What swim training methods work? Here's what the science says!

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Introduction

Oh how I love the Olympics! The highs and lows of winning and losing, the emotional heartache of defeat and the ecstasy of winning a medal. We masters swimmers can only look in awe at the extraordinary performances in the pool, all under the intense pressure that only the Olympics seems to bring. We also appreciate how hard and long these swimmers have worked for to achieve their dreams. Swimmers do large volumes of training in the pool and on dry land. Strength training of various forms is also widely used, and the swimmer's energy systems are addressed by aerobic and anaerobic swim training. But what training methods have been shown to work according to the science? The aim of a recent review was to summarise results from controlled exercise training trials within competitive swimming.

The Research

From a structured literature search using library databases, the Scandinavian researchers only found 17 controlled intervention studies that covered strength or resistance training, assisted sprint swimming, arms-only training, leg-kick training, respiratory muscle training, training the energy delivery systems and combined interventions across the above categories.

The Results

The review found that:

1. Heavy strength training on dry land (one to five repetitions maximum for three sets with maximal effort in the concentric (push) phase of swim-specific movements) improved performance in sprinters.

2. Sprint swimming with resistance using elastic tubing or pulling a perforated bowl may enhance performance, and may also possibly have positive effects on stroke mechanics.

3. High training volumes do not pose any immediate advantage over lower volumes (with higher intensity) for swim performance.

The *So What?*

The researchers were surprised at how few valid and reliable intervention studies had been conducted. The included studies predominantly involved freestyle swimming and, overall, raised more questions than answers within intervention-based competitive swimming research. However, the review did highlight that sprint performance in swimmers demands high intensity weight training and resistance work in the pool using tethered swimming and pulling of buckets. It also highlights one of the major tenures of my book The Masters Athlete that resistance training, particularly for masters athletes, is critical to improve or maintain performance. Chapters 7 and 8 actually spell out the why's and how's of improving strength, speed and power. Get fast, get strong.

Aspenes, S. and Karlsen, T. (2012). Exercise-training intervention studies in competitive swimming. *Sports Medicine*. 42(6): 527-543.

Peter Reaburn is an Associate Professor in exercise and sport science at CQUniversity. He was the founder of Miami Masters in Queensland, Chair of the 1990 National Swim Organising Committee, spent two years as State President of AUSSI Queensland and 10 years on the National Coaching Panel. He has won national distance swimming championships and was world-ranked in 1500m freestyle as a younger master swimmer. He still swims open water including Byron Bay last year and was winner of the Australian Ironman Triathlon (50-54 years) in 2005. He has recently written the definitive book for masters athletes titled The Masters Athlete now in its second reprint and available at: www.mastersathlete.com.au.

Peter will be writing regular Bridging the Gap articles for us.