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Title: Nitrogen partial pressures in man after decompression from simulated scuba dives at rest and during exercise

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Abstract: In 5 subjects arterial and central venous nitrogen partial pressures (PN<sub>2</sub>) were measured after decompression from a chamber dive following a decompression schedule for scuba diving. The simulated dives consisted of exposure to air at 6 bar for 30 min corresponding to a depth of 50 m. Afterward the subjects were decompressed with decompression stops at 2.5, 2.2, 1.9, 1.6, and 1.3 bar with a total decompression time of 67 min. In 3 of the subjects the measurements were repeated after they had exercised (workload 75 W) during bottom time. Immediately after decompression and every 40 min until Minute 240 arterial and central venous blood samples were analyzed for PN<sub>2</sub> using a manometric Van Slyke apparatus. Venous PN<sub>2</sub> remained elevated until 160 min after decompression, indicating still incomplete nitrogen washout for at least 2 h after decompression had been accomplished. We did not find any difference in PN<sub>2</sub> values after decompression from dives at rest and after exercise. Applying a computer program based on a wide range of theoretical tissue half-times nitrogen elimination proved to be consistent with Haldanian theories when using our decompression profile. Our data confirm that nitrogen elimination

is prolonged after decompression from simulated dives at rest and after exercise.

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