

Control of blood glucose in a group of diabetic scuba divers.

Edge CJ, Grieve AP, Gibbons N, O'Sullivan F, Bryson P. Undersea Hyperb Med. 1997 Sep;24(3):201-7.

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A preliminary study to examine the hypothesis that the ability of well-controlled (defined as no hypoglycemic episodes within the last 12 mo., HbA1c < 9.0%, and none of the long-term complications of diabetes type I) diabetic scuba divers to control their serum glucose and dive without becoming hypoglycemic during a simulated dive to 27 meters of seawater in controlled environment is impaired. An open, controlled, crossover study compared blood glucose levels, hematocrits, and hematologic cell counts in a group of eight type I diabetic scuba divers to those from eight age- and sex-matched, normoglycemic control scuba divers. Each diver did one simulated dive and one control exercise on the surface on 2 consecutive days. The simulated dive was done to depth of 375 kPa in a hyperbaric chamber, the control exercise was done at ambient pressure. The order of the dive and the control exercise was randomized. No statistically significant differences were observed between serum glucose levels in the diabetic divers measured during the simulated dive to 375 kPa vs. the serum glucose levels in the diabetic divers measured during the control exercise at the same time points. All divers with type I diabetes remained free of symptoms and signs of hypoglycemia throughout the course of the trial, and no diabetic subject had a serum glucose less than 4 mmol/liter before the end of the trial. As the sample size was small, larger studies including subject with type II diabetes will be necessary to extend these results to the diabetic diving population at large. The authors conclude that, contrary to advice issued by most diving agencies to scuba divers, it may be safe to allow well-controlled subjects with type I diabetes with no long-term complications to undertake scuba diving, and that high partial pressures of oxygen do not seem to lower serum glucose levels significantly in the diabetic diver during the dive.