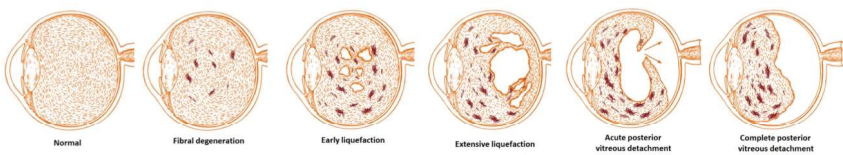


# THE EFFECT OF ORAL SUPPLEMENTATION WITH L-LYSIN, HESPERIDIN, PROANTHOCYANIDINS, VITAMIN C AND ZINC ON SUBJECTS ASSESSEMENT OF THE QUALITY OF VISION IN PATIENTS WITH VITREOUS FLOATERS

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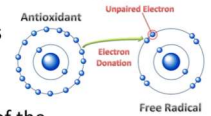
**Introduction:** AREDS and other studies have proven that chronic eye diseases can be modulated with micronutrients. Oxidative stress and glycation processes causing primary Vitreous Floaters (VF) as degenerative molecular rearrangements of vitreous collagen fibrils that results in localized aggregations. The shadows casted on the retina can have a negative impact on visual function and the quality of life. In this observational study the quality of vision in patients with VF and the effect of oral supplementation with a combination of micronutrients comprising of water-soluble antioxidants, and modulators of the glycation of collagens as well as of collagenase, elastase and hyaluronidase was investigated.

Stages of vitreal degeneration

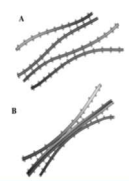


## Underlying mechanism/Pathogenesis

1. Oxidative and metabolic stress
2. Glycosylation



- Cross linking and condensation of the collagen fibrils
- Interruption of the parallel order of collagen
- Reduced space for hyaluronic acid and water binding
- Pockets of liquefaction



**Methods:** 463 VF-patients (334 women, 129 men) with a mean±SD age of 61.1 ± 14.5 years were included

- VF suffering was confirmed during ophthalmic exams. All participants were free from acute or chronic eye and systemic diseases as diabetes, glaucoma, inflammation of ocular surface during last 2 months prior to the first visit
- Questionnaires for the assessment of quality of vision were applied at baseline and after 3 months of supplementation with 1 capsule per day containing L-lysine (125mg), Hesperidin, a flavonoid from Citrus aurantium (60 mg), proanthocyanidins from Vitis vinifera extract (23.75mg), vitamin C (40mg) and zinc (5mg).
- Analysis was performed according to sex and age-ranged groups using chi2 test or Fisher's exact test.
  - For the analysis, the patients were divided according to their gender, and within each sex in addition to the age ranges of 20-30, 30-40, 40-50, 50-60, 60-70, 70-80 and 80 respectively. In order to check whether there are statistically significant differences for the first two questions between the answers given during the first and the second visit, the chi2 test was performed, and if the number of any of the cells was less than 5 Fisher's exact test. Similarly, in the case of a question regarding the assessment of visual improvement, to check whether there are statistically significant differences between sex, the chi2 test was performed. The level of significance was  $\alpha = 0.05$ .

## Results

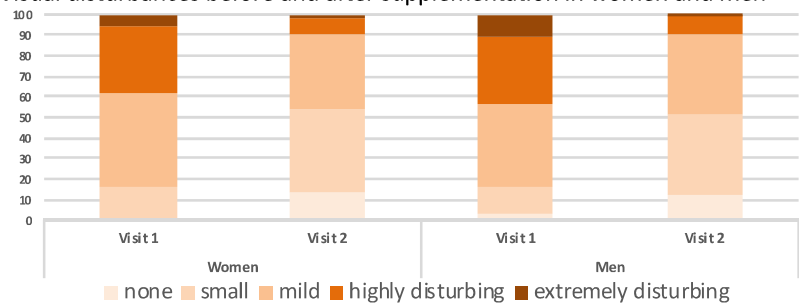
90% of the patients reported visual disturbances.

- They were mild in 27%, moderate in 28%, highly disturbing in 28% and extremely disturbing in 7% at baseline.

Statistically significant improvement was found after supplementation (90.6 % of patients;  $p < 0.001$ ).

- Patients reported 25.9% small, 27.6% moderate, 28.4% significant and 8.7% a very substantial improvement.
- There were no differences between sexes.
- The effect on vision quality was higher in younger age groups of women and men (19-29, 30-39 and 40-49 years) than in elderly groups (50 years and above;  $p < 0.001$ ).

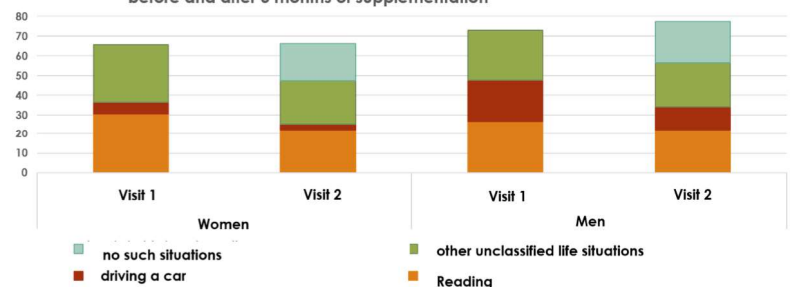
Visual disturbances before and after supplementation in women and men



**Conclusion:** Supplementation of VF-subjects shows relevant relief of floater disturbance.

- The subjectively perceived improvement of vision quality appears to be greater in younger patients.
- The findings confirmed supplementation success of earlier investigations on a larger patient number scale.\*
- The finding merits a placebo-controlled trial in VF-patients and the search for objective assessment and monitoring measures concerning vision parameters (e.g. contrast sensitivity), and degeneration stages of the vitreous body (e.g. OCT or ultrasound)

The most common life situations in which VL disturb before and after 3 months of supplementation



## Literature:

1. Marchanka L, et al., Ophthalmology Eastern Europe. 2015; 25 (2): 123-128.
2. Gerste RD, Kaercher Th: Z. prakt. Augenheilk. 34: April 2013.