

## **MINDFUL BREATHING**

By Marlene Royle

At the 2006 World Rowing Championships in Eton, Ekaterina Karsten, two-time Olympic gold medalist in the women's single, rowed to her fourth title in the same event. Karsten's model sculling technique, combined with her excellent physical preparation, enabled her to dominate the field. One noticeable feature is her pronounced breathing pattern that is synchronized within each stroke cycle. Several sports, such as weight lifting or swimming, connect the breathing rhythm to the specific movement. In rowing, the correct breathing rhythm can particularly influence performance because the thorax muscles are also part of the muscle system involved in the motion and are an influencing factor of breathing.

Simply defined breathing is making sure that your body gets the oxygen it needs when it needs it. External and internal breathing subsystems are involved in the intake, transport, and processing of oxygen: the air you breathe in, the exchange of gases in your lungs, the binding of the oxygen to the erythrocytes (red blood cells), the transport of oxygen in the blood, followed by the delivery and use of the oxygen in the muscle tissues. In *Periodization: Theory and Methodology of Training*, Bompa writes, "Breathing plays an important role in endurance training. The athlete must perform it deeply and rhythmically, because active exhalation is critical for an adequate performance. Most athletes have to learn how to exhale to evacuate as much air as possible from the lungs, because the oxygen has already been extracted. Without proper exhalation, the concentration of oxygen in the freshly breathed in air will be diluted, which will adversely affect performance. A forceful exhalation is even more important during the critical phase of a race or game, when an adequate supply of oxygen can enable athletes to overcome the difficulty." *Rowing Rudern*, gives considerable attention to breathing in *Chapter Five, The Technique of Sculling and Sweep Oar Rowing*, "Technique in racing is contrary to the conditions required for deep breathing. If one is to breathe in freely, the upper body must be straight and the diaphragm unhindered. The oarsman, like the weight lifter, can only perform hard work with his breath held (under pressure). This work is done during the propulsion phase. He is obliged to breathe in fully in the period shortly before and during entry. These are unfavorable conditions, since the diaphragm is constricted in the lean-forward position and, in sweep rowing at least, the chest is also restricted by the position of the arms."

The importance of becoming very aware and accustomed to a short but very deep inhalation is stressed to make sure that the high demand for oxygen is met. Breathing out coincides with the timing of the blade being released. Through her entire race when Karsten exhales, her billowing cheeks are very evident when she completes every drive. *Rudern* continues, "Generally, this first expulsion of air is not sufficient, and a second exhalation occurs during the final third of the slide forward. This constitutes the commencement of inhalation...this breathing technique is practiced on the course at a steady state of the regatta tempo with slight variations."

I recently corresponded with a master sculler from California who wrote to me, "I have always complained about running out of air long before muscles begin to start burning. I have

complained to coaches before, but Gordon Hamilton was the one who finally identified the problem as carbon dioxide build up. He explained that the body has no natural response to purging carbon dioxide, so it has to be done. Forcing all the air out of my lungs before inhaling during a hard sprint has given me greater endurance. The difference is immediate and noticeable. But you have to remember to do it, just like every other good technique.” Then I contacted Hamilton who recommended reading the book, “*The Science of Breath- A Practical Guide*” by Swami Rama, Rudolph Ballentine M.D., Alan Hymes. Hamilton’s work-in-progress *Notes on the Technique of Rowing: Sweep Rowing Compared with Sculling*, addresses the value of breathing and of rhythm in the stroke cycle. He writes, “While it seems almost ludicrous to even mention that breathing is extremely important for the supply of oxygen to your muscles and for the removal of carbon dioxide from the lungs, it is an element of the stroke cycle that is often overlooked. It is also very important for establishing and sustaining your rhythm. The basic pattern should be to inhale at the entry, hold your breath during the drive, and exhale at the release. However, I prefer a secondary exhale just before the inhale at the entry. This is accomplished by relaxing the belly just after rotating the pelvis as you begin the recovery body angle. At this point, you can take a small inhale and then a strong exhale is possible just before inhaling at the entry. This secondary exhale is, I believe, important because while your muscles make their need for oxygen more than apparent and your body naturally responds to this need, there is no internal mechanism which tells you to get rid of the resulting increased build-up of carbon dioxide in your lungs. This build-up can cause the sensation of being short of breath because there becomes less and less room in your lungs for fresh oxygen. Furthermore, the exchange of oxygen into the bloodstream is much more efficient in the lower regions of the lungs. You should take special care to get rid of as much carbon dioxide as possible; therefore I prefer the double exhale. I think that this should become your pattern no matter how hard you are rowing, even at steady state, when the demands are not so great that a second exhale is, perhaps, necessary. You want to establish a pattern that will meet all needs of a race and practice so that you are not forced to make a change in your pattern nor have to think about it.”

Achieving a sense of flow in the boat is a feeling that we continually pursue in practice and in racing. We know we have it when we have the sense that time is stretched, that there is length in every stroke no matter the rating, the power is effortless, and there is ease in your motions. Most of us can name exactly when we have experienced this. The correct breathing pattern helps you center yourself in the boat and establish a consistent cycle. Regarding rhythm Hamilton concludes, “Many coaches talk of the importance of ratio during the recovery. What they are really after is this sense of flow. If a boat is moving with this sense of flow, the perception is that the recovery is taking twice or even three times the time of the drive, while the reality is that when racing at full speed the ratio is much closer to one to one. It is the sense of this flow that gives us this feeling. I believe that it begins by this effortless change of the direction of the oarhandle, which, as mentioned, is caused by releasing at the correct time, and bracing the trunk, and legs while you gently swing the handles away and then resting once you have achieved your body angle. The sense of ease continues with the sense that the seat is traveling at the same speed as the boat, that the next stroke is coming to you, creating this sense of stillness and as you flow toward the entry. It continues as the recovery seamlessly blends into the entry and then drive, which through attention to the point when the arms join the legs and back continues to be

smooth. All this is held together by consistent pressure against the pin and contact with the shell from the feet and seat and by a rhythmic breathing pattern.”