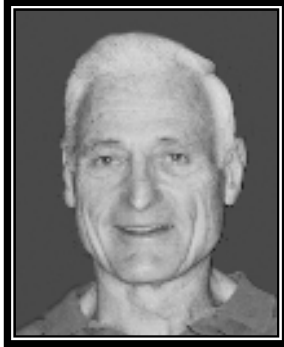


SUSTAINED SPEED – RACE PACE TRAINING

By Dick Hannula



Coach Dick Hannula is one of the most respected coaches in High School Swimming. He led his teams to many state championships and at one point had more than 200 consecutive wins. He has published many articles and videos on the sport of swimming.

What wins swimming races? It is a fact that swimming races are most often won by swimmers who are maintaining pace or speed throughout the race distance. Losing swimmers slow down while winners maintain their race pace through to the end of the event distance. This article is concerned with sustaining swimming speed through race pace training.

Goal setting includes three fundamentals. What is the goal? How that goal can be reached through training? Why or the reasons you have to reach that goal? The how is required in reaching race pace. The race pace must be established in order to have the best chance of reaching your goal. The race pace is an established time that includes stroke count and the stroke rate necessary to attain the goal. The high school swim events would include distances of 100, 200, and 500 yards. The 50 will be considered a pure sprint event.

The following segments must be considered. The out speed is the first half of the race in the 100 and 200 yard distances, and it could be the first 100, 200, or 250 in the 500 yard event. The closing speed is the second half or back half of each of these distances. Inside speed are the 100 yard segments inside of the 500, 50 yard segments within

the 200's, and the 25 yard segments within the 100 yard races. I recommend shooting for drops of 2 seconds or less in the 200 yard free, and the same for the 500 yard free. The drop in the 100 yard free and back should be 1.5 seconds or less, and 3 seconds or less in the 100 yard butterfly and breast stroke. The drop refers to the time difference for the first half of the race compared to the second half. A 50.0 time for the 100 free might break down to 24.3 out speed and a 25.7 closing speed. The drop would then be 1.4 seconds.

The first requirement is to establish a strong aerobic swimming base. This should be a background of aerobic training that will permit the swimmer to achieve the highest performance level. Sustained speed and race pace training depends on the establishing of an aerobic base. The coach must balance all the training zones into the program, specifically quality speed and aerobic endurance sets on a regular basis. Determining the training zones should be individualized as much as possible. This would include using heart rates and percentage of best times.

I believe in using short distances of 42 feet, 45 feet, or less. These are typical cross pool distances of most short course pools. Establish a chart that indicates the cross pool time that correlates to specific 25 yard pool times. Swimmers then can correlate their short cross pool swims to specific goal times that may be reached at their 25 yard pool distances. I use timed swims to the feet on single cross pool swims, and sometimes do over and back to the feet. These timed swims raise the expectation levels of your athletes. They can reach the required speed on a regular basis without significant lactate accumulations. I like

very short rest intervals for sets of up to 8 repeats before resting longer. I consider this to be Speed 3 training and it should be done frequently. Usually I would do up to 3 sets of 8, 6, or 4 single crossings. This type of training raises the confidence of the swimmer that the goal times are within reach.

The path to developing the race pace starts with establishing the ideal average 50 yard segment time for the event, or the back half 50 for the 100 yard distance. Next establish the minimum number, that being the most efficient number of strokes to complete a 50. Count the strokes taken and add the time to the strokes. The result is the starting minimum number. Swim test sets of 20 X 50 with the goal of attaining that minimum number or better. When swimmers attain 16 or more of the 20 X 50 then re-test for a lower goal minimum number. Continue to re-test until the goal race pace is reached. Combine the number of strokes and the stroke rate and goal time until it becomes “easy” speed. The confidence and the ability to swim at goal pace is then achieved. At some point in the training the goal pace is extended to 75’s, 100’s, and beyond.

The race pace swims are then extended to “ideal swims” that can be broken at part of the distance, the event distance, and beyond the event distance. This would include broken “out” swims of broken 50’s for the 100 out, and broken 100’s for the 200 out speed. Examples of broken out 50’s would be dive 25 to the feet, 10 seconds (or more if necessary) of rest, then push 25 to the feet (free and back) or to the hands (b’fly and breast). Broken swims for the back half of the race would be similar. Inside swims would be repeats of the race pace goal time for the 200 and 500 distance. Race pace training occurs throughout the season with a

reduction in the number of repeats as the championship meet approaches. The goal race pace is aimed at the championship meet and most likely won’t result in the goal time being met during the dual meet season.

After swimmers have achieved maximum volumes of training, the intensity should increase. Training volume can decrease once this point has been reached and as the intensity increases. As intensity levels increase, the coach must be careful not to overexpose the swimmers to a single training stimulus.

Intensity training presents more exposure to higher lactate levels. Lactate has been considered a foe in racing. Succumbing to high lactate levels and the result is losing the ability to sustain swimming speed. Recent research has confirmed that lactate training is necessary to buffer the effects of lactate accumulation.

Why you have to train fast to swim fast. Running World (February, 2007) quoted research to support this fact. “Sprint induced fatigue is actually caused by a by product of lactic acid – hydrogen ions. When you train hard, hydrogen ions accumulate in your muscle cells, etc. to fatigue. Our bodies have the ability to buffer these hydrogen ions to some degree. Buffering capacity can also be improved through high intensity training. Short fast repeats with limited recovery which in turn can boost performance in longer races of harder effort. The better you can buffer hydrogen ions, then the faster and longer you can sprint without tiring.” Work into high intensity training gradually but use some caution as to the frequency.

Runner’s World (April 2007): “Studies show that high intensity training with heart rate to 90% of max builds speed and improves running economy and boosts

overall endurance.” An example in track training would be to run 20 X 200 meter sprints nearly all out with 45 seconds rest interval. Swimming 50’s would be comparable in time effort to this track training.

Research at the University of Western Australia confirms the need for high intensity training. Two control groups were studied for 5 weeks. The high intensity group trained with progressive weeks of 120, 130, 140% of lactate threshold. The lower intensity group trained 80, 90, 95% of lactate threshold. The high intensity group improved buffer capacity by 25%. The lower intensity group had no change in buffer capacity. Another study was made for 8 weeks with the high intensity group improving buffer capacity by 37%.

This is a great selling point for high intensity training with your swimmers. The ability to sustain speed is greatly increased when major improvement is made in the swimmer’s buffering capacity. This is made easier as it has been confirmed in these very recent research articles.

We coaches probably always knew it was good in training, but we now have a reason other than “because I told you so”.

The Australians call it “easy speed”. Swimmers need to get to the point that race pace becomes relatively easy. Improving the buffering capacity makes this a realistic outcome of high intensity training. Sustained speed in racing should be the result.



Examples: Race Pace Training

20 X 50 on 1:15 @ inside 50 race pace segments for 200 free.

3 or more rounds: Dive broken 50 @ Out goal speed for the 100 (Dive 25 to the feet, 10 seconds rest interval, push 25 to the feet) on 1:30. Push broken 50 @ closing goal speed for the 100 (push 25 to the feet, 10 seconds rest interval, push 25 to the hand.) 250 easy recovery after each round.

3 or more rounds: 3 X push 100 @ inside goal speed for the 500 on 1:30, 200 easy recovery after each round.

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