

## Eating for Gold! Nutrition for the Aquatic Sports

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“You are what you eat.” While this expression normally references the nutritional practices of the general population, it is equally applicable in the sport world. The successful athlete pays significant attention to a detailed, well-planned, evidence-based training and competition regimen. This regimen should also include a sophisticated nutritional plan as one component of the recipe for athletic achievement:

*“An effective nutrition plan is critical to success in all aquatic sport disciplines for athletes at every stage of their development.”* [FINA-Yakult Consensus Statement on Nutrition for the Aquatic Sports 2014]

The role of sport nutrition is essential for maintaining athlete health in addition to improving athlete performance. A clever and successful coach implements all sport science tools in the creation of a yearly training plan for his/her athletes. What nutritional strategy should be employed to enhance training adaptation? Is there an effective, evidence based recovery nutritional plan? Can nutritional interventions be employed to decrease the risk of injury and illness?

The FINA medical rules define the role of FINA in the protection of the health of the athlete:

*“FINA, in accomplishing its mission, should take care that sport is practised without danger to the health of the athletes ....To that end, it takes the measures necessary to preserve the health of athletes and to minimise the risks of physical injury and psychological harm.* [Preamble FINA Sport Medicine Rules]

One aspect in accomplishing the goal of athlete health preservation is the provision of adequate and effective nutrition. In fulfilling this rule, FINA, with the financial assistance of Yakult, hosted a meeting in December 2013 for invited leading sport nutrition scientists and aquatic clinician experts from the around the world. The FINA Nutrition expert panel was asked to address the topic of sports nutrition as it pertains to the aquatic disciplines. The sports nutrition scientific evidence for all of the aquatic disciplines was reviewed, presented, debated and eventual consensus on evidence-based recommendations was accomplished. The focus was on identifying best nutritional practices for aquatic athletes based on the available scientific evidence.

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This special edition of the *International Journal of Sport Nutrition and Exercise Metabolism* is devoted to the outcomes of this Consensus Meeting. The summary paper of the proceedings is the “FINA-Yakult Consensus Statement on Nutrition for the Aquatic Sports” which is the featured lead article in this edition. The consensus statement is a review of a broad variety of nutritional issues as they pertain to the aquatic sports. It is an executive summary of the scientific evidence and collective clinical experience as determined by the expertise of the invited expert panel.

In addition to the consensus paper, the supporting scientific papers are included in this special edition. The opening paper by Pyne and Sharpe is the foundation for the remaining papers. This paper reviews the scientific literature as it relates to the physical and energy requirements of swimming. The next paper by Mujika et al. addresses the physiology of training adaptation in swimming. Following an overview of the performance requirements in the aquatic sports, Mujika et al’s paper addresses the various nutritional strategies that impact training adaptation. Post-exercise recovery is an important concept for aquatic athletes to ensure adequate restoration of body losses from training and to maximize training adaptation to enhance performance. The next paper by Burke et al. reviews the evidence in the field of nutritional strategies to promote recovery in response to different types of training stimuli. Melin et al. address an important issue in the aquatic sports in their paper on “Disordered Eating and Eating Disorders in Aquatic Sports.” Athletes in sports that emphasize leanness such as synchronized swimming and diving are particularly vulnerable to developing low energy availability, disordered eating and eating disorders. Melin’s review paper outlines the prevalence and health consequences of these disorders and recommends prevention and treatment strategies for the aquatic disciplines.

The prevention of illness and injury in the aquatic sports through nutritional intervention is discussed in the next paper by Pyne et al. Following a review of the epidemiology of injury and illness in the aquatic disciplines, this paper examines the relevant scientific evidence on the role of nutrients in the reduction of illness and injury. Stellingwerff et al. author the next review paper on a topic of particular importance to the elite aquatic athlete. The aquatic athlete trains, travels and competes in often difficult environmental conditions. Stellingwerff et al. review the role of nutrition in mitigating the effects of

environmental challenges in the areas of travel, altitude, water, air pollution and varying water temperatures. Nutritional supplements in sport are a “hot topic” for all elite athletes. Evidence of use of nutritional supplements in the aquatic sports is well established. Derave and Tipton summarize the scientific evidence related to the use of nutritional supplements in sport with respect to their effect on training, general health, adaptation, recovery, immune function, performance and optimization of physique.

The final five papers are dedicated to the specific aquatic disciplines of swimming, diving, water polo, synchronized swimming, and open water swimming. Each

paper reviews the current scientific evidence published in each of the respective aquatic disciplines. In addition, these papers identify the sports nutrition needs that are unique to the requirements of each sport.

In conclusion, an informed, evidence-based nutrition plan has an important role to play in the maintenance of health of the aquatic athlete in addition to the promotion of optimum performance. This dedicated edition of the *International Journal of Sport Nutrition and Exercise Metabolism* reviews the scientific evidence in the field of sports nutrition as it relates to the aquatic sports and provides practical recommendations for all aspects of the aquatic athlete nutritional plan.