

# Ocufolin<sup>®</sup> and Retinal Venous Pressure

Dosage: one capsule per day containing 900 µg L-methylfolate and other micronutrient

Martin Ulmann / Gerd Wiesler

August 2021

Aprofol AG

# Glaucoma: so far too much focus on intraocular pressure?

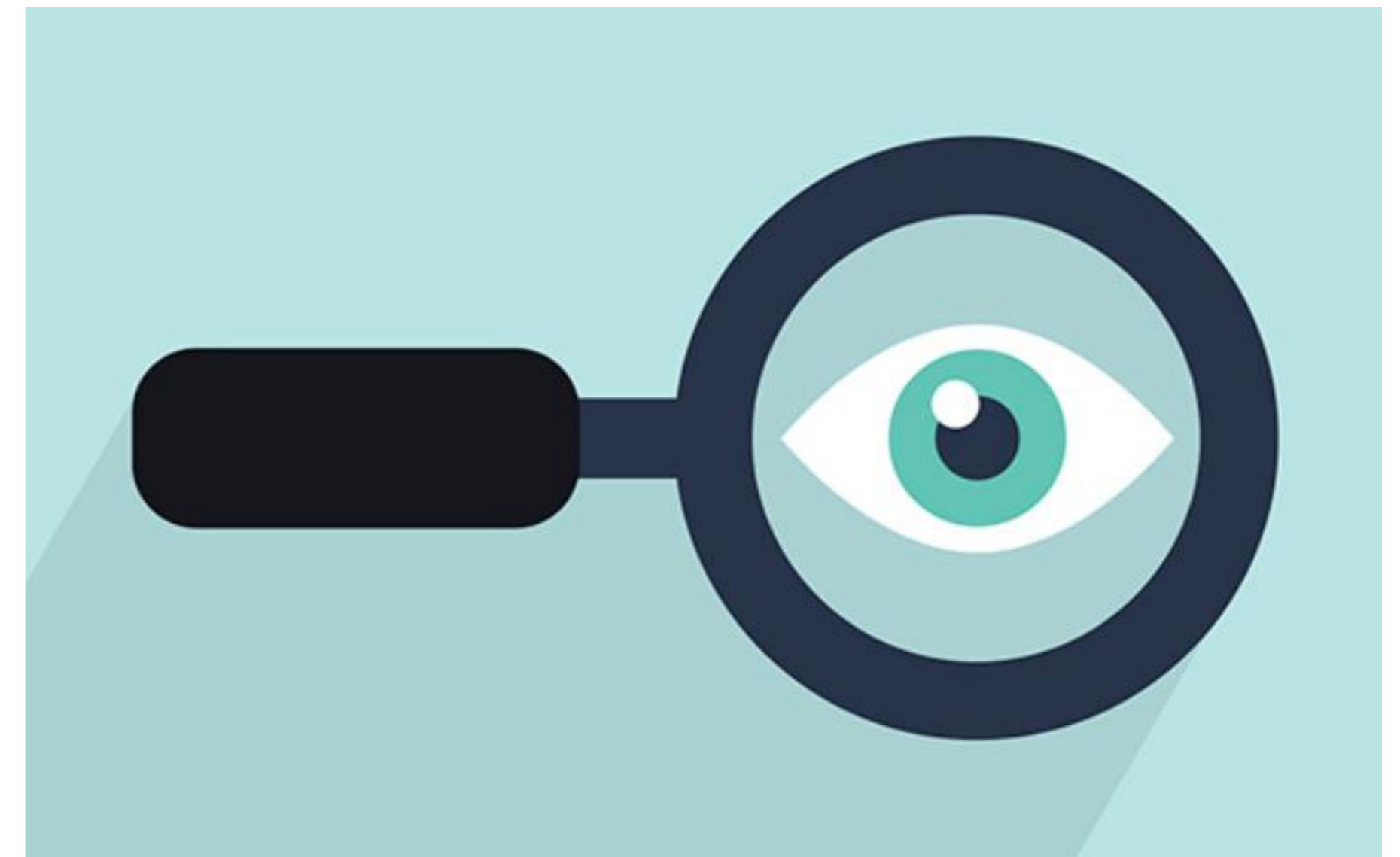


**An elevated retinal venous pressure (RVP) is a further independent risk factor**

Glaucoma is a multifactorial optic degenerative neuropathy characterized by the loss of retinal ganglion cells. It is a combination of vascular, genetic, anatomical, and immune factors.

Glaucoma is a disease that affects the entire optic tract. The most significant risk factors are increased intraocular pressure and impaired regulation of ocular blood flow.

Projections are that the number of 40- to 80-year-olds suffering from glaucoma will increase from 76 million in 2020 to 111.8 million in 2040.

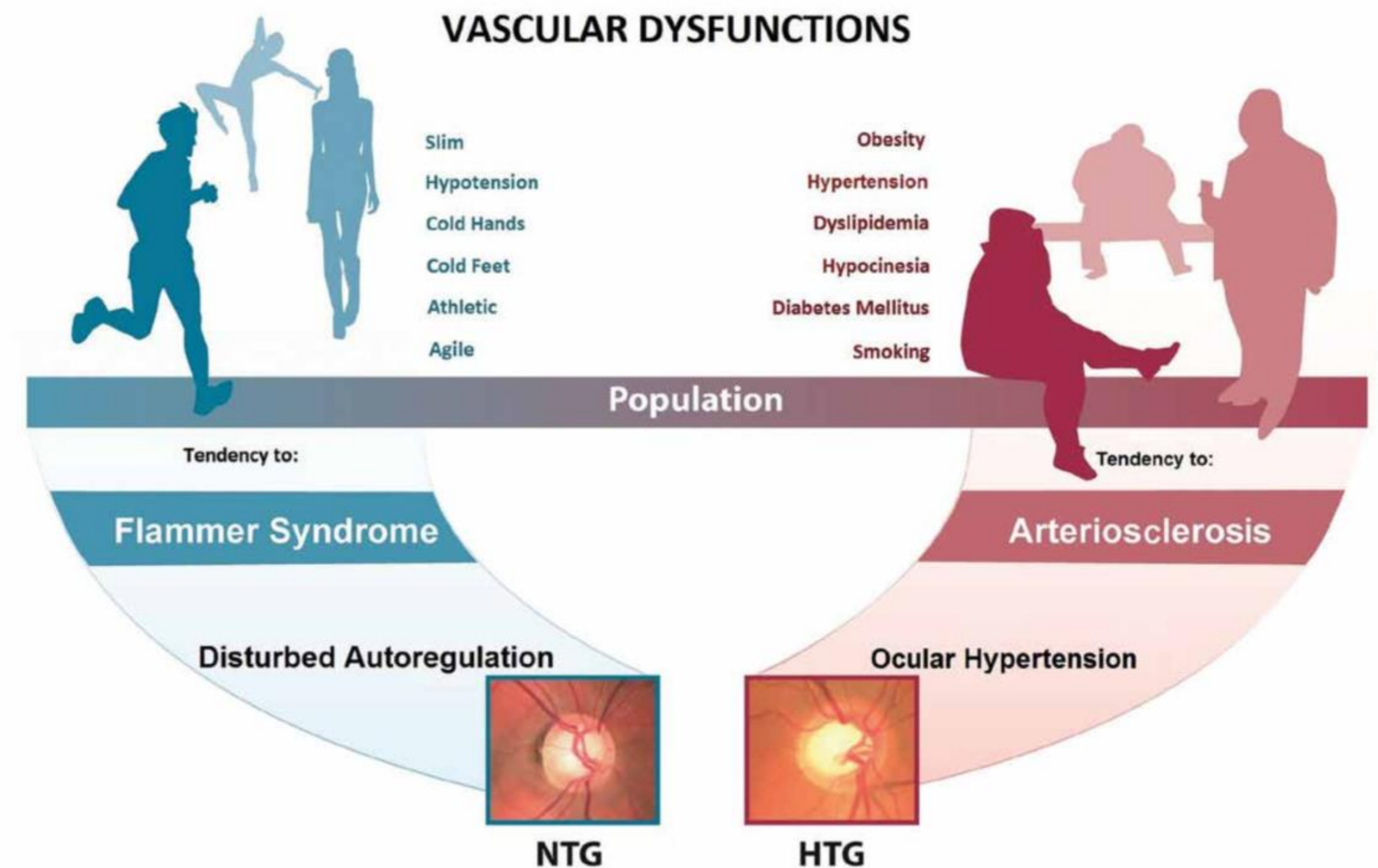


# Glaucoma: Only a Biomechanical Damage?

Autoregulation of blood flow and pressure differences are important



- Intraocular pressure and hyperhomocysteinemia in 30-70% of patients with a form of high tension glaucoma.
- Almost 40% of glaucoma patients have normal intraocular pressure.
- Mismatch of intraocular pressure and optic nerve blood flow.
- Improvement of blood flow regulation, especially in normal tension glaucoma, plays an important role.



Source: Konieczka et al., Ophthalmologische Nachrichten, July 2014.

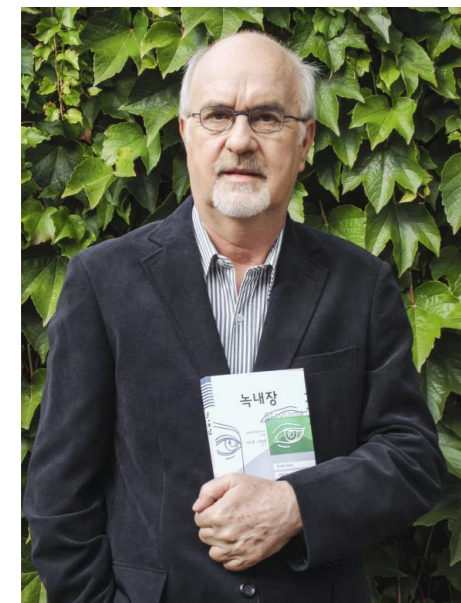
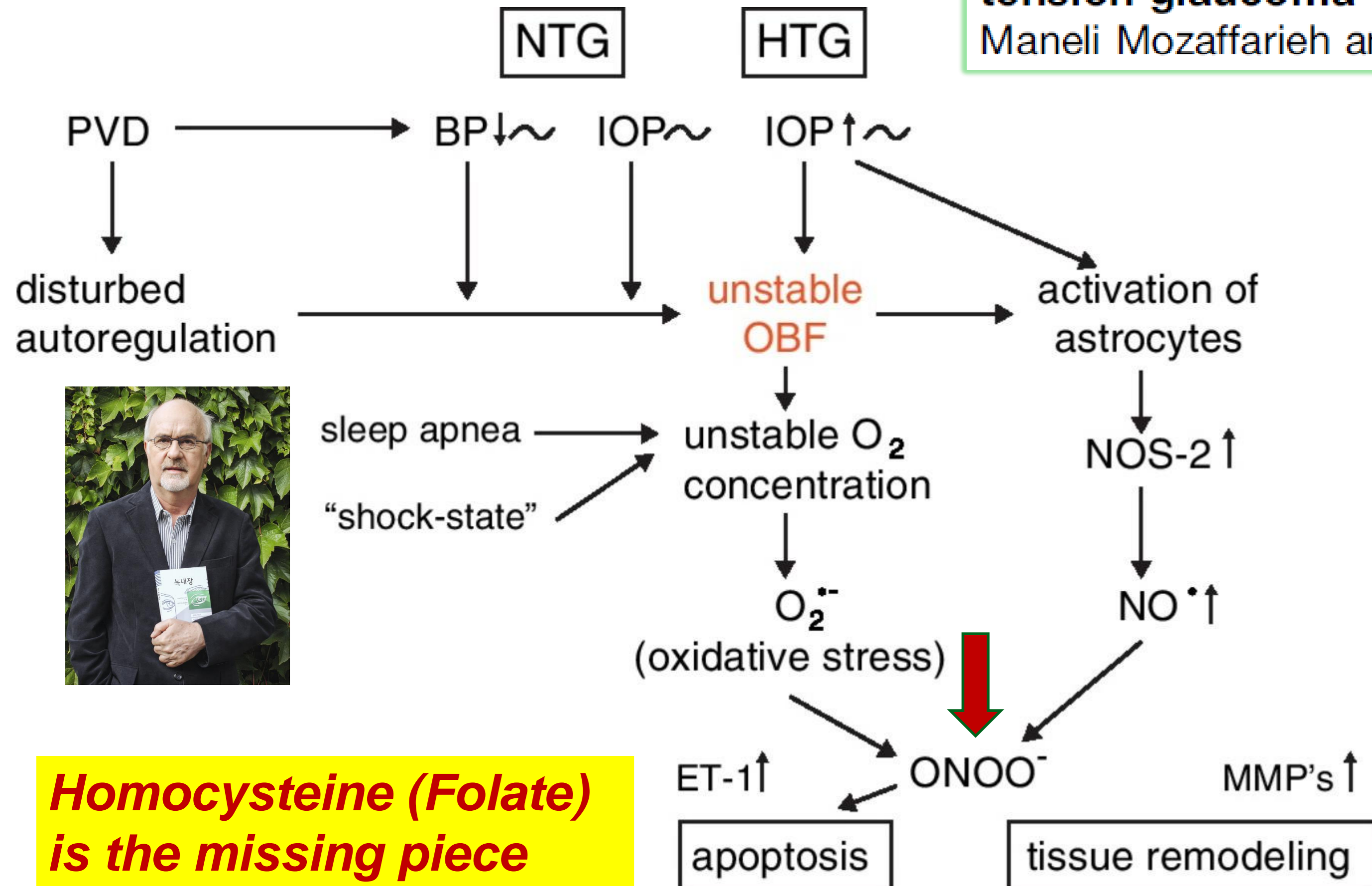
# Blood Flow in the Eye: Hypothesis 2013



*Peroxynitrite / «unstable OBF» => elevated retinal venous pressure (RVP)*

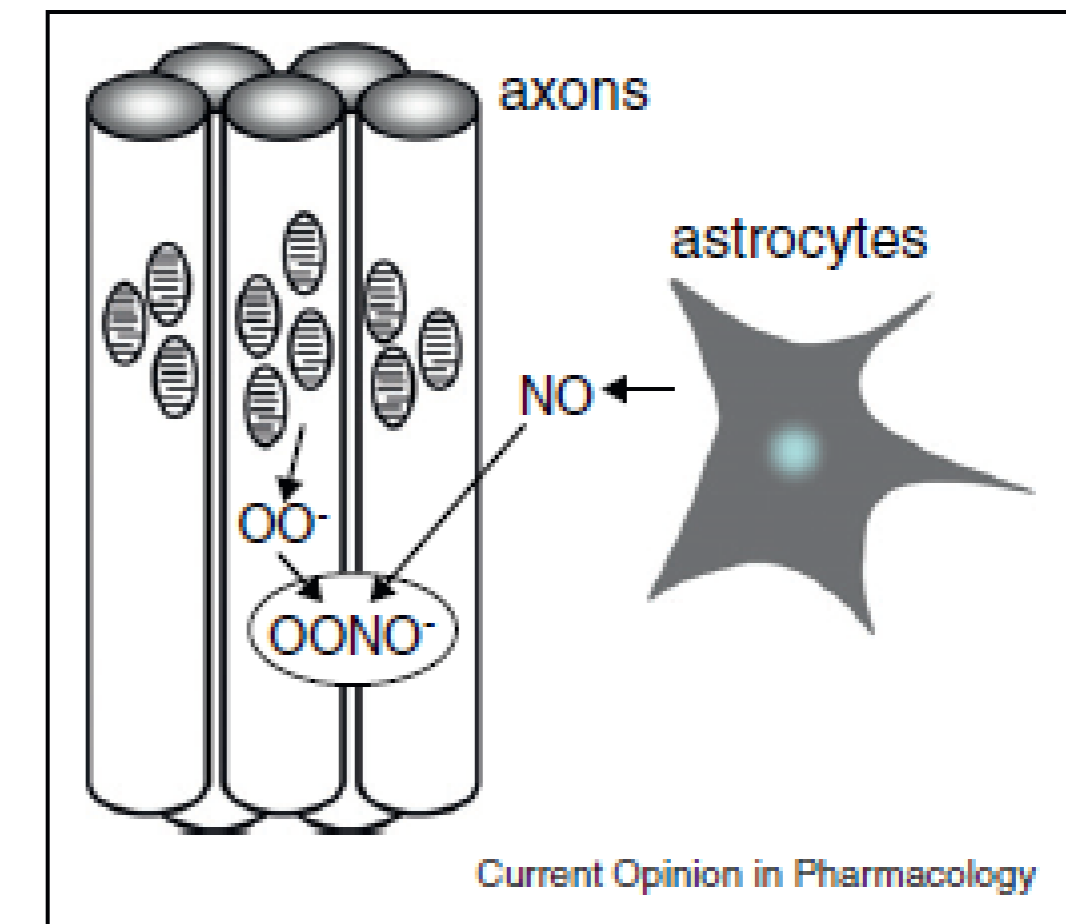
**New insights in the pathogenesis and treatment of normal tension glaucoma<sup>☆</sup>**

Maneli Mozaffarieh and Josef Flammer



**Homocysteine (Folate) is the missing piece**

Figure 2



Formation of peroxynitrite. The reaction between the superoxide anion (O<sub>2</sub><sup>•-</sup>) produced by the mitochondria located numerously in the axons of the optic nerve head and nitric oxide (NO<sup>•</sup>) produces the highly damaging peroxynitrite (ONOO<sup>-</sup>). Peroxynitrite (ONOO<sup>-</sup>) can diffuse within the axons both into the direction of the lateral ganglion geniculate nucleus and towards the retina inducing damage on both sides. Reproduced with permission from Neufeld AH. Surv Ophthalmol 1999;43:S129-35.

# Pilotstudy on Glaucoma

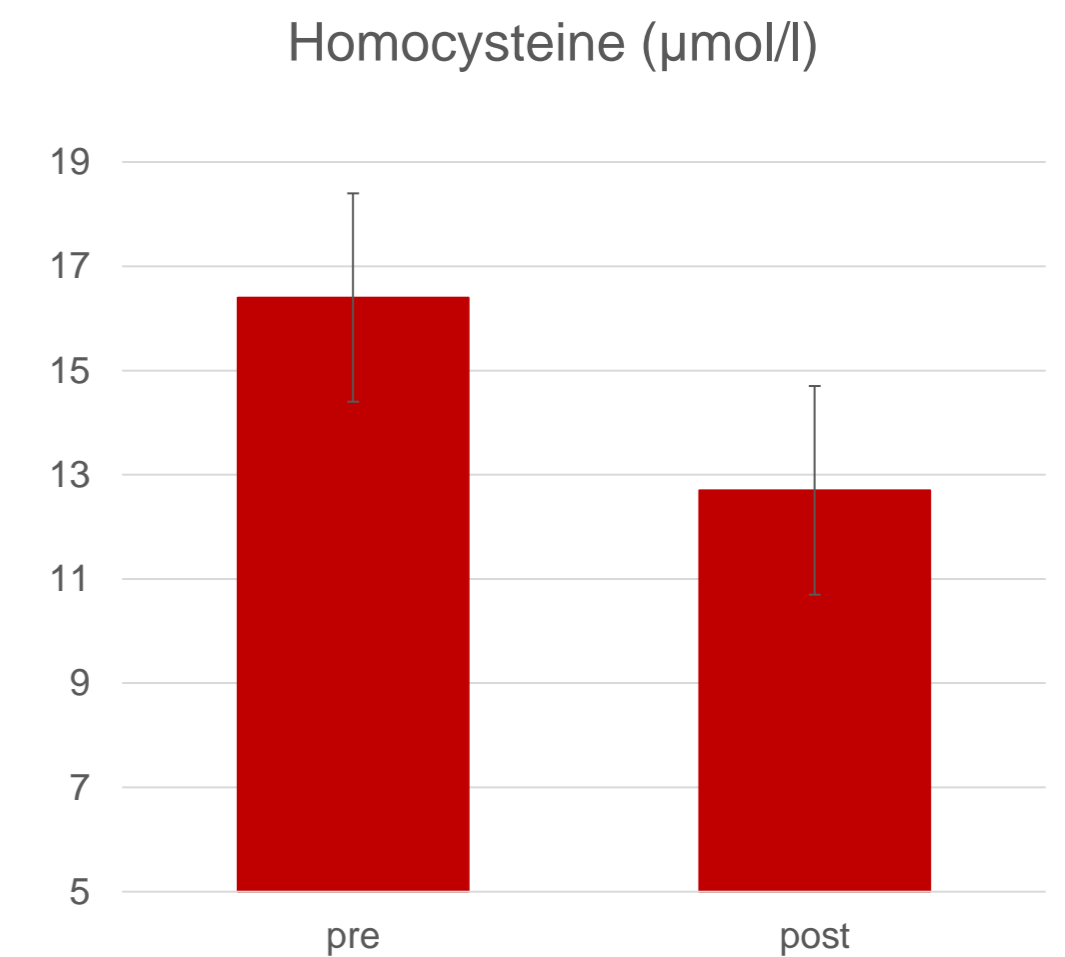
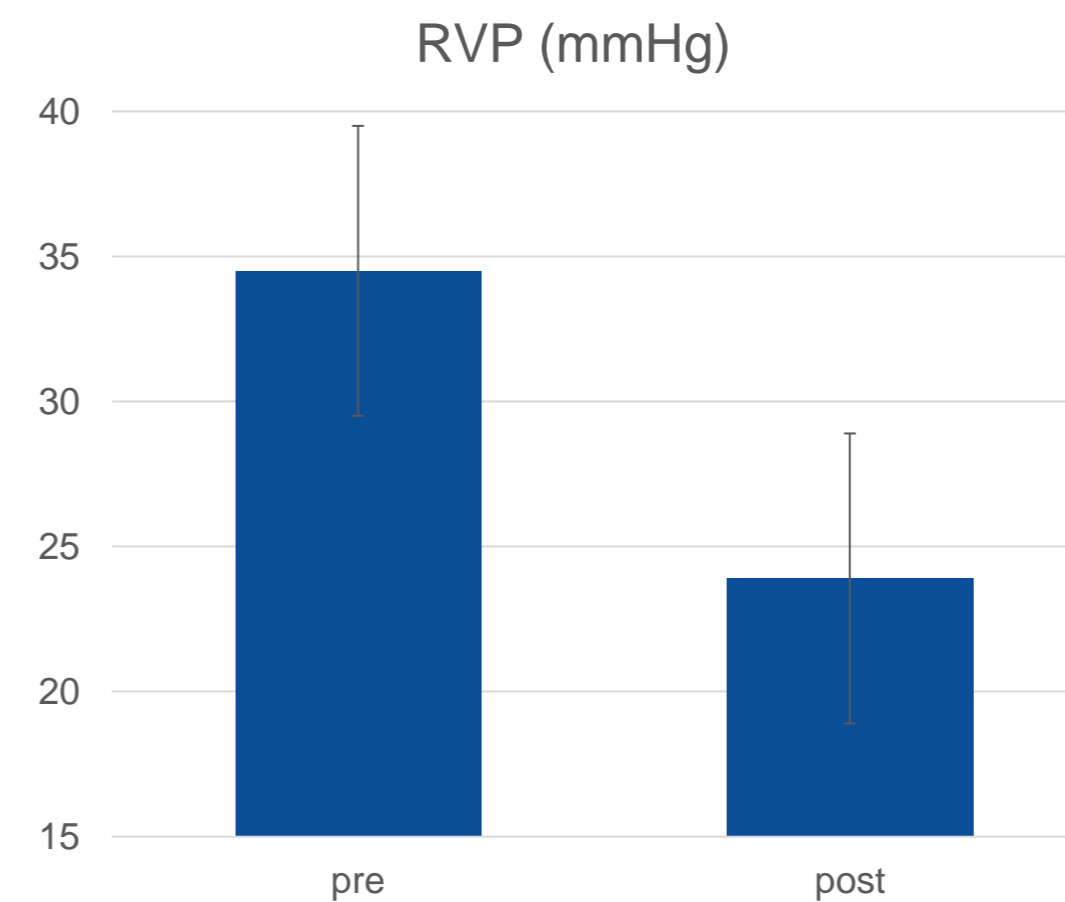
Elevated homocysteine levels in glaucoma patients



23 patients - 12 weeks - one capsule Ocufofin<sup>®</sup> forte per day

Glaucoma Patients with NTG, PACG, PDG, PDS or POAG

- Plasma **Homocystein** decreased from **16.4 ± 3.8 (pre)** to **12.7 ± 3.6 μmol/L (post)** (**p: < 0.01; => significant**)
- **Retinal Venous Pressure (RVP)** decreased from **34.5 ± 16.9 (pre )** to **23.9 ± 8.32 mmHg (post )** (**p = < 0.001; => significant**)



Publication in preparation



## Further Information

**Please find additional information on Ocufofin and the scientific background on:**

<https://ocufolin.shop/en/specialist-portal/videos>

For further information please visit

[www.aprofol.com](http://www.aprofol.com)

**Aprofol AG**

CH-9050 Appenzell

[info@aprofol.com](mailto:info@aprofol.com)

[gerd.wiesler@aprofol.com](mailto:gerd.wiesler@aprofol.com)

or contact us



**Martin Ulmann**

Founder & CEO

[martin.ulmann@aprofol.com](mailto:martin.ulmann@aprofol.com)



**Gerd Wiesler**

Head of Operations