

## Opinion Article: Nutrients, Inflammation and Ophthalmology

Armas Herrera Gioconda L\*, Arévalo Arévalo Luis F and Santa Cruz Pérez Zully

*La Selva Ophthalmological Clinic, Tarapoto, Peru*

**\*Corresponding Author:** Armas Herrera Gioconda L, La Selva Ophthalmological Clinic, Tarapoto, Peru.

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There is currently a bibliography that describes nutrition and diet as part of visual health in which it is mentioned that the most prevalent diseases such as macular degeneration, cataracts, dry eye, among others, have to do with the vitamins and nutrients of our diet. On the other hand, consider the term functional medicine in which medicine is personalized and deals with primary prevention, as well as managing the underlying causes of diseases rather than treating the main symptoms of chronic diseases [1].

On the other hand, 25% of the oxygen that enters the body with each inhalation is directed to the visual system, so the result is highly oxidizable products and thus the formation of free radicals that chronically cause damage. Likewise, 1/3 of what we eat nourishes our visual system [2]. For this reason, the increase in free radicals due to oxidative stress increases maculopathies, retinal degeneration and the presence of cataracts [3]. At the same time, we have an antioxidant system that counteracts this, including glutathione, which is the body's most important antioxidant, which together with glutathione oxidase and peroxidase allow recycling and convert from oxidized to reduced [2,5].

As an example we have glaucoma in the disease in which there is a genetic predisposition in terms of susceptibility to damage induced by reactive oxygen species [4], the same that was detected by the more frequent presence of the gene that encodes glutathione transferase, a product crucial in the antioxidant response. Likewise, it supports the hypothesis that oxidative damage in patients with glaucoma presents an increase in the resistance of the aqueous flow in the trabeculate in the presence of high values of hydrogen peroxide levels, as well as the abundant antioxidant activity of the trabecular meshwork [5].

Another point to consider is the relationship with the nuclear factor (derived from erythroids 2) as Nrf2 regulator of the expression of genes that can control the antioxidant, anti-inflammatory and antifibrotic response as well as in cancer; therefore, consider that there are Nrf2 inducers in the diet, including exogenous non-coding RNAs that control the expression of Nrf2 such as curcumin, l-carnitine, quercetin, maqui, resveratrol and that, with them, it can be deduced that Nrf2 could play a crucial role as a protective factor for cells in the eye and in the prevention of ophthalmological pathologies [6,12].

There are products that can promote eye health such as Maqui in relation to dry eyes and asthenopia among other pathologies [11]. Other nutrients rich in flavonoids that are polyphenolic components of plant origin present in green tea, red wine, cocoa, blueberries, spinach, etc. that have the property of neuroprotection and antioxidants, thus improving visual function in patients with glaucoma and ocular hypertension, as well as the progressive reduction of visual field loss [7].

First, if we go back to our ancestors with whom we share very similar disorders, what happens to that genetics? How have we distorted what we really need as human beings to have a full life, a healthy life and what we have come to today? Nowadays, if one looks back 13,000

or 8,000 years ago to Paleolithic man, that is, the dilemma of modern man with Paleolithic genetics, we look a lot alike, but, nevertheless, we are light years away from what they ate at that time [6,8].

So, they had more protein and fat because it was of good quality and energy, it was much more durable over time, if you eat fat it is much more efficient than eating something with carbohydrates. We overeat these foods, we consume fats that inflame us, a lot of sugar, ultra-processed foods from supermarkets. The group of carbohydrates is converted into sugar and with this in your body people are very inefficient. Also, it is not good for our brain [3].

If we get a little into the history of wheat, wheat dates back many years, 8,500 years before Christ, there was a wild wheat called Einkorn, its genetic code was much simpler, it had 14 chromosomes and our body could digest much better, but what happened in recent years. It began with scientific intervention to make it resistant to certain pathogens, for droughts, to increase production, then genetic intervention began, and today we end up with a wheat that results in many different crosses of varieties of the modification that has been done naturally and scientifically as well [8,9]. And we have a wheat that has 50 or 80 times more gluten than just the protein it has, said protein that inflames us and makes us ill, plus more types of gluten, for example, breaded soft wheat. If we look at the varieties of wheat that existed, we go from Einkorn to Emmer to Cammut to Spelta to Candeal to Aestium.

And think about how constantly you eat a certain amount of wheat a day and the body is being attacked. And from there the question arises, but why do we eat so much wheat? We can spend every day eating wheat and we don't get tired, because it stimulates our appetite and is known as polypeptides or exorphins, these substances enter the brain and act as morphine, since they are stimulants and opioids that are very addictive for us, so the more we eat of these, the more we want and a vicious circle is formed. The first step to reduce these problems is to reduce or stop consuming wheat [10].

What happens today, there is a high percentage of the general population that has a sensitivity to gluten, and it is almost undetectable, and sometimes they do not know why they feel bad or inflamed until they remove gluten from their diets. The number of people adopting a gluten-free diet is much higher than the number of celiac disease patients; therefore, not only celiac disease, but also other conditions related to gluten ingestion have become a real health problem [2,8].

Now we move into the dairy family and they also act quite similar to wheat; That is why gluten and casein are addictive, they are like endorphins in the body, but they inflame our intestines and make it permeable. Be aware because dairy products also bring many of the symptoms with the respiratory part, mucus, sinusitis, bronchospasms, digestive problems.

The heart, gut, brain axis; the heart with our emotions influences the intestine and the brain, the three totally related, simply by improving our intestine, we will be improving any neurological issue of autism, depression, anxiety. And later, if we had a magnifying glass to see how our intestine is doing, it is very important because there are a lot of bacteria and species that live inside; And what happens with so much poor nutrition, so much stress, it would be said that it has a lot of garbage and that there is no balance between good bacteria or pathogenic ones; what is sought is a good quantity and quality of bacteria [5,7].

In summary, the factors that damage the intestinal flora are gluten, casein and soy, sugar, processed foods, chlorine, medications, stress, legumes, grains, seeds, nuts. So, an anti-inflammatory and antioxidant diet is low in starches, low in dairy, low in processed foods, high in healthy fats, rich in vegetables, fermented foods, pre and probiotics, foods rich in omega 3 and omega 6. The omega 3, They are used in treatments for childhood hyperactivity, autism, aggressiveness, violence, mood disorders, seizures, epilepsy, emotional problems and psychiatric illnesses, social problems, learning problems and eye conditions [7].

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