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Title: Supraventricular arrhythmias following breath-hold submersions in cold water

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Abstract: Twelve subjects undertook one submersion into water at 5 degrees C and two at 10 degrees C wearing either a wet or dry suit. During the submersions the subjects held their breath for as long as they could and then breathed through respiratory tubing for a further 10 s before being removed from the water. Bradycardia (heart rate < 60 beats/min) was observed during breath holding in 10 subjects in 28 of the 36 submersions. Ectopic arrhythmias were observed in 11 subjects in 29 of the 36 submersions, a much higher frequency than previously reported. These ectopic arrhythmias included premature atrial and junctional complexes, runs of supraventricular tachycardia, and premature ventricular complexes. They occurred predominantly in the 10-s period of submersion after the cessation of breath holding. The possible etiology of these arrhythmias and their significance are discussed and it is concluded that after breath-hold termination during cold-water submersion there is a short time during which the heart may be particularly susceptible to supraventricular ectopic arrhythmias.

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