
Long-term effects of iterative diving on visual field, color vision and contrast sensitivity in professional divers.


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PURPOSE: To assess long-term functional effects of iterative diving, we studied visual field, color vision, and contrast sensitivity in 21 French Navy professional divers and 21 controls.

PATIENTS AND METHODS: This retrospective study investigated a population of 21 divers and 21 controls. All subjects were male. The inclusion criterion for divers was a total number of dives greater or equal to 1,000. Exclusion criteria for the two groups were glaucoma, ocular hypertension, smoking, and vasospastic risks. Additional exclusion criteria for controls were any history of diving practice and of hyperbaric oxygen therapy. The visual field was examined with a Humphrey(R) Central 30-2 threshold test. Moreover, we explored spatial contrast sensitivity using Metrovision(R) Moniteur Ophtalmologique "STAT" program and color vision with desaturated 15 hue test.

RESULTS: None of the divers had any loss of spatial contrast sensitivity. There was a high frequency of yellow-blue axis color vision defects (45.2%) in the diver group. Regarding visual field, corrected pattern standard deviation was significantly higher in divers (p<0.01).

CONCLUSION: These findings suggest that iterative diving may cause subclinical functional effects on vision. Further studies will be needed to determine the exact setting of this repercussion upon macula and/or the optic nerve.