Talkingeyes®- an ISO certified telemedical eye examination network as an effective tool for data collection in clinical research

C. Engler¹, G. Michelson² and Talkingeyes®-Study Group²

¹GKM Gesellschaft für Therapieforschung mbH
Lessingstr. 14, · 80336 Munich, Germany
c.engler@gkm-therapieforschung.de

²Talkingeys®&more GmbH,
Medical Valley Center, Henkestr.91, 91052 Erlangen, Germany
georg.michelson@icloud.com

Disclosure:
GM is founder and owner of Talkingeys® GmbH
CE is an employee of GKM Gesellschaft für Therapieforschung mbH, a commercial full-service CRO
Ophthalmological diagnostic imaging provides a wide range of insight into the course of ophthalmological, internistic and neurological diseases.

Microangiopathic retinal abnormalities correlate with cerebro-cardiovascular risk factors as well as neurodegenerative disorders, such as:

- Metabolic syndrome
- Cardiovascular diseases
- Age & arterial hypertension
- Stroke
- Myocardial infarction
- Alzheimer Disease

**Impact of age on retinal microangiopathic abnormalities in healthy subjects:**

- Prevalences significantly age-dependent
- Focal arteriolar narrowing ($R^2 = 0.963$; $p = 0.035$)
- Generalized arteriolar narrowing ($R^2 = 0.863$; $p = 0.025$)
- Arteriovenous nicking ($R^2 = 0.983$; $p = 0.017$)
- Optic nerve atrophy ($R^2 = 0.983$; $p = 0.017$)

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1. Tien Yin Wong et al., Associations between the Metabolic Syndrome and Retinal Microvascular Signs: The Atherosclerosis Risk in Communities Study. IOVS 2004;45:2949-2954
2. Kamran Ikram et al., Are Retinal Arteriolar or Venular Diameters Associated with Markers for Cardiovascular Disorders? The Rotterdam Study. IOVS 2004;45:2129-2134
3. Harry Leung et al., Relationships between Age, Blood Pressure, and Retinal Vessel Diameters in an Older Population. IOVS 2003;44:2900-2904
What is Talkingeyes®?

Talkingeyes® is a large, established telemedical eye examination network using ophthalmological diagnostic methods:

- More than 32 participating private practices (GPs and ophthalmologists)
- More than 72,000 evaluated patients (since 2009)

Received numerous awards, such as:

- Erlanger Medizintechnik Award 2007
- Innovationspreis eHealth 2008
- Karl-Storz-Telemedizin Award 2012
- Bayerischer Telemedizin Award 2015
Talkingeyes® allows for standardized retinal and anterior segment diagnostic imaging.

- Currently used technologies:
  - Optical coherence tomography (OCT)
  - Fundus color photography for posterior pole imaging
  - Corneal and anterior segment diagnostic imaging methods

- Data are obtained in a standardized manner and uploaded on a server using web-based software (MedStage®).

- Central evaluation by an experienced ophthalmologist using a standardized protocol with defined clinical criteria within three working days.
Potential of Talkingeyes® in clinical research

Great potential for standardized data collection and evaluation in clinical research:

– Epidemiological and observational clinical studies
– Clinical trials

Wide applicability for early detection and follow-up of many diseases

– Ophthalmology (e.g., age-related macular degeneration, glaucoma, diabetic retinopathy and macular edema)
– Internal medicine/Neurology: Detection of retinal microangiopathic and neuronal abnormalities provides information about neurodegeneration in its earliest stages (e.g., arterial hypertension, diabetes, Parkinson’s disease, Alzheimer’s disease, Multiple sclerosis)

Talkingeyes® provides a powerful telemedical resource for fast and effective performance of clinical trials on ophthalmological as well as non-ophthalmological disorders.