



Applications of the biomechanical programmes

Our Intelligent Training courses focus on the four areas below. This information can be used as an integral part of an injury prevention and management programme, a conditioning programme for optimal performance, and is the basis upon which a functional training programme and a sports conditioning programme can be delivered safely and effectively.

Irrespective of the sports you perform, the type of training you do for it, or indeed at what level you perform, your biomechanical preparation is an important part of your training programme, and is essential to complement functional screening and training.

- **Conditioning**

Functional training prepares you for training functionally, but what prepares you for functional training? Functional training has its origins in rehabilitation and has been around for 40 years or more.

In this time we have established that biomechanical screening is a critical precursor to functional screening and functional training, otherwise you simply continue to experience problems. As the functional concepts start to become more widely accepted in fitness and conditioning, it is important to recognise that the biomechanical screening has not yet followed into these arenas.

Functional and biomechanical screening and training are very important aspects of an overall conditioning programme for any sport or activity, and are complementary in every way. For example, there are many people who pass a functional screen, yet fail a biomechanical screen. They detect different factors, both of which are important to the trainer.

- **Injury prevention**

There are many causes of injury ranging from poor technique, poor core strength, poor preparation, insufficient range of movement in the relevant structures and many others.

Your correct biomechanical function is also a critical factor, but is generally less understood. A biomechanical screen will highlight the flaws in your pelvic, shoulder and knee function, as well as check whether you have any low grade muscle spasm in key muscles, which may be restricting movement and the correct functioning of a joint. In addition, a biomechanical screen will check your nervous system, and highlight any problems that may cause your body to compensate and break down.

For example, a rotated pelvis causing a functional leg length discrepancy can result in a variety of different injuries depending upon how you compensate. It can cause lower back pain, knee pain, shin pain, hamstring injuries and even foot pain. By screening issues like pelvic function, the risk of many of these injuries can be significantly reduced.

- **Performance**

The performance of a task is affected by many different factors. Your biomechanical function has a profound effect on how your movement patterns are controlled and compensated for during the performance of a movement or series of movements.

It is often these compensations for biomechanical issues that lead to faulty movement patterns and ultimately compromised performance. For example, if a golfer had an overactive infraspinatus muscle (one of the rotator cuff) in the shoulder, it would significantly affect their ability to deliver a consistent high velocity swing.

This is due to the shoulder's inability to control the arm at high speeds before and after impact. The same principle applies to all arm related events, like javelin throwing and tennis.



- **Injury management**

Therapists are becoming increasingly skilled at being able to diagnose and treat injury. One factor that is now recognised to complement that process is the understanding of biomechanics. The kinetic chain and how structures relate to each other in biomechanical terms can have a profound affect on outcomes

For example, a player with non-specific groin pain, which had been failed to be diagnosed despite specialist consultation and MRI scanning, was treated successfully by working on the biomechanical function of his opposite shoulder. The body is an integrated system and all of its component parts affect each other in ways that we hadn't fully appreciated.

So, if you have a person with an injury that is failing to respond to treatment, chances are there is a biomechanical cause somewhere else in the body that is loading that susceptible area. Finding the biomechanical cause can be critical in getting that person back to sport and importantly minimising the risk of recurrence.