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Short Comunication

Why does ingestion of watermelon trigger headache attacks in patients with migraine?

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Several triggers can trigger a migraine attack, including food. By the way, food only triggers headache in migraine sufferers. The foods that most trigger headache attacks are these: cheese, chocolate, citrus fruits and some sweet fruits, such as watermelon.[1]

Foods are involved in several mechanisms in generating pain. They can lead to vasodilation (vascular effect), cause an increase in cytokines (inflammatory effect), activate peripheral glutamate receptors (effect on neuroreceptors), activate sympathetic and parasympathetic function (effect on the autonomic nervous system), and induce neuronal depolarization (cortical effect).[2]

Watermelon is involved in one of these pain-generating mechanisms. It is the main source of citrulline in nature. Citrulline is an amino acid that was first found in watermelon in 1930 and its name comes from citrulus, Latin name for watermelon (*Citrulus lanatus*).[3] Citrulline is responsible for the synthesis of arginine, the precursor of nitric oxide. In turn, nitric oxide is one of those responsible for generating pain.[4]

A recent experimental study carried out with two groups of volunteers, one with migraine and the other without migraine, showed that the ingestion of watermelon triggered headache attacks only in patients with migraine (23.7% vs. 0.0%; $p=0.002$). The time interval between ingestion of watermelon and onset of headache was on average 124.3±20.5 minutes. In this study, serum levels of nitrite (the breakdown product of nitric oxide) were measured before and after ingestion of watermelon. There was an increase in serum levels of nitrite, compared to the baseline level ($p<0.001$)[5].

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