous insulin required by the patient can be gradually reduced. In DM 2, the goal of treatment should also be to minimize the risk of acute and chronic complications of diabetes by encouraging weight loss, increasing exercise capacity, and controlling associated co-morbidities.



Patients suffering from any chronic disease should exercise caution when starting a physical activity regime. It is advisable to talk to one's health care practitioner for advice about types and frequency of exercise and possible changes to medication. Daily exercise is highly recommended, but patients must start slow and gradually increase the frequency and intensity of exercise. A minimum of 30 minutes of moderate intensity cardiovascular exercise is recommended five days per week. Twice a week, one can replace the cardiovascular exercise with lower intensity resistance or strength training. Remember to take frequent breaks if you need to, to drink fluids, and very importantly, to monitor your blood glucose levels before and after you exercise.

The World Health Organisation has listed physical inactivity as one of the major risk factors for global morbidity (illness) and mortality (death). Inactivity is the one of the leading risk factors for diseases of chronic lifestyle such as diabetes, hypertension and coronary artery disease. The good news is that by modifying lifestyle, these chronic diseases are largely preventable and controllable. In words copied from an internet postcard 'Do something today that your future self will thank you for'.

Don't delay, start moving today.

*References available on Request



VITAMINS & MINERALS

too much of a good thing?

*Text: Riëtte Steinberg Registered Dietitian (SA) PVM
Nutritional Sciences (Proteins. Vitamins. Minerals)*



Vitamins and minerals are essential for many metabolic processes in the body and are important in supporting growth and development. They are required for reactions involved with physical activity and exercise, such as muscle contraction, energy expenditure, carbohydrate, protein and fat metabolism, oxygen transfer and delivery as well as tissue repair. Some vitamins act as antioxidants, buffering free radicals produced by increased energy turnover. Many athletes supplement their diet with extra vitamins and minerals, desiring to improve health, enhance recovery, improve sport performance and prevent infectious diseases. They have reported the use of B-complex vitamins, vitamin E, iron and especially vitamin C.

But is supplementation really necessary?

Studies have demonstrated an increase in **reactive oxygen species (ROS)** with moderate to high intensity exercise. Energy production involves reduction of oxygen in the mitochondria (energy producing part of the cell), during which some of the oxygen turns into free radicals. Free radicals are unstable, reactive and potentially harmful substances. Excessive production, or failure to protect against free radicals, has been linked to cell and mitochondria membrane damage, decreased

immunity and other adverse health effects. Antioxidants such as vitamin C and E build up a protection system against free radical attack, thus an increased need may arise. Some minerals may be lost through sweat such as magnesium and zinc, while others may be lost in urine. Generally, if energy intake is sufficient, varied and balanced and the athlete has a healthy nutritional status, vitamin and mineral supplementation is not warranted. Increased requirements are however subject to the intensity, duration, and frequency of the applicable event/sport. Supplementation is also dependant on the nutritional status of the athlete. Some athletes with a poor nutritional status or impaired dietary intake might benefit from supplementation. For athletes that restrict energy intake, such as in sports with weight restrictions or those that limit certain foods/food groups, supplementation may also be warranted.

Can micronutrient supplements be harmful?

Some athletes supplement micronutrients "just in case". Toxicity however, can arise when daily doses rise above a certain threshold limit. Megadoses of several vitamins may be pathological, particularly vitamin A, D, niacin and B6. Natural antioxidants like vitamin C

and E, caretenoids and polyphenols like flavonoids have many health benefits, including protective effects against cardiovascular disease, certain forms of cancer, and photosensitivity diseases. When supplementing with high doses, beneficial antioxidants can become harmful pro-oxidants. A pro-oxidant is a compound that induces [oxidative stress](#) and inhibits antioxidant systems. Thus, rather than protecting against damage, these substances cause damage. The pro-oxidant action of antioxidants includes:

- Vitamin C in high doses causes cell death, and DNA damage
- Vitamin E in high doses causes increased α -tocopherol radicals which can initiate lipid peroxidation (damage to lipid cell membranes)
- Flavonoids in high doses can form radicals instead of scavenging them and also cause lipid peroxidation

Other than harmful pro-oxidant effects, reductions in vascular function have also been noted with administration of mixed antioxidants. Acute doses of vitamin C and E demonstrated reduced brachial artery vasodilatation which reduces exercise capacity and performance.

Vitamin C is known to remove free radicals produced by exercise, thereby reducing the potential

negative consequences of **ROS** such as muscle damage, immune dysfunction and fatigue. **ROS is not all bad though.** Moderate **ROS** production causes physiological changes such as increases in mitochondrial growth factors and cell survival proteins, reductions in muscle atrophy and proteins involved in cell signaling pathways and amplifications of immune function. Moderate **ROS** concentrations are further required for optimal training adaptation and muscle function. Supplementation of vitamin C in doses exceeding 1 g/d has been shown to attenuate the exercise derived rise in **ROS** and blocks cell signaling. Vitamin C in doses of >1g/d thus appear to reduce training induced adaptations by reducing mitochondrial biogenesis or by possible vascular function alteration, and is not recommended.

Toxicity of minerals is relatively rare. The levels associated with toxicity can normally be obtained only through the use of supplements or fortified foods. Intakes needed to reach toxicity levels are high, but when toxic symptoms do appear, they can be fatal. Most multi-vitamin supplements contain minerals close to RDA levels or less, but when athletes self-prescribe, toxicity can become a concern. All trace minerals are toxic when consumed at high doses for a long period of time. Even though toxicity levels are high, certain nutrient interactions can occur with high mineral intake. High intakes of one mineral might interfere with the absorption of another, causing a deficiency. For this reason, precautionary use of mineral supplements should not exceed 5x the recommended intake.

Table 1: Adverse effects of some micronutrients:

	RDA (recommended intake), UL (Upper limit)	Major food sources	Major functions in the body	Symptoms of excessive consumption
Vitamin A	RDA: 900 RAE UL: 3 mg/d	Liver, whole milk, cheese, carrots, green leafy vegetables, sweet potatoes	Promotes bone development, night vision, maintain skin & mucous membranes	Nausea, headache, fatigue, liver and spleen damage, skin peeling, joint pain
Vitamin C	RDA 90mg/d UL: 2000mg/d	Citrus fruits, green leafy vegetables, broccoli, peppers, strawberries, potatoes	Forms collagen essential for connective tissue development, aids in iron absorption, antioxidant	Diarrhea, possible kidney stones, rebound scurvy
Vitamin E	RDA: 150mcg/d UL: 1000mg/d	Vegetable oils, margarine, green leafy vegetables, whole grains, egg yolks.	Antioxidant,	Headache, fatigue, diarrhea
Vitamin B6	RDA: 1.3mg/d UL: 100mg/d	Liver, lean meats, fish, poultry, legumes, green leafy vegetables, baked potatoes, bananas	Coenzyme in protein metabolism, formation of hemoglobin and red blood cells, needed for glycolysis and gluconeogenesis	Loss of nerve sensation, impaired gait
Vitamin B3	RDA: 16mg/d UL:35mg/d	Lean meat, fish, poultry, whole grains, beans	Coenzyme for aerobic and anaerobic production of energy, fat synthesis, healthy skin	Headache, nausea, burning and itching skin, flushing of the face, liver damage.
Calcium	RDA:1000mg/d UL: 2500mg/d	Dairy products, dried beans and peas, dark green leafy vegetables.	Bone formation, enzyme activation , nerve impulse transmission, muscle contraction	Constipation , inhibition of trace mineral absorption , heart arrhythmias, kidney stones
Magnesium	RDA: 420mg/d UL: 350mg/d from supplements	Milk and yoghurt, dried beans, nuts, whole grains, fruit and vegetables	Protein synthesis, glucose metabolism , smooth muscle contraction, bone component.	Nausea, vomiting, diarrhea.
Iron	RDA: 8mg/d UL: 40mg/d	Liver, meat, fish, poultry, dried beans and peas, whole grains, spinach, broccoli	Hemoglobin and myoglobin formation, electron transfer, oxidative process	Hemochromatosis, liver damage
Zinc	RDA: 11mg/d	Organ meats, meat, fish, poultry, dairy products, nuts, whole grains, vegetables, spinach, asparagus	Cofactor of many enzymes involved in energy metabolism, protein synthesis, immune function, sensations of taste, smell	Increased LDL and decreased HDL cholesterol, impaired immune system, nausea, vomiting, impaired copper absorption.

* Take note: the above mentioned recommendations differ for various age and gender groups.

What intake level is considered safe?

Because more and more foods are being fortified these days, reaching total requirements is not that hard and the risk of over-supplementing when taking extra micronutrients is high.

- The upper limit (UL) is the maximum quantity of a nutrient most individuals can consume without resultant adverse effects.
- It is recommended that any precautionary use of supplements should remain within the recommended intake ranges.
- Because of increased oxidative stress, a “normal dose” of 60-90mg/d vitamin C may not be appropriate for athletes. Reviewers found that a dose of 0.2-1g/d will reduce oxidative stress by the needed modest margin. In one study, a dose of 500mg/d vitamin C, did not reduce exercise induced blood flow – this dose is thus considered to be safe.
- It is recommended that intake should come from five servings of fruit and vegetables due to other health benefits provided by these foods. Fruit and vegetable intake may be associated with lower cancer risk not because of vitamin C alone, but because of the interactions with other bioactive compounds and phytochemicals.

- Studies support the notion that vitamin C in isolation is not enough. During times of acute stress, intakes of >0.2 but less than 1g/d may benefit athletes (such as acute onset of illness or during training camps).

Because every athlete differs, current nutritional status, energy and nutrient intake have to be assessed and individual requirements should be determined. A registered dietitian with expertise in sport nutrition should be consulted to establish an athlete’s individual nutrition and performance goals.

“When talented, motivated and highly trained athletes meet for competition the margin between victory and defeat is usually small. When everything else is equal, nutrition can make the difference between winning and losing” – Maughan (2002).



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Has school sport lost its way?

Text: Mary Ann Dove - Performance Coach and Co-founder of Positive Sport Parent

Over the past couple of months a number of stories would lead one to believe that school sport has become more than just a game, but rather “win at all costs”. A girl’s primary school in Bloemfontein has introduced a parents’ code of ethics. Two of Durban’s biggest schools will not play first team sport against one another this term following accusations of unethical sportsmanship relating to overage rugby players amongst other issues.

A 17 year old rugby player tragically died from a suspected neck injury sustained during trials in January. Who thought school rugby was a winter sport! And following an increase in the use of steroids and other performance enhancing drugs among teenagers in schools, the SA Institute of Drug-free Sport (SAIDS) has launched a new drug testing programme within schools in an attempt to root out the use of steroids, stimulants and diuretics.

It would seem that the pressures put on school boys in particular to perform at an early age has spiraled out of control forcing them to engage in any activity necessary to enhance performance, whether that be taking perceived performance enhancing substances, arguing with officials to achieve a better outcome in a match or lying about their age amongst other behaviours. Unfortunately, these behaviours seem to be endorsed by parents, coaches and the schools themselves.



To quote Dr Glen Hageman, President of the SA Sports Medicine Association, “Unfortunately, people judge a school on its rugby results, as opposed to its academic results.” Even scouts and agents can be held responsible for the pressure they exert in the form of potential contracts and academy opportunities that they promise if the performances are up to “standard”. It would be good to remember that only 24% of boys who play provincial rugby at U13 level, go on to play at the Craven Week U18 tournament (Durandt et al. SA Journal of Sports Medicine, 2011) and only 1 player per U19 provincial intake will go on to play franchise cricket.

So what can be done to assist all stakeholders in managing the challenges that our youngsters face without destroying their dreams?

Education of parents, coaches, teachers, schools and players is a key factor in encouraging teenagers to play by the rules.

It is well recognised that development into a competent sports man or woman is a process that takes time and patience to master the skills necessary to succeed either as a participant or a competitive athlete. Each child is unique and will develop at his or her own pace. There is no quick fix. Children under the age of 18 do not need any form of supplementation if they are provided with a balanced diet consisting of 3 meals and 2 snacks per day of a variety of healthy foods. In the long term, “magic” drinks and pills cannot replace the consistency of hard work, discipline, skills development and a positive attitude.

Parents should communicate with their children about their goals, their feelings and reason for playing sport. How often do we encounter parents who are living their own failed dreams through their children’s success? Recognise and reward your child’s progress and efforts and not just the results, because there is no correlation between winning at an early age and later success. Research has shown that kids with a balanced approach to their sport, school work, family, friendships and other activities perform more effectively in all spheres of their lives.

Sport at school is part of the educational journey that children are embarking upon and the lessons they learn from both winning and losing are an extension of the classroom and a window into understanding the challenges of life.



Explosive Power Heavy weight training

Text: Waldo van Heerden

Explosive strength is a characteristic of performance that is common in many sporting codes. However, training very frequently includes reduced velocity “strength” training which develops capacities which are only appropriate for a very few activities (e.g. power lifting).

The Contribution of Muscular Strength

Weight or strength training is often required because it is believed to improve explosive strength. Research has shown that it does increase explosive power in individuals who begin training with average strength. However, it has little benefit for explosive strength performances for individuals with previously trained or above average levels of strength.

Training with heavy loads (70-120% of 1 RM) improves maximal isometric strength but not the maximal rate of force development. In some cases it might even reduce the ability of the muscles to develop force rapidly. On the other hand, light load training with an accent on speed of movement increases an athlete’s ability to rapidly develop force.

A typical total-body explosive movement (e.g. vertical jump) requires force to be developed in a time period between 200 and 350 ms. Most of the heavy-strength training-induced increases in force-producing potential cannot be

realized over such a short time.

Implication. Heavy strength training is of little benefit to already strong individuals who wish to perform explosive movements.

Power to Weight Ratio

Strength training usually increases muscle mass implying that it might reduce power:weight ratio. However, an increase in muscle cross-sectional area is always accompanied by an improvement in relative strength and therefore could positively influence the power:weight ratio. Strength training cannot be justified for exclusion on the basis of increased mass.

Implication. It is the type of training that is important. A change in muscle structure, such as that which can be developed through heavy weight training, should be accomplished prior to the commencement of specific explosive power training.

Stretch-shortening Cycle

Most jumping and power activities involve a counter movement (e.g. wind-up, backswing, crouch) during which the muscles involved are first stretched rapidly and then shortened to accelerate the body or limb. This type of muscle action is known as a “plyometric contraction.”

The counter movement involves muscles acting eccentrically to

slow the body/limb and initiate the reverse desirable movement. As the muscles are activated, force is increased in the tendon-muscle complex, increasing its stiffness or resistance to stretching. The result is storage of elastic energy in the muscles and tendons (the connective tissues) that is recovered in the subsequent desirable “release” movement. A suddenly imposed stretch also increases neural stimulation to the muscles.

Actions without a sudden/ballistic preparatory movement are not as productive as those which employ it in the preparatory phase of an explosive movement.

Implication. Training for explosive power must include activities which maximize the stretch-reflex phenomenon in the preparatory phase of any movement.

Coordination of Movement Pattern

Power performance is affected by the interaction between agonist, antagonist, and synergistic muscles involved in joint movements. To produce a fast movement, resistance must be low. Thus, training should concentrate on relaxing antagonist muscle groups while contracting the agonist muscles. This can only be accomplished by specific-action training.

In activities where a single-leg

take-off (e.g. basketball, football) or single-arm throw (e.g. baseball, javelin throw) are used, training should be performed on unitary limbs. In activities where the limbs act as a pair (e.g. rowing, volleyball) training on those limbs should be in pairs.

Implication. Specific skill coordination, the reduction of internal antagonist muscle forces, and the maximization of agonistic muscle contraction and speed can only be accomplished by training on the actual activity itself.

Rate of Force Production

The primary reason Olympic lifting has been increasingly utilized as means of enhancing sport performance is the associated increase in explosive power or rate of force production (RFD). In many athletic endeavours power generation is one of the most important determinants of success. Movement like sprinting and jumping are highly dependent on an athlete’s ability to produce force but more specifically to produce force at a high rate of speed. For example, both sprinting and jumping are characterized by brief muscle actions of maximal or near maximal force production in the minimal amount of time possible to generate a high velocity movement. The athlete’s ability to successfully perform such

movements is determined primarily by his or her ability to generate maximal explosive power at and through the hips. As such, any training technique or modality which can enhance the athlete’s ability to generate peak power, especially through the hips, possesses a high capacity for performance enhancement in sporting skills. Simply put, Olympic lifts do just that.

In particular, rotational and extension movements must be initiated from the hips. Using the loaded movements often employed in power training can improve both the athlete’s force production and overall ability to complete the movement through the full range of motion. This can have a significant positive impact on athletic performance.

Resistive Load

To produce an overload to stimulate performance change, the maximum augmented load should be 30% of that achieved in a 1RM. Performing activities with an added 30% has been shown to be more beneficial than traditional weight training, drop-jump training, or isometric training alone.

Implication. The maximum added resistance or load to an activity should be 30% of 1 RM.

Plyometric/Drop-jump Training

Plyometric or drop-jump training increases the height of jumps that are preceded by counter movements (e.g. long jump take-off, vertical jump) but have no important effects on jumps initiated from a static crouch position (e.g. track start, football lineman stance).

Drop-jump training enhances the ability to use the stretch-shortening cycle but does not increase fundamental muscle power.

For subjects who have never done plyometric training the effect is at first negative (performance worsens). This is mainly due to the protective effect of the Golgi tendon-organ reflex that occurs during sudden unaccustomed movements. After several weeks of plyometric training the inhibitory effects are reduced and performance begins to improve.

Plyometric training places considerable strain on the musculo-skeletal system. It should be preceded by a standard weight training program until substantial improvements in performance are demonstrated (e.g. for vertical jumps be able to squat lift 150% of body weight).



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Weight Training

Heavy weight training usually causes a movement to decelerate throughout its action. It produces adaptation that is specific to slow velocities. The rate of force development does not change. That is contrary to the desirable accelerative characteristic of explosive power movements. Explosive movement and light-weight training have been shown to be more effective for developing explosive power than heavy-weight training.

The one characteristic of training forms that does stimulate explosive power improvement is that the movements are performed as explosively as possible, whether or not weights or resistances are used.

Implication. There is a suggestion that perhaps a combination of plyometric and light-weight training may provide the greatest stimulus for explosive power development.

Periodization or When to Use Particular Forms of Training

The initial basic preparation period should involve weight training to increase muscle mass and strength. Activities should be whole-body as well as for specific muscle groups.

In the pre-competition phase, heavier and more specific weight training can be initiated to emphasize maximal strength. The concentric contraction phase of each exercise should be as explosive as possible.

Just prior to the competition phase, specific neural training is desirable. Heavy weights should be reduced and alternated with methods that emphasize rapid force development, high contraction velocities, use of the stretch-shorten cycle, and specific skill movements.

During the competition phase, plyometric training should be removed or largely reduced. Strength and power maintenance

can be achieved by training only twice per week. If explosive training is still part of competition phase it should be stopped at least 5 days before a major competition.

EFFECTS OF TRAINING FORMS ON FACTORS OF EXPLOSIVE POWER

Training Feature	Heavy Load Weight Training	Light Load, Explosive Training	Plyometrics	Olympic Lifting	Isokinetic Training
Maximal Strength	excellent	fair	poor	good	good
Rate of Force Development	Good	excellent	good	excellent	fair
Stretch-shortening Cycle	Poor	good	excellent	poor	none
High Velocity Force Production	Poor	excellent	poor	good	good
Maximal Mechanical Power	Good	excellent	fair	excellent	good
Skill and Muscle Coordination	Poor	good	excellent	good	poor

Implication. Explosive power training employing a combination of plyometrics and light-load explosive weight work seems to be a more appropriate form of auxiliary training for more sports than the traditional heavy resistance training that is so popular and aimed at developing “strength.”



2012

the GOLDEN year

Text: Wilhelm de Swardt Image: SASCO

According to the High Performance Centre of the University of Pretoria (hpc), athletes should be able to reach that 'edge' at exactly the right moment in order to achieve success at the Olympics.

This is why Toby Sutcliffe, chief executive officer (CEO) of the hpc and his team are already busy planning and strategizing for the 2016 Olympic Games in Rio. The team consists of sports scientists and decision makers of TuksSport, together with 57 athletes and coaches.

"Don't ask me what the edge for 2016 will be, because at this stage I really have no idea what it will take to win a medal in Rio," Sutcliffe said.

"What is important now is that we need to find a way to help our athletes to advance to the next competitive level."

Sutcliffe does not believe in short-term solutions.

"The three medals that were won by hpc athletes at last year's Olympic Games in London were certainly no fluke.

"We already set our goals seven years before the Games and then began to work in all earnest towards achieving them.

"We were the only institution that was prepared to back the vision of

Gideon Sam (president of Sasoc) of '12 medals for 2012'.

"However, for us it was never only about the London Games. Right from the beginning our planning was for 2012 and beyond.

"That is why the hpc will be sponsoring a total of 57 athletes in the build-up to the Rio Games and the 2020 Games.

"Many of these athletes will fall by the wayside from now until the 2016 Games. Sometimes it will be because they lack dedication, guts, determination or the will to work hard, but sometimes it will be because they are simply not competitive enough.

"It happened with our rowing team. We started off with eight rowers but eventually, after strenuous and healthy competition, the squad was whittled down to six.

"At the hpc we do not believe in compromises. Athletes should realize right from the beginning that the only way to succeed in the international sporting arena is through hard work, seven days a week.

"As we get closer to the Games, it becomes almost an eight-day week because of everything that needs to be done.

"There is no place for comfort in performance sport. Athletes

who want comfort should find themselves a luxury bed to lie on.

"Honestly, at the hpc the only way we consider an athlete to be dying, is when we see lactic acid coming from his eyes.

"The athletes have made a commitment and they have to keep to it.

"We expect a 120% effort from every athlete and in return he will receive a 120% support from the hpc and TuksSport.

"All athletes should set individual goals for themselves. They will then be monitored by the hpc to see whether they are still on track. Those who are not able to perform at the levels expected of them will fall by the wayside."

Sutcliffe emphasized that teamwork is the key to success.

"We, therefore, follow a totally holistic approach. Everything is about the athletes and what they need to achieve and about how the hpc can help them to do just that.

"An athlete will certainly not just be told to visit a psychologist. Before any decision is made, we want the input of everybody who is involved.

"Therefore the whole team, namely the athlete, coach,



nutritionist, physiotherapist, sports scientists, biokineticists, etc, will sit down and discuss the best way forward. Every opinion matters.”

According to Sutcliffe, the hpc had also helped athletes from other countries to medal in London.

“Working with international athletes is important. We always learn something new from them and their coaches that can help us to improve the performances of our local athletes.

“At this level of competition there is always room for improvement.”

The fact that South Africa’s Olympic governing body (Sascoc) has decided, without any official consultation, that Bloemfontein will be the place where the athletes will prepare for the 2016 Games, will not deter Sutcliffe and TuksSport.

“We received no ‘kudos’ for the time and effort that we had put in to help the rowing team (Lawrence Ndlovu, Matthew Brittan, James Thompson and John Smith) win a gold medal, or Caster Semenya (800) win a silver medal, or Bridgitte Hartley (canoeing) win a bronze medal.

“We also helped the gold medal winner, Cameron van der Burgh (swimming), with some of his

Olympic preparation.

“Only president Jacob Zuma acknowledged the role that the hpc and TuksSport played in South Africa’s Olympic success.

“This will not deter us. We won the previous medals ‘in spite of’ and we will continue, also ‘in spite of.’”

What is exciting about the approach of the hpc and TuksSport to the Games, is the fact that they think ahead.

Golf will be one of the new sports at the 2016 Games, but even so, Magda Kruger, Kim Williams and Zander Lombard have already been identified as potential participants.

According to Sutcliffe, the 2016 Games might be too soon for these golfers to be at their best, but he is confident that one or more of them will be medal contenders by 2020.

The commitment of the hpc and Tuks Sport to smaller sports, such as judo for instance, is also commendable.

“It is all about talent. The performances of some of the young judo athletes are remarkable. We cannot afford to let these kids simply disappear off the face of the earth. One or more of them might be able to win medals at the Games within the next four to eight years,” Sutcliffe

explained.

He is excited, for example, about the performance by Geronay Whitebooi who, at the age of 17, is already an All African Champion.

As a tribute to Burry Stander, South Africa’s top cyclist who was killed in a taxi accident while on a training ride in January, the hpc decided to help Philip Buys (Scott) prepare for the 2016 Games.

“We consider Burry to have been a great ambassador, not only for South African cycling, but for sport in general. That is why we decided to become involved in cycling.

“This is our way of acknowledging Burry’s achievements.”

Kobus van der Walt, director TuksSport, said commitment, perseverance, discipline, loyalty and passion are only a few of the core sporting values that are considered to be important.

“We believe that these values have provided a foundation for the success that we have achieved during last year. In my opinion 2012 was a golden year for TuksSport.

“Our fundamental philosophy is to offer a programme that is athlete-centred, but driven by coaches.”

Level playing fields in the classroom

Text: Hettie de Villiers, Principal of TuksSport High School

In a recent article that appeared in the New Zealand Journal of Gifted Children, Kath Godber describes the balancing act four New Zealand high school elite athletes face on a daily basis, and poses the question whether outstanding achievements in both sport and academics is at all possible in the current New Zealand educational and sports structures. She includes the diary entry of a young rower, Tania (opposite page) to illustrate just how difficult it is to marry the world of elite sport and school. Tania trains six days a week and has not been on holiday in 4 years.

Her diary entry mirrors the lives of a handful of elite South African and TuksSport High School Learner learners who compete at national and international level, but it also resonates with those that play a supporting role in the lives of elite athletes – the parents, friends and teachers of elite athletes.

While Godberg's article illuminates the juggling act that has become the lives of elite high school athletes, and how their schools and teachers influence that act, it was also written to inform the New Zealand educators and policy makers of the needs and plights of such athletes.

Unlike in South Africa, who has adopted a policy of inclusive education in schools, the New Zealand Ministry of Education not

only recognise that gifted learners have different needs but have adopted a broad multi-category understanding of the concept of *gifted* students. Students with exceptional physical ability – and therefore elite athletes – are included in this category.

Tania and the three other interviewees highlighted the following areas as those that presented the biggest challenges in their efforts to keep both coaches and teachers happy:

- Time management
- Meeting deadlines for homework and assignments
- Impact of the hard training sessions on schoolwork and homework
- Extended absences to attend overseas events
- Subject choices due to conflicts between assessments and competitions
- Dealing with disappointment and failure
- Mental stress due to expectations imposed by self or others (parents, teachers, coaches).

The level of support the four athletes received from their schools varied from *ad hoc* and non-documented support to measures of support governed by school policies and procedures. Online assistance, forward planning, tutorials, assignment extensions, peer mentoring and video conferencing were some of the support measures put in place for the athletes.

Godber makes the following recommendations for school practice to regulate and ensure further support to elite athletes:

- Programmes and loads of elite athletes have to be carefully monitored to prevent sporting commitments from having an irreversible effect on the student's long term educational progress.
- Educators need to be made aware of all additional pressures placed on their students, including the demands of training and competing, academic requirements; social demands; demands made by sponsors and Federations;
- Academic expectations need to be realistic and must be done in collaboration with the athlete and his/her parents;
- Additional support must be provided on time management, nutrition, interpersonal skills, possible career pathways;



- A flexible yet supportive approach as the physical, emotional, mental and financial demands
- Guidelines and policy documents should be in place to identify and monitor elite athletes within an educational context;
- The Ministry of Education should commission a policy guideline to advise educators in NZ schools on how to provide for gifted students who excel in fields other than academics.

It is this last point that begs the question whether inclusive education is fair to South African learners – in particular elite athletes. Inclusive education implies that all learners will have access to equal education – as they are indeed entitled to, but as Hutchinson & Martin point out: “equality implies treating all learners the same; equity

implies treating all learners fairly.”

While learner athletes who attend sport schools like TuksSport High are assured of a flexible support system such as described in Godber’s article, can we honestly say that elite athletes are treated fairly in South African main stream schools?

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Diary of an Elite Rower

Before School

- 4:30am:** My alarm goes off. I roll out of bed, throw my training gear on, grab my sports bag (packed the night before), and tip toe to the kitchen.
- 4:45am:** My pre-training energy shake and nutella on toast go down well. Jandals on and I'm out the door.
- 5:30am:** Go, go, go! I need to find the energy, help to get the gear out, get my focus. I go through the checklist in my head - check programme, memorise sets, hat, shades, hand guards. Coach fires his final comments and off I go. I try to breathe through the aches, focus my mind and remind myself why I'm doing this - Olympic glory, one day!
- 7:00am:** I feel whacked, it was a hard one today with a lot of sprint work and when coach is right there in the inflatable there's no easing up.
- 7:45am:** Mum's up. I head for the shower, put on my school uniform, shove my homework in to my school bag and curse. I should have finished my Bio assignment. Maybe I can get another extension, but this weekend is full on too, so when can I get it done.....? Need to eat.
- 8:30am:** Mum has packed my lunch. "They (your school) know what you're doing, they know how far you have to go every day, why can't they be flexible on what time you get to school in the mornings?" "Mum, I get sent to the Dean if I'm late without a note. Just do it, please!"

At School

- 8:45am:** Tutor time and time to catch up with my school mates, but I'm still thinking about today's training and whether I've done enough to place in the regatta this weekend.
- 12:30pm:** I hate this bit even though I know it's what I need. I have a catch-up tutorial for English Lit. today. I struggle in most of my academic classes because of my mild dyslexia and the tutorials help but I really need to do more at home, and somehow there doesn't seem to be enough time. I find school quite hard and all I really want to do is row, actually not just to row, but to row for New Zealand at the Olympics.
- 3:30pm:** Yeah, another day over and time to get ready for my land-based training.

After school

- 4:00pm:** Homework. Can I be bothered? I don't feel like it. I'll do it after I've had a little rest and another snack.
- 5:00pm:** "Bye Mum, 5:00pm: "Bye Mum, I have a 40 minute run and then I'm on the erg at the gym until 6.30pm.
- 7:15pm:** I burst in demanding food, throw down my gear bag and then stomp off to the shower. The training was tough and I feel exhausted. In the kitchen mum frowns and sighs because she worries about the amount of training I have committed to. Sometimes mum worries so much that she suggests that I should have a day off, or just rest instead of going to training. When she asks me to miss a training I just say, Don't even say that mum, don't even go there because I have to keep going and I am happy to keep going and I'm okay, so don't say anything negative at all.....
- 8:00pm:** I feel pretty good now that I have eaten and have a chance to catch up with my parents and sister, because it feels as though I haven't spoken to them at all today. But a nagging thought keeps coming in to my head as we are talking, so I finish the conversation and say, "I'd better get some homework done." I take a deep breath and head to my room.
- 9:30pm:** Phew! Time to pack my sports bag and to set my alarm.

The diary entry below was made by Tania, an elite rower from New Zealand, and was taken from K. Godber's article The life-worlds of elite young athletes: A lens on their school/sport balancing act.

Sprint and Hurdles Academy

Text: Wilhelm de Swardt Image: Reg Caldecott

Since the 2008 Olympic Games in Beijing, Jamaica's Usain Bolt, true to his name, has set international athletics alight like the proverbial 'bolt of lightning' with his blistering performances in the 100m and 200m. Yohan Blake (Jamaica), Tyson Gay (USA) and Asafa Powell (Jamaica) are also constantly in the news due to their speedy performances in the 100m and 200m races.

With sprinters dominating international athletics, the question can be asked: "How do South African sprinters compare with the world's best?" The sad news is that the times recorded by SA sprinters will not even register a ripple on the Richter Scale.

Apart from Simon Magakwe, who ran the 100m in 10.06s last year (2012) to equal Johan Rossouw's South African record, there is nothing much to get excited about as far as South African sprinting is concerned.

Akani Simbine bettered the South African 100m junior record to 10.19s at the Zone 6 Games in Lusaka, Zambia, but to expect him to be the next 'real deal', will be wishful thinking.

If there is one thing in which the decision makers of South African Athletics (coaches, administrators and agents) excel, it is to destroy the careers of promising young sprinters.

To substantiate this statement, the names of Jannie Viljoen, Riaan Dempers and Nombulelo Mkenku immediately come to mind.

That is why the days seem to be gone for ever when Reggie Walker won our first and only Olympic gold medal in the 100m (1908 in London) and Paul Nash broke the world record in 1968 with a time of 10.0s.

All the senior sprint records in South Africa (men as well as women) are currently older than 10 years.

SA women's sprinting seems practically non-existent. Evette de Klerk set the SA 100m record (11.06s) in 1990 and the 200m record (22.06s) in 1989.

Geraldine Pillay, who ran 11.07s in 2005, is the only athlete who has challenged De Klerk's 100m record during the past 22 years.

Nobody has even come close to De Klerk's 200m record during the past 23 years. Elinda Vorster's time of 22.58s is still the second fastest for the 200m.

This is one of the reasons why Tuks Athletics and the University of Pretoria's High Performance Centre (hpc) decided to join forces and establish a Sprint and Hurdles Academy.

Hennie Kriel will be managing the Academy. He was, for nine years, the conditioning and fitness coach for the Blue Bulls and SWD before becoming involved with athletics again. While he was the manager of Tuks Athletics Club he made it clear that, for any sport to succeed, it has to utilise every available resource.

"I believe that South Africa has enough talent to, once again, be a force in international athletics within the next few years. That is why it is exciting that Tuks Athletics Club and the hpc have decided to work together in the new Sprint and Hurdles Academy.

"The hpc is internationally known as one of the leading establishments in sports science. The mistakes that can be made in the training of potential world champions have already been identified by the sports scientists of the hpc and appropriate solutions have been found.

"In my opinion it is important that we start off with a Sprint Academy because many of the athletes from the previously disadvantaged communities are good sprinters. It is, in fact, impossible to estimate how much untapped talent there is out there.

"People will be astounded if they should know how great the demand is for proper athletics coaching. Since the announcement of the Sprint and Hurdles Academy, I have been inundated by parents of athletes, or athletes themselves, who want to know if we can help them. I find this exciting."

Kriel makes it clear that he does not believe in short-term solutions.

"For the Academy to succeed it is important that we set middle and long term goals for the athletes. There are no quick-fix solutions for any athlete who wants to succeed at a senior World Championship or the Olympic Games.

"For me coaching is a bit like building a house. No house will last long if it is not built on solid foundations. It is the same with athletics."

Kriel believes in 'double periodization' with two distinct segments, namely a winter indoor season and a summer outdoor season.

Within each segment there are three phases, namely a preparatory phase, a main work phase and a competition phase. During each of these phases different training components will be emphasized and the proportion of work and rest will be varied.

"Without periodization, an athlete works at the same level all year round and inevitably grows stale. Athletes will stop improving after six to eight weeks at a given task," Kriel explained.

He also believes that it is sometimes necessary to take one step backwards in order to go two steps forward.

This is why Kriel decided that Willie de Beer, who was a member of the South African 4x400m-relay team that won the gold medal at the 2011 World Championship in Daegu, will not compete at all this season.

"Willie and I could not really do any proper training during the past few seasons because he was constantly competing internationally.

"It is now time to go back to the drawing board in order to start doing some specific training to ensure that he will be really competitive at next year's Commonwealth Games.

"Willie's long-term goal is to achieve a good result at the 2016 Olympic Games."

According to Kriel there are currently 25 athletes training at the Academy.

"We have already had some success. Tando Roto, who is a first-year junior, improved his time in the 100m from 10.85s to 10.53s.

"As his coach, I am aware that Tando is very injury prone. The challenge is to see how, with the help of the hpc's scientists, biokineticists and physiotherapists, we will be able to sort it out."

Ria Baloi is another of the Academy's junior athletes who has already improved. At a meeting at the University of Johannesburg she improved her best time in the 100m to 12.07s. Last year her time was 12.5s.

According to Kriel, athletes do not need to be champions to join the Academy.

"Actually I prefer to work with athletes who just manage to qualify for a sprint final at junior championships.

"Usually they are the ones who turn out to be the real stars of the future, because they have the drive to succeed. All that these athletes usually need is some support and that is exactly what we can give them at the Academy."

Kriel made it clear that he would not hesitate to approach other coaches for assistance if he should consider it to be to the advantage of the athletes.

"I admit that I, as the Academy's head coach, certainly do not know everything. There is truth in the saying that 'two minds are better than one'.

"Our mission is to do what is best for South African athletics."

TuksSport News

Tuks Judokas to Represent SA

By Samantha Viney

The following Tuks Judokas has been selected to represent South Africa in the following categories:

Cadets U/17 Africa Championships in Algeria - 23 June 2013 and World Championships in the USA - 3 August 2013

Sheldon Kachelhoffer
Christiaan Boshoff
Michaela Whitebooi
Courtney Read
Desire Black

U/20 Africa Championships in Algeria - 23 June 2013 and World Championships - Slovenia

Michaela Whitebooi
Matthew Chase
Dale Whittaker
Ruan Tobie Snyman
Sinothando Mva

Senior Africa Championships in Mozambique - 15 April 2013 and World Championships - Brazil

Sinothando Mva
DJ Le Grange
Jacques Van Zyl
Marlon August
Zack Piontek
Ruan Tobie Snyman

Congratulations to our Judokas and our Coach, Nikola Filipov - you have done us proud.



Photograph of our Dan grades c2003

TuksFootball dominates at USSA 2012

Event: 2012 University Sport South Africa (USSA) Football National Club Championships
Date: 03 - 07 December 2012
Venue: University of the Western Cape

Results:

Both the Ladies and the Men's teams performed exceptionally well at the 2013 USSA tournament. The Ladies narrowly lost to TUT Pretoria in the final. The Men dominated North West (Mafikeng) in the Final with a 3 - 0 win.

Ladies

University of Pretoria 1 - 1 University of Limpopo
University of Pretoria 2 - 0 University of Cape Town
University of Pretoria 2 - 0 University of KZN
University of Pretoria 2 - 1 Walter Sisulu University
University of Pretoria 2 - 1 Vaal University of Technology
University of Pretoria 1 - 2 Tshwane University of Pretoria (Final)

Men

University of Pretoria 1 - 0 North West University Mafikeng Campus
University of Pretoria 1 - 0 University of Cape Town
University of Pretoria 0 - 0 Walter Sisulu University Ibika
University of Pretoria 2 - 0 University of the Western Cape
University of Pretoria 1 - 0 University of KZN
University of Pretoria 3 - 0 North West University Mafikeng Campus (Final)

From left to right: Elvis Shishana, Kenneth Matlala, Kabelo Ramongane, Dennis Shabala
USSAS 2012 Football

Goal Scorers:

Men

Tshililo Ravhuandzo
Matsobane Matsi
Refilwe Ranyawa
Lawrance Ntswane
Gloria Thato
Mbongeni Masilela
Nompumelelo Nyauzu
Pogiso Mahlangu

AmaTuks Players:

Pogiso Mahlangu (Striker)
Dennis Kaibe (Left Wing)
Tristyn Coetsee (Goalkeeper)

Awards:

The following players and coaching staff received awards at the USSA Football Prize Giving Event:
Evangelos Vellios (Tuks Men) - Coach of the Tournament
John Matlala (Tuks Men) - Team Manager of the Tournament
Gloria Thato (Tuks Women) - Player of the Tournament

2013 USSA National Football Club Championship:

The 2013 tournament is scheduled to take place from the 2nd to the 6th of December 2013 and will be hosted by TUT Pretoria.

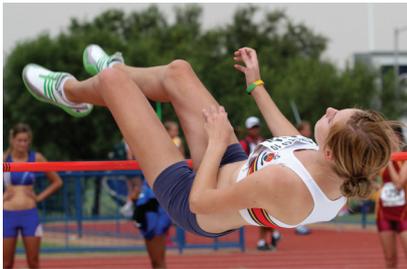


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TuksSport

INSIDE NEWS

Athletics



Duwayne Boer, Callie Camacho and Sabelo Ndlovu SA Secondary Schools Athletics Championships in East London from 21 - 23 March.



TuksSport High school learners & hpc/Tuks Athletes excelled at the AGN Championships - 15/16 March
 Elizna Naude with athletes: Reabetswe Moloi, Loungo Matlhaku, Callie Camacho, Monyake Moletsane, Thando Roto, Jacob Tseko, Duwayne Boer, Sabelo Ndlovu, Albert Janki, Craig Canham and Tiro Moseste.



Jacques de Swardt, hpc sponsored and Tuks athlete qualified for the World Student Champs in Russia early August 2013 when he won the men's 200m in a PB time of 21.02 at AGN 4th League in March.



Mokoena, hpc sponsored athlete and Tuks Athlete was off to a good start in the European Indoor Athletics season with victories in Estonia as well as in Finland.



HPC Sponsored athletes honoured at annual SPAR AGN Awards on 16 Feb!

Caster Semanya took the honours as the AGN Female Track and Field Athlete of the Year and also bagged the best overall AGN Female Athlete of the Year Award. Marc Mundell won the Race Walking Male Athlete of the Year Award while Charne Bosman took the Road Running Female Athlete of the Year Award.

Swimming



TuksSport High School swimmer, Marlies Ross won the 2.5km open water event in age group 13 – 17 at BHP Billiton Aquatic Super series in OZ in a time of 0:30:19.56

Triathlon



The hpc/ Tuks triathletes competed on 17 March at the 2013 East London ITU Triathlon Premium African Cup and the 2013 SA Triathlon Championships. Eddie van Heerden finished 1st in the Junior Boys event with Marc Greyling in 6th place. Wian Sullwald came 2nd in the ATU Buffalo City Africa Cup with Wikus Weber in 7th position. Wian Sullwald took 2nd place in the SA U/23 Championships while Wikus Weber came 2nd in the SA Elite championships.



Wian Sullwald, Wikus Weber & Rudolf Naude 3rd in Brazil Fast Triathlon Challenge

Golf



TuksSport High School won Dainfern College National Team Golf Champs 2013

Dylan Naidoo, grade 10 and Marco Steyn, grade 9 from TuksSport High School won the team competition. Dylan and Marco continue to finish 2nd and 3rd in the individual competition.



Magda Kruger, TuksSport High School learner and hpc sponsored athlete won the Gauteng North Junior Girls Open Championship on 27 January



Nobuhle Dlamini, won Complete Golfer WGSA's outstanding woman golfer of the year award

Squash



Squash players, Callan Hall, grade 9 and Boipelo Montwedi, grade 11 learners from TSHS excelled in the U11 – U19 Northern Closed Round Robin from 1 February – 3 February 2013.

2013 Cape Epic



Phillip Buys (hpc sponsored athlete) riding for SCOTT Factory Racing in the Absa Cape Epic.



Matthew Brittain and James Thompson (hpc sponsored athletes & part of the oarsome foursome) riding for JAG Foundation team in Absa Cape Epic 2013.

Rowing



The hpc sponsored & Tuks rowers clinched major trophies at Buffalo Regatta!!!

The lightweight team of James Thompson and John Smith (hpc sponsored athletes and part of the 'oarsome foursome' Olympic team) with two new members, Scott Donaldson and Mike Voerman (hpc sponsored athlete) won the lightweight race in a time of 7:49 while the women's A coxed pair of Naidene Smith and Leanne Persse both hpc sponsored athletes also claimed gold in their event, beating UCT by more than two lengths. Lloyd Bemelman, hpc sponsored athlete won the sculls race.

Football



Ex-TuksSport High learner, Robyn Moodaly scored a goal for Banyana Banyana to beat Northern Ireland 2-1 during the 12 Nation Cyprus Women's Cup from 6 – 13 March.

INSIDE NEWS

Sponsored Athletes



Mr Toby Sutcliffe, CEO announced hpc's plans for the next Olympic Cycle and named the 57 athletes who will be supported along the way to the 2016 Rio Olympic Games and beyond.



CEO, Toby Sutcliffe welcomes the Mayor of Tshwane, Councillor Kgosientso Ramokgopa at the hpc

Visitors to the hpc



British Swimming Team



French Swimmers



Argentina Rugby Team



Dutch Cricket team



Columbian Rugby Team



Windhoek Gymnasium Athletics Team, Namibia



Turkish Swimmers



Springbok Woman Sevens

Tribute to Burry Stander



Text: Vata Ngobeni, Chief sport writer for the Pretoria News

While the anger and pain slowly fades away the question on how great Burry Stander could have been will linger for eternity.

The 25-year-old Stander died at the beginning of the year in an accident after being involved in an accident with a minibus taxi while Stander was out on a training run.

Much had been expected from the Olympian in the years to come with many predicting a total world domination of the world mountain biking scene.

But that is something that will never be known but it was Stander's achievements prior to his untimely death that has already made him a legend in South African sport.

Having already participated in two Olympic Games with his first being in Beijing in 2008 where Stander finished 15th in the cross country event, the biggest disappointment had come in London last year where Stander finished agonizingly outside the medals in fourth place.

It was though the last four years of Stander's life that catapulted Stander to world prominence with some credible podium finishes in important races at home and abroad.

There was no doubting from the tender of 19 that Stander was destined for bigger things in life as he had already become three time SA under-19 cross country and marathon champion, finished 10th at the Commonwealth Games and announced his arrival on the big stage by ending sixth at the

Under-23 World Championships before being crowned African champion in 2007.

Hurling himself downhill at breathtaking speed was Stander's speciality but he was just as able on the road where Stander tried his hand in many races including finishing in 14th spot in the Giro del Capo and third in Under-23 category at the SA Road championships in 2008.

Standers rise to the top of the world was highlighted by his world title when he was crowned World Cup champion and finished second at the Under-23 World Championships.

But that was the same year that Stander would announce his intentions in the Absa Cape Epic and after leading three stages, Stander did not finish the race because of a rib injury.

Standers talent though was never going to be stifled by injury and in 2010 he finished third place at the Mountain Bike World Championships in Mont Sainte-Anne in Quebec, Canada underlining his extraordinary gift as one of the world's emerging talents.

While blazing a path the mountain bike trails of the world Stander made time to give back to underprivileged communities and along with Songo.info-charity was involved in the building of BMX tracks in the country.

It may have been in many world cup mountain biking events that Stander's name featured

prominently abroad but his crowning moment at home came when along with team partner Christoph Sauser in the past two years won the Absa Cape Epic in the process becoming the first South African to do so and the pair was expected to do the same this year, again.

The cycling world is still reeling from Stander's loss and what could have been of this immensely talented rider and with wife Cherise Taylor, who is an elite road cyclist, they could have possibly been South Africa's greatest cycling couple.

"For us Burry will always be more than just a mountain bike champion. In fact, he was a champion on and off the bike. For him his family always came first. He never hesitated to help when and where ever he could."

"No parent should ever have to see his child lying on a tarred road after an accident, knowing that there is absolutely nothing he can do to save his life. Words cannot begin to describe how one feels when it happens," said Burry's father Charles in a statement soon after Stander's passing.

How true that no words can begin to explain what Stander was to cycling and what future lay ahead of him but one word is certain, Stander is a South African cycling legend and the country and cycling world are poorer without him.

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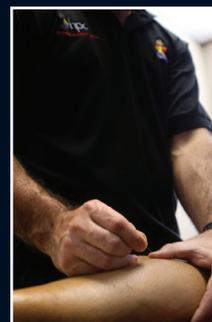
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- Platelet therapy
- Shockwave therapy
- Sports specific rehabilitation





Text: Vata Ngoben, Chief sport writer for the Pretoria News

When the Africa Cup of Nations kicked off in January with our beloved Bafana Bafana playing against the little known Cape Verde, just like millions in this country I never believed.

Well I didn't believe that Bafana would win that game nor did I think they would go beyond the group stages of the competition.

You see history has indoctrinated us with the information that Bafana should be starting their steady return back to the top of African football but unlike their surprise introduction to the Afcon by winning the tournament, we would have to start from the bottom this time around.

We won it in 1996 with that team that we can't stop talking about and for which incumbent Bafana coach Gordon Igesund probably hates to be reminded about and what legends they became afterwards.

Two years later, we made it all the way to the finals but lost by a solitary goal to Egypt.

Two years later, we finished third.

Two years later, we were knocked out in the quarterfinals.

Two years later, we failed to make it out of the group stages.

Two years later, we didn't win a match and couldn't score a goal.

Two years later, we thought we qualified and danced our way into football idiocy before we watched the competition from the comforts of our homes including the Bafana team.

A year later we were back in the competition by virtue of being hosts and we were being told to believe in a side that didn't seem to believe in itself.

So when tournament started and Bafana drew against Cape Verde, I had that feeling in me that here we go again, another tournament, another disaster.

However things changed against Angola and we managed to score two goals in one game and I along with millions of South Africans went from being the biggest critics and pessimists to being the biggest supporters and believers that this team would repeat the feats of the class of 96.

Our hopes were nearly dashed by Morocco in our last group match but through grit and determination we fought back to draw 2-all and go through on top of our group.

The belief was hypnotic.

The taste of victory palpable and the yearning for the feeling of euphoria as deep as it has ever been in this country.

As average as a team we were, we believed that our time had finally come and that our boys had finally awoken to the realization that their fate and that of this country was in their hands and feet.

But belief can only carry you so far and not only did Bafana drop the whole country with their hands but they failed with their feet in the penalty shootout against Mali in the quarterfinals.

Yes, I along with my compatriots

were disappointed.

No, we were gutted.

But for a moment which lasted almost two weeks, Bafana allowed us to dare to dream the impossible dream

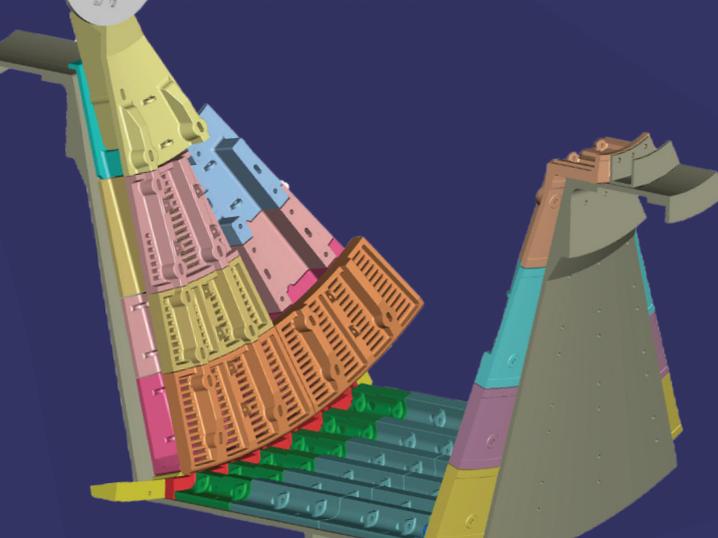
They made us love each other again by singing the praises of the Rainbow Nation and even though we had one "mlungu" in the team in Dean Furman, he quickly emerged as the poster for this new look Bafana team with fight.

My belief though did not die when Mali beat us nor did I stop dreaming about Bafana finally returning to the top of African football.

But my belief and that of millions of South Africans will be irrelevant if Bafana don't believe in themselves.

If they do believe in themselves then we will be playing at next year's World Cup in Brazil and I look forward to the next Afcon tournament in Morocco as we will make the semi-finals, at least.

PS. Talking about belief, I hope the invincible Proteas of Test cricket will believe and be just as unbeatable in Limited Overs cricket especially in 2015 at the next World Cup!



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