
LETTERS TO THE EDITOR

Decompression sickness in women divers

I would like to dispute the conclusion of the authors of "Decompression sickness in women divers" (1). Zwingelberg et al. state in the abstract and again in the discussion that female divers are at no increased risk of decompression sickness (DCS). To support this they present data on 28 female and 487 male diving students. These divers performed 75 and 803 dives, respectively, which resulted in 9 cases of DCS among men. Thus the probability of getting DCS per dive for the men is 0.0112.

If it is assumed that each dive performed by the women had the same probability of ending in DCS, the Bernoulli model can be used to calculate the chance of obtaining zero successes (no DCS cases) in the women divers (2, 3). Using this equation and the binomial assumptions, it turns out that the results obtained could be expected 43% of the time by chance alone. If the actual risk of DCS among the women were 2 or 3 times that of the men (0.0112) the respective answers are 18.3 and 7.7%. The data do indicate a significant difference between the previously reported fourfold risk elevation and the risk of DCS in these students at a P value of 0.05 (4). Therefore, based on the data presented, the actual risk of DCS for the women could be any value from zero to over 3 times that of the men.

The authors identified 60 deep PVA dives in which 158 men participated as "buddies" to female divers. Two cases of DCS were noted in the men and none in the women. Analysis of this as done above indicates that this result could be expected 46.7% of the time by chance alone.

Therefore it is impossible to accept the conclusion of the authors that women are not at an increased risk of DCS. To reach that result at a P value of 0.05, 266 woman-dives without a case of DCS would have been needed.

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REFERENCES

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3. Homer LD, Weathersby PK. Statistical aspects of the design and testing of decompression tables. *Undersea Biomed Res* 1985; 12:239-249.
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The author responds:

Dr. Robinson's analysis is correct. The data from the Naval Diving and Salvage Training Center suggest that women divers may not be at a greater risk for developing DCS than their male counterparts, but the sample size is inadequate to prove this trend; data continue to be accrued. Statistical analysis does allow the conclusion that NDSTC female divers were not 4 times as susceptible as men, as had previously been inferred from the Bassett altitude data. I thank Dr. Robinson for helping to clarify this issue.

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