

# Balancing Aerobic with Anaerobic Swim Training

BY DR. DANIEL CARL

*The current shift in coaching philosophy toward a greater balance in anaerobic and aerobic training seems to be beneficial for today's swimmers.*

With the recent push by many coaches toward more sprinting and speed work and less "grind-it-out" yardage, the coaching community has found itself in a dilemma in trying to find balance between these two training regimens.

From the late 1960s through the early '90s, a majority of swim coaches relied on a simple periodization format of base aerobic yardage (6-8 weeks, phase I) followed by specific, high-volume aerobic training (8-12 weeks, phase II).

After this tremendous aerobic base was established, the seasonal training plan would shift to include a greater emphasis on sprinting and anaerobic work (4-6 weeks, phase III) while maintaining aerobic conditioning. To close the training season, coaches and swimmers would work through a reduction in volume and intensity known as the taper (2 weeks, phase IV).

The trend over the past decade has seen many of our leading coaches moving away from a total base, high-volume program to one that includes a periodization with more specific anaerobic work scheduled throughout the season.

When following the original training program previously outlined, all too often swimmers would perform decent times in the latter part of phase I and into the early part of phase II, only to have performances fall off during the specific, high-volume aerobic work of phase II.

Coaches often referred to this as the necessary evil that all great swimmers must go through to become champions. Eventually, the majority of swimmers would recover enough



[PHOTO BY BILL COLLINS]

**ABOVE »** With the recent trend of swimmers staying and competing in the sport beyond their collegiate eligibility, the need for potentially less base work and more speed-specific training appears to be becoming the accepted norm for training.

to perform well again during the end of phase III and specifically during the taper period or phase IV.

## **AVOID THE TEMPTATION OF OVERTRAINING**

This tried-and-true method worked well, but had one serious drawback. Many times, in an effort to overcome the mid-season performance slump associated with the high-volume training of phase II and early phase III, the swimmer and coach would push the boundaries of training and ultimately overtrain the athlete. This resulted in a failure to adapt, and the season concluded with subpar performances.

In his textbook, "The Science of Winning: Planning, Periodizing and Optimizing Swim Training," published in 2000, Dr. Jan Olbrecht classifies and defines swim training into four categories: aerobic capacity, anaerobic

capacity, aerobic power and anaerobic power. (A detailed explanation and example training sets of each of the four training categories is too extensive to go into detail in this article).

Olbrecht explains that the decline in swim performances seen within phase II may not be the result of being out of condition or too tired, but, rather, a movement of the conditioning to be too much in the area of aerobic capacity. In essence, coaches have pushed the aerobic capacity too far without regard for keeping the anaerobic capacity stable.

With this methodology of training, there is an inherent failure to adapt the anaerobic capacity and, thus, swimming speed when the aerobic side is overloaded. The converse of this is true in that too much work on the anaerobic capacity side may result in a decline in aerobic conditioning.

It is recommended that in order to offset the performance slump often experienced in phase II, there needs to be some implementation of anaerobic capacity training within phase II so that swimmers will continue to adapt and ultimately maintain their racing speed.

This may be accomplished by supplementing the aerobic capacity training with scheduled bouts of anaerobic training. For example, every third or fourth scheduled high-volume aerobic set would be replaced with an anaerobic capacity set such as 4 x (4 x 25 @ :45) with a specific reference to the stroke swum and attention to the stroke rate being maintained.

In addition, some coaches have gone to "spiking" their training with intermittent bouts of speed within their aerobic sets. An example of this might be a set of 10 x 200 @ 2:20 that is supplemented with all-out sprinting for the first 50 of each odd 200 swum.

The inclusion of more anaerobic capacity training within your aerobic development may help keep up the speed with your swimmers while avoiding the pitfall of training them to swim slowly for the sake of conditioning. Also, keeping up a swimmer's speed throughout the season may allow the coach to spend less time on the psychological battles that come with working with athletes who are performing below expectations and more time on the positive, psychological preparations necessary for winning swimming.

#### CONSIDER THE DEVELOPMENTAL STATUS OF YOUR SWIMMERS

When developing a seasonal plan that includes more anaerobic training, caution needs to be addressed regarding the varying age groups and the developmental status of your swimmers.

We have known for years that the adaptations in the overall aerobic base of swimmers are heightened during the years of puberty. Make no mistake about it: the adolescent swimmer needs a foundation that is second to no other sport, and it would be a disservice to the athlete not to continue developing

their aerobic conditioning.

However, intermittent anaerobic work with stroke rate during adolescence can develop swimmers' neuromuscular abilities and their ability to maintain technique at high speeds. On the contrary, with the recent trend of swimmers staying and competing in the sport beyond their collegiate eligibility, the need for potentially less base work and more speed-specific training appears to be becoming the accepted norm for training.

As a scientist and a coach, this is where I have always maintained that the "art" of coaching will always be an equal to the "science" of coaching. You need to be able to read and understand your athletes and know them better than the rest. This experience should be your biggest asset in designing your seasonal training to meet the specific needs of the athletes you coach.

As I see it, the current shift in coaching philosophy toward a greater balance in anaerobic and aerobic training can be beneficial in more than one way:

- First is the elimination of poor swimming performances that may be associated with extensive phase II training.
- Secondly, it may help eliminate the

desire of an aggressive coach and/or athlete in their effort to overcome the perceived poor performances to increase their training intensity and volume with less designed recovery, thereby resulting in an overtrained swimmer.

- Finally, it may help eliminate the risk associated with feeling like the last six weeks of the season are not enough time to build speed. When this happens, coaches oversprint, fall out of balance, lose aerobic base and overtrain on the anaerobic side. There is a risk for an athlete to move from one overdeveloped state (aerobic) to another (anaerobic).

For additional information and further understanding of the reasons behind balancing your aerobic with more anaerobic training, check out [www.swimformation.com](http://www.swimformation.com) by Clive Rushton. This is an easily readable text and poster that packs a tremendous amount of information in a condensed, coach-friendly format. ♦

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