

Kongsberg Vision Meeting: Abstracts 2025

Kongsberg Vision Meeting 2025 was held for the 17th time at the University of South-Eastern Norway in Kongsberg on October 20–21. The two-day event focused on clinical optometry and vision research, attracting more than 100 practicing optometrists, 60 final-year optometry students, and several commercial exhibitors, creating a dynamic arena for sharing knowledge and networking.

Keynote speakers included Jan Johansson (Karolinska Institute, Sweden), Hanne-Mari Schiøtz Thorud (University of South-Eastern Norway, Norway), Erik Roberstad (Interoptik Holt, Norway), and Eike Wehling (University of Bergen, Norway). The programme addressed vision problems following acquired brain damage, the expanding role and scope of optometrists in independent prescribing, and clinical approaches to headache management. A dedicated session showcased a decade of research on children's vision in Norway [The Southeast Norway Vision and Visuomotor Study (SNOW)]. Practical skills and applied research were central, with workshops on neurorehabilitation, tear duct irrigation, and binocular vision in schoolchildren. Two panel discussions addressed the evolving role of Norwegian optometrists as independent prescribers, and the importance of using diagnostic drugs in vision examinations in children and adolescents.

The Scandinavian programme was curated by Vibeke Sundling, Bente Monica Aakre, Rigmor C. Baraas, and Helle K. Falkenberg. Abstracts from invited and contributed talks are presented in the order they were given. The meeting reinforced the need for clinical innovation, evidence-based practice, and interdisciplinary collaboration to strengthen primary eye care services.

Visual function problems after brain injury

Jan Johansson

Department of Clinical Neuroscience, Karolinska Institute, Stockholm, Sweden

jan.johansson.1@ki.se

Abstract

Neuro-optometry is a subspecialty within optometry that focuses on the connection between the visual system and the brain. It includes the assessment, identification, and management of visual disorders resulting from neurological conditions or brain injuries. The field covers areas such as eye movement control, accommodation, binocular function, visual-vestibular integration, visual perception and processing, as well as specific eye and brain-related effects seen in individuals with neurological impairment. The presentation provided an overview of visual function problems after acquired brain injury and linked them to patient needs and treatment opportunities. An important aspect is adapting the examination environment and communication style to the patient's cognitive and sensory condition. Treatment strategies are divided into two main categories: relief and restorative vision therapy. Relief aims to reduce visual strain through interventions such as tinted lenses, prism correction, and ergonomic adjustments related to visual tasks. Restorative therapy involves training to improve oculomotor control, binocular function, and visual endurance. Recent research emphasises the importance of early management of

vision-related problems and the role of collaboration with other professionals involved in the rehabilitation process to optimise treatment outcomes.

The association between headaches and uncorrected vision problems in children and adolescents

Hanne Mari Schiøtz Thorud

National Centre for Optics, Vision and Eye Care, Department of Optometry, Radiography and Lighting Design, Faculty of Health and Social Sciences, University of South-Eastern Norway, Kongsberg, Norway

hanne-mari.schiøtz.thorud@usn.no

Abstract

Headaches and uncorrected vision problems are both common among children and adolescents. However, few studies have investigated the potential relationship between these two conditions. Existing research often lacks clear definitions of headache types and vision status, is not well-controlled, and frequently omits appropriate follow-up of participants. The evidence supporting a link between uncorrected vision and the development of headaches remains limited. Consequently, uncorrected vision is typically excluded from both international and national evidence-based clinical guidelines on headache management. However, cross-sectional studies suggest a possible association between uncorrected vision problems and headaches. This potential link warrants further investigation through high-quality, controlled research.

Diagnostics and Rehabilitation of post-stroke visual field loss using Innovative Visual field Evaluation — the impact of losing driving privileges (DRIVE-study) research protocol

Marte F. Rosenvinge¹, Per Lundmark¹, Grethe Eilertsen², Stig Larsen³, Helle K. Falkenberg^{1*}

¹ National Centre for Optics, Vision and Eye Care, Department of Optometry, Radiography and Lighting Design, Faculty of Health and Social Sciences, University of South-Eastern Norway, Kongsberg, Norway

² USN Research group of Older Peoples' Health, Department of Nursing and Health Sciences, Faculty of Health and Social Sciences, University of South-Eastern Norway, Drammen, Norway

³ Meddoc Research AS, Skjetten, Norway

helle.k.falkenberg@usn.no

Abstract

It is challenging for healthcare professionals to recognise acute vision symptoms as signs of stroke. A structured vision assessment is essential to avoid stroke being identified by coincidence. Post-stroke visual field defects (VFD), without other stroke sequelae, are common after stroke, and affect stroke survivors' right to drive. This represents a significant limitation in daily life. The driving ban is often perceived as a challenging consequence of

a stroke. In most parts of Norway, driving is essential for accessing healthcare, buying groceries, maintaining independence, and participating in society. Therefore, the loss of driving privileges poses substantial limitations to everyday life and quality of life. The Norwegian Stroke Care Guidelines recommend vision rehabilitation through compensatory scanning training to improve daily functioning by enhancing saccadic behaviour and visual search. However, there is a lack of knowledge about how vision rehabilitation protocols can be most effective, and furthermore, vision rehabilitation is not standard care offered to all stroke survivors. This study aims to gain knowledge about the effects of home-based compensatory vision rehabilitation in adult stroke survivors who have lost their driving licence due to VFD. The study is designed as a controlled, randomised, stratified trial with a semi-crossover design (ClinicalTrials.gov: NCT07147660). Participants will be randomised into either an immediate or delayed intervention group. Both groups will undergo objective and subjective baseline assessments (including vision assessments and questionnaires), followed by two post-intervention evaluations. Additionally, qualitative data will be collected through individual interviews to explore participants' experiences and expectations regarding vision rehabilitation.

Coping strategies in keratoconus

Elin Lundanes^{1*} Espen Andreas Brembo² Lena Leren¹
Vibeke Sundling¹

¹ National Centre for Optics, Vision and Eye Care, Department of Optometry, Radiography and Lighting Design, Faculty of Health and Social Sciences, University of South-Eastern Norway, Kongsberg, Norway

² Centre for Health and Technology, Department of Nursing and Health Sciences, Faculty of Health and Social Sciences, University of South-Eastern Norway, Drammen, Norway

elin.lundanes@usn.no

Abstract

Keratoconus is associated with reduced quality of life, as evidenced by studies utilising patient-reported outcome measures. However, quantitative data alone may not capture the full complexity of the relationship. Qualitative research offers deeper insight into how individuals navigate the challenges of living with keratoconus. In this study, 13 individuals (six women and seven men) participated in semi-structured individual interviews to explore their experiences of living with keratoconus. The data was analysed using Systematic Text Condensation. Here, we present one of the main findings that emerged through the analysis which captured the participants' coping strategies and may influence their self-efficacy expectations. The strategies presented here reflect those most frequently described by the participants and do not constitute an exhaustive list. The first coping strategy involved the use of both optical and non-optical aids. In addition to primary vision correction, optical aids included computer and reading glasses, filters or sunglasses, and magnifiers. Participants mentioned a range of useful non-optical aids, including mobility sticks, car rear-view cameras, audiobooks, read-aloud software, and simple caps or hats for bright summer days. Other coping strategies included acquiring knowledge about keratoconus and one's own condition, as such understanding could help reduce

emotional stress and worry. Participants accessed information through internet searches and YouTube videos, by consulting eye care professionals, or by reading their own patient records. Additionally, being open about keratoconus was often beneficial in the workplace, as it enabled necessary adjustments. In contrast, openness with family and friends was not always helpful, as they struggled to understand or tended to forget. Avoiding visually demanding situations and activities, such as reading, going to the movies or attending concerts, was also described as a strategy to cope. Finally, cultivating a positive outlook through personally meaningful and enjoyable activities emerged as an important strategy. These included hobbies such as knitting, listening to audiobooks, travelling, hiking, dining with friends, or riding a motorbike. While adopting a positive attitude came naturally to some participants, others described it as a continuous effort requiring daily commitment. Knowledge of coping strategies is essential for optometrists and other eye care professionals to enhance person-centred care and support individuals with keratoconus in managing their condition. Future research is needed to explore the relationship between quality of life and self-efficacy in this patient group.

Spectacles or treatment?

Erik Robertstad

Interoptik Holt, Tønsberg, Norway

erik.roberstad@interoptik.no

Abstract

The challenges and burdens within the eye health sector are expected to increase in the years ahead. Waiting lists for treatment of common eye conditions such as cataract are growing; in some parts of Norway, the waiting time for cataract surgery is as long as 93 weeks. New treatments will further add to the workload in ophthalmology — for example, emerging therapies and medications for dry AMD, myopia, dry eye disease, and presbyopia. Eye diseases predominantly affect the elderly. Norway's population is aging, and the number of people over the age of 67 is projected to rise by almost 500 000 by 2043. In addition, the absolute number of working-age people will decline over the coming decades.

Norway already has a high and increasing number of doctors and nurses compared to neighbouring countries and the OECD average. The number of doctors and nurses per 1 000 inhabitants is 5.2 and 18.3, respectively, while the OECD average is 3.7 and 9.2. The number of ophthalmologists in Norway is also increasing (by 40% from 2012 to 2024).

The public report "Time for Action" (2023) concluded that the health sector must:

- increase the use of medical technology and digital solutions,
- enhance task sharing,
- use available competencies more effectively, and
- ensure that healthcare is delivered at the lowest safe and effective level

A report from Menon Economics concludes that optometrists can manage stable patients, particularly with glaucoma and AMD. Furthermore, task sharing with optometrists may reduce the need for travel, increase capacity in eye departments, and lead to

shorter waiting lists and better geographical coverage of ocular health services. National health service ophthalmologists and doctors currently perform around 1.6 million ocular consultations per year. Previous co-management projects within diabetes and cataract care have shown that optometrists can contribute successfully, significantly reducing both waiting times and travel burdens. A 2025 Kantar survey found that 75% of the Norwegian population believes optometrists should be allowed to prescribe topical eye drops for eye disease.

The Norwegian Optometric Association, the optometric industry, and the University of South-Eastern Norway have formed a therapeutics committee with the aim of enhancing patient care. Their goal is to develop educational programmes that empower optometrists to prescribe therapeutic medications, ensuring timely and effective treatment for individuals with eye diseases. The committee estimates that this initiative could significantly reduce the burden on ophthalmologists, potentially cutting up to one million consultations annually.

Digital co-management platforms are valuable tools for ensuring correct diagnosis and treatment for patients who require ophthalmological or interdisciplinary assessment. However, such platforms can also be time-consuming and incur extra costs for conditions that could have been managed safely and effectively at a lower level of care. In many cases, optometrists already possess the necessary skills to provide treatment independently.

Visual perception and cognition after acquired brain injury

Eike Wehling^{1,2}

¹ Department of Biological and Medical Psychology, University of Bergen, Bergen, Norway

² Department of Physical Medicine and Rehabilitation, University of Bergen, Bergen, Norway

eike.wehling@uib.no

Abstract

Acquired brain injury (ABI) often leads to a range of visual deficits as well as associated perceptual and cognitive deficits that significantly impact the individual's daily functioning. Within rehabilitation settings, there is currently no consensus on when, or based on what symptoms, patients with visual deficits are referred to a vision specialist (ophthalmologist, orthoptist, optometrist) and how results from these examinations are integrated into rehabilitation processes. In 2016, an interprofessional model for comprehensive vision assessment and management was proposed, demonstrating how visual specialists and rehabilitation specialists could collaboratively address vision impairment; however, implementation remains insufficient.

Neuropsychologists are skilled at identifying specific visual perceptual deficits that may arise following brain injury or neurological conditions. Warren's hierarchical model of visual function emphasises the organisation of visual skills from basic to complex, i.e. from visual acuity, visual fields, and oculomotor con-

trol, up to higher-level skills such as visual attention, scanning, pattern recognition, visual memory, and visual cognition. This model underlines that understanding the interrelations of functions is crucial for neuropsychological assessment and the interpretation of results. Additionally, neuropsychologists can assess a patient's level of insight and awareness regarding their deficits. By collaborating closely with other professionals in the rehabilitation team, a neuropsychologist's knowledge can inform how interdisciplinary teams approach patients. By evaluating cognitive processes such as attention, learning and memory, neuropsychologists can provide recommendations for vision rehabilitation which may ultimately contribute to improved treatment for individuals with ABI.

A decade of research on children and vision in Norway

Trine Langaas,* Rigmor C. Baraas,* Ellen Svarverud, Lene A. Hagen, Hilde R. Pedersen, Tina R. Johansen, Gro Horgen, Hanne Mari Schiøtz Thorud, Cecilie Onshuus Bjørset, Stuart J. Gilson

National Centre for Optics, Vision and Eye Care, Department of Optometry, Radiography and Lighting Design, Faculty of Health and Social Sciences, University of South-Eastern Norway, Kongsberg, Norway

[& rigmor.baraas@usn.no](mailto:trine.langaas@usn.no)

Abstract

The Southeast Norway Vision and Visuomotor Study (SNOW) is a longitudinal and ongoing research study that was initiated in 2015 to investigate the development of refractive errors, visual function, and motor- and cognitive skills in children aged 7–16 years. In celebration of its 10-year anniversary, a medley of the various projects included in SNOW was presented.

Data are collected in 2nd, 5th and 10th grades within a school setting, and include cycloplegic refraction, ocular biometry, and comprehensive visual assessments. Fine motor skills (tracking, aiming, and tracing tasks) and cognitive performance (short-term memory, visuospatial memory, and processing speed) were assessed by a tablet computer that supported input through a digital stylus or finger touch.

To date, more than 3,700 children have participated, providing normative, longitudinal data across multiple time points. The results underscore the importance of cycloplegic refraction for accurate diagnosis and suggest that its omission often leads to an underestimation of hyperopia and an overestimation of myopia. The study also explores whether biometric parameters can predict cycloplegic refraction.

Overall, SNOW contributes to insights into the interaction between visual functions, motor skills and cognition in childhood, emphasising the clinical importance of accurate refraction and highlighting the broader implications of eye and visual health for learning and child development.