

Core Strengthening, TVA, Stability & The Golfer

Conditioning professionals are being convinced of the ever greater need for more complex and elaborate ways of conditioning the muscles which surround and provide support to the spinal column. The concepts related to 'core conditioning' or 'core stability' are now universally well known and it would seem certain muscles in the abdominal group have taken on biblical status within our perception and our training priorities. Added to this fitness programmes and training facilities now contain a wide range of training 'tools' which claim to offer more effective alternatives for performance enhancement. Many of these gadgets are specifically targeted at the development of the core musculature, stability and balance.....Go,Go,Gadget fitness has truly arrived.

The questions that then need to be asked are firstly whether these methods have any validity and indeed are a progression on in conditioning science and secondly what relevance do they have to the golfer and conditioning the golfer.

Core Stability & The Golfer

Firstly, although a novel and fun challenge the use of balance equipment (balls, boards etc..) has yet to be shown as a superior method of training the trunk musculature. As a training methodology it can be questioned on a number of levels related to specificity in its ability to improve sports performance.

Secondly, in any ground based sport (e.g. golf) stabilisation is a whole body process, overall maintenance of stability comes via contributions from the periphery and the core. Indeed research by Bechler *et al.* (1995) suggests force generation moves from knees/hips to trunk to upper body during the swing. That immediately tells us that we should focus on conditioning to enhance whole body stability as opposed to singling out the core for any particular importance. The concept of stability and balance is complex one within the golf swing involving both the proprioceptive and vestibular systems as the body moves through the various stages of the swing. Stability must take place during both almost static and then very fast, explosive conditions and is achieved through both anticipatory (feedforward) and feedback mechanisms.

When applied to training, the golfer must ensure that significant amounts of whole body stability training are included within their programme. Although fun and useful as a form of variety in training it is unlikely that balance ball, wobble board, foam rollers or anything else is going to be as effective as movements challenging whole body balance more completely. We must be very careful that we do not get overwhelmed by the perception that the isolation of the core in our strength routines will lead to significant performance improvements in a sport such as golf despite the intuitive attraction.

Of course, the selection of exercises in a training programme is based on a number of considerations, this allows the use of a range of options and exercise methods dependant on objectives. I see no reason why at select times during General Physical Preparation (GPP) or at some stages of rehabilitation protocols that the use of targeted core training which may or may not involve 'gadgets' might not be acceptable. However, with relevance to Specific Physical Preparation (SPP) phases of

training and in the long term, exercises challenging whole body stability must be selected and are the most appropriate way of training the golfer.

TVA & The Golfer

Within this core stability paradigm the function of the transverse abdominis has been the focus of much interest. Driven by research predominantly from Australia and some persuasive presentation and interpretation of this research, therapy and fitness professionals have been convinced that this muscle is the mainstay of all spinal rehabilitation exercise and fundamental to sports conditioning and athletic performance.

Based on our current and albeit still quite limited understanding of spinal stability, it is actually quite absurd to suggest one muscle is so fundamental to spinal movement and safe function. Stabilisation of the spine is an opportunistic process (Siff 2003) and analysis has shown that different patterns of muscular activation occur even when repeating what appears to be the same movement. The specific recommendation to draw in the belly button prior to commencing dynamic movement may be particularly problematic as research by McGill suggests this has a destabilising affect on spinal stabilisation mechanisms rather than a stabilising one. This is particularly relevant for sports conditioning programmes.

With regard to golf, aside from specific requirements related to the early phases of a back rehabilitation programme there is no evidence nor logical explanation for the pre-activation of TVA prior to any golfing action.

Conclusion

Golfers can develop excellent core and whole body stability without worrying about the specifics of TVA function. A well designed and planned programme should provide all the core training they need. Core stabilisation may be a new term; but it provides little new to fitness or sports conditioning that was not perfectly well covered a long time ago (Siff 2003).

References & Useful Reading

Bechler, J.R., Jobe, F.W., Pink, M., Perry, J., Ruwe, P.A. (1995) Electromyographic Analysis of the Hip and Knee During the Golf Swing *Clinical Journal of Sports Medicine* 5, 162-166

McGill, S.M. (2001) Low Back Stability: From Formal Description to Issues for Performance and Rehabilitation: *Exercise and Sport Sciences Review* 29 (1) 26-31

McGill, S.M. (2002) *Low Back Disorders: Evidence Based Prevention & Rehabilitation*. Human Kinetics, Champaign, Illinois, USA

Siff, M.C. (2003a). *Fact and Fallacies of Fitness*, (5th ed.) Supertraining Institute Denver USA.

Siff, M.C. (2003b). *Supertraining*. (6th ed.). Supertraining Institute, Denver USA