

Training with Intensity

By Laura Goodwin

I recently attended a wonderful coaches' clinic hosted by Scott Bay, Bill Brenner and Mel Goldstein. One of the topics covered in the clinic was the importance of training at a variety of effort levels. In my experience we, as coaches, tend to take it for granted that swimmers are aware of this importance and that they are performing set intensities as proscribed...but this isn't always the case.



The best swim training involves a variety of effort levels. To put it very simply, sometimes you should swim fast and sometimes you should swim slowly. It seems obvious that if you constantly swim at the same speed, distance, and intensity, you will not get faster. However, in the decade I have been coaching Masters, I have seen more swimmers jump in and swim the same speed - set after set, day after day, month after month - than I have seen achieve the right amount of variety in their workouts. Almost every swimmer I've met is interested in getting faster, so I thought I would take this opportunity to discuss the science behind how to do so most effectively.

The Evidence

Legendary exercise physiologist and Masters swimmer David Costill has produced extensive evidence over the years favoring speed training over volume. His studies have shown, for instance, that there is no competitive advantage to doing two practices a day instead of one or to doing 10,000 yards a day instead of 5,000. This was true even of distance swimmers – the swimmers who did twice as much yardage per day did not swim any faster in races. So what type of training did make swimmers faster? Effort. Studies have shown that swimmers who saw the most improvement were those who spent more time training at higher intensities. **The volume of training had no influence on swim performance.**

So what type of training will improve performance? Obviously, this is a hot topic of debate, with opinions that range all the way from traditional yardage-fests to a recent resurgence of ultra-short race pace training (USRPT). The most common way to think about the effort levels in training is to separate them into aerobic (under 85% effort), anaerobic (85-95% effort), VO2 Max (100% effort, low rest) and lactate (100% effort, high rest). Almost every swim program includes sets that work each of these levels, though the relative compositions vary significantly.

Current research indicates that a focus on race pace sets will be of the greatest benefit to swimmers. In addition, research shows that performing

this type of training as a main set when swimmers are fresh shows a significant benefit over workouts that include fast sets at the end of high-volume workouts. Not only do the first part of those workouts reduce the ability of muscles to generate force, but they also make it impossible to perform fast sets with racing form. Neuromuscular patterns formed by swim training are specific to the speed of swimming. So doing the same technique slowly does NOT better your performance at faster speeds. To swim fast... you need to swim fast.

Putting it into Practice

So how can you make it happen? Admittedly, this can be difficult in a Masters program. Sometimes workouts are to blame; lane space and composition can also dictate the need for some long aerobic sets. But many times it is the swimmers themselves who are failing to adhere to the pacing dictated by the workout. I have seen swimmer after swimmer warm up like it is the last 500 yards they will ever do. They then experience a slow decline throughout the practice. Every practice. Swimming the hard sets too easily and the recovery sets at anaerobic pace *will* make you tired... but not fast.

The temptation to log a large number of yards is another factor that frequently interferes with a willingness to embrace shorter sets that focus on speed. Especially for swimmers who come to practice with great consistency, these lower yardage, high intensity days will be much more effective than an 85% effort day in and day out. Whether or not you reach a pre-determined yardage every practice will affect your overall performance very little compared to the amount of intensity you put into your training.

It does take a while to get good at pushing it, so expect to need to work just as hard and consistently at learning to swim at a blazingly fast speed as you did to develop good stroke technique, develop good turns, or breathe to both sides comfortably. It really helps to do these sets in a group – having someone beside you to race is much better than the imaginary donut my coach always used to talk about at the end of the lane.

Owning it

The good news is that one thing you can almost always control is your own effort level. Not getting enough aerobic sets? Move down a lane and lay off the gas. Need a lactate set? Go first in a slower lane that will give you a big enough interval to pour it on (without becoming obnoxious to the lane, of course). Need a VO2 max set? Move up a lane and try to keep up. Need a sprint set and you show up to 10X200's? Do every other 50 of each 200 at a fast pace.

Obviously this doesn't even address the differences in training between sprinters and distance swimmers. Masters programs usually don't have the pool space to break into lanes that are based on racing specialties. That's

why it is so important to understand *why* you are training the way you are training – as a Masters swimmer it is mostly up to you. I've included a link to the table of contents of the Swimming Science Bulletin that I strongly encourage you to look through when you have the time. Included there are articles about pretty much everything you could want to know about swim training research written by eminent exercise scientist Brent Rushall.

Distance swimming was indeed investigated in the same studies that consistently showed that there was a greater benefit to intensity than volume. Even if you are racing the mile, you are most likely to be training in significantly greater than race volumes every time you step in the water. Why would constantly performing at sub-race pace prepare you? When I climb into the water to do a half-hour race, I am certainly attempting to maintain a greater than 85% effort (if not always achieving it). Training at 85% during the majority of my time in the pool would make that a lot harder to do.

In the end, training is very personal and individual. One of the advantages of Masters swimming is that swimmers have much more opportunity to discover what works for them than age-groupers do. That being said, I would encourage anyone looking to add some speed to their performance (in pool competition, in open water, or just in practice) to add some intelligent intensity to their workouts. Go slow when you can so that you are ready to lay on the smack-down when the time comes. Not only will this help you get faster... it is fun.

Swimming Science Bulletin – Brent Rushall
<http://coachsci.sdsu.edu/swim/bullets/table.htm>