

Embracing neurodiversity- informed dentistry.

Part one: Raising awareness

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Key points

- Neurodiversity refers to the infinite variation of brain functioning within the population.
- This is the first of five articles aimed at all members of the dental team to raise awareness of neurodiversity.
- Raising awareness enables a more accessible and inclusive culture in dentistry which reduces the potential for inadvertent discrimination.

Introduction

This series on neurodiversity is intended for all members of the dental team, aiming to promote more accessible and inclusive dental settings for patients and staff. This first article, released within Neurodiversity Celebration Week, 13–19 March 2023,¹ intends to raise awareness by providing basic information on neurodiversity, covering terminology and conditions, debunking myths, and highlighting inequalities. Further articles in the series will cover the impact on oral health and oral hygiene behaviours, reasonable adjustments which can be made for patients, the increased vulnerability to trauma, as well as considering the impact of the workplace and educational settings on staff and dental students with neurodiversity.

1. What is neurodiversity and why does it matter?

Neurodiversity is short for neurological diversity. It refers to the biological fact that brains are unique and have many different ways in how they process information and interact with environments. Neurodiversity is used as a term to cover a broad category of conditions in which the growth and development of the brain is affected (neurodevelopmental).

People without neurodevelopmental conditions are referred to as 'neurotypical' and those with such conditions as 'neurodivergent'. Neurodivergent people tend to behave, think, feel, process, and interpret information in ways that differ to most other people. The group of neurodivergent people is referred to as the neurominority group.

It is estimated that around one in seven people (approximately 15% of the general population) are in the neurominority group.²

The Neurodiversity Movement advocates for equality and inclusion for neurominorities. The concept is about recognising and respecting brain differences as any other human variation such as gender, ethnicity, faith, or sexual orientation. The movement celebrates and embraces all kinds of minds and recognises that there is not just one 'right' way to think and perceive the world. We should therefore be making it easier for people of all neurotypes to gain access to dentistry, either as a patient or

into the profession.

The dental team are not expected to be 'experts' in neurodiversity but there is a need to increase awareness and understanding. A lack of awareness can reinforce negative stereotypes and create barriers, which in turn can lead to discrimination and inequalities.^{3,4} Neurominorities have had to adapt to a neurotypical world, often described as feeling like they are left-handed in a right-handed world. Designing dental settings that consider individual differences in brain functioning can enable every patient to access dental care, and every member of the profession to thrive.

2. Neurodevelopmental conditions

Neurodiversity is complex, with a wide range of conditions falling within this term. The condition(s) may cause effects that are wide-ranging, plus varying in intensity and magnitude between individuals with the same condition. Most forms of neurodivergence are experienced

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along a spectrum and many neurominorities have higher than average abilities in specific mental processes, such as hyper focus, creativity, or enhanced ability to recall information. The conditions in Figures 1–6 are not exhaustive but serve to provide an introduction.

Other conditions include learning disability (which has a varied effect on learning, decision making, problem solving); developmental language disorder (which includes speech and language difficulties); Foetal Alcohol Spectrum Disorder (which may affect learning, emotions, and behaviour); traumatic brain injury and many more.

3. Co-occurrence of neurodevelopmental conditions

It is important not to define an individual by any neurodevelopmental condition, as there is a high degree of variation between people who share the same condition. In addition, it is the norm, not the exception, for neurodevelopmental conditions to co-occur,⁵ and therefore many symptoms will overlap. Any assumptions about an individual's experiences, requirements or capabilities should not be made based on any specific diagnostic label. Given this information, it is advised that the dental team take a 'whole person' approach to gain a full understanding of the specific needs of each person with neurodiversity (Fig. 7).⁵

4. Debunking myths

Neurominorities face being stereotyped according to the more 'well-known' and negative characteristics associated with their condition(s). Below, we provide facts to cancel assumptions made based on specific diagnostic labelling and challenge the common myths.

Myth #1: Neurodiversity is all about learning disability and autism only

Fact:

- Neurodiversity recognises the biological differences in the way people think, learn, behave and feel. It does not focus solely on learning disability and autism only
- Too often training for dental teams focuses on learning disability and autism only. This fails to appreciate or understand the many other neurodevelopmental conditions, which could lead to inadvertent discrimination, and increase inequalities.

Myth #2: Neurominorities are all alike

Fact:

- The way people think, behave, feel, and process information is unique to the individual. Neurominorities may exhibit their condition(s) in different ways based upon their gender, race, culture, sexuality etc

Autistic Spectrum Disorder (ASD) or Autistic Spectrum Condition (ASC) (includes Asperger's Syndrome)

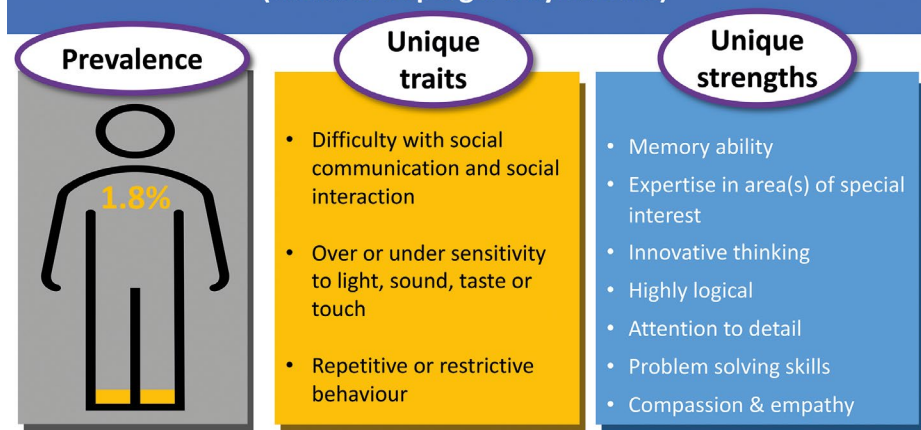


Fig. 1 Autistic Spectrum Disorder (ASD) or Autistic Spectrum Condition (ASC) (includes Asperger's Syndrome)

Attention Deficit Hyperactivity Disorder (ADHD)

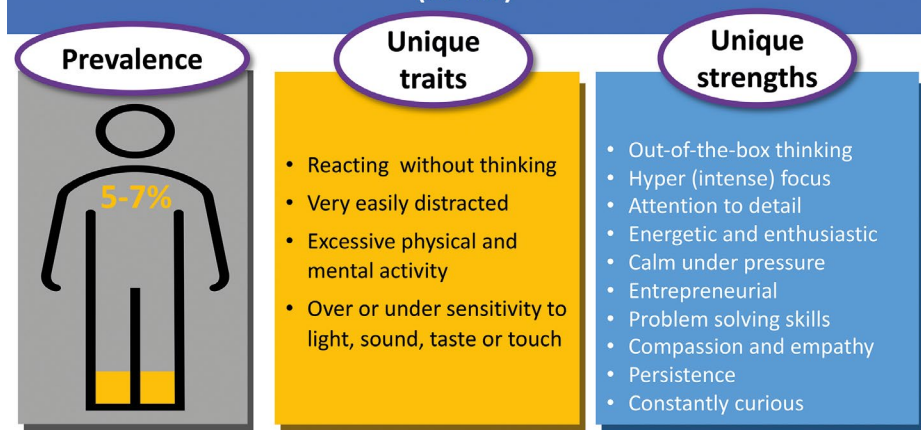


Fig. 2 Attention Deficit Hyperactivity Disorder (ADHD)

Tic Disorder (includes Tourette Syndrome)

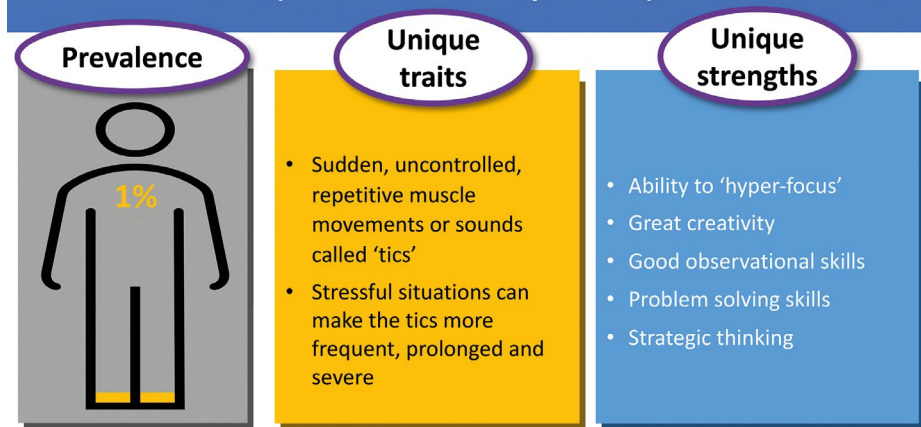


Fig. 3 Tic Disorder (includes Tourette Syndrome)

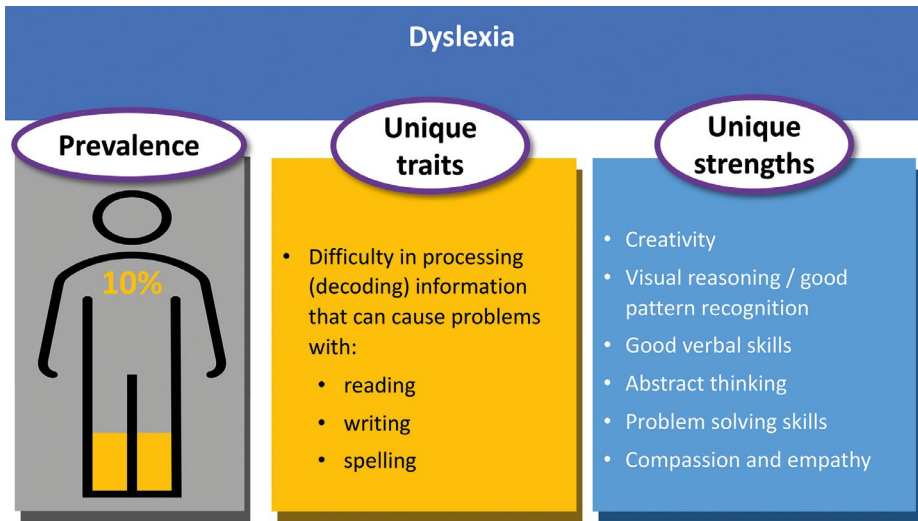


Fig.4 Dyslexia

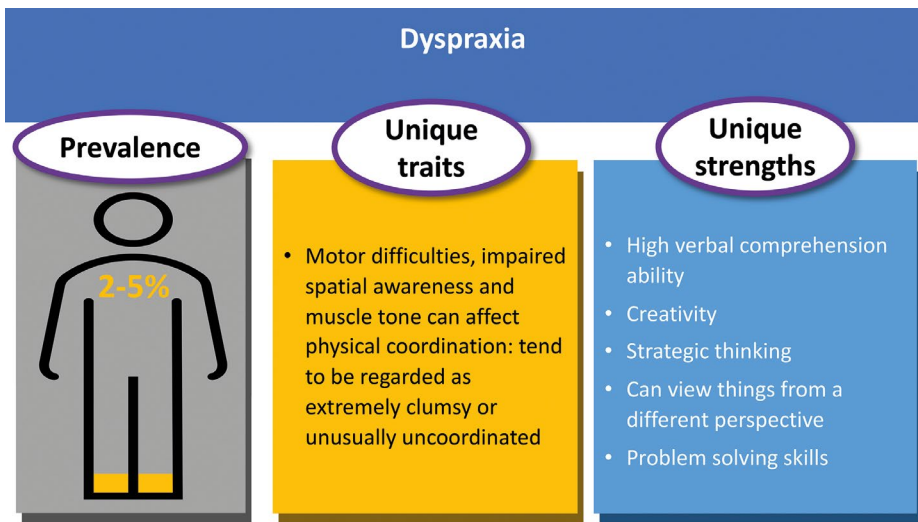


Fig.5 Dyspraxia

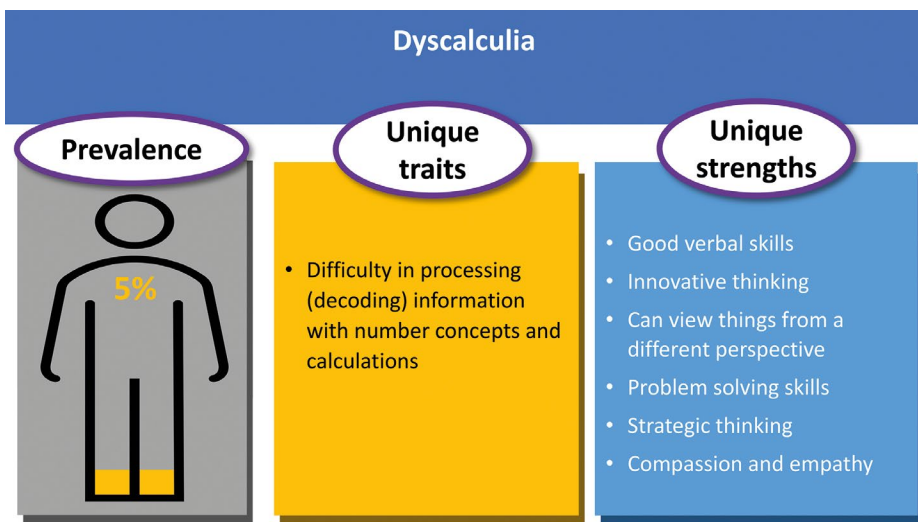


Fig.6 Dyscalculia

- Some individuals may have neurodivergent traits that they 'mask' (hide) in order to fit into society's standards of neurotypical behaviour
- Therefore, the challenges and barriers which an individual can face in a dental setting are unique to them.

Myth #3: Neurodiversity affects intelligence and success in life

Fact:

- This is a great misconception. Whilst neurominorities may experience challenges and difficulties, they can possess talents that give them great potential, and many are high achievers. They may face stigma, bias and discrimination which greatly affects their ability to both enjoy good health (including oral health) and to achieve their full potential
- Some examples of famous and successful neurominorities include Oscar-winning actor Sir Anthony Hopkins, Olympic gold medallist Simone Biles, climate activist Greta Thunberg.

Myth #4: Neurodiversity is a mental illness

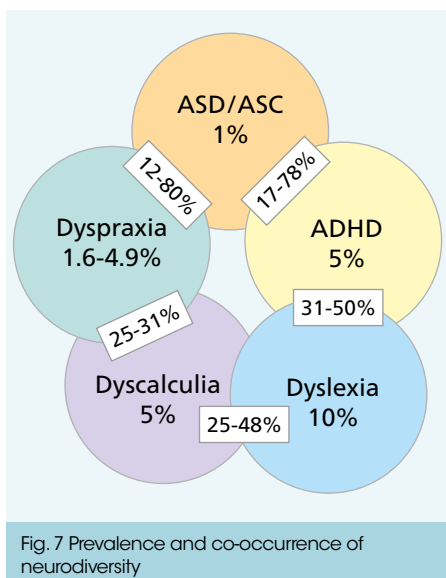
Fact:

- Neurodiversity affects the way people think, feel, behave, and process information. It does not mean that neurominorities are mentally ill
- However, some neurominorities are unfortunately more at risk of experiencing mental ill health due to:
 - ◆ Difficulties with mood and emotional regulation, with fewer resources and/or support to help neurominorities develop positive coping skills
 - ◆ Stress and exhaustion in constantly trying to 'fit in' to environments or meet expectations of the neurotypical world
 - ◆ Sensitivity to stimuli like loud and bright environments or difficulty in reading people, leading to significant stress or anxiety
 - ◆ Difficulties coping with stigma and discrimination from society and services.

Myth #5: Neurodiversity only affects males

Fact:

- Research around neurodiversity has predominantly used a male lens leading to a diagnostic gender bias, meaning that females are at a disproportionate risk of not receiving a clinical diagnosis – particularly for neurodiversity conditions like ADHD and autism. This is despite studies demonstrating that females are just as likely to have these conditions which leads to concerns about



under-diagnosis

- Due to the research bias, females were misunderstood as they presented symptoms different to males. Females are more likely to develop coping mechanisms such as 'masking' that can be accepted as socially 'normal'
- The indirect discrimination can have many consequences and after years of struggling to cope, they can develop mental health issues that could derail their lives.

Myth #6: Neurodiversity only affects children

Fact:

- Neurodevelopmental conditions are life-long, although their symptoms may change (improve or worsen) throughout life
- It was once thought that children would grow out of ADHD as they developed and matured. It is now known that ADHD symptoms can continue throughout a person's life. While some children may be able to learn strategies on effectively managing their symptoms, giving an appearance that their symptoms have improved, they still grow up to be adults with ADHD and their symptoms may worsen later in life due to stress, health or environmental situations they are in.

Myth #7: All neurominority patients should be referred to the Special Care Dental Service

Fact:

- Neurodiversity is highly complex and individual.
- Most neurominorities can and are currently being treated in a primary dental care setting. They should not be discriminated from accessing dental services and reasonable adjustments should be made to

accommodate them

- Occasionally, their oral healthcare needs may be more complex necessitating a referral to the Special Care Dentistry Service.

Myth #8: Neurominorities are poor communicators

Fact:

- It's true that some neurominorities can struggle with social skills but that's not to say that they aren't good at communicating
- The truth is that many neurominorities just have a preferred way of communicating that most people aren't used to, or struggle to understand. Some neurominorities may struggle to understand social cues, whilst others can be quite blunt with what they say. Some may have trouble with verbal communication which can be due to anxiety, or just needing more time to process any information that they receive verbally.

'Awareness of neurodiversity is about understanding neurominorities and their unique needs...'

Myth #9: Only autistic people have sensory processing issues with light, sound, taste or touch

Fact:

- While it is common for autistic people to struggle with over or under sensitivity to sensations, current estimates indicate that 5% to 16.5% of the general population can have symptoms associated with sensory processing challenges. However, these estimates are higher for neurominorities, particularly those with ASD and ADHD
- As dental settings can be overwhelming environments for those with sensory processing difficulties, consideration should be given to the design of the physical environment in order to ensure that it is accessible to everyone.

Myth #10: Everyone is a little autistic or ADHD from time to time

Fact:

- Anyone can become distracted, impulsive or hyperactive some of the time. Perhaps even experience ADHD-like symptoms due to

chronic stress, perimenopause and trauma.

This is not the same as being autistic or having ADHD

- Statements like: 'Everyone has a little bit of ADHD these days!' serve to dismiss the struggles of those with ADHD as their symptoms can be intensive, and the magnitude of the challenges are greater
- Saying that you have a 'little ADHD' because you get distracted is like saying that you have a little depression because you get sad. The difficulties faced by ADHD people are consistent and don't just present themselves some of the time.

5. Inequality and neurodiversity

Neurominorities can face substantial health inequalities, are less likely to be satisfied with the healthcare they receive, or to understand and be understood by health professionals.⁶ The totality of oral health research suggests that there are higher levels of unmet dental needs across multiple forms of neurodiversity.⁷

According to Neurodiversity Hub, 78% of neurominorities experience difficulty at their place of learning, with the main challenges being:

- Fitting in socially (60%)
- Learning difficulties (55%)
- Communication difficulties (51%).⁸

GMB Union reported that seven in ten neurominorities have experienced discrimination in the workplace.³

6. Neurodiversity-informed dentistry

Awareness of neurodiversity is about understanding neurominorities, their experiences and their unique needs. Neurodiversity-informed dentistry should not be about doing 'x' for ADHD individuals and doing 'y' for dyslexic individuals.

Neurodiversity-informed dentistry is about a more accessible and inclusive culture where neurodivergence is understood, accepted, and destigmatised for the benefit of dental patients and all those working within or seeking to join the dental profession.

7. Next in the series

When dental teams have a better understanding of neurodiversity, it can lead to improved:

- Dental care experiences
- Oral health outcomes
- Motivation to learn new skills.

There are many simple adjustments that can be made to support neurominority patients and staff. The next article in the series will look at how we best support neurominority patients in gaining improved oral health.

References

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3. GMB Union. Neurodiversity in the Workplace: thinking differently at work. 2018 Available at: https://www.gmb.org.uk/sites/default/files/neurodiversity_workplace_toolkit.pdf (accessed March 2023).
4. NHS England. Meeting the healthcare needs of adults with a learning disability and autistic adults in prison. September 2021 Available at: <https://www.england.nhs.uk/wp-content/uploads/2021/09/B0707-meeting-the-healthcare-needs-of-adults-with-a-learning-disability-and-autistic-adults-in-prison.pdf> (accessed March 2023).
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6. Doherty M, Haydon C, Davidson I A. Recognising autism in healthcare. *Br J Hosp Med* 2021; **82**: 1–7.
7. Andrews F. An integrative review to explore the facilitators of oral health behaviours and access to dental services for adults in the UK with Applied and Clinical Neurodiverse Profiles. Under review, 2022.
8. Neurodiversity Hub. What is neurodiversity? Available at: <https://www.neurodiversityhub.org/what-is-neurodiversity> (accessed March 2023).

Useful resources: Dyscalculia & Dysgraphia

- Dyscalculia Association: <http://www.dyscalculiaassociation.uk/>
- Dyscalculia: <https://www.dyscalculia.org/>
- Dysgraphia: <https://www.hff.org.uk/resources-and-guidance/learning-difficulties-and-other-needs/dysgraphia/>
- Dysgraphia Life: <https://www.dysgraphia.life/what-is-dysgraphia>
- Support for Dysgraphia: <https://www.youtube.com/watch?app=desktop&v=Lqb6VXODP14>

Useful resources: ADHD

- ADHD Foundation: <https://www.adhdfoundation.org.uk/>
- ADDitude: <https://www.additudemag.com/>
- How to ADHD: <https://www.youtube.com/c/HowtoADHD>
- ADHD sucks, but not really: <https://www.youtube.com/watch?v=fWCocjh5aK0>
- This is what it's really like to live with ADHD: https://www.ted.com/talks/jessica_mccabe_this_is_what_it_s_really_like_to_live_with_adhd_jan_2017?language=en
- ADHD in women: <https://www.webmd.com/add-adhd/adhd-in-women>
- What does ADHD in women look like? <https://psychiatry-uk.com/adhd-in-girls-and-women/#:~:text=ADHD%20really%20does%20look%20different,chatty%20ones%E2%80%9D%20and%20more%20social>
- The lost girls: 'Chaotic and curious, women with ADHD all have missed red flags that haunt us': <https://www.theguardian.com/society/2020/nov/02/the-lost-girls-chaotic-and-curious-women-with-adhd-all-have-missed-red-flags-that-haunt-us>

Useful resources: Dyspraxia

- Dyspraxia Foundation: <https://dyspraxiafoundation.org.uk/>
- Dyspraxia and employment: <https://dyspraxiafoundation.org.uk/advice/employment/>
- Dyspraxia Education: <https://www.dyspraxia-ed.co.uk/>
- Dyspraxia – information for employers: <http://www.movementmattersuk.org/dcd-dyspraxia-adhd-spld/developmental-disorders-documentation/dcd-and-employment.aspx>
- What is Dyspraxia? <https://www.youtube.com/watch?app=desktop&v=h6tPlQ3Kac4>

Useful resources: ASD/ASC

- How to be autistic: <https://www.youtube.com/watch?v=bdlj3UbPr1Q>
- How Hannah Gadsby's high-functioning autism works: <https://www.youtube.com/watch?app=desktop&v=5IXbpgU9OWk>
- Autism at university – being an autistic student: <https://www.bristol.ac.uk/blackwell/news/2020/autism-at-university-being-an-autistic-student.html>
- Autistica: <https://www.autistica.org.uk/>
- National Autistic Society: <https://www.autism.org.uk/>
- Ambitious about Autism: <https://www.ambitiousaboutautism.org.uk/>
- Autism Society: <https://autismsociety.org/>
- Autism Speaks: <https://www.autismspeaks.org/what-autism>
- Autism Toolbox: <https://www.autismtoolbox.co.uk>

Useful resources: Dyslexia

- British Dyslexia Association: <https://www.bdadyslexia.org.uk/>
- Dyslexia in education: <https://www.bdadyslexia.org.uk/advice/adults/in-education>
- Dyslexia in the workplace: <https://www.bdadyslexia.org.uk/advice/adults/in-the-workplace>
- Made by Dyslexia: <https://www.madebydyslexia.org/>
- What is Dyslexia? <https://www.youtube.com/watch?app=desktop&v=zafiGBrFkRM>
- See dyslexia differently: <https://www.youtube.com/watch?app=desktop&v=11r7CFik2sc>
- Reading and the brain: <https://www.readingrockets.org/shows/launching/brain>
- Spelling and dyslexia: <https://www.readingrockets.org/article/spelling-and-dyslexia>

<https://doi.org/10.1038/s41407-023-1785-6>