

Sports nutrition in swimming



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SPORT NUTRITION URN6041693

Choose a sport of your choice. Critically discuss the nutritional requirements of this sport. Give examples where appropriate to illustrate your answer

Swimming is a very competitive sport worldwide with different events like 50 to 1500 meters with time duration of 22s to 16 minutes respectively.

Moreover, with four different strokes freestyle, butterfly, breaststroke and backstroke. With typical training programs with the aim to increase lean body mass, and decrease body fat levels over the season Petersen et al. (2006). Sport nutrition plays a very important role especially for elite athletes. The goal of this essay is to discuss more specifically the dietary needs for athletes that compete in the 50 and 100 meters distance events.

In the 50 and 100 meters events in particular event swimmers relies on the production of large power outputs with highly coordinated and efficient technique in a short range of time. This power output rely on the anaerobic glycolysis and high energy phosphates. Therefore, the main type of muscle fibre developed in athletes in training for 50 and 100 meters event is Type 2 a and 2 b of muscle due to the speed of contraction, short length of time, anaerobic capacity using high energy phosphates (ATP and creatine phosphate) and glycogen as fuel, however due to the nature of the high intensity aerobic activity with training sessions from 1.5 up to 4 hours a day there is no question that type 1 fibres muscle is developed.

Training

Overall training programs for elite swimmers are based on experience of successful coaches rather than scientific evidence of superior performance

outcomes. There seems to have difference in opinions among coaches regarding to training sessions. Some opt for training only in the pool and others use less sessions in the pool (more specific training) but add cycling and running sessions to improve aerobic capacity.

Generally the pool workouts consist of aerobic warm-up and cool downs, training aims to improve techniques in starts and turns, and sets of repeated bouts of swimming at different intensities depending on the goal wanted, in this case sprint. Moreover, generally 40% of the training intensity less than 80% of VO₂max, from 40% to 60% at intensities of 80% vo₂max, and less than 5% at > 100% Vo₂max.

Sherman and maglischo (1992) have estimated the energy requirement of swimming training at approximately 16. 8 to 22. 6 MJ. day-1(4000-5400 kcal. day-1) for males working 4 hours a day and between 14. 2 to 16. 8 MJ . day-1(2400-4000kcal. day-1) for females working 4hours a day, although these factors will vary within each athlete physical condition and technique performance.

Nutritional Challenges

The nutritional issues and challenges for swimmers are to prepare a nutrition strategy to provide fuel to cope with large energy demand, promote recovery for each session, achieve optimal levels of lean body mass and body fat as well as keep the vitamins and minerals within normal levels during the different phases of training in the season (E. g. high volume training, taper or off-season).

However, swimmers struggle to cope with large energy needs not only for training but for competition some common issues are presented below:

Training

- High energy requirements due to fluctuations in growth patterns (growth spurt in adolescents), changes in training volume or simply active gain of muscle mass.
- Irregular eating patterns due to a busy time table.
- Social and cultural issues.
- Poor nutritional knowledge.
- Adjusting energy intake

Competition

- Adjusting energy intake during taper to prevent excessive gain of weight and body fat.
- Adequate fuel stores for the day of competition.
- Postrace recovery between different competitions or between heats, semifinals, and finals.

Training program vs. competition nutritional requirement

Therefore the nutritional requirement in order of priority for pre-training, training and post training (same for competition) are: rehydration, refuelling and recovery.

Pre-training

Training

Post training

Consideration in use of supplements.