



EVIDENCE SEARCH RESULTS

Question/subject of request:	<p>Research into the effectiveness of the standard eye test for people with dyslexia or other neurodiverse conditions. Has there been any research into alternatives/other options. This stems from a conversation with ophthalmology about the test that they use, and some of the issues that have arisen.</p> <p>There is no proposed new tool as such yet, as there is more research to be undertaken. The eye test used currently is 'one size fits all' so we are looking at bringing some people together to discuss needs. Having already had an interesting discussion with the practitioners themselves about the limitations.</p>
Date requested:	21/7/25
Date completed:	4/8/25
Compiled by:	Jess Pawley

CITING THIS SEARCH

If you reference this search in any paper, publication or presentation, please let us know.

The citation format is:

- Pawley, J., (2025). *Evidence summary: Standard eye test for people with dyslexia or other neurodiverse conditions*. Taunton, UK: Somerset Foundation Trust Knowledge and Library Services.

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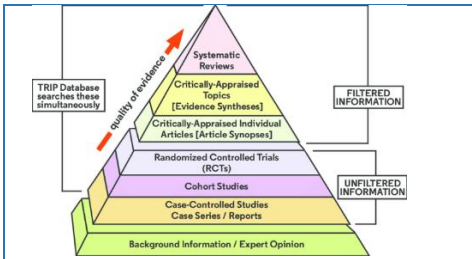
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The results are presented according to the hierarchy of evidence which is used to rank the relative strength of results obtained from scientific research.

The design of the study and the endpoints measured affect the strength of the evidence.

Evidence hierarchies are often applied in evidence-based practices and are integral to evidence-based medicine.

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Contents (click to jump to each section):

Summary of search results:

This summary has been generated in part using AI.

There is not very much out there on this.

A few sources state that as dyslexia is a neurological, language problem, rather than a vision problem, there is no need for a different or specialised eye test for this.

When looking more widely at neurodiversity/neurodivergence, this yielded a few more results.

I considered looking at the general effectiveness of the standard eye tests but felt this may go too far off-topic and not be relevant. **If you would like me to do this, please let me know.**

I have included evidence around how to make the eye test experience more comfortable for those with neurodiversity. This type of evidence appeared more frequently than that related to changes to the eye test itself.

It could be that different types of tests are needed, rather than an adaptation to the existing eye test. Some examples of these are below and include:

E chart/tumbling E chart

Jaeger chart

Landolt C

Lea Test

Monoyer chart

Sloan letters

There is general caution advised against the use of “vision therapy” or “behavioural optometry”, as this is widely regarded as “pseudoscience” and has limited evidence on its usefulness. One area where it is felt to be of use is in convergence insufficiency, which is a known issue in people with dyslexia. **If helpful, I can look more into this.**

[Full results are below.](#)

I hope this is helpful. Please do let us know if you need any further information.





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These results of this search will only be shared in the repository if you have given your permission to do so (we ask this in the evidence search request form).

Thank you.



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Results

[Visual function deficits in dyslexic children: a case-control study](#)

Darvishi et al, BMC Ophthalmology, 2025

Very small study comparing ophthalmic findings Between dyslexic and non dyslexic children aged between 7 and 10 years old.

There were 32 children in each group and each group underwent a complete ophthalmic examination.

“The paper concluded that dyslexic children exhibited decreased contrast sensitivity and impaired stereoacuity compared to controls. These findings support the theory of magnocellular system deficits in dyslexia.”

Further research is required.

[Visual perception in dyslexia is limited by sub-optimal scale selection](#)

Johnston et al, Scientific Reports – Nature Research, 2017

This research explored visual impairments in readers with dyslexia, focusing on object segmentation and its impact on visual word form recognition. The study found that segmentation is impaired in dyslexic readers, particularly in tasks involving motion information. It posits that the mechanisms underlying scale selection are impaired in developmental dyslexia. Participants struggled with motion or form tasks when segment sizes were below a spatial resolution limit, regardless of reading skill, and coherence thresholds improved with larger segment sizes. Dyslexic readers showed a



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slower rate of improvement in motion tasks and required larger segment sizes for performance to stabilize. The study concludes that while a basic spatial resolution limit affects all readers, dyslexic individuals have a specific impairment in visual segmentation involving motion, due to deficits in scale selection mechanisms.

[Do picture-based charts overestimate visual acuity? Comparison of Kay Pictures, Lea Symbols, HOTV and Keeler logMAR charts with Sloan letters in adults and children.](#)

Anstice Nicola S., Jacobs Robert J., Simkin Samantha K., Thomson Melissa, Thompson Benjamin, Collins Andrew V. *PloS one* 2017;12(2): e0170839.

PURPOSE Children may be tested with a variety of visual acuity (VA) charts during their ophthalmic care and differences between charts can complicate the interpretation of VA measurements. This study compared VA measurements across four pediatric charts with Sloan letters and identified chart design features that contributed to inter-chart differences in VA. **METHODS** VA was determined for right eyes of 25 adults and 17 children (4-9 years of age) using Crowded Kay Pictures, Crowded linear Lea Symbols, Crowded Keeler logMAR, Crowded HOTV and Early Treatment of Diabetic Retinopathy Study (ETDRS) charts in focused and defocused (+1.00 DS optical blur) conditions. In a separate group of 25 adults, we compared the VA from individual Kay Picture optotypes with uncrowded Landolt C VA measurements. **RESULTS** Crowded Kay Pictures generated significantly better VA measurements than all other charts in both adults and children ($p < 0.001$; 0.15 to 0.30 logMAR). No significant differences were found between other charts in adult participants; children achieved significantly poorer VA measurements on the ETDRS chart compared with pediatric acuity tests. All Kay Pictures optotypes produced better VA ($p < 0.001$), varying from -0.38 ± 0.13 logMAR (apple) to -0.57 ± 0.10 logMAR (duck), than the reference Landolt C task (mean VA -0.19 ± 0.08 logMAR). **CONCLUSION** Kay Pictures over-estimated VA in all participants. Variability between Kay Pictures optotypes suggests that shape cues aid in optotype determination. Other pediatric charts offer more comparable VA measures and should be used for children likely to progress to letter charts.

[Dyslexia & Vision Evaluation | Reading Struggles Solutions](#) – not sure about this one? High risk of bias as they are a specific company.

[Is There an Eye Test for Dyslexia? Unravelling the Truth — Eye Academy](#)

“No, the idea of an eye test for dyslexia is a persistent myth, as dyslexia is primarily a language-based disorder. However, visual stress, a condition characterised by discomfort and perceptual distortions when reading, may coexist with, or be mistaken for dyslexia.”

[Visual difficulties - British Dyslexia Association](#)

[Dyslexia Eye Sight Test](#)- Zack'sEyes.co.uk – “Optometrists cannot diagnose dyslexia, but we can provide help with poor binocular control and visual stress experienced by some patients with dyslexia and other learning difficulties.”



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Use of Alternative Visual Aids

Instead of traditional letter charts, use picture-based charts, “illiterate E” charts, or number-based charts for individuals who may struggle with letters or verbal responses

Tumbling E or Landolt C charts are helpful for non-verbal patients or those with limited literacy.

- [How to support neurodiverse people in practice - College of Optometrists](#), 2023 – this is a very limited abstract and I am trying to obtain the full document
- [Best Eye Exam Practices for Patients with IDD](#)s (intellectual and developmental disabilities) – Eyes on Eye Care, 2023

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DATABASES AND INFORMATION SOURCES USED				
x	Pubmed		HMIC	BMJ Best Practice
x	Medline		Social Policy and Practice	Cochrane Library
	Emcare		CINAHL	x TRIP
	Embase		PsycINFO	x Grey Literature British Dyslexia Association The Dyslexia Association KnowledgeShare NHS FAB
	AMED		UpToDate	x Other CoPilot AI

PURPOSE OF SEARCH		
	Patient info/health & well being	Clinical decision making (inc. patient care)
	Executive Team support	Research/Education/Professional development
x	Quality Improvement	Primary Care & Neighbourhoods Directorate support
	KM/Management decision making	Other





USER CATEGORY OF REQUESTOR			
	Medical students		Patients/public
	Nursing/midwifery students		Physician Associates
	Doctor/Psychiatrist		Public Health (Somerset CC)
	Nurses/Midwives	x	Other
	Allied Health professionals		

HAS PERMISSION TO SHARE THE RESULTS BEEN OBTAINED FROM THE REQUESTOR?			
x	YES - share		NO – do not share

KEY WORDS/SEARCH STRATEGY INCLUDING MESH HEADINGS	LIMITS USED
Visual function deficits Visual acuity Visual stress Specialist reading assessments Vision test Eye test Global visual selective attention cerebral visual impairment Binocular status Efferent vision therapy Vision therapy Dyslexia Neurodiversity/Neurodiversities Neurodivergen*	

