The aim of this review is to offer an alternative definition and look at functional training.

The previous article defined functional training as exercises designed to improve athletic performance or activities of daily living. It was shown, that based on this definition, conventional strength exercises enhanced functional ability, and adding components such as unstable surfaces was only required in advanced late stage programme design.

This article uses an alternative definition of functional training and will show a different set of exercise protocols will be required to enhance function.
Functional training for the purpose if this article is defined as exercises aimed at rectifying actual or potential muscle imbalance that might result in injury.

The classical literature defines different types of muscle that are based on their function. Most authors use a classification system based on two specific types of muscle, stabilisers and mobilisers (Janda 1983, Saharmann 2000, Richardson et al 2004). Later researchers have added a third classification by dividing the stabilising muscles into local and global (Comerford and Motramm 2000).

What has become clear in more recent research is that the same muscle can have both a stabilising and mobilising role. For example the Gluteus Maximus has a deep stabilising portion and a superficial mobilising portion (Gibbons and Motramm 2004). The Vastus Medialis has three
portions a proximal middle and distal (often referred to as Vastus Medialis Oblique). The proximal and middle portions are mobilising muscles whereas the distal portion is a stabilising muscle (Lefebvre et al 2004).

There appears to be overwhelming support that stabilising and globalising muscle are required to work in coordinated manner in order to produce an optimal movement pattern and that imbalances between muscles can result in injury (Comerford and Mottram 2000).

The most common imbalances are a dominance of the global mobilising muscles over the local stability muscles. Kibler et al (2013) highlight muscle imbalances at the shoulder in swimmers as potentially injurious.

Barton et al state delayed timing and
shorter contraction time of the stabilising Gluteus Medius can result in patellofemoral pain.

From the above it can be concluded that functional training should aim to rectify any imbalances between the stabilising and mobilising muscles. What now needs to be addressed is how to best train the stabilising muscles.

Here are some general guidelines

Low loads: These muscles do not have the size, pennation, or fibre type to produce significant force. As a guide a perceived exertion of 2/10 is an optimal level of resistance.

Slow speed: These muscles are often predominantly type 1a fibre type and therefore not suited for speed/power movement.
Focus on contracting the correct muscle and movement pattern: Use feedback such as palpation of the muscle or mirrors to ensure correct activation and movement.

Start with isometric contractions: This will enable you to gain feedback that you are activating the correct muscle and the contraction can be held in a specific range where the imbalance exists Eg outer range or inner range.

Progress Slowly: Progress once you are sure of correct activation or movement pattern.

Progressions:

Initially increase the duration of the isometric contraction

Add external resistance or increase lever
arm to isometric contraction.

Dynamic exercises ensuring correct movement pattern.

Integrate exercises that require coordinated activity of stability and mobility muscles.

Add unstable surfaces or external perturbations

We hope this review adds to your knowledge of functional training and you can implement some of the guidelines provided into your training programme.

To optimise your training, a screening of your movement patterns and present muscle imbalances would be beneficial to enable the Implementation of a specific training programme. Functional Phyiso can offer you this service through a Kinetic Control or Performance Matrix assessment.
Please contact us for details.

You can follow us on twitter @adamlovegrove.
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References:


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