

Barracuda Aquatics Club



Values of Training

As a competitive swimmer have you ever thought of these questions?

- Why am I not improving?
- Why are we training so much?
- Why are the intervals so hard on some sets and easy on other sets?
- Why do I swim below expectations at meets during our main training period of the season?
- Why do I feel horrible at the beginning of each season?

These questions can be answered by looking at the principles of training and their effect on the physical body. These principles are being identified to educate our swimmers on the physical demands the sport of swimming requires to improve performance from season to season and year to year. These values below have been based upon sound scientific findings that you can research yourself in Ernie Maglischo's book "Swimming Fastest".

Here are the 7 principles of successful training:

1) ADAPTATION

- **Definition: Changes that take place in response to training.**
- **This process takes place when the body is training at a greater level than usual**
- **Breakdown in function will occur initially because the body is being asked to provide more force, more energy and more chemicals than usual**
 - **Because of that breakdown the body will react in various ways, duration and from swimmer to swimmer**
 - **Breakdown may occur in the technique, mechanics, speed or in good habits turning bad**
- **Given sufficient time for recovery and an adequate supply of nutrients the body will repair and rebuild to become stronger and more functional than before**
- **If training is not sufficiently intense to cause some breakdown the rebuilding will not occur and performance will not improve**
- **Must train 5 to 7 days for weeks, sometimes months, before some kind of improvements occur**
 - **Significant changes in and around the muscles can occur in 6 to 8 weeks**

2) OVERLOAD

- **Definition:** Adaptations will not occur unless the demands of training are greater than the usual or past demands made on the body, when a person increases the usual demands, we say the body is overloaded
- Demands of training cannot be excessive or the training effect will be lost through injury or failed adaptation

3) PROGRESSION

- **Definition:** The process of increasing the training once the body has adapted to a particular training load
- **Swimmers must gradually increase their training intensity throughout the season to provide a progressive overload**
 - Swimmers cannot train at the same speed week after week and expect to continue to improve
 - Type of overload being produced and the rate of progression being applied need to be considered to avoid the wrong training effect; increasing/decreasing the rest interval too much, increasing the speed too rapidly or increasing the distance too far are examples of effecting the training balance between AE, AP, LT & SP
- **Aerobic progression:** Should not be forced; increase when the swimmer shows the ability to swim faster without additional stress
- **Sprint progression:** Should be forced; swim faster or with less rest
- **Common methods of producing progression overload:**
 - a) **Intensity:** Increase speed of repeats
 - Most effective way for increasing sprint speed & AP endurance
 - Most stressful form
 - Most effective in the 2nd half of season
 - b) **Volume:** Increase the number of repeats
 - Most effective for AE improvement
 - Not effective to increase sprint speed
 - Least stressful method
 - Could cause boredom
 - c) **Density:** Decrease the rest interval between repeats
 - Most effective for improving AE & AP endurance
 - Little value for improving sprint speed
 - Avoid reaching too high levels of lactate acid
- Combining all three methods ensures continued improvements
 - Swimmers are able to improve only so much with a particular overload procedure
- Helps avoid boredom and too much of one particular training level
 - Use a progression system when combining the methods

4) SPECIFICITY

- **Definition:** Adoptions will only occur in the areas of the body that are stressed during training
- **Land activities/training should complement water training, not substitute for it**
 - Muscles that are used in competition will be neglected when training does not include swimming
- **Fast swimming speeds in training are required to improve fast-twitch muscles and efficiency at race speed**
- **Swimmers may have to put a focus on improving their weakest energy level (AE, AP, SP, or LT) more than they do others regardless of the stroke and events they are training for to avoid it becoming a weak link in performance**
 - Target that energy level early in the season
- **Swimmers must train:**
 - A large percentage in their main stroke
 - All energy levels in their main stroke
 - All strokes early in the season to avoid over training one stroke
 - Concentrate on their main stroke in mid-season

5) INDIVIDUALITY

- **Two factors cause individual athletes to respond differently to the same training**
 - Athlete's state of conditioning
 - Will improve considerably in the first 6-8 weeks, then the improvement will slow considerably
 - Early season endurance training may slow sprint speed and vice versa
 - Athlete's genetic make up
 - Heredity plays a major role in determining the extent to which training can improve the functions of athletes
 - Training harder, longer and even more intelligently does not guarantee superior results
 - Percentage of muscles in the body will effect the way an athlete performs in training
 - Females improve less with strength/power training than males

6) FREQUENCY

- **Definition:** Refer to the number of practices a day and the number of days per week that athletes spend in training
- **High-level swimmers and those who wish to compete at the national level typically need to:**
 - Train twice each day, 5-6 days a week
 - Training volume can be greater
 - More stroke drills can be focused on
 - AE can be maximized with less fatigue interfering
 - Multiple training ways that are needed can be used correctly

7) REVERSIBILITY

- Definition: Lack of training leads to a reversal of conditioning and causes performance to decline**
- Significant reductions in training conditioning will take place within 1 to 2 weeks after training ends**
- Swimming power, once lost, requires longer to regain than endurance does**
- Flexibility declines quickly once training stops**
 - 2 to 4 weeks**
- Serious athletes never should take breaks longer than 1 to 2 weeks, and no more than 2 to 3 times a year**
 - More applicable to highly trained athletes than moderately trained**