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A Case Study at Prime Human Performance Institute: Noting Barriers to Access

Ian Seddon

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A Case Study at Prime Human Performance Institute: Noting Barriers to Access

Ian Seddon
Advisor: Chris Hudson

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Abstract:

Prime Human Performance Institute is a new athletic facility situated in Moses Mabhida stadium that provides scientific support for athletes aspiring to achieve greatness within their specific discipline. However, even with the presence of high performance training centers like Prime, South Africa’s athletes have struggled to consistently compete at a world-class level in relation to other comparable nations. The aim of this participant observation study was to observe and assess the quality of service provided by Prime Human Performance Institute, while briefly identifying the barriers that prevent South African athletes from utilizing a high performance center such as Prime to its full potential.

Over the course of three weeks, I gathered detailed information about the quality of service that Prime offers through formalized interviews, informal shadowing sessions, and daily observations with each of Prime’s sports science professionals and sport science clientele. Based off my observations, Prime has the capacity to provide world-class athletic training to South African athletes. However, I also noticed some barriers that restrict Prime’s impact, including unsupportive administration, ineffective funding allocation, talent misidentification, and general sports science education deficiency. Until these current barriers are removed, athletic training centers like Prime will never be fully utilized by South Africa’s athletes.
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Introduction:

As modern technologies have progressed, the time where athletes could rely on pure athletic ability to succeed has slowly faded. Indeed, in the modern sporting world, it is currently accepted that exceptional athletes are a byproduct of both good genetics and effective high performance training. As Dag Kaas, an Olympic coach who has coached twelve individual world champions in four different sports, once put it, “my experience as a coach tells me that to become a world champion in endurance disciplines, you have to train SMART, AND you have to train a LOT. One without the other is insufficient” (Seiler & Tønnessen, 2009). However, for many athletes, training smarter is not possible due to a lack of accessible resources and facilities. Thus, in order for a nation to succeed athletically compared to other countries, that country must invest significant funding into providing the proper resources to its athletes. “Only in running- where poor Kenya, Ethiopia, and Jamaica excel- does money seem almost irrelevant to success. Otherwise, the basic Olympic formula is that talent times resources equals medals” (Kuper, 2012). However occasionally, when wealthy countries still struggle on the international stage, the problem is far less about funding and more about athletes lacking innovative, effective, sports training.

Compared to other countries, sport in South Africa has held a special significance in that it has been more than just a recreational pastime. For example the Rugby World Cup of 1994 is debatably one of the unifying factors that helped South Africa transition into democracy. However, even with the government setting aside a department whose sole purpose is to create “an active and winning sport nation”, South Africa often falls short in comparison to international competition (Department of Sport and Recreation, 2014).
During the previous Olympics of 2012, South Africa only won 6 medals. When compared to their international economic contemporaries, that is 11 less medals than Brazil, 75 less medals than Russia, and 82 less medals than China (ESPN, 2012). In another example, South Africa has never qualified for a single World Cup soccer tournament beyond the automatic bid they received when hosting the tournament in 2010, even though soccer is one of its most popular sports. This deficit suggests that there is a lack of proper athletic cultivation in South Africa, which could point to a lack of effective high performance training.

Two years ago, Prime Human Performance Institute was established in hope of providing the region of KwaZulu Natal with a world class, sports medical, high performance and training facility. In the short time since its inception, Prime has grown tremendously, training athletes from throughout the country and throughout the world. Prime is most notable for utilizing modern technology rarely found anywhere else, such as the Alter-G treadmill and the high altitude chamber, which was the first of its kind in all of Africa. Furthermore, Prime is unique as a gym in that it houses professionals from a variety of disciplines in order to provide its athletes with access to every manner of sports training, including strength and conditioning, nutrition, and rehabilitation.

With such a seemingly advanced training facility being present in a country with poor athletic cultivation, I wanted to explore through observation how a premier sports training facility in South Africa operates. For this reason, I shadowed at Prime over the course of three weeks, sitting through training sessions and interacting with the staff and athletes, in an attempt to assess the quality of service that Prime provides.
Ultimately, this study is relevant because it attempts to examine the sports training that Prime provides for athletes, and to identify the barriers that currently prevent South African athletes from fully utilizing high performance facilities such as Prime. While three weeks is a short amount of time to properly explore such a complex problem, this study can serve to educate about the services offered by a South African premiere sports training facility, as well as to educate about the current sporting environment in South Africa. Furthermore, examining high performance sports training in South Africa allows for comparisons to be made with other successful sporting nations such as America and Australia. Future studies could analyze other sporting facilities in South Africa for their efficiency and effectiveness as well as examine sports training from the perspective of South African sportsmen and women.
**Acronyms and Technical Terms:**

AmaZulu FC - AmaZulu Football Club

Athletics - Track and Field

HPC - High Performance Center of Pretoria

PRP - Platelet Rich Plasma

SRSA - Department of Sport and Recreation South Africa

SSISA - Sport Science Institute of South Africa in Cape Town
Context:

As mentioned previously, sport in South Africa has held a special significance in that it has been more than just a recreational pastime. In fact, it is often referenced as being one of the influences that helped transition the country from the era of apartheid to the era of democracy. Currently, South Africa is striving to become a world-class sporting nation, spending vast sums of money on athletic facilities in order to host and compete in international competitions. For instance, South Africa recently spent over 1.8 billion dollars on building stadiums to host the World Cup Tournament in 2010 (York, 2014). Additionally, South Africa has previously played host to the Rugby World Cup in 1994, Athletics World Cup in 1998 (Track and Field), and the FIFA Confederations Cup in 2009 just to name a few. However, while South Africa has been able to attract such prestigious events, it has consistently struggled to compete at a high level. For example, although soccer is South Africa’s most popular sport, the South African national soccer team has consistently failed to meet the standards necessary to qualify for the World Cup soccer tournament. In another example, South Africa won six medals (three gold, two silver, and one bronze) at the most recent Olympics; its most successful Olympics in decades (South African Sports Confederation and Olympic Committee, 2012). Among the medalists were swimmers Cameron van der Burgh and Chad le Clos, runner Caster Semenya, Canoeist Bridgette Hartley, and the South African lightweight coxless four rowing team (ESPN, 2012).

In terms of sports training, the three most prestigious high performance-training centers are the Sports Science Institute of South Africa (SSISA) in Cape Town, the High Performance Center (HPC) in Pretoria, and Prime Human Performance Institute in
Durban. Prime Human Performance Institute is advertised as a world-class, sports medical, high performance and training facility. Prime is unique as an athletic training facility because it develops its athletes through the employment of South Africa’s finest sport and medical experts, who are centrally accessible within the gym itself. Additionally, Prime is recognized for the cutting-edge technologies that it uses for the benefit of its clientele, including Africa’s first high altitude chamber and antigravity treadmill (Moses Mabhida, 2014). Its institutional vision is to give the public of KwaZulu Natal access to resources typically only reserved for the world’s best athletes. However in practice, Prime has functioned as a training facility for more than just the local athlete. While Prime has been around for only two years, it has already impacted some of South Africa’s top athletes in the disciplines of swimming, track and field, rowing, and soccer. What sets Prime apart from the other two prestigious training facilities is that Prime is a facility focused primarily on providing services to the athlete, while the other facilities each have a significant research component as part of their vision. “The difference between Cape Town [SSISA] and here [Prime] is that Cape Town [SSISA] is a funded facility geared towards research, while Prime is not externally funded and our main reason for being is service rather than research” (Marshall, 2014).


**Literary Review:**

The cultivation of athletes from average to world-class has been a topic of interest among sporting professionals for years. However, until recently, there has been a general deficiency of research to help guide the optimization of this process (Collins & Daubney, 2005). This deficiency has led to a variety of training practices that have been inefficient, failing to cultivate athletes to their full potential. For this reason, recent sports science research has been dedicated to the identification of poor athletic training and the provision of effective training methods.

**Application**

While sport science can have a positive impact on sports training, there is general consensus that the application of sports science to coaching is currently very poor (Martindale & Nash, 2013). In fact, according to a study that investigated the perceptions of sport science from coaches of different sports, sports science is an area of academia that is inaccessible to coaches and their athletes due to issues of relevance, knowledge access, and language. Currently, many coaches feel like the information that sports science uncovers is largely irrelevant to them, and thus never use it. However, one study went further to show that the inability of coaches to take advantage of sport science research is not the fault of the coaches, but rather the fault of sports scientists who are unable to contextualize their research for specific contexts (Martindale & Nash, 2013). Additionally, sports scientists often write in academic jargon that makes their findings often inaccessible to the general public. If there was a movement to use more appropriate “lay” language in information dissemination, then many coaches have acknowledged that they would utilize sports science research more frequently (Williams
Sport specialization

In the past, many countries have relied on early talent identification (TI) in order to more efficiently target and cultivate young athletes who show the potential to be world-class sportsmen. Indeed, “Most countries attempt to identify systematic structures to identify gifted athletes and to promote their development in a specific sport” (Vaeyens, Güllich, Warr, & Philippaerts, 2009). However, current studies have actually proven to show that there is no direct correlation with early sport specific training and greater athletic success. “An earlier onset and a higher volume of discipline-specific training and competition, and an extended involvement in institutional talent promotion programs, during adolescence need not necessarily be associated with greater success in senior international elite sport” (Vaeyens, Güllich, Warr, & Philippaerts, 2009). Additionally, as a consequence of early sport specification, “Young athletes (and coaches) subscribing to this view may ‘over commit’ years to a particular sporting pathway, when a more informed view would have redirected/transferred them to another potentially more fruitful sporting option” (Pankhurst & Collins, 2013).

However, that is not necessarily due to a lack of knowledge or research about the issues with early sport specification or talent identification. In fact, another study has supported the fact that the reason early sport specification often fails is due to the inability of the practitioners to apply sports science research to talent evaluation methods (Pankhurst & Collins, 2013). This has lead to talent identification that is inconsistent, unreliable, and often unfairly biased. “Abbott and Collins (2004) suggested that TI tests do not take into account differing rates of development in children; rather, they simply
build on the ‘uneven playing field’ between children and base long term decisions on short term, ‘snapshot’ tests. In yet another oversimplified application of basic research, while ‘better’ scores often simply indicate a child to be more advanced in that capacity at that time, such scores are, in reality, taken to mean that the child is more ‘talented’” (Pankhurst & Collins, 2013).

Instead, there should be a movement to delay sport specification for young athletes, and emphasize a more holistic approach to sports training. In fact, sports science research has shown that effective talent development happens in an environment where there are “long-term aims and methods; wide ranging coherent messages and support; emphasis on appropriate development rather than early selection; individualized and ongoing development; and finally, integrated, holistic, and systematic development” (Collins & Daubney, 2005). This multidisciplinary approach to athletic training is a characteristic that is showing to be more and more significant in achieving sporting success. A interdisciplinary approach to sport “integrates general and specialized phases of development for participants within the active lifestyle, sport participation and sport excellence pathways…better understands athlete transition; avoids chronological and training prescriptions; more optimally establishes a continuum between participation and elite; and allows full inclusion of many developmental support drivers at the sport and system levels” (Gulbin, Croser, Morley, & Weissensteiner, 2013).
Methodologies:

Design

In order to realize my goal of assessing the quality of sports training at Prime and noting barriers of access to high performance training facilities, I designed my research to resemble a type of practicum known as participant observation. Instead of gathering knowledge only through various formulated interviews, which would have constrained my understanding of the topic by limiting both the scope and depth of gathered information, I gathered my knowledge over a longer period of time by observing and interacting with the facility and its staff members on a daily basis. This facilitated a more authentic and well-rounded collection of knowledge. During my time there, I gathered information about the types of utilized sports training technology as well as the services that Prime’s staff members provided through the use of simple observation, experiential learning, informal conversation, and formal interviews. In total, I shadowed Prime’s various sport and medical experts as well as their clientele over ten days for 65 hours. While my schedule varied, typically during the morning hours I shadowed the athletic training or rehab sessions run by Prime’s biokineticists and strength and conditioning coaches. Then, in the afternoon I would normally sit in on consults for the sports doctor, physiotherapist, or dietician (see Appendix 2). In addition to Prime’s immediate staff members, I was able to occasionally shadow a strength and conditioning coach from the AmaZulu FC as well as a biokineticist from the Sharks rugby club who utilized Prime’s facilities to train their athletes. Following my time at Prime, I interviewed a local coach in order to contextualize Prime from a local athletic club’s perspective.
Since this study was only three weeks long, there are some limitations that should be acknowledged. One of the limitations of this study was that the data came primarily from the perspective of sports science professionals. If I had more time I would have liked to interview governmental officials in the Department of Sport and Recreation South Africa (SRSA), as well as more athletes and coaches. Additionally, another acknowledged limitation of the study was that I used Prime as a model for how other South African high performance training centers operate. Ideally, I would have liked to observe at multiple facilities over a longer period of time before making generalized statements about high performance training centers in South Africa. Finally, since I spent a majority of the three weeks physically observing at Prime itself, I do not have as many relevant secondary sources as I would have liked. If I had more time for research, I would have liked to spend it searching for secondary sources that were more centrally focused on sports research in South Africa.

**Sampling Plan**

In order to properly observe the highest level of high performance technologies and sports methodologies in South Africa, a learner should be at a facility that is exceptional in terms of resources, while also open to student observation. Since I lived in Durban during the study, Prime Human Performance Institute was an ideal facility in terms of both accessibility and relevance to my topic. The subjects of my research, the utilized technology, the sport and medical experts, and the training athletes, who utilize Prime as a facility, were all “gathered” based on convenience sampling. Since my study was based specifically in the Prime Human Performance Institute facility, the subjects I studied were all the staff members, athletes, and technologies that were present there.
during my three-week observation period. Additionally, the aim of the study, to evaluate South African high performance training, is not affected by a particular demographic. Thus, the convenience sampling method can be applied.

There are not many secondary sources in existence that focus on the application of high sports performance technologies in South Africa; thus, many of the relevant sources I found are broad and international in scope. Many of the articles I gathered were found by searching the Google search engine for either “high performance technologies in South Africa”, “Talent Identification in Sports”, or “Sports training in South Africa.” I also found a few pertinent articles by searching through the Olin Library database at Rollins College for articles with the key words, “South Africa”, “Olympics”, and “Sports Training.”

**Data collection**

The primary aim for this study, to observe the sports training offered by Prime Human Performance Institute and evaluate the success it has had in enhancing athletic performance, was a qualitative goal whose completion is difficult to measure. However, the secondary goal of exploring the methods and technology that Prime provides is a quantitative goal much easier to gauge. Since my main method for data collection was through participant observation, most of my beneficial data was captured with a notebook and pen that I kept on my person at all times. This allowed me to write down the significant descriptions, intriguing thoughts, and outstanding questions that I had while observing. Furthermore, part of my time at Prime was spent shadowing Prime’s numerous professionals in the fields of sports healthcare and sports training so having a notebook and pen also enabled me to copy down any interesting, relevant, quantitative
facts that they shared. At the end of each training session or consult that I shadowed, I would spend a few minutes reflecting on what I had seen and jot down any important details. I held six formal interviews with professionals from a variety of backgrounds, including a sports doctor, physiotherapist, biokineticist, strength and conditioning coach, the AmaZulu FC strength and conditioning coach, and a track and field coach. I prepared questions for each interview beforehand (see Appendix 1), and made sure to voice record each interview. Each interviewer gave me full verbal consent to use their name and opinions in this academic study.

**Data analysis**

The conclusions made from this study are highly qualitative in nature, supplemented with rich description. Thus, in order to make meaning of my qualitative data through data analysis, it is important to triangulate it with other relevant sources. When comparing Prime’s methodologies and technologies to other sports facilities in South Africa, there are not many secondary sources that exist. Indeed, for a vast majority of South African sports training facilities, the utilization of novel, scientific high performance technologies and sports methodologies is still a foreign concept. Thus, while I attempted to find applicable South African secondary sources with which to compare my data, I predominantly relied on primary sources by interviewing the professionals at Prime. Additionally, I focused a majority of my data collection on maximizing my observation time and number of personalized interviews over searching for secondary source academia. Furthermore, the secondary sources that I gathered were international in scope, focused generally on athletic development and the application of sports science in sports training settings.
Ethics:

At the beginning of the study, I received both verbal and written permission to observe at Prime from Prime’s administrative director after numerous talks and emails explaining the purpose and goals of the study. Additionally, I physically met with the director to review what I was allowed to do, and what I was allowed to write about for my study.

The participants of this study, were not recruited in any particular way, but were gathered using a convenience sampling plan based on their presence at Prime Human Performance Institute during the timeframe of the study. All participants were of the legal adult age, English speakers, and either clients or staff members of Prime Human Performance Institute.

All my interviews were conducted one-on-one in private rooms. Prior to each interview, I explained the purpose of my study to each participant and obtained verbal consent to use their names and opinions in my study (See Appendix 3 for example of informed consent). Additionally, I was granted approval to voice record each interview for my own personal record. I kept each recording in my locked iPhone. At the conclusion of each interview, I asked the participants if they had any questions pertaining to the study and their role in it, and answered accordingly. I formally interviewed each participant only once. Upon completion of the study, I deleted all voice recordings, and destroyed all notes gathered from my observations at Prime.

There were no significant risks of stress or harm for subjects participating in this research, nor were there any significant benefits.
Findings:

During my time at Prime Human Performance Institute, I was able to observe the provision of high quality athletic training from a multidisciplinary team through the utilization of sports science and high performance technologies. From an observer’s perspective, the elements that make Prime unique as an athletic training facility are the staff, the technology, and the clientele.

Staff

When asked with what sets Prime apart from other athletic training centers, the resounding answer I received from both Prime’s clients and staff is its multidisciplinary staff. Dr. Mike Marshall (Prime’s in-house sports doctor) explained further that, “Prime is a multidisciplinary facility. I think that’s the most important thing. We are a multidisciplinary facility with ease of referral within the various disciplines that work here…we all inter-refer which is what a interdisciplinary sports clinic is supposed to be. Thus, how are we different? I guess we are different from the practices that don’t get it right” (Marshall, 2014). The staff faculty is made up of professionals in the disciplines of sports medicine, physiotherapy, biokinetics, strength and conditioning, nutrition and dietetics, and massage therapy who are all trained to meet the needs of any athlete.

Sports Doctor

For athletes who have experienced sports-related injuries, or injuries that inhibit them from participating in sports, Prime houses its own certified sports doctor, Dr. Mike Marshall. At Prime, Dr. Marshall serves as the first line of health care for the ailing athlete, providing both an injury diagnosis as well as a treatment plan. “I provide a diagnostic service, in this multidisciplinary facility I also run an executive wellness
program and cardiac rehabilitation programs, additionally I screen for diseases and provide emergency medical provision” (Marshall, 2014).

**Physiotherapist**

For those who suffer from debilitating muscular or tissue injuries that are too serious for major movement and exercise, Prime provides clients with access to a physiotherapist. This is typically considered a form of primary health care, and a service that is utilized during the first stages of rehab.

**Biokineticists**

During the later stages of rehab, when the patient can move without too much pain, Prime has multiple biokineticists who offer rehabilitation aid through prescribing exercises targeted at strengthening various muscles and motor functions. “We use exercise as a rehabilitative tool, whether we look at a sporting injuries, chronic injuries, or chronic diseases” (Savides, 2014). In my observation capacity, I saw the biokineticists work with professional soccer players, rugby players, soccer players and as well as younger athletes and other people looking to improve their physical health and quality of life. For example, the biokineticists oversee the administration of different health services such as the Flora Heart program and the Vitality fitness test. The Flora Heart program is a “a three month exercise programme that is designed for people who experience cardiac risk factors or for those who simply need a safe and medically guided route to improving their health and fitness” (Flora Strong Heart, 2014). This program offers a comprehensive medical assessment by a sports physician, a stress ECG with VO2 exercise test and lung function test, body composition assessment, functional movement assessment, nutritional assessment and diet prescription with a dietician, individualized
exercise prescription based on initial screening results and goal setting with a biokineticist, and biokineticist-supervised group exercise sessions three times a week for 12 weeks. Thus, the biokineticists work in cohesion with Dr. Marshall to insure that these patients are safe at all times while working to achieve a higher level of fitness. Insuring the safety of these patients is a crucial part of the program, because many of the patients are coming off of intense cardiac situations. The patients I interacted with were coming in with heart complications such as recent acute heart attacks, stent inserts, and quadruple bypass surgeries.

The Vitality fitness test is a test that many South Africans do in order to receive discounts from their health insurance. The most common medical aid comes with incentives for its clients to stay healthy, and thus people get discounts and free things for working out, and buying good foods. However, they must complete various tests in order to qualify for the discounts. Prime’s biokineticists offer their clients the fitness part of the Vitality tests, during which they first measure the client’s body fat, weight, height, and flexibility, and then monitor a client’s blood pressure and heart rate during a set of step drills.

**Strength and Conditioning Coaches**

For injury-free athletes, Prime offers strength and conditioning specialists who provide scientific exercise training to their clients, enabling them to realize whatever goals they wish to achieve. These specialists train the advanced athletes, however they also train the common athletes who desire to get into sport specific, or goal-oriented shape. As Mark de Swardt explained, “I oversee the strength and conditioning with all the athletes as well as anyone who comes in with any specific problems or weaknesses,
including athletes, the general public, as well as anyone looking to improve their general fitness” (Swardt, 2014). Prime has many advanced athletes in a variety of sports including Track and Field, Swimming, Boxing, Kayaking, Marathon running, Triathletes, Netball, and Rugby. These athletes range from average to world class; however the quality of training they receive is consistent regardless of athletic achievement.

“Whenever anyone comes in we use an FMS, a functional movement screen, in order to target any biomechanical weaknesses so we use that with anyone who comes through here, from that we will design an [exercise] program based off of that” (Swardt, 2014). These programs are updated every few months depending on how quickly the client improves. Each program is goal oriented in nature and personally caters to the wants and desires of the client.

**Dietician**

Prime also provides clients with a dietician who works in collaboration with the rest of Prime’s staff. This dietician provides personalized dietary plans to help clients achieve their athletic or health related goals. These personalize plans take into account the end goals of the clients, their favorite foods, and their current dietary habits. Thus, by altering their nutritional intake in a way that is both realistic and personalized, clients are provided with the support they need to achieve their physiological goals.

**Massage Therapist**

If an athlete is particularly sore from training or competing, then he or she can utilize Prime’s specialized sports masseuse. Many athletes often utilize these sports massages to help reduce the amount of recovery time needed before their next physical activity.
**Technology**

Prime is recognized as a premier sports training facility in sports training communities not only for its holistic approach to sports care, but also for its high-tech, athletic equipment. This technology allows Prime’s various professionals to train and monitor their athletes in a variety of ways and have proven to provide the athletes at Prime with significant performance benefits. These facilities include an altitude chamber, Keiser machines, Alter-G anti-gravity treadmill, Wattbikes, an indoor track, and Olympic training platforms. Furthermore, Prime also offer their athletes state-of-the-art rehabilitation services such as the ECB cold spa ice baths, soft tissue ultrasound, and Platelet Rich Plasma (PRP) treatment.

**Endurance Technology**

Prime’s most notable state-of-the-art training tool is arguably its Simulated Altitude Chamber, which is an amenity utilized primarily by Prime’s endurance athletes. In the chamber, oxygen is removed from the air in order replicate the air composition at extremely high altitudes. Training at a higher altitude has proven to force athletes to undergo beneficial physiological adaptations in response to the oxygen-depleted environment, increasing red blood cell count, formation of hemoglobin, ability of oxygen uptake in lungs, and increased blood vessel density around muscles to deliver oxygen and remove waste products (Boutin, 2014). Thus, training in an altitude chamber allows an athlete to experience the benefits of delivering more oxygen to the muscles while removing waste products more effectively and efficiently, without the hassle of traveling to a high altitude area.
Prime’s most novel technology that it provides for its athletes is known as the Alter-G anti-gravity treadmill, which was initially engineered by NASA (See Appendix 4). This patented NASA technology allows for precise partial weight bearing during walking or running on the Alter-G treadmill. The Alter-G can be used as a rehabilitation tool in order to return to functional activities such as running or walking at a much faster rate due to the lower ground reaction forces that are exerted on the body while in the machine. During my time at Prime, I frequently observed Prime’s medical professionals utilizing the Alter-G to normalize a client’s gait and running mechanics and maintain the client’s fitness levels while still protecting the healing tissue.

If an athlete doesn’t like running on the treadmill, Prime offers another outlet for advanced cardiovascular training called the Wattbike. The Wattbike features both air and magnetic braking systems to allow the athlete to replicate any desired training session from low intensity recovery riding to maximal intensity sprints. The Wattbike computer measures and records 39 parameters 100 times per second and displays these in a usable form for the rider on the display panel. These parameters range from power output to cadence, force, torque, road speed, heart rate, pedaling technique and efficiency.

**Strength Technology**

If an athlete wants to have similar parameters while running, Prime offers a 35 meter two lane indoor track that boasts a 4-meter force plate in lane one (see Appendix 6). This force plate, known as the RsScan Footscan, tracks the movement and biomechanics of the foot through measuring the change in footprint pressure from foot strike to toe off while running. The Footscan synchronizes seamlessly with Quintic sports biomechanics video capture and analysis software, allowing the tracking and analysis of
movement in slow motion or frame by frame by a multiple camera system. This software is the gold standard in biomechanical movement analysis and provides a valuable tool in assessing and managing the causes and predisposing factors to a variety of lower limb injuries, measuring rehabilitation progress, as well as optimizing running efficiency (Savides, 2014).

Air can also be used in sports training as an alternative type of resistance for strength exercises that typically rely on the gravitational resistance of weight stacks. Prime is outfitted with a variety of Keiser machines that substitute pressurized air tanks in the place of weight stacks in order to create high resistance training with very little inertia and without any dependence on gravity (see Appendix 5). “Our resistance equipment utilizes compressed air because there is less ability to pick up momentum, which allows our athletes to perform quick power movements” (Savides, 2014). The more common practice of using weight stacks for resistance can become problematic due to the high exertion of force that is required to initially lift the weight stack. However, the elimination of the weight stack reduces the mass, thereby virtually eliminating the force due to acceleration. This leaves just the variable resistant force. In other words, the reduction of acceleration forces and the elimination of dependence on gravity allow the variable resistance strength curve to remain consistent over a wide range of training speeds.

For more intense strength training, Prime offers three Olympic training platforms. Each of these racks has a full set of rubberized Ivanko plates, all of which are Olympic standard and precision calibrated (better than 10 grams accuracy). What sets these racks apart from more traditional power racks is that they have the option to be used with the
Keiser air system or conventionally. The power racks, when used with the air system have two displays so one is able to see the screen either in the standing position or lying on your back. The screens display the weight applied, power generated, and the repetition number.

**Rehabilitation Technology**

It is typical for an athlete to be perpetually sore or injured from the daily stresses of training and competing. However, certain preventative measures can be taken to in order to avoid being sore or injured. In order to insure that their clients are as healthy as possible, Prime has invested in advanced rehabilitation technology. The most commonly utilized among Prime’s rehab technology are the ECB cold spa ice baths, which help reduce an athletes recovery time by causing the submerged muscles to tighten which allows for lactic acid to drain out of the muscle. These baths use chiller units to keep the water between 2 and 4 °C, and also have built in spa jets to create a massaging effect.

Prime has also invested in a soft tissue ultrasound suite, utilizing SonoSite ultrasound equipment. Prime’s ultrasound suite provides soft tissue diagnostic ultrasound imaging including Doppler and Power Doppler imaging of soft tissues. This enables instantaneous and dynamic visualization of soft tissue injuries, enabling a quick and accurate diagnosis and prognosis. In addition, most interventions and injections are done under ultrasound guidance for improved accuracy of placement.

Prime has also invested in a PRP treatment facility for those who wish speed up the natural healing physiological processes. Platelet Rich Plasma infiltration is becomingly an increasingly popular choice of treatment for certain sports injuries, enhancing recovery and decreasing return-to-play time. Prime uses the latest Harvest 2
technology for optimal platelet extraction as well as the Arthrex platelet concentration system. During PRP treatment, 10-60ml of blood is taken from the arm of the patient, spun down and concentrated for 8-15 minutes. The isolated platelet extract is then injected back into the injured area to promote and facilitate healing. This is done in a dedicated procedure room located within Prime itself.

**Clientele**

With such facilities, Prime is an ideal place for other sports professionals to practice and train. For example, the medical and conditioning staff of both the AmaZulu football club and the Sharks Rugby club utilize Prime’s phenomenal facilities for their training sessions. I was able to interact most often with the Amazulu strength and conditioning coach, Trevor Ndlovu, who conducts group and individual sessions throughout the week in order to help the Amazulu players achieve high levels of fitness and insure injury prevention through muscle balance and stabilization. However, I also shadowed a biokineticist from the Sharks who utilized Prime for its rehabilitation technology.

**Elite Athlete Development Program (EADP)**

Along with the local professional rugby, soccer, and cricket teams, Prime is currently being utilized by some of KwaZulu Natal’s top athletes due to the KwaZulu Natal Elite Athlete Development Program (EADP), which is a government-funded initiative to provide free athletic training and treatment for KwaZulu Natal’s top athletes. Many of Prime’s athletes are apart of the“ EADP or the Elite Athlete Development Program [which was created by] the UKZN Sports and Recreation department…Currently it is made up of 140 athletes who come in, get tested, and have
programs designed for them” (Swardt, 2014). The government has identified these athletes as the top athletes in their respective athletic disciplines, and then sorted them based on their talent into either tier one or tier two athletes. “Tier one [athletes] have physiotherapy, sports massages, medical allowances, and all that provided for them, and they are allowed to train here all the time. While the tier two athletes are allowed to use the altitude chamber, receive personalized training programs, and receive initial medical treatment” (Swardt, 2014).

In addition to the EADP athletes and professional athletes, Prime can be utilized by anyone who is in need of rehabilitation or seeking to reach their fitness goals. However, as a state-of-the-art facility, access to Prime does not come cheaply. In fact, many athletes cannot access Prime due to the costs that accompany a prestigious sports training facility. Thus, other than the EADP athletes and the athletes associated with professional sports clubs, the clients I observed at Prime were predominantly in the demographic of wealthy, upper class.
**Analysis:**

Based off of my findings, it appears that South Africa has the capacity to train their top athletes at a world-class level, with several training centers such as Prime utilizing new scientific sports research in state-of-the-art facilities. Indeed, international sporting professionals and athletes who have trained at Prime acknowledge that the service that Prime provides is world-class, utilizing advanced technology such as Africa’s first high altitude training room and antigravity treadmill (Moses Mabhida, 2014).

However, South Africa is not producing successful athletes at the rate expected of a country at the cutting edge of sports research. Some of this can be contributed to the scarcity of high performance centers in South Africa; however even high performance centers like Prime are extremely underutilized (Swardt, 2014). Thus, there must be other barriers that currently prevent South Africa’s sportsmen from fully utilizing training centers like Prime and achieving widespread international success. Based off of my interactions with the sport science professionals and the athlete at Prime, I have seen and heard, these barriers are multifaceted and encompass the areas of administration, funding, talent identification, and education.

**Administration**

The South African government is divided into various departments that are set up to address the various needs of the South African public. Among those departments is the Department of Sport and Recreation, whose purpose is to create an “Active and Winning Nation…providing funding for different codes of sport” (Department of Sport and Recreation, 2014). The department’s funding can vary in form, from creating public sporting facilities, to providing basic equipment for local sporting clubs and holding
national sporting events. The expectation is that the department will equally allocate its funding to all sporting codes, and provide South Africa’s athletes with the support they need to achieve sporting success. However, this does not always happen. According to Clyde Kinloch (Head of Clyde Kinloch Squad Athletic Club), the sports and recreation department of KwaZulu Natal will spend extravagant amounts of money on sports like rugby, soccer, and cricket, but very little on individual sports such as athletics and swimming (Kinloch, 2014). For example, while the South African rugby and soccer teams have received financial support from the government, with an abundance of facilities and venues to train and perform in, for members of South Africa’s track and field team, the number of venues to train and compete in is limited. Additionally, these venues are often missing crucial equipment necessary for the athlete to be able to compete. Kinloch recounted how he once had to train a discus thrower preparing for the national meet who was unable to practice due to the lack of an operational discus net in the whole region of KwaZulu Natal. Much of this discrepancy over funding distribution lies in the fact that larger team sports pull in corporate sponsors and have greater public support, so the department naturally wants to spend more money on the sports that get the most publicity (Kinloch, 2014).

However, regardless of the distribution issue, the financial support that South Africa’s athletes receive has been insufficient at best. For instance, many of my contacts mentioned that that the department of sport and recreation has been plagued by corruption and funding embezzlement for years, although I could never find a recognized source backing this claim. However, regardless of the corruption charges, there is evidence that recent funding cuts have negatively impacted the ability of many South
African athletes to compete. For example, due to these funding reductions, some athletes are forced to pay for their travel fare and sporting equipment when representing the country in international competitions, which can limit an athlete to the point of quitting the sport altogether. “I was in the same position when I qualified for a world championship swimming event and they [South Africa] could take three [swimmers] but only pay for two, so I couldn’t go unless I paid for myself and it was a lot of money so I couldn’t go… and that makes people not want to do it. How can you be a professional athlete if you have to pay for everything you do?” (Swardt, 2014).

**Funding**

However, despite the funding cuts, there are definite signs that the South African government is investing in sports in South Africa. Indeed, one could simply point to the multimillion-dollar World Cup stadiums that were recently built as a perfect example of invested money. Yet, the allocation of these funds is not always as effective as it could be. As referenced earlier, the sporting department of KwaZulu Natal funds an elite athlete development program known as the EADP, which provides the top athletes from various sporting codes with free access to state of the art sports training and medical treatment at Prime. This program provides many athletes with access to resources previously restricted to them, however the program fails to evaluate the athlete on a personal level. Thus, this can lead to serious funding inefficiencies. For example, “a lot of athletes on the Tier two program can’t afford to see doctors, physiotherapists, etc. While this is going on, you have tier one athletes who do this stuff already, can afford to do it, and who are now getting it for free…It seems that the best athletes in South Africa are getting the money, but sometimes it seems like the best athletes don’t really need it.
So you can’t really say to the best athletes that we aren’t going to give you money because the poorer athlete needs it, because they’ll say that they earned it and deserved it. So it’s a hard situation and I think we need to put aside more funding and resources for those athletes that don’t have as much” (Swardt, 2014). However, increasing funding should not necessarily correlate to increasing the amount of free athletic training. For example, I was told that for some athletes who are a part of the EADP, food access is a significant issue. “We had an athlete who came 4th or 5th in the comrade’s marathon and he can’t afford to eat properly. He won’t eat before he trains, and he’ll wait an hour or two after he trains before he has his first meal of the day because he can’t afford to eat breakfast and lunch. So he just has one meal. So he’s never going to reach his full potential until he begins to eat properly. And now he has been brought into this EADP program and given massages and all this good stuff but that’s not helping him with food. Why not instead of giving him massages the government put that money towards getting him food, like a food parcel?” (Swardt, 2014). As seen here, simply providing sports training is not always the most advantageous thing for the athlete. Furthermore, the EADP is limited by its location at Prime, so some athletes cannot take advantage of the free resources due to transportation issues. Thus, a more personalized, athlete-by-athlete, allocation of funding is necessary in order to more efficiently meet the needs of South Africa’s elite athletes. Additionally, as mentioned previously, the cost of Prime currently limits the type of athlete who can access Prime. Thus, reducing the price of high performance training centers such as Prime is also imperative for making high quality sports training more accessible.
Talent Identification

In the past, many countries, including South Africa, have relied on early talent identification (TI) in order to more efficiently target and cultivate young athletes who show the potential to be world-class sportsmen. However, current research has actually proven to show that there is no direct correlation with early sport specific training and greater athletic success. “An earlier onset and a higher volume of discipline-specific training and competition, and an extended involvement in institutional talent promotion programs, during adolescence need not necessarily be associated with greater success in senior international elite sport” (Vaeyens, Güllich, Warr, & Philippaerts, 2009).

Additionally, as a consequence of early sport specification, “Young athletes (and coaches) subscribing to this view may ‘over commit’ years to a particular sporting pathway, when a more informed view would have redirected/transferred them to another potentially more fruitful sporting option” (Pankhurst & Collins, 2013).

However, that is not necessarily due to a lack of knowledge or research about talent identification. In fact, another study has supported the fact that the reason talent identification often fails is due to the inability of the practitioners to apply sports science research to the talent evaluation methods (Pankhurst & Collins, 2013). This has lead to talent identification that is inconsistent, unreliable, and often unfairly biased. “Abbott and Collins (2004) suggested that TI tests do not take into account differing rates of development in children; rather, they simply build on the ‘uneven playing field’ between children and base long term decisions on short term, ‘snapshot’ tests. In yet another oversimplified application of basic research, while ‘better’ scores often simply indicate
child to be more advanced in that capacity at that time, such scores are, in reality, taken to
mean that the child is more ‘talented’” (Pankhurst & Collins, 2013). Thus, while early
talent identification in theory is an effective way to cultivate athletes, in reality it can
have the opposite effect.

In South Africa, talent identification plays a huge role in deciding which young
athletes receive funding (qualifying for the EADP), or are admitted into a sports club,
whether its rugby, soccer, cricket, etc. However, as mentioned previously, current talent
evaluation practices have proven to be unfairly biased, automatically mistaking physical
development in young athletes as talent. Furthermore, when organizations and clubs
utilize biased talent identification methods to determine which athletes receive funding, a
funding bias is created. Thus, until talent identification is improved, high performance
centers such as Prime will continue to be inaccessible to talented young athletes who
physically mature at a slower rate and cannot afford to pay for training themselves.

Education

Another barrier that currently obstructs athletes from utilizing high performance
training centers is the general shortage of sports science knowledge and awareness that is
present in the sports trainers, coaches, and athletes. This deficiency is represented in the
prevalent failure to apply sports science research to modern day sports training, which
only happens in unique facilities like Prime, SSISA, and the HPC. Sports training
professionals need to have a deep understanding of the muscles and requirements that
each sport has on the athlete in order to provide the most efficient training, which is not
always the case. Even at Prime, there has been overall acknowledgement that sport
specialization is an area in which they could improve. “We’ve always said that from a
rehabilitative and conditioning point of view we want to get to the point that each trainer has got their specific niche that they work on. At the moment, each of us handle areas of special interest, but generally all of us are jack of all trades. We will see the athletes, see the old people, see the children, but eventually to really grow we need to have sport specific expert who focus on only on their specialty” (Savides, 2014). Uneducated or non-specialized sporting training can sometimes lead to serious injuries for athletes, which can make both the coaches and the athletes wary of gyms.

For example, track and field coach Clyde Kinloch has long believed that sports training facilities do more harm than good for his athletes, citing the fact that during his coaching career all of his athletes’ serious injuries have came either in participating in competitions or from training in gyms using sports science methods. For this reason, Kinloch has always trained his athletes based on the motto of his former coach, Ted Clark. “Stay away from gyms, train using your natural surroundings, and always train with a partner” (Kinloch, 2014).

Kinloch is just one of many coaches in South Africa who distrust and doubt the scientific approach of modern high performance training. Currently in South African sports training there is a heated struggle between the ‘old school’ coaches, who only want to utilize “functional” sports training, and the sports science professionals, who want to utilize various scientific workouts to help strengthen the whole athlete. Trevor Ndlovu, the AmaZulu FC strength and conditioning coach, has experienced this methodological struggle firsthand. “As a trainer, it is a bit difficult balancing the different methodologies. For us, we are concerned with injury prevention and keeping players on the field injury free vs. having the coach saying we need the guy on the field three times
per day training. However, we do find middle ground. With our previous coach, we did struggle to find that middle ground, which is why our preseason was so important because we knew we wouldn’t be training in season so we had to do a lot of work in preseason. But, our current coach now is all for looking after players in season, which is why we have been able to been in the gym on a day-to-day basis” (Ndlovu, 2014).

Beyond educating the coaches, the athletes themselves are the ones who primarily suffer from a lack of generalized sports training education. Without proper sports training education, athletes are both blind to the benefits of proper sports training, as well as more susceptible to injury when trying to utilize certain sports training methods improperly. Thus, sports training professionals in South Africa are faced with the issue of convincing athletes to come to the gym, while simultaneously struggling to teach them how to properly perform the exercises. “A lot of our guys who are brought up in our rural areas, they aren’t used to the gym, haven’t been exposed to it, so for us the challenge is getting those guys familiar with the gym, teaching them the techniques, and getting that culture into them that coming to the gym is good for them, it’s what is needed, and it’s where they need to prove themselves as players” (Ndlovu, 2014).

**International Comparisons**

According to Trevor, this difference in culture and sports training education is what sets a soccer team like Manchester City Football Club apart from South African football clubs. “Last year we had [Manchester] City come here… I think the big thing for our players was when they saw their players on the field or out in the public they were shocked by the sheer physical size of them, the height and muscular build, and it was a realization that their success happens in the gym… The guys and trainers in England, they
were saying that their jobs are made so much easier by the fact that their players can walk into a gym, get their training program and know exactly what to do. As I said again, the challenge that we face is to teach the guys how to do things” (Ndlovu, 2014). So on the one hand, general sports training education levels differ between South Africa and more successful sporting nations. However, South Africa produces sports research just as well as any other country. From my interviews with Prime’s medical staff, it was a repeated sentiment that what sets South Africa apart from the rest of the world is not its resources, but its application of its internal resources. “There was an Australian sports physician that came to South Africa ten or fifteen years ago that said in one of our international conferences that South Africa is ten years behind Australia in sports medicine. And he released a storm of anguish within the press and media, over the failing of South Africa. However, later on he clarified, saying, “No, no, no, don’t get me wrong. Your research is just as good as anyone else’s research in the world, but it is your use of it that is terrible” (Marshall, 2014).

This is due in large part to the emphasis on sports research and its application that is present in other parts of the world. For example, in Australia, there is a governmental department called the Australian Sports Commission, which is “recognized for being a world leader in the development of high performance sport and sport participation.” (Australian Sports Commission, 2014) Part of what makes Australia so unique is their emphasis on a multidisciplinary approach to sport and sport training, facilitating “participation and elite pathways for athletes, coaches, officials and administrators” (Australian Sports Commission, 2014). There is a lot of support for athletes and coaches looking to achieve athletic success, and the end goal is to make it easier for quality sports
research to reach Australian athletes and coaches. “This involves providing expertise in athlete preparation, performance science and medicine, innovation, coach and leadership development, performance strategy and planning, pathway support and athlete career and education” (Australian Sports Commission, 2014).

Just as an anecdote, back in the 1990s Dr. Marshall was able to see the Australian sporting environment firsthand. “In Australia, I visited a sports institute in Sydney preparing for the Olympics and the educational programs I saw there for the athlete blew me away, and whenever they saw the athlete in a sports medicine environment the coach had to accompany him. So the coach and the doctor and the athlete all came together, which should happen much more here” (Marshall, 2014).

The sports science and sports training culture in America mirrors the multidisciplinary approach of Australia, with coaches, sports science experts, and athletes all collaborating together to achieve greater athletic success. In these environments, the athlete is able to thrive because of the abundance of tools presented to him not only financially, but also educationally. This represents a underlying difference in the respective paradigms of sporting culture, where in successful sporting nations, athletic cultivation is a three dimensional model with the athlete at the center and all these resources are easily accessible and offered to him for his benefit.

In conclusion, the barriers that prevent South African athletes from achieving their full sporting potential and utilizing high performance centers like Prime are not deficiencies in sport science research, or quality high performance training centers. Rather it is occasional misadministration, lack of funding or proper funding allocation, talent identification deficiencies, and education issues that have created this struggling
sport culture. Until there are serious improvements in these areas, South Africa’s goal to become a winning sporting nation will never be fulfilled.
Conclusion:

The purpose of this study was to examine the sports training that Prime provides its athletes, and to identify the barriers that currently prevent South African athletes from fully utilizing high performance facilities such as Prime. Over the course of three weeks, I observed the provision of high quality athletic training from a multidisciplinary team through the utilization of sports science and high performance technologies. Prime’s team of qualified sports doctors, biokineticists, strength and conditioning specialists, physiotherapists, dieticians, and massage therapists, apply sports science research in order to assist their clients through the utilization of technology such as an altitude chamber, Keiser machines, the Alter-G anti-gravity treadmill, Wattbikes, an indoor track, and Olympic training platforms. Furthermore, Prime also offers their athletes state-of-the-art rehabilitation services such as ECB cold spa ice baths, soft tissue ultrasound, and PRP treatment. However, even with such fancy technology, it is the collaboration between the staff at Prime that sets it apart from other sports training facilities. “Prime is a multidisciplinary facility. I think that’s the most important thing. We are a multidisciplinary facility with ease of referral within the various disciplines that work here…we all inter-refer which is what a interdisciplinary sports clinic is supposed to be. Thus, how are we different? I guess we are different from the practices that don’t get it right” (Marshall, 2014). For this reason, Prime has been acknowledged to be a facility that provides world-class sports training.

However, currently there are inherent barriers that make Prime inaccessible to many South African athletes. Location and cost of membership is the first limiting factor, however these barriers exist for any high performance center worldwide. Rather it
is the barriers that are unique to South Africa that have created this difference in sporting success. For example, the South African government does not provide the support necessary for athletes of all codes to practice, compete, and represent their country at national and international competitions. Furthermore, the funding that is provided by the government is very ineffective in how it is spent, oversimplifying the answer to a complex problem as seen with the EADP program being offered to athletes without food or transportation.

However, beyond the failure of the South African government are the cultural barriers that prevent athletes from achieving their full potential and accessing high performance centers like Prime. The current practice of early sport specification through talent identification has been shown to actually have negative effects on long term sporting success, preventing overall athletic development of the athlete as well as mislabeling young athletes as more “talented” due to more advanced physical maturation. Additionally, the inability of South Africa to educate its general population about sport science has created a culture where sports training and sports science are mistrusted. This failure to collaborate between sports researcher, coach, and athlete is what has set international sporting powerhouses like America and Australia apart from the rest of the world. Prime’s success lies in its ability to apply sports science research towards its athletic training, and its collaborative culture between the different sports science professions. However, until this collaborative culture can spread to include the South African government, sports science researchers, coaches, and athletes as it has in Australia and America, Prime will remain inaccessible to many South African athletes.
Recommendations for Further Study:

This study was focused primarily on examining high performance training in South Africa, while briefly investigating the barriers that prevent athletes from fully utilizing these facilities. Future studies could examine each barrier in more depth, and look at current organizations or movements to try and overcome these barriers. Additionally, most of my data was gathered from the perspective of sports science professionals, so it would be fascinating to explore the same issue from the perspective of the government, sports science researchers, and South African sportsmen and women. Lastly, my high performance sports training data was limited only to what Prime offered, so further studies could examine other high performance centers throughout South Africa and compare them with one another in greater detail.
References


List of Primary Sources:


Appendix 1: Personal Interview Questions

I will be using these questions as a guideline for the discussion. Depending on the participants I will alter these questions accordingly.

**General questions**

What exactly is your relationship with Prime?

What technology do you utilize at Prime?

Are there any limitations that you encounter in your capacity at Prime?

What makes Prime unique compared to other training facilities?

How effective has Prime been in your opinion?

What is the current status of sports science and sports training in South Africa?

What sets South Africa’s best athletes a part from the rest?

**Questions for Staff members**

What type of clients do you see?

How do clients generally pay?

How do your clients find Prime?
## Appendix 2: General Schedule

### Prime 3 Weeks Work Experience Roster

<table>
<thead>
<tr>
<th>Time</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
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<tbody>
<tr>
<td>06h00</td>
<td>Altitude - Shaun Peschl</td>
<td>Off</td>
<td>Altitude - Shaun Peschl</td>
<td>Off</td>
<td>Flora/U-Turn - Lynette</td>
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<tr>
<td>07h00</td>
<td>Flora/U-Turn - Lynette</td>
<td></td>
<td>Flora/U-Turn - Lynette</td>
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<td>Flora/U-Turn - Lynette</td>
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<tr>
<td>08h00</td>
<td>Cond. Coach - Carl Schmidt &amp; Mark Swardt</td>
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<td>Cond. Coach - Carl Schmidt &amp; Mark Swardt</td>
<td>Off</td>
<td>Cond. Coach - Carl Schmidt &amp; Mark Swardt</td>
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<tr>
<td>09h00</td>
<td>Biokineticists - Gavin Muir &amp; Lynette Savides</td>
<td></td>
<td>Biokineticists - Gavin Muir &amp; Lynette Savides</td>
<td>Physiotherapy - Ashleigh Hansen &amp; Karel Du Toit</td>
<td>Biokineticists - Gavin Muir &amp; Lynette Savides</td>
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<td>13h00</td>
<td>Dr Marshall</td>
<td>Dr Marshall</td>
<td>Dr Marshall</td>
<td>Dr Marshall</td>
<td>Altitude - Wayne Collin</td>
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<td>14h00</td>
<td>Dr Subban</td>
<td>Dr Subban</td>
<td>Dr Subban</td>
<td>Dr Subban</td>
<td>Biokineticist - Lynette</td>
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<td>15h00</td>
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<td>Dr Subban</td>
<td>Dr Subban</td>
<td>Dr Subban</td>
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<td>EADP - Bio's and Conditioning Coaches</td>
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Appendix 3: Informed Consent Form:

CONSENT FORM

1. **Brief description of the purpose of this study**
   The purpose of this study is to gain insight into the cultivation of South African athletes by observing the high performance technologies and sports methodologies utilized by Prime Human Performance Institute.

2. **Rights Notice**
   In an endeavor to uphold the ethical standards of all SIT ISP proposals, this study has been reviewed and approved by a Local Review Board or SIT Institutional Review Board. If at any time, you feel that you are at risk or exposed to unreasonable harm, you may terminate and stop the interview. Please take some time to carefully read the statements provided below.

   a. **Privacy** - all information you present in this interview may be recorded and safeguarded. If you do not want the information recorded, you need to let the interviewer know.

   b. **Anonymity** - all names in this study will be kept anonymous unless you choose otherwise.

   c. **Confidentiality** - all names will remain completely confidential and fully protected by the interviewer. By signing below, you give the interviewer full responsibility to uphold this contract and its contents. The interviewer will also sign a copy of this contract and give it to you.

I understand that I will receive **no gift** or direct benefit for participating in the study.

I confirm that the learner has given me the address of the nearest School for International Training Study Abroad Office should I wish to go there for information. (404 Cowey Park, Cowey Rd, Durban).

I know that if I have any questions or complaints about this study that I can contact anonymously, if I wish, the Director/s of the SIT South Africa Community Health Program (Zed McGladdery 0846834982).

I can read English.

_________________________                                 _____________________________
Participant’s name printed                                         Your signature and date

_________________________                                 _____________________________
Interviewer’s name printed                                        Interviewer’s signature and date
Appendix 4: Alter-G Antigravity Treadmill
Appendix 5: Keiser Equipment
Appendix 6: Indoor Track
Appendix 7: LRB Action Form:

IRB Action Form

Cover Sheet for Review of Research with Human Subjects
World Learning, Brattleboro, VT 05301

ACTION TAKEN: Form below for AD/LRB/IRB use only

Name of Student: Ian Seddon
Title of ISP Proposed Research: "High Performance Athletes in Durban"
Study Abroad Program: SFH
Name of academic director: John McGladery
Names of LRB Members: Clive Bruzas (PhD), Frances O’Brien (PhD), John McGladery

Identifying project number: SFH FA 14.1

Research exempt from federal regulations. Action taken:
- approved as submitted  - approved pending revisions
- requires expedited review  - requires full IRB review  - not approved

Research Expedited Review. Action taken:
- approved as submitted  - approved pending revisions
- requires full IRB review  - not approved

Research requiring Full IRB review. Action taken:
- approved as submitted  - approved pending submission or revisions  - not approved

[Signature]
Date: 31/10/2014

LRB/IRB Chairperson’s Signature

[Signature]
Date: 31/10/2014

LRB/IRB Member’s Signature

Student Name: Ian Seddon

[Signature]
Date: