

By Andrew Holmes

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# Gaining the Competitive Edge Through Stroke Rate Training

*S*wim coaches continue to explore options for getting the most out of their squads and shaving hundredths of seconds off race times. Part of the coach's arsenal is a stopwatch and invoking "muscle memory" of a winning pace. By looking at the fundamentals of stroke rate training, an Australian technology company has come up with a new essential item for the sports bag.

## What is Stroke Rate Training?

Stroke rate training puts emphasis on maintaining a consistent movement pattern through the water. As stroke efficiency improves, a given stroke rate results in a reduced stroke count. Training swimmers to have control over both stroke rate and stroke count throughout a race can result in significant performance improvements. The swimmer can use different stroke rates at different stages of a race to produce improved results. The "best" stroke rate varies depending on the individual swimmer, the stroke, and the race situation. To be able to swim at a set stroke rate, swimmers need to train at that rate.



## Does it Work?

This emphasis of holding the stroke count but improving efficiency was instrumental to the Russian (Unified Team) gold in the 200m freestyle relay at the Barcelona Olympics. USA Swimming's "Race Analysis" was first employed at the US Open in 1999 and includes breakout time, turn time, plus stroke rate and distance per cycle. These measures are also key elements in the biomechanical analysis performed by the Australian Institute of Sport.

Squads around the globe have used stroke rate training as an essential ingredient of elite swimming programs.

## A Stopwatch Solution?

The basic principle can be realised with a coach and a stopwatch. The swimmer counts strokes, and the coach checks the stroke rate on a stopwatch. This gives the coach a snapshot of the stroke rate. When the swimmer stops the coach can pass on any adjustments that need to be made.

The stopwatch approach implies trial and error. A method that provides positive feedback while the swimmer is in motion would produce better results sooner. The trial and error nature of the stopwatch method is even less practical when dealing with a squad of swimmers.

## Science to the Rescue

In the past few years electronics have been introduced to help the swimmer and coach achieve proper pacing. Small wearable devices can prompt the swimmer to take the next stroke, thus giving individualised instruction and freeing up the coach to oversee the whole team.

Providing a pacing device to each swimmer is on the right track, but early implementations had a few problems. The manufacturers hadn't fully thought through the decidedly electronics-unfriendly environment of a chlorinated pool. Corrosion through seals around buttons and displays, or opening the battery compartment brought an abrupt end to this approach.

## Less is More

An Australian company has revisited the problem. The Wetronome is a small (35m x 55mm) device that is attached to goggles or tucked under the swim cap. Unlike its competitors, it has no display, buttons, or even a way to get at the battery, since it is designed for years of operation.

Waving a magnet at the device enters the stroke rate. A simple programming sequence means the swimmer can even change rates while still wearing the device. The Wetronome does one thing, simply and reliably, leaving the swimmer and coach free to concentrate on improved technique.

## For More Information

The Wetronome website at [www.wetronome.com](http://www.wetronome.com) describes the product further and also provides a number of valuable links to articles and sites on biomechanics and swimming training.

### About the Author

Andrew Holmes is a director at Atamo Pty Ltd, ([www.atamo.com.au](http://www.atamo.com.au)) a technology commercialisation company based in Perth, Western Australia. Andrew's two teenage children compete at the national and international levels.