

## BREATHING POSTURE & CORE STRENGTH

Patrick Devine

*This article is a summary of a lecture that I delivered to a swimming seminar in Tasmania on October 17-18, 2009*

The inter-relationship of core strength, breathing and posture is essential for good swimming and all three factors come together or not at all. For some all this comes together naturally and for others it is necessary to harness them and train yourself to swim in this way. Many find breathing difficult, swimming uncomfortable and lack stamina in distances. Maybe they have hidden talents that have to be searched for.

Do you remember Kieren Perkins' fantastic swim at the Atlanta Olympics in 1996? Some of us remember that he just made the finals due to a diaphragm cramp during the heats. Many of us get cramps in hamstrings, quads, calves etc. but how many have had a cramp in the diaphragm? If Kieren used his diaphragm to swim, so should we.

To locate the diaphragm, put your fingers on the soft tissue at the base of the sternum (breastbone) where the ribs meet and take a deep breath. You may feel some muscle movement of the diaphragm. If you change your posture and lean backwards you will find a position where the diaphragm is not working to help you breathe. The resulting curved chest position makes diaphragm breathing difficult. You transfer to breathing with your ribs. Rib or clavicle breathing is far less efficient and under pressure you may feel breathless.

The Aim is to swim in a posture that allows diaphragm breathing. A "Chesty Bond" posture wrecks the ability to diaphragm breathe.

The posture to adopt is to brace the pelvic floor, bring your upper body and shoulders slightly forward until the diaphragm engages, then squeeze the diaphragm slowly to breathe out. When you relax, inhaling will just happen automatically. You will also notice that you can relieve the chest of breathing pressure. How many people find trouble when swimming under pressure that it is difficult to both breath out and in, even in backstroke? Not only has diaphragm breathing defined the body's posture but the core is being supported by deep abdominal muscles, not just back muscles and the curve of the spine. **Core strength** has been introduced to this three-way equilibrium.

Head stability is also important. The chin should be comfortably tucked and not extended. Extension of the neck, curves the chest and spine and reduces the body's ability to harness the diaphragm.

There is a posture in swimming (backstroke and freestyle) where the body will rotate easily. Try kicking backstroke with fins, hands extended above the head. Often people will kick in this manner with the chest curved in the air. Try gradually pushing the sternum down. It is all right if the hands come out of the water slightly. Hopefully you will find a position where you can engage the diaphragm to breathe. That position will be one of easier breathing and a stronger core. It will also be a position of easier body rotation. The body rotation should be with hips, knees and ankles in the same plane. The shoulders are almost in the same plane but have slightly more latitude of movement.

Once the posture has been established in backstroke, try freestyle. Find a posture that engages the diaphragm, brace the pelvic floor, use the diaphragm to breathe out, rotate in the same plane then relax the diaphragm to breathe in. High elbows are desirable in freestyle. This should be established by body rotation rather than hyper-extension of the shoulders.

While body rotation is not a factor, the other principles apply in breaststroke and butterfly.

Sometimes it is difficult to read a short article and apply it immediately. The principles are not dissimilar to those of yoga, tai chi, pilates or the Alexander method. No discipline has the sole rights to common sense.

Proper application of the above should improve stamina and speed and provide a benefit or help prevention of shoulder and back problems. I encourage you to think of these words when you push off:-

*“Hand over hand, wrist over wrist, head squeezed firmly between upper arms, pinch your butt together, press the small of your back against an imaginary wall and point your toes. Tuck chin, look down or slightly forward, engage diaphragm-pelvic floor and slowly exhale.”*