Nutrition for scuba diving: practical advice to enjoy your dives!

A lot of research explores the relationship between scuba diving and health, and mainly focuses on strategies to prevent gas bubble formation, cardiovascular dysfunction and decompression sickness, but there is little evidence about scuba diving and prevention of injuries through nutrition.

Scuba diving exposes our body to extremely stressful conditions, such as hyperbaria, hyperoxia and cold water, which can increase energy expenditure and oxidative stress. Adequate nutrition is essential before an immersion, to improve our body's responses to stress, delaying fatigue, and post-dive to accelerate recovery and reduce tiredness.

Since there aren't specific studies on divers diets, the following considerations are based on the metabolic changes induced by scuba diving and international nutritional guidelines.

During diving, aerobic metabolism increases, so it's important to supply our body with a source of complex carbohydrates, like cereals, rice or pasta, and fat, such as Greek yogurt, nuts, almond, dark chocolate, and olive oil. Dark chocolate and raw extra virgin olive oil contain respectively polyphenols and vitamin E, which have been demonstrated to improve cardiovascular system response to oxidative stress.

Fruits and vegetables should be present in everyone's diet, especially divers, since these foods supply vitamins and minerals, which strengthen antioxidant defenses. These include vitamin C, Zinc, Selenium and fibers, which increase satiety and improve digestion; they also supply water.

Hydration is one of the most important nutritional recommendations for a diver, because breathing compressed gas and exposure to underwater environments induce diuresis and dehydration.

Drink water, hypertonic sport drink or fruit juice, from 90 minutes to a few minutes before getting in water, even if you don't feel thirsty. This will prevent excessive fluid loss, and also after surfacing, will help recovery and reduce dehydration symptoms, for instance tiredness, fatigue, and mild confusion. But don't overdue it; over hydration can also cause problems.

Note that it is strictly recommended that divers avoid alcohol, since it enhances fluid loss, and to limit salty food. Also, caffeine can increase diuresis, but a coffee before an immersion can stimulate and improve cognitive functions, so if it's combined with drinking water it should not be a concern.

Lastly, proteins are required for tissues to recover correctly. The best sources of protein are eggs, fish, legumes, and meat. Since these foods can load up your meal, it's preferable to consume them during dinner, in particular legumes, which can raise intestinal problems in susceptible individuals. Salmon, tuna and mackerel are perfect choices for dinner: rich in omega-3 fatty acids, which have anti-inflammatory properties and can improve recovery from diving.



In summary, nutritional recommendations for a diver don't differ a lot from that for other active people. A diver should complete their regular daily meals i.e., breakfast, lunch, and dinner.

The ideal meal before immersion should be lightweight and easily digestible, and should include sources of complex carbohydrates and fat, fruits or vegetables, and water. Snacks between dives are ideal to restore fluids and energy and should include water or fruit juice (without added sugars) , fruits, almonds, and or dark chocolate.

The timing for eating, and food quantities are crucial to avoid a digestion slowdown: main meals should be consumed two hours or more before getting in water and a snack about 30 minutes before. A post-dive dinner should be abundant and should include a source of protein, carbohydrates, and fat.

We suggest that divers plan their meals for the day of the dive, but the choice of food and quantities depend on the individual's food preferences, energy requirements, hunger, digestive capacity, and also the type of diving (boat or shore dive). Remember that eating correctly is not only important on the day of diving but every day to obtain a healthy and responsive body.

In conclusion, the best advice to enjoy your dives are to follow nutritional recommendations, be active and train, don't smoke, limit alcohol, sleep the right amount of hours and most of all respect the rules of diving.

***Example of a meal plan for day of diving**:*

This plan is only a suggestion and it's proposed for omnivore people without any specific allergy, intolerance, or pathologies that require specific diet. In that case, it's necessary to replace problematic

food. The plan also includes ovo-lacto vegetarian alternatives. Note that quantities are not specified since they depend on individual energy requirements and digestive capacity.

TIME	**MEALS SUGGESTIONS**
8:00 **Breakfast**	Greek Yogurt with Oat Flakes, Blueberries and Almonds.
10:00 **Snack**	Peach and Water.
10:30 **Diving**	After surfacing: water or fruit juice and crackers *(if weak and hungry).*
13:30 **Lunch**	Rice with zucchini and raw extra virgin olive oil *(if you are hungry and do not have slow digestion you can also add a small quantity of source of protein such as egg, chicken or peas).*
15:30 **Snack**	Dark chocolate and water.
16:00 **Diving**	After surfacing: water or fruit juice and watermelon.
19:00 **Snack**	Small sandwich with salad, cream cheese, and tuna fish *(or chickpeas hummus if vegetarian).*
20:30 **Dinner**	Salmon *(or beans if vegetarian*) with potatoes, tomatoes, and raw extra virgin olive oil.

References:

- *Balestra C, Germonpré P, Rocco M, Biancofiore G, Kot J. Diving physiopathology: the end of certainties? Food for thought. Minerva Anestesiol. 2019 Oct;85(10):1129-1137. doi: 10.23736/S0375-9393.19.13618-8. Epub 2019 Jun 20. PMID: 31238641.*
- *Balestra C, Cimino F, Theunissen S, Snoeck T, Provyn S, Canali R, Bonina A, Virgili F. A red orange extract modulates the vascular response to a recreational dive: a pilot study on the effect of anthocyanins on the physiological consequences of scuba diving. Nat Prod Res. 2016 Sep;30(18):2101-6. doi: 10.1080/14786419.2015.1107062. Epub 2015 Nov 7. PMID: 26548425.*
- *Deb SK, Swinton PA, Dolan E. Nutritional considerations during prolonged exposure to a confined, hyperbaric, hyperoxic environment: recommendations for saturation divers. Extrem Physiol Med. 2016 Jan 7;5:1. doi: 10.1186/s13728-015-0042-9. PMID: 26744625; PMCID: PMC4704397.*
- *Gempp E, Blatteau JE, Pontier JM, Balestra C, Louge P. Preventive effect of pre-dive hydration on bubble formation in divers. Br J Sports Med. 2009 Mar;43(3):224-8. doi: 10.1136/bjsm.2007.043240. Epub 2008 Feb 28. PMID: 18308884.*
- *Perovic A, Unic A, Dumic J. Recreational scuba diving: negative or positive effects of oxidative and cardiovascular stress? Biochem Med (Zagreb). 2014;24(2):235-47. doi: 10.11613/BM.2014.026. Epub 2014 Jun 15. PMID: 24969917; PMCID: PMC4083575.*
- *Riccardi, Delia Pacioni, Angela Giacco. Manuale di nutrizione applicata. Gabriele. 2020, Idelson-Gnocchi.*

- *Theunissen S, Balestra C, Boutros A, De Bels D, Guerrero F, Germonpré P. The effect of pre-dive ingestion of dark chocolate on endothelial function after a scuba dive. Diving Hyperb Med. 2015 Mar;45(1):4-9. PMID: 25964032.*

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