

Migraine Aura and Exercise

Otto Appenzeller

NMHEMC Research Foundation

ABSTRACT

In this self-report I find that the aura of migraine is prolonged by exercise from 3 minutes to 11 minutes. I discuss the possible causes and implications for patient management.

Migraine auras can occur any time. They often but not always have some visual component such as zig zag lines, or blind spots which may precede or follow the headache and may last anything from minutes to hours. [1] (see the figure)

Self-experiments by authors are common. [2]. Here I report on a self-experiment to see what effect exercise may have on the duration of a migraine aura.

The male subject is 96 years old. For about fifty years he has been a chronic exerciser to prevent the incapacitating headache which in his case were associated with his migraine attacks.

Although, a chronic runner he now exercises on a "Concept 2" rowing machine.

His visual aura usually lasted about 3 minutes.

However, with his exercise-about 3000 meters- on the "Concept 2 rowing machine the aura (see figure) was prolonged to 11 minutes. Fig. 1

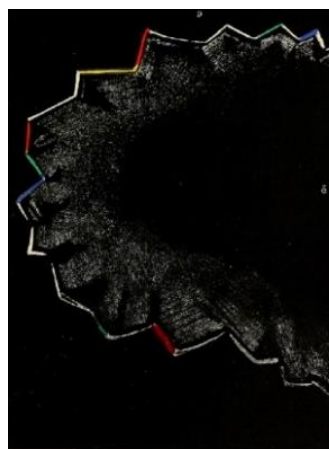


Fig 1

DISCUSSION

Migraine causes are not entirely understood, genetics and environmental factors may play a role.

Changes in the brainstem and its interactions with the trigeminal nerve might be involved. Serotonin, which helps regulate pain in the nervous system, could also play a role.

The role of serotonin and other neurotransmitters including calcitonin gene-related peptide (CGRP) is now being actively pursued. [3].

I report the prolongation of the migraine aura by exercise from the usual 3 minutes to 11 minutes by exercising during the migraine aura. This prolongation might perhaps be attributed to an increase of CGRP release by exercise.

The role of CGRP in cardiac physiology is not clear. CGRP-immunoreactive fibers have been shown to innervate regions of the myocardium and the coronary vessels that supply the heart with blood. A few studies propose a cardioprotective role for CGRP. Thus, exercise during the aura could protect the heart.

References

1. Appenzeller O. Reflections on the past three decades of high-altitude exercise research and the autonomic nervous system. *Clin Auton Res*. 2021 Feb;31(1):31-33. doi: 10.1007/s10286-020-00754-6. Epub. 2021 Jan 5. PMID: 33399958; PMCID: PMC7783694.
2. Pearlman EM, et al. Migraine headaches. In: Smith HS. *Current Therapy in Pain*. Philadelphia, Pa.: Elsevier Saunders; 2008.
3. Wattiez AS, Sowers LP, Russo AF. Calcitonin gene-related peptide (CGRP): role in migraine pathophysiology and therapeutic targeting. *Expert Opin Ther Targets*. 2020 Feb;24(2):91-100. doi: 10.1080/14728222.2020.1724285. Epub 2020 Feb 13. PMID: 32003253; PMCID: PMC7050542.