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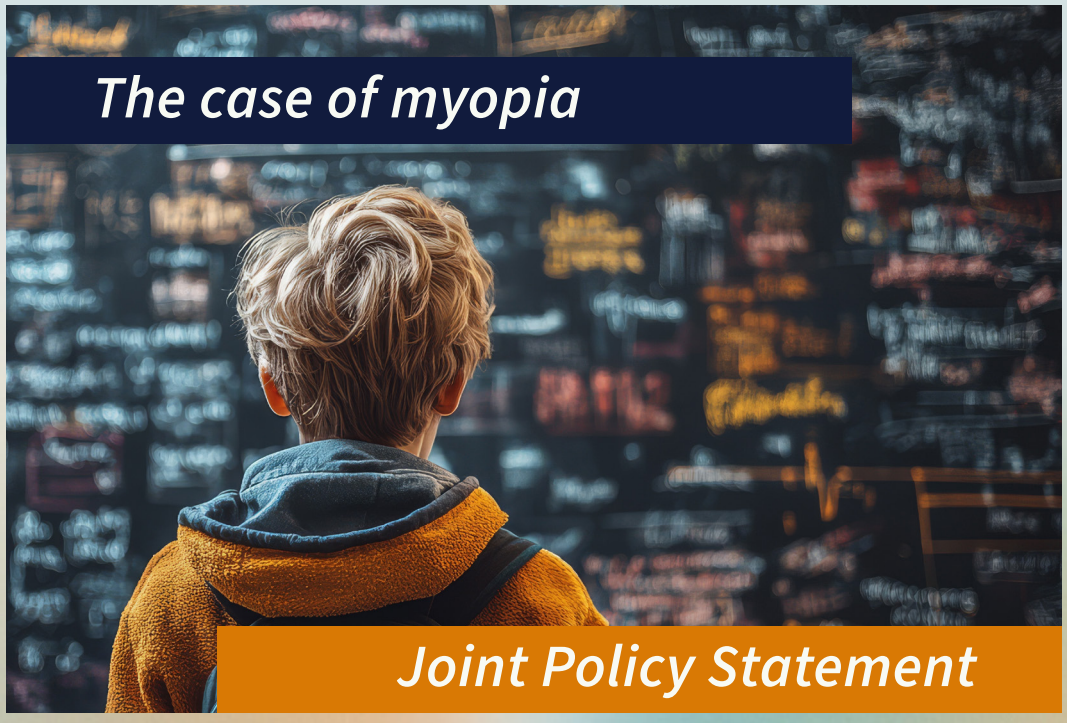
# Adapting to the digital and sedentary world

## Addressing the growing crisis of children's eye health



# Our societies are changing, but eye health is left behind

Digitalisation, urbanisation and sedentary lifestyles are changing the way children and young people interact with the world. With more **time spent indoors** compared to previous generations, and a **growing reliance on screens** for education, entertainment and communication, we are witnessing an **unprecedented rise in children's eye health issues** from a young age. Yet, eye health is often **overlooked** in Europe.

## *This challenge is deeply rooted in every area of the lives of children and young people*

1. While **digitalisation** is providing new learning opportunities in schools, this **double-edged sword** also comes with a risk of eye strain, myopia (near-sightedness) and other issues related to children's health, well-being and ability to learn. Learning environments need to be designed with care to manage these risks.
2. At schools and other educational settings, **outdoor education** is not sufficiently emphasised to support healthy vision development. Outside of schools, **non-formal education**, such as volunteer activities through sports clubs, recreational and youth organisations, plays an important role in mitigating some of the negative effects of modern lifestyles. Yet there is a lack of formal frameworks to recognise their societal value.
3. Especially **outdoor activities** and time away from **screens** positively impact eye health and children's eyesight. Yet, our societies are not investing enough in activities and learning environments that could help address the rising eye health crisis, nor are they adequately recognising the link between these interventions and the growing epidemic of vision problems in children and young people.

While our societies have changed, **eye care services are not keeping up with the challenge.** Access to eye care (e.g., vision screenings, corrective lenses) in Europe remains fragmented and unequal[1], despite many advances in healthcare. The treatment of symptoms is often prioritised over early intervention and prevention, with limited availability of screening programmes to detect eye issues early (e.g., in schools). Many eye care services also rely on high out-of-pocket expenses, placing an increased burden on families and caregivers of the children and adolescents affected. At EU level, the EU Child Guarantee remains insufficient to address the growing needs in eye care. Global-level commitments[2] towards the prevention of vision impairment and blindness, including a United Nations General Assembly resolution on Vision, are yet to result in appropriate access to eye care in Europe.

Safeguarding children and young people from eye health disorders and their potentially life-altering consequences is **not just a health imperative** but a responsibility of governments to ensure the full realisation of the **Rights of the Child.**

While global projections suggest that **up to 50% of the world's population** will be myopic by 2050, school-leavers in Europe are expected to reach this threshold already by 2035[10].

## *Why does this matter?*

While the rise in eye health issues extends beyond myopia (including, for instance, digital eye strain[3]), **progressive paediatric myopia** is particularly worrying as it **can lead to other severe eye health issues later in life**, such as myopic macular degeneration, glaucoma, cataracts, and retinal detachment[4]. If left unchecked, myopia can lead to significant vision loss in adulthood, as well as irreversible vision impairment and even blindness[5, 6].

While the causes are multifaceted, environmental and lifestyle factors, such as **prolonged near-vision tasks (e.g., screens) or lack of time spent outdoors**, are critical contributors to the **progressive deterioration of children's eyesight**[7, 8]. The likelihood of developing myopia increases with near work while every hour of outdoor time per week reduces it by 2%[9]. Finding ways to reduce deteriorating eyesight and myopia will have a significant positive impact on children's vision and eye health in the future and reduce the costs and burden on individuals, their families and society at large.

### *Increased exposure to close-up activities*

- **Close-up tasks**, such as screen usage, have been clinically assessed[15] as a driving force for increased myopia in children and young people.
- Children of ages 5-16 spend an average of **6 to 7 hours per day**[16] on screens – this represents a **150% increase in daily screen time** since 1995, when children in the same age group spent an average of 3 hours per day on screens[16]. Figures are even more startling for children between the ages of 11 and 14, who spend around 9 hours on screens per day on average[17].
- Excessive screen use can **increase the risk of myopia** by as much as 80%[18].

### *Reduced outdoor time*

- Children today spend **less time outdoors**. In the UK, for instance, children engage in 50% less unstructured outdoor activities compared to previous generations, with less than a third playing outside regularly[11] – and Dutch children have seen a **2.5-hour decrease[12] in weekly outdoor time** compared to just two years ago.
- Outdoor exposure – and especially sunlight[13] – is crucial for **proper eye development,** and the decline is directly linked to increasing myopia rates[14].

# A growing crisis in eye health affecting especially children and young people

## Educational impact

If left unaddressed, vision problems limit children's ability to learn and thrive in school, with long-standing consequences late into their careers.

According to research[19] by the International Agency for the Prevention of Blindness and the Seva Foundation, a child with impaired vision **learns only about half as much** as a child with good eyesight. Beyond immediate educational impacts, this also has direct consequences for their **lifetime earnings.**

> *If a five-year-old is provided with glasses in primary school and continues to wear them until they are 18, they will earn, on average, 78% more over their lifetime than if they never had their vision corrected. (IAPB[19])*

## Economic consequences

Vision impairment results in **increased healthcare costs** and added burdens – both to healthcare systems and families. Neglected eye disease in childhood has severe long-term effects if not caught and addressed on time.

**Out-of-pocket expenses:** Coverage for therapeutic appliances like glasses and other eye products is low across European countries. Only 3 EU Member States have government and compulsory insurance schemes covering more than 50% of these expenses[20]. As a result, eye care often comes with significant out-of-pocket expenses for patients, families and parents. For instance, Dutch patients[21] spend around 400 million euros per year on managing their myopia, e.g., through spectacles and contact lenses. Unlike many other conditions or diseases that may result in a one-off or a short-term cost, the chronic nature of myopia translates to a life-long burden.

**Cost for society:** The cost of untreated vision impairment at an early age impacts educational results, which can drastically impact personal income even years later. At a societal level, these economic impacts are multiplied. Analyses project that in Spain, the total

cost of vision-impairing diseases from 2021 to 2030 will amount to €99.8 billion, with similar trends observed in other European countries. The costs – understood as loss of productivity – generated are especially high for pathologies appearing from earlier ages, including high myopia[22].

## Health inequalities

Limited **access to eye care services**[1] (e.g., vision screenings, corrective lenses) – as well as means to mitigate the negative impacts of **sedentary lifestyles** – disproportionately affect vulnerable groups, such as disadvantaged children, migrants, refugees, and rural communities, deepening health inequities.

The EU Child Guarantee[23] recognises that access to medical services in eye care is particularly challenging for children in need, at risk of poverty or social exclusion – ophthalmology being one of the two main areas of concern for disadvantaged children in terms of access to healthcare.

## Mental health and social inclusion

Children with uncorrected vision impairment experience **higher depression and anxiety scores**[24] than other children. Adolescents with myopia have up to **twofold** increased odds of anxiety and mood disorders[25]. Young adults with eye disorders are also at greater risk of **social exclusion, victimisation and bullying**[26] when in school. The concern about having to live with a progressive condition can contribute to anxiety, even in the absence of reduced visual abilities at the time[27].

Visual impairment can limit children and young people's ability to participate in a range of social interactions, including recreational activities and sports[28, 29]. It can affect their ability to engage in cultural activities, navigate public spaces independently, and participate fully in educational and social environments. Ultimately, these elements impact children and young adolescents' self-esteem, potentially affecting long-term **societal integration and participation**[30].

# Our solutions for safeguarding eye health

**Addressing the growing eye health crisis in Europe** requires adjustments in the field of eye care and beyond. Preventing progressive paediatric myopia and other eye diseases often linked to it, requires changes also in the way we shape our digital surroundings, and how we encourage and enable children to spend more time outdoors. Such policy interventions in other countries have already proven to make a positive difference[31].

## 01 *Improve early intervention and prevention through dedicated public health programmes*

Many eye health conditions, such as progressive paediatric myopia, can be **prevented or managed effectively** if caught at an early stage.

By **prioritising early intervention and prevention** through **dedicated public health programmes** – incorporating initiatives for physical activity promotion, public awareness, nutrition education, and disease prevention – decision-makers can reduce the overall burden that eye issues such as myopia will otherwise bring to our societies. Awareness and education campaign resources developed by the World Health Organisation, such as the MyopiaEd toolkit, could guide authorities in such efforts.[32] Early intervention is a cost-effective way[33] of addressing eye issues, with an estimated return on investment being $65 per every $1 invested[34].

Early prevention includes **regular health examinations**. Best practice in this field includes the integration of vision screenings into school health programmes (e.g., in Finland).

### *Our asks*

- Ensure regular vision screenings for children in line with WHO guidelines and integrate eye health in school literacy programmes[35].
- Establish referral pathways and on-time access between primary care, schools, and adequately planned specialised eye care services, including paediatricians.
- Adopt a Council Conclusion recognising the importance of tackling the issue of children and young people's eye health.
- Enhance public campaigns to raise awareness about eye conditions, their causes and preventive measures, and potential future consequences, with a particular focus on reaching parents and caregivers.
- Encourage prevention through a balanced approach to early childhood education by prioritising hands-on, interactive learning experiences in nurseries, kindergartens, and primary and secondary schools which foster digital literacy without relying primarily on screen-based devices, such as described in the HERMMES approach[36].

## 02 *Ensure inclusive eye care policies and tailored approaches to at-risk groups*

Addressing **social determinants of health** is crucial to ensure eye health is part of healthcare management systems, extending beyond educational institutions to help ensure that no child is left behind. There is also a need for **inclusive policies to support at-risk populations** who otherwise might fall out of national healthcare systems (e.g., migrants, disadvantaged families, rural communities).

### *Our asks*

- In line with the concerns conveyed in the EU Child Guarantee, ensure appropriate access and reimbursement frameworks for eye care services to ensure eye health equity in Europe.

## 03 *Increase recognition of the value of non-formal education*

Non-formal education groups such as youth organisations and other community-based programmes play a crucial, yet underappreciated role in **promoting active lifestyles.** Many civil society actors (such as non-profit organisations) positively contribute to mental, physical – and visual – well-being, counteracting the impacts of sedentary lifestyles.

There is a need for decision-makers to **recognise the value of non-formal education** and civil society actors as contributors to eye health and well-being. Whether it is through encouraging young people and children to spend more time in nature or by increasing in-person social interaction, these movements and organisations are key in contributing towards better eye health outcomes at societal level. Finding ways to further support such organisations would thus be crucial.

**Parents and family members** also have a role to play in supporting young people's eye health. They can inspire healthy habits by spending time together outdoors, modeling positive behaviours, and creating opportunities for natural light exposure.

### *Our asks*

- Increase the recognition of non-formal education, for instance through funding initiatives to non-formal education programmes and organisations dedicated to outdoor activities.
- Promote a system of recognition, validation and accreditation of learning outcomes and benefits (e.g., on health) acquired through non-formal education and informal learning. Set up a common framework for formal and non-formal structures that allows for equivalencies between formal and non-formal learning outcomes.
- Promote outdoor activities for at least 2 hours per day to reduce myopia risk[37].
- Expand access to parenting resources to empower caregivers to create a supportive environment for early childhood development.

## 04 Promote eye-friendly learning environments

While **digital education** is a part of today's learning environments, it needs to happen **responsibly** - not at the expense of teacher-led and in-person learning or the health of learners[38]. Learning environments should also enable young people to acquire digital competencies through various methods, including those that don't heavily rely on screen-based media[36]. In cases where screen-based learning is beneficial, it is also important for schools to have **appropriate physical settings** for digital learning (e.g., suitable and natural lighting, big screens), and for education providers to ensure **frequent screen breaks**. **Prolonged near-vision activities** (e.g., excessive screen time) should be limited, for instance, through the promotion of **outdoor exposure and outdoor education** for children, and by guaranteeing outdoor playtime in schools. Equipping teachers with the right training and tools to bring learners out of the classroom could provide an avenue of action.

### Our asks

- Enable educators and parents to facilitate age-appropriate and balanced use of digital devices.
- Raise awaraness among educators, parents and children on the negative impacts of digitalisation and encourage eye-friendly digital deivce use.
- Promote fostering digital literacy (e.g., critical and computational thinking) without the use of screen-based devices.
- Incorporate interactive and immersive elements in digital education to encourage active participation and reduce prolonged screen focus.
- Strengthen European frameworks for Outdoor Education, including teacher training for outdoor learning.

## 05 Embrace healthy digitalisation and eye-friendly digital solutions

**Technology can be part of the solution** to the eye health crisis, rather than just a contributor. In an increasingly digitalising world, we need to find ways to mitigate the negative effects of screens[39] – while acknowledging the positive impacts of digital tools that are here to stay. Research indicates that digital educational content can help promote healthier habits and higher engagement with real-world activities[40].

Innovative platforms blending digital and the real world demonstrate how digital tools can bridge the gap between technology and real-life exploration. Apps and digital tools using gamification, digital storytelling, immersive and interactive challenges encourage kids to engage with museums, parks, and cultural sites – helping them **shift between near and far vision** and reducing eye strain naturally. Initiatives like "edutainment" – a blend of education and entertainment – are proving that children learn better when actively engaged[41]. Parents and educators should lead by example on how to interact with digital devices, and be empowered to use tools that promote physical learning and movement, real-world discovery, and social interaction, rather than passive screen consumption[42].

### Our asks

- Encourage the development of digital tools that promote movement and outdoor experiences, rather than passive screen use.
- Integrate gamified educational experiences into outdoor and out-of-school activities to increase engagement with surroundings.
- Support edutainment initiatives that balance digital learning with real-world exploration.
- Incentivise tech companies to develop eye-friendly digital solutions that help prevent eye issues.

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# Contributors

**This Joint Policy Statement was developed by the following coalition of stakeholders:**

- International Agency for the Prevention of Blindness (IAPB)
- European Parents' Association (EPA)
- World Scouting (WOSM)
- Retina International
- Santen
- Sightsavers
- World Society of Paediatric Ophthalmology and Strabismus (WSPOS)
- CloudGuide
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