

**What is Biokinetics?
What are common
issues faced with
rehabilitating
athletes?
And treatment
recommendations**

Where does Biokinetics fall in the integrated approach to exercise?

Text: Shelly Malan, Biokineticist, Institute for Sports Research

What is Biokinetics?

Before we can understand where Biokinetics fits in the rehabilitation process, we need to have a clear definition of what a Biokineticist is. The word Biokinetics is taken from the Greek word "BIOS" which means "life" and "KINESIS" which means "movement". In other words, it refers to the maintenance of quality of life through the use of physical activity (Grenfell, 2010). A Biokineticist is a trained professional who specialises in final phase rehabilitation for a variety of conditions. These conditions include rehabilitation for:

- Injuries
- Surgeries
- Special populations with special needs such as diabetes, cancers, cerebral palsy etc.

This is achieved by conditioning individuals according to their needs by means of a scientifically based physical activity programme. However Biokinetics is not limited to the list above, it is also concerned with promoting health both in work environments and at home, as well as the maintenance of physical abilities (BASA, 2012).



What is the Role of a Biokineticist in the rehabilitation process?

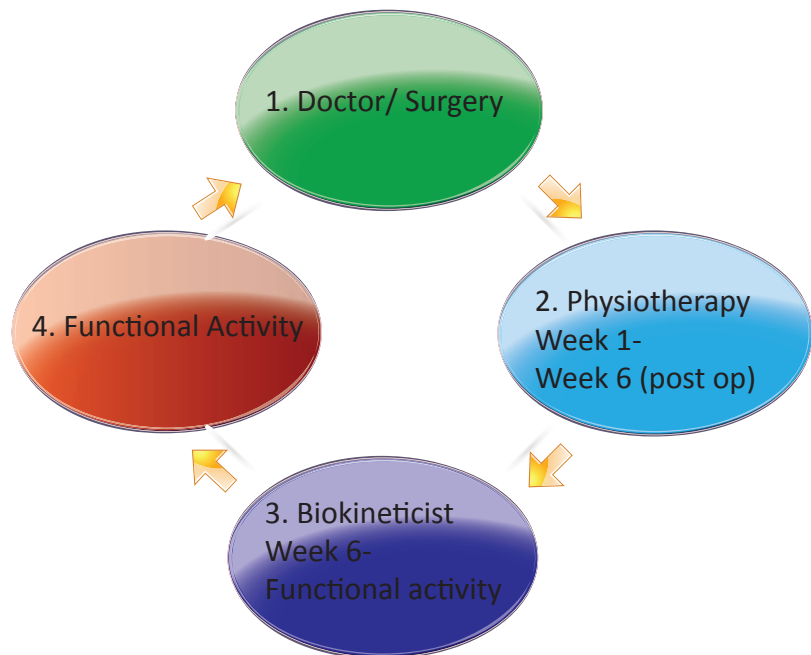
Now that we understand what Biokinetics is, we must identify where it fits in the rehabilitation process. As previously mentioned Biokinetics is final phase rehabilitation. In an ideal world, there are four phases of rehabilitation, namely:

As each situation and injury is specific to the individual involved, this order and process is changed and adapted to be the best rehabilitation process for that particular condition. For example, an individual may see a Biokineticist before they go in for an operation (phase 1) to condition their muscles in order to decrease the time required for rehabilitation after the operation (Ditmyer, Topp, Pifer, 2002), this is called "Pre-rehabilitation".

When the patient comes for rehabilitation, the goal for the Biokineticist is to regain the patient's pain free functional activity that. This is achieved with specialised programmes that target the patient's individual needs. Programmes are then updated weekly or monthly (depending on the patient) by means of:

- More difficult exercise,
- Increasing weight and sets,
- Involving balancing in the exercises,
- Including more sports related exercises,
- Including exercises that mimic daily activities (this is more for your elderly patients, who have undergone replacement surgeries).

As previously mentioned, Biokinetics is not solely for rehabilitating those recovering from injury or surgery, there is also a big need for it with regards to rehabilitating people who suffer from hypokinetic diseases.



Time is often an excuse as to why people choose not to exercise, be that for rehabilitation purposes or for maintaining healthy bodies.

Hypokinetic diseases are diseases caused by “lack of movement”, unhealthy diets, smoking and even stress (Moss & Lubbe, 2011) (Steyn,Fourie, Temple. 2006). Examples of such diseases include:

- High blood pressure
- High cholesterol
- Heart disease
- Diabetes
- Obesity

Biokineticist are qualified to help individuals with these conditions by means of researched and scientifically proven exercise programmes. Even more importantly, they can help prevent these conditions from occurring, especially for those who may be at risk for certain diseases, such as obesity and cholesterol. The same can be done for those who suffer from chronic conditions such as arthritis, osteoporosis, multiple sclerosis, cancer, and epilepsy, to name a few.

Time is often an excuse as to why people choose not to exercise, be that for rehabilitation purposes or for maintaining healthy bodies. This is why Biokinetics has a specialised field namely: Corporate Wellness. This is when Biokineticist are either employed by businesses or contracted out, to oversee the wellness of the employees. This endeavour has grown profoundly over recent years, as research has shown, for example the study by O'Rourke and Sullivan (2003) stated that for every dollar invested in wellness programmes, participating companies found that it saves \$ 3.95 in medical expenses.

What service can you expect when you go see a Biokineticist?

An individual requiring treatment for any of the conditions previously mentioned can expect the following from a Biokinetics evaluation (Grenfell,2010):

- Have a thorough medical history evaluation.
- Measurement of blood pressure and heart rate to assess the likelihood of possible health complications.
- Range of motion evaluation to assess flexibility. Poor flexibility can impair one's ability to perform certain activities (sport or normal tasks of daily living) properly.
- Assessment of body composition and waist to hip ratio. These can help determine one's risk for coronary heart disease.
- Measure muscular strength, endurance and power.
- A postural analysis to identify any deviation which have either lead to injury or will prevent a proper recovery.
- Assessments of the core stability, and the ability of “stabiliser muscles” to function properly.
- If so requested a cholesterol and glucose test can be conducted. In addition, specialised equipment that may be requested include; electrocardiograms (ECG), Biodex (both used for balance or muscle strength), and similarly the Cybex (for muscle strength). This is subject to availability at certain Biokinetic practices.

Once the applicable assessments have been made for the specific condition, the Biokineticist develops a scientifically sound exercise programme based on the results. The Biokineticist will require a one-on-one training session to carefully explain the programme, thus allowing the patient to perform the exercises to make sure they are performing them correctly and to allow for any uncertainties to be cleared up. Programme updates can be made anywhere from weekly to every six week depending on the condition. One-on-one, personal training can be requested as well as group training (Grenfell,2010).

This special attention to patients' individual needs ensures for quality management and best possible service.

For more information please contact the Institute for Sport Research (ISR) at the University of Pretoria.

References

- BASA. 2012. Biokinetics Association of South Africa. Online [available] www.biokinetics.org.za. Access date: 2012/02/15
- Ditmeyer, M.M., Topp, R., Pifer, M. 2002. Prehabilitation in preparation for orthopaedic surgery. *Orthopaedic Nursing* 21(5):43-51
- Grenfell, L. 2010. Human Movement Sciences: What is Biokinetics. Online [Available]: <http://www.nmmu.ac.za>. Access date: 2012/03/02
- Moss, S.J., Lubbe, M.S. 2011. The potential market demand for Biokinetics in the private health care sector of South Africa. *South African Journal for Sport Medicine*.1:14
- O'Rourke, M., Sullivan, L. 2003. Corporate wellness: A healthy return on employee investment. *Risk Management* 50(11):34
- Steyn, K., Fourie, J., Temple, eds. 2006. Chronic diseases of lifestyle in South Africa: 1995-2005. MRC-technical report. *South African Medical Research Council*, 1-266: Cape Town