Strength Training For Competitive Masters Swimmers

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Background On TRUE Strength Training

The increased popularity of "lifting weights" (for whatever reason or application) has led to tremendous confusion as to how to train. While muscle magazines and the body building subculture have existed for years, it has not been until recent decades that "sport specific training" and "performance enhancement training" have become the effective art it is today.

In the modern era it is commonly accepted that resistance training and developing functional strength is essential for competing effectively in nearly all sports. Several sports have been completely transformed by strength training, including track and field, football and baseball. It's not a coincidence that the era of the common sub :10 second 100 meter dash, 325 pound lineman and 50 home run seasons have all been accomplished by the increasing sophistication of resistance and strength training methodologies.

Swimming has seen some remarkable breakthroughs in the last decade, though many of these are attributed to changes in stroke technique, rules changes, faster pools, more sophisticated training regimes, and "super suits." It is only recently that breakthrough swimming performances have been linked to novel applications of strength training.

Basic facts about strength training (Aspenes et al. 2009):

- Definition: the ability to exert maximum force against an object
- Research has shown conclusively that greater strength leads to greater muscular endurance
- A stronger swimmer users a smaller percentage of their maximum strength in each stroke
- Light to moderate intensity lifting with high reps produces no strength
- To gain strength in the weight room you must use an intensity high enough to elicit a strength response, and you must use low repetitions

Myth Debunking About Strength Training

Hypertrophy is bad for swimmers—FALSE

- Greater muscle strength is never a liability
- Increased power is a benefit to propulsion, muscular balance and proprioception
- Injury prevention and rehabilitation require hypertrophy

I don't want to get muscle bound—MISUNDERSTANDING

- Increased muscle mass does not automatically reduce range of motion
- Hypertrophy effects vary greatly, and in most individuals is not visually noticeable. Many people can double their strength and triple their power production (wattage) with less than 5% of muscle mass gain. The majority percentage of increased wattage production is neuromuscular.
- An appropriate strength training program will increase the functional range of motion, while decreasing non-functional ranges of motion or weaknesses that can lead to injury.

I should be doing a huge number of repetitions since swimming is an endurance sport—FALSE.

- Swimming is not an endurance sport. Training for swimming is based around aerobic conditioning, developing deep capillary beds, increasing lactic acid buffering capacity, and muscular development through functional repetition. Swimming competitively in pool meets - even as a distance swimmer - is at best a "middle distance" sport.
- Dryland training should develop functional stability, power and explosiveness that is replicable because of the endurance training done in the pool. Note: Resistance training will not and cannot take the place of endurance training.
- Resistance training will maximize the effectiveness of what an athlete does in the water.
- Aerobic conditioning will enable you to generate maximal efforts repetitively during a strength training routine. An individual's total wattage production capacity is determined by the ability to be powerful and explosive, which can only be developed through resistance training at maximal efforts.
- Maximal wattage production is the metric by which percentage effort is measured. Hence, if you increase your wattage capacity 50% you are lowering your perceived exertion.

Developing A Strength Program

Understand that traditional strength training programs are based upon land sports, focus on leg generated movements, and represent a very traditional approach to core conditioning. With this in mind, it is important to design a strength program specifically to swimming and the independent needs therein. I recommend a program with four stages:

Hypertrophy Stage 1 (injury Prevention)

- Specific attention should be paid to the shoulder, elbow and the lower back, as they are the areas most prone to overuse and muscle imbalance.
- Strengthen supportive muscle groups, improving joint posture and range of motion are critical aspect of this phase.
- Generally the repetition count at this stage is 8-16, focusing on stimulating muscle growth primarily, and muscle strength secondarily.

Hypertrophy Stage 2 (aggressive core development stage)

- The athlete should have created a stable shoulder joint at this stage, developed the supportive muscles of the upper and medial arm, and have basic core strength endurance.
- The goal is to move from strength development to power development, while focusing on dramatically increasing core strength as well as beginning to develop explosiveness from the core

- The repetition count for core motions is high, repetition for non-core movements starts to move closer to strength development of 6-12 reps.

Functional Power Development Stage

- This stage involves significant carryover from the Hypertrophy Stage 2, and involves many of the same core development attributes, but the number of repetitions changes and the athlete starts to perform more complex core development exercises.
- Many of the exercises in this phase should be aimed toward developing neuromuscular speed, as well as power and core strength.

Explosive Power Development

- This stage rotates through a series of movements from the previous three stages, and our goal is to maintain our exceptional core stability, power, strength and joint stability.
- Introduce aggressive ballistic motions such as Olympic lifts, some of which should have been lightly introduced in stage 3.

NOTE: There is significant overlap between each level, and significant portions of the movements from the preceding stage are carried into the following stage.

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