ASIAFIT. November 2001

POSTURE POWER

Often overlooked, posture plays a key role in preventing and treating sporting injuries. Hong Kong Physiotherapist, Rochenda Rydeard gives an insight into the merits of good postural habits.

What separates the elite athlete from the good athlete? Why do some athletes and fitness enthusiasts rarely get injured or complain of aches and pains, while others suffer repeated bouts? Apart from differences in fitness levels and training programmes, it is important to consider plain old posture? Posture has an undervalued role in enhancing sport performance and in the prevention/treatment of injuries. Moreover, good postural mechanics can be trained through exercise with long lasting results.

TRUNK CONTROL

Good posture not only implies an aligned spine but a balance of muscular forces about the trunk. If the spine is aligned, key muscles which support the trunk will function efficiently, contributing to an ease of movement and protection against injury. In contrast, repetitive, imbalanced movement or poor postures assumed during training affect technique and can lead to cumulative micro-trauma and chronic or recurring pain in the spine or limbs.

Efficient sport and training techniques stem from a solid foundation in the trunk. Which muscles are being used and how they are working to control the trunk affect performance, whether it be a swim stroke, a running stride, a leg press, a bicep curl or a dance move.

Without a solid base to support limb movement during exercise, the resultant loss in trunk control contributes to injury, overuse syndromes and a lot of wasted energy.

If you suffer pain or already have poor postural habits, the brain–muscle link just isn't there - even if you are physically fit. Furthermore, the muscles that contribute to trunk control and posture are not usually the ones emphasised in traditional training programmes. These muscles are deeper and smaller and have physiological, biochemical and functional characteristics that do not respond to traditional 'strength' or sport training regimes. Poor posture or faulty technique will effectively eliminate the activation of these muscles, further de-stabilising the trunk, predisposing to injury and impacting on performance.

KEY TRUNK MUSCLES

- The deep, lower abdominals maintain alignment and control the forces generated through the entire spine during movement.
- The transversus abdominis is an important synergist for stability at individual spinal segments.
- The lumbar-pelvis is stabilised via additional muscle layers formed by the internal oblique, the external oblique abdominals and by a force coupling type action from front to back with the gluteal muscles.
- Abdominals play an important role in supporting the upper body. The cervico-thoracic spine is stabilised via the combined action of the deep abdominals and the scapular muscles (mid and lower trapezius and the serratus anterior).

TRAINING POSTURE

The deep abdominals cannot be trained with a traditional sit-up or by attempts to "brace" the spine. Nor can the scapular stabilisers be trained by traditional arm weights or

attempts to “pinch” the shoulder blades. Furthermore, in the presence of poor postural habits, poor training technique or incomplete recovery of muscle function from a previous injury, these key muscles will shut down and their important function will be interfered with by other more powerful muscles. The result is a relatively wobbly or unstable trunk, overuse of other trunk or limb muscles and movement that appears less than efficient. This is clearly not a problem requiring ‘strength’ training but suggests a neuro-muscular balance issue and the control of dynamic postures.

“Fitness professionals serve a vital role in enhancing performance levels and preventing the fitness enthusiast from ever darkening the physiotherapist’s door”.

The neuro-muscular control of key postural muscles can be selectively activated and re-educated under the guidance of a skilled trainer. The abdominals can be taught to hug the spine; the gluteals to wrap under the buttock and the scapular muscles to draw the shoulder blade snug on the chest wall. Training is initially via very specific key muscle exercises. Progression can be made via specific muscle loading and re-education of function with other muscles during simple and later, more complicated movement patterns. Precise, low grade, sustained muscle activity keep the trunk ‘quiet’, the limbs light and movement appearing to hinge about the shoulder and hip girdles.

This approach to postural training is inherent in the Biokinetik Exercise Technique (B.E.T.) - an exercise training system based on and adapted from the Pilates Method. Current theory and research in the area of neuro-muscular control and motor learning have been applied to modify the concepts and exercises of the Pilates Method to suit the needs of physiotherapeutic interventions. Even in the absence of pathology and pain, the B.E.T. system can be helpful in training the healthy population to control posture before problems set in.

Correct Posture

Imagine a vertical line drawn through the body. This line should pass through the ear, just in front of the shoulder, just behind the hip joint and just in front of the ankle bone. Horizontal lines drawn through the ears, shoulders and hips should be parallel to the floor. Any deviations from this grid-line will alter the normally gentle, S – shaped curve of the spine and the balance of muscular forces about the trunk.

Hong Kong based Rochenda Rydeard - BA Physical Education, BSc Physiotherapy, MSc Rehabilitation Therapy - will be conducting a pre-convention Pilates-Based B.E.T certification course at this years Asiafit 2001. With a career spanning 20 years, Rochenda is actively involved in clinical studies and publication/presentation in the area of motor learning and performance.