

Strength training for injury prevention

*Peter Rana, BodyTech Fitness and Spa
B.S. Physical Education, Health, Recreation and Dance
Founder of BodyTech Fitness Centres*

Nothing is more disheartening to a coach than an injury that could have been prevented by better physical conditioning. Insufficient physical preparation by an athlete can easily result in injury to muscle, tendon and ligament of bone. Research has proven that a well-planned exercise programme can develop a strong, balanced musculoskeletal system enabling an athlete's performance to be enhanced, and will also sharply reduce the risk of injury.

Don't overlook the midsection

The most important muscle group in the body, that is often largely overlooked in a weight-training programme, is the midsection muscle group. The function of these muscles is to transfer forces between the upper body and the lower body, as well as being critical in force production and absorption. The midsection muscles are responsible for the production of force in all throwing and striking movements, such as tennis, golf and cricket, and also play a major role in running and jumping activities like basketball, gymnastics, rugby and soccer. In contact sports such as rugby and rugby league, the midsection muscles act as the main shock absorbers. Therefore logic would reason that these muscles should be strengthened and conditioned in order to provide greater force production and absorption.

Increase your rotary strength

The key to effective midsection conditioning is to train all of the pertinent muscles to their maximum

potential. Enhanced force production and reduced risk of injury occurs most effectively when the midsection muscles are developed to near maximum strength.

On account of the midsection muscles being involved in movements about the spinal column, rotary strength exercises are recommended. Rotary exercise describes a movement path that is circular, around the joint axis of rotation. This type of movement assists in isolating target muscles, in this case the abdominals. Most abdominal machines isolate the abdominal muscles during the first 30 degrees of movement. It is therefore, important not to go much beyond 30 degrees so that the hip flexor muscles are eliminated and the abdominals remain isolated as the single muscle group working in the movement.

Avoiding low-back pain

Many studies have researched the role of the abdominals in contributing to low-back pain. The results of these studies have suggested an association between weakness in the midsection muscles, low-back weakness and chronic low-back pain. As many people do have predisposition to low-back problems, it is preferable to avoid exercises that place compression on the spinal vertebrae. Repeated compression of the spinal vertebrae has the potential to place extra stress on the spinal column placing the subject at risk of injury or possibly aggravating a previous injury or problem.

Increase your abdominal strength

Several exercises can be performed safely that will strengthen the abdominals whilst protecting the low back from compressive forces. The abdominal crunch is possibly the most popular exercise of this type. This exercise is functional and quite effective however good form must be maintained to avoid any undue stress. Several low-back machines have been developed and are preferable to the abdominal crunch due to safety factors that demand and require the correct form and posture to be maintained.

In summary the abdominal muscles are of great importance in most movements. They generate force and absorb shock, transfer force, and stabilise and protect the spinal column. However, it is of necessity that they are conditioned correctly. Abdominal crunches provide a functional method of conditioning that is effective though it is difficult to maintain good form. Ab machines such as the MedX Torso Flexion at BodyTech provide a method of conditioning these muscles where correct form and posture can be maintained.