



## AB080. Exercise induced changes in intraocular pressure is related to systemic dehydration

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**Background:** A transient reduction in intraocular pressure (IOP) after an aerobic exercise is found time and again across studies in literature. It has been suggested that systemic dehydration could be a possible mechanism driving these hypotensive effects of exercise. However, IOP reduction never had been examined in hyper versus hypo-hydration conditions for a same group of participants. The purpose of this study is to examine the influence of hyper and hypo hydration conditions on exercise-induced fluctuations in intraocular pressure.

**Methods:** Thirteen participants rode an ergocycle in a temperate room for 90 minutes, at 59% of their maximal aerobic capacity, in a state of both hyper and hypo-hydration. IOP was measured at 0, 5, 30, 60 and 90 minutes, and 30 minutes after exercise. Reduction in body weight was measured at 0, 30, 60 and 90 minutes.

**Results:** There is an initial drop in IOP under both conditions followed by a rise in IOP at 30 minutes that is nearly equal to the baseline. From that point on, IOP hovers around baseline values in the hypo-hydrated condition and increases until the end of the exercise protocol in the hyper-hydrated condition. A repeated-measures ANOVA showed a significant interaction between time and condition  $F(5,60) = 3.99$ ,  $P = 0.003$ , as well as a main effect of time  $F(5,60) = 7.90$ ,  $P < 0.001$ , and a main effect of condition  $F(1,12) = 5.83$ ,  $P = 0.033$ .

**Conclusions:** The results of this study, when taken with others that looked specifically at factors of exercise, hydration and IOP suggest that fluctuations in IOP during exercise are likely a homeostatic response related fluid intake and not because of any specific benefit incurred through exercise.

**Keywords:** Intraocular pressure (IOP); exercise; dehydration

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