ADDITUDE
Strategies & Support for ADHD and Beyond

How Joint Hypermobility Links Neurodivergence, Chronic Pain, Inflammatory Disorders, and Anxiety

May 29, 2025
Podcast #560

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Meet today's expert speaker:

Dr. Jessica Eccles

Dr. Jessica Eccles is a researcher at the department of Neuroscience at Brighton and Sussex Medical School in the United Kingdom. Her areas of expertise include brain-body interactions, joint hypermobility, liaison psychiatry, and neurodevelopmental conditions.

Dr. Eccles trained in medicine at the University of Cambridge and the University of Oxford, which sparked a keen interest in philosophy and brain-body interactions. She completed her PhD in the relationship between joint hypermobility, autonomic dysfunction, and psychiatric symptoms. She is a recognized expert in brain-body medicine, is a researcher and educator, and is chair of the Neurodevelopmental Psychiatry Special Interest Group at The Royal College of Psychiatrists.

Dr. Eccles and her team have published papers on the brain-body interactions between neurodivergence, emotion regulation and proprioception (the body's ability to sense its own position and movements without having to rely on visual input alone), and the role of neurodivergence and inflammation on chronic fatigue in adolescents. Read Dr. Eccles' full bio here.

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Disclosures

- Dr Eccles' research has been funded by a number of research charities and grants council
- She has no other disclosures

Who am I?

Dr Jessica Eccles (MB ChB, Dip(French), MA, MSc, FRCPsych, PhD, PGCert HE)

Reader in Brain-Body Medicine

brighton and sussex medical school

ADHD aware

Research areas: Neuroscience, Neurodivergence, Mechanisms of chronic pain and fatigue, Psychiatric and neurodevelopmental features of connective tissue disorders

Neurodivergent Brain-Body Clinic

NHS Sussex Partnership NHS Foundation Trust

SEDS Connective

The Big Idea

The big idea
Health, mind and body books

The big idea: should we drop the distinction between mental and physical health?

The current false dichotomy holds back research and stigmatises patients

Edward Bullmore

Mon 12 Sep 2022 12.30 BST

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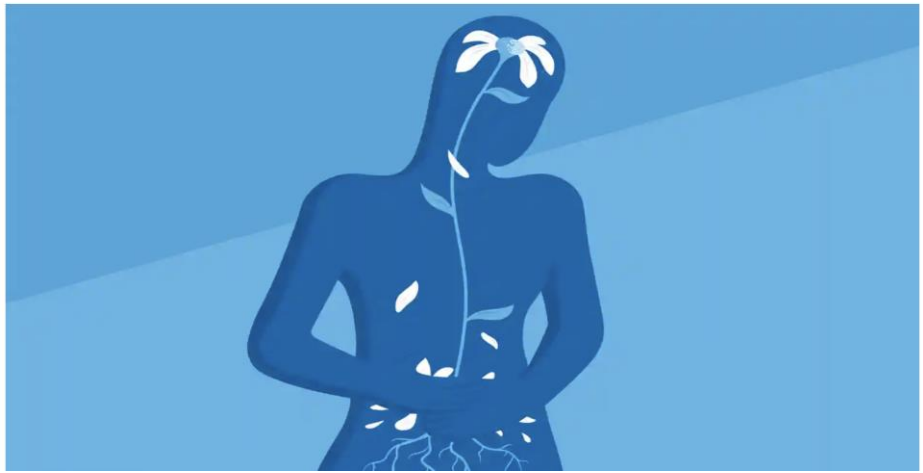

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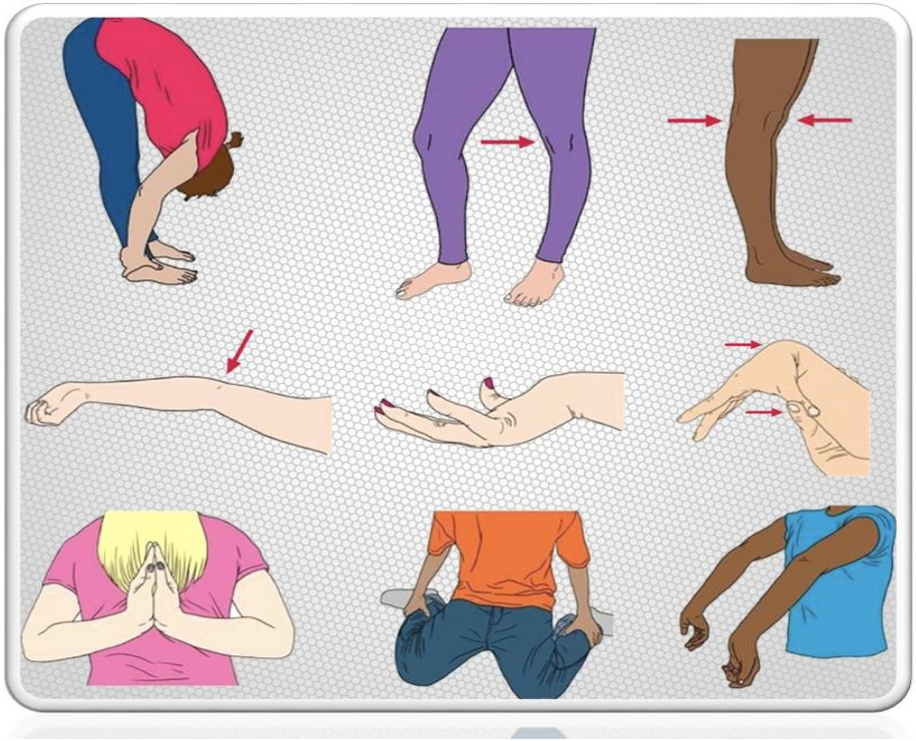
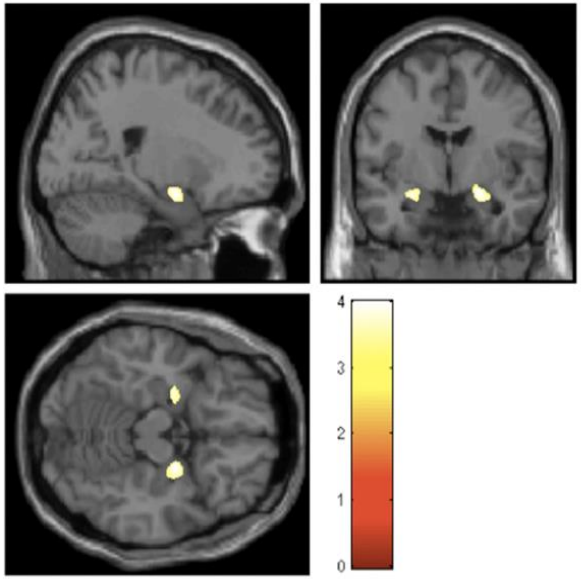


More than just having flexible joints → Relatively common → Can be advantageous

Also linked to a variety of medical issues → These issues cross systems and involve both the body and the brain → Variety of classification and screening tools

Table 3
Clinical Spectrum of EDS-HT/JHS (Hamonet et al., 2014; Colombi et al., 2015).

Osteoarticular	i.e. mild scoliosis, flat foot, lumbar hyperlordosis, joint hypermobility
Muscular	i.e. hypotonia, fibromyalgia, recurrent myalgias and cramps, dystonia
Mucocutaneous	i.e. mildly hyperextensible skin, velvety/silky/soft skin texture, striae rubrae and/or distensae in young age, small or post-surgical atrophic scars, Keratosis pilaris, hernias, light blue sclerae, gingival inflammation/recessions, hypoplastic lingual frenulum, easy bruising, resistance to local anaesthetic drugs
Gastrointestinal	i.e. dysphagia, dysphonia, reflux gastroesophageal, gastritis, unexplained abdominal pain, food intolerances
Cardiovascular	i.e. varicose veins, low progressive aortic root dilatation, pseudo-Raynaud's phenomenon, mitral valve prolapse
Urogynaecological	i.e. dyspareunia, dysmenorrhea, urinary stress incontinence, meno/metrorrhagia.
Ocular	i.e. myopia, strabismus, palpebral ptosis.
Dental	i.e. dental neuralgia, gingivitis, temporo mandibular joint pain, dental pains to cold/warm.
Neuropsychiatric	i.e. dysautonomia, clumsiness, proprioceptive dysfunction, paresthesia, headache, fatigue, sleep disturbances, cognitive impairment, anxiety, hyperaesthesia, hyperosmia, hyperacousis.



RC PSYCH
ROYAL COLLEGE OF PSYCHIATRISTS
BJPsych The British Journal of Psychiatry

Brain structure and joint hypermobility: relevance to the expression of psychiatric symptoms

Jessica A. Eccles, Felix D. C. Beacher, Marcus A. Gray, Catherine L. Jones, Ludovico Minati, Neil A. Harrison and Hugo D. Critchley

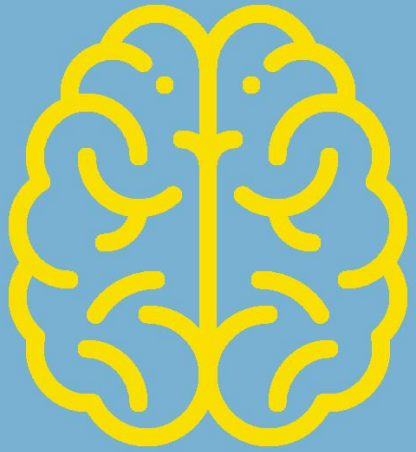
BJP 2012, 200:508-509.
Access the most recent version at DOI: 10.1192/bjp.bp.111.092460

brighton and sussex medical school

POTS: Postural Orthostatic Tachycardia Syndrome

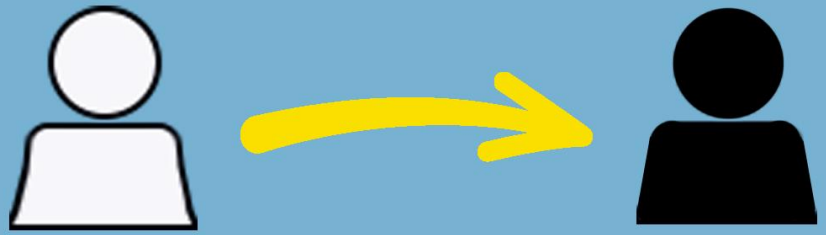
increase in heart rate from the supine to upright position 30 beats per min (40 in <18 years)

Relationship with variant connective tissue and phenomenology of anxiety



When this part of our nervous system works differently, mental health problems are more likely to develop

A new study has found a link between hypermobile joints



and an increase in the risk of depression and anxiety in adolescence

Functional Brain Imaging

HMS participants showed lower neural reactivity to emotional faces in specific frontal regions

The frontal lobe is the control centre of the brain

UKRI Medical Research Council

Notably, interaction between HMS and anxiety was expressed in reactivity of left amygdala (a region implicated in threat processing) and mid insula (representation of inner bodily state). Activity was heightened in HMS patients with generalised anxiety disorder.

Severity of hypermobility in anxious, compared to non-anxious, individuals correlated with activity within anterior insula

These results suggest in anxiety in hypermobility there is abnormal fronto-limbic reactivity.

A similar pattern can be seen in ADHD.

Review > World J Psychiatry. 2021 Oct 19;11(10):805-820. doi: 10.5498/wjp.v11.i10.805.

Connecting brain and body: Transdiagnostic relevance of connective tissue variants to neuropsychiatric symptom expression

Harriet Emma Clare Sharp [1], Hugo D Critchley [2], Jessica A Eccles [1]

> Am J Med Genet C Semin Med Genet. 2021 Dec;187(4):500-509. doi: 10.1002/ajmg.c.31957. Epub 2021 Nov 22.

Variant connective tissue (joint hypermobility) and dysautonomia are associated with multimorbidity at the intersection between physical and psychological health

Jenny L L Csecs [1 2], Nicholas G Dowell [1], Georgia K Savage [1 2], Valeria Iodice [3 4], Christopher J Mathias [3 4 5], Hugo D Critchley [1 2], Jessica A Eccles [1 2]

What we are learning about ND

Gender stereotypes are complex and a challenge

Not just boys, bus timetables and fidgeting…..

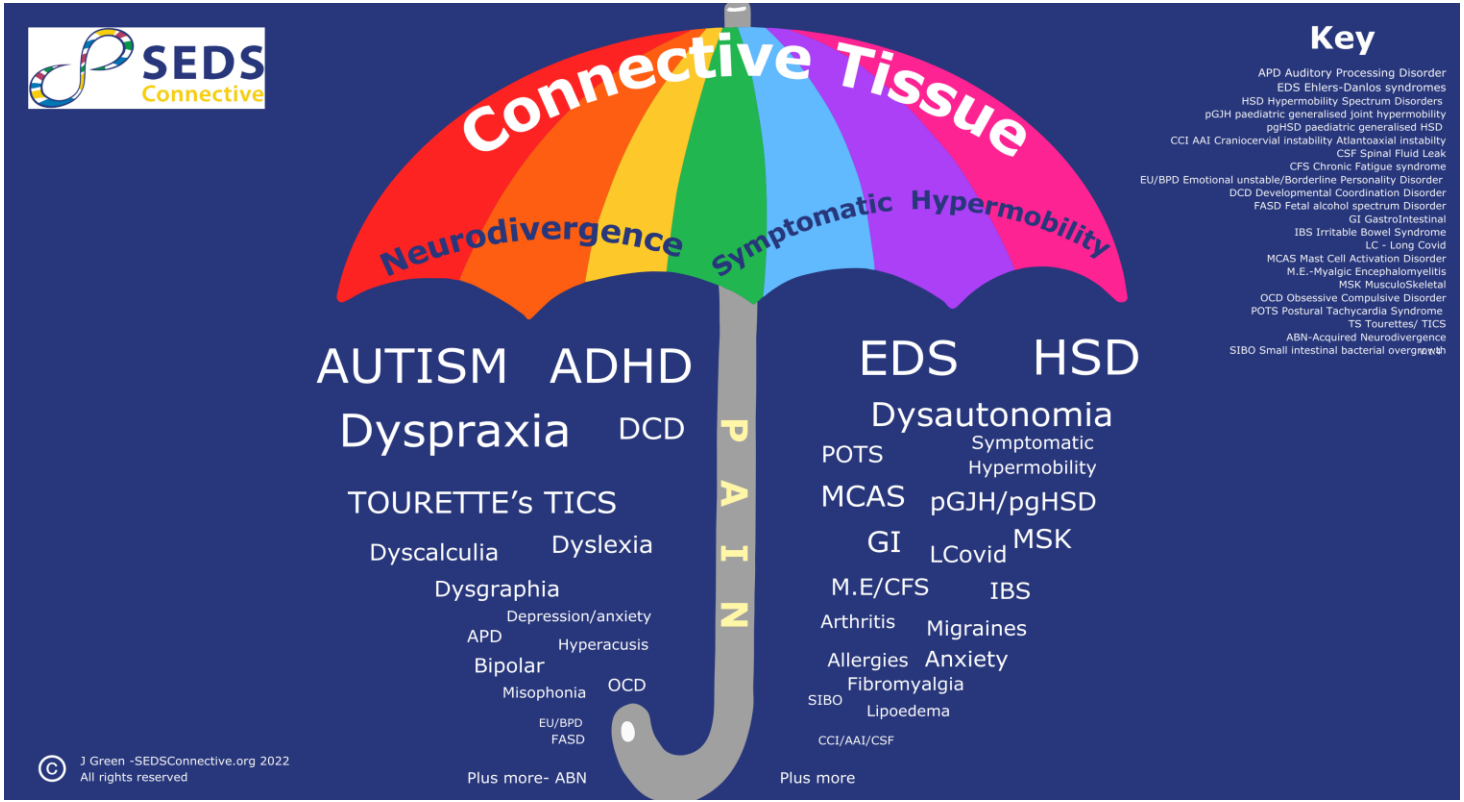
Many key elements not captured well by diagnostic criteria

e.g empathy, ToM, communication, variable attention, variable energy, role of emotion dysregulation

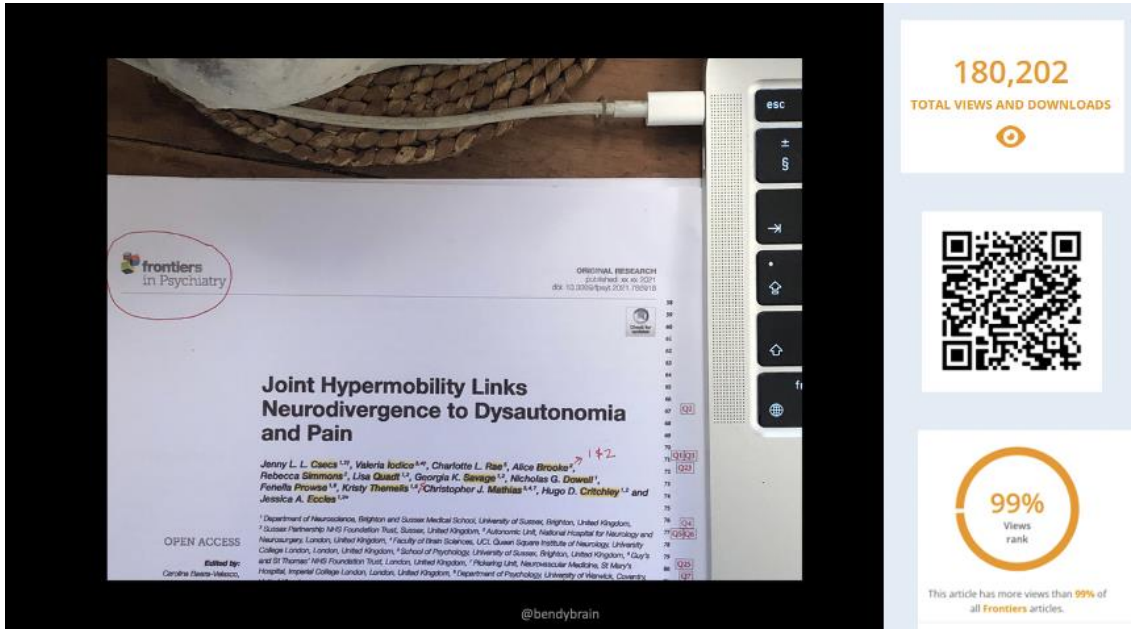
Co-occurrence norm rather than exception – both other ND and physical and mental health issues

The language we use is important

The ND Umbrella



Our work on HM and ND



ND group 4x more likely to be hypermobile

ND group greater physical health symptoms

Hypermobility explained the link between ND and physical health problems

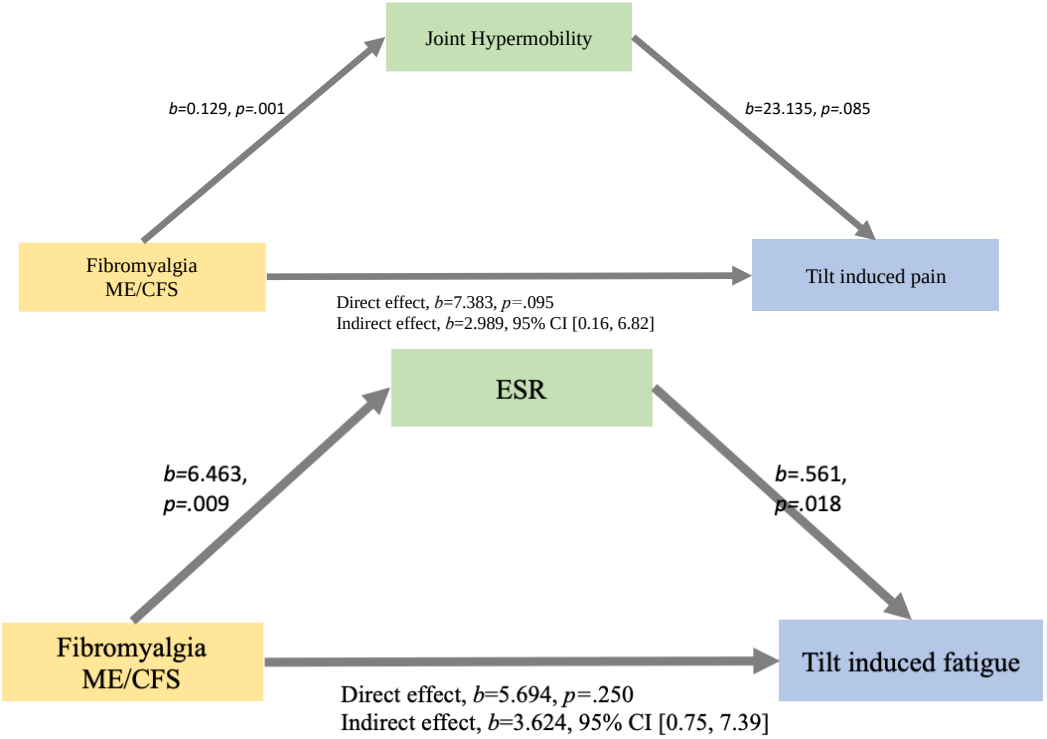
UKRI Medical Research Council

MQ Transforming mental health through research

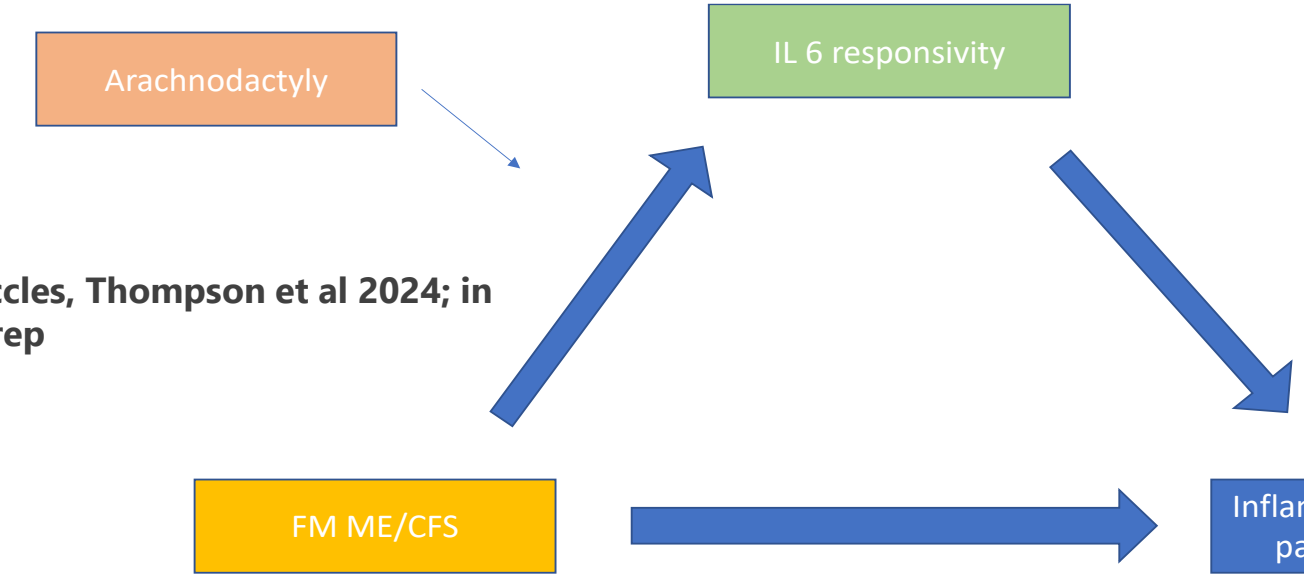
Key finding from study

Neurodivergent people are more likely to be hypermobile and this may explain the relationship with physical health concerns such as pain.

Autonomic induced change in Pain and Fatigue - Mechanisms



Results of Inflammatory Challenge



Eccles, Thompson et al 2024; in prep

IL6 responsivity links fibromyalgia and ME/CFS to increased inflammation induced pain and fatigue in the presence of arachnodactyly

Long COVID and Fatigue

People with hypermobility may be more prone to long Covid, study suggests

People with excessive flexibility 30% more likely to say they had not fully recovered from Covid, research finds

Eccles et al., 2024

BMJ Public Health

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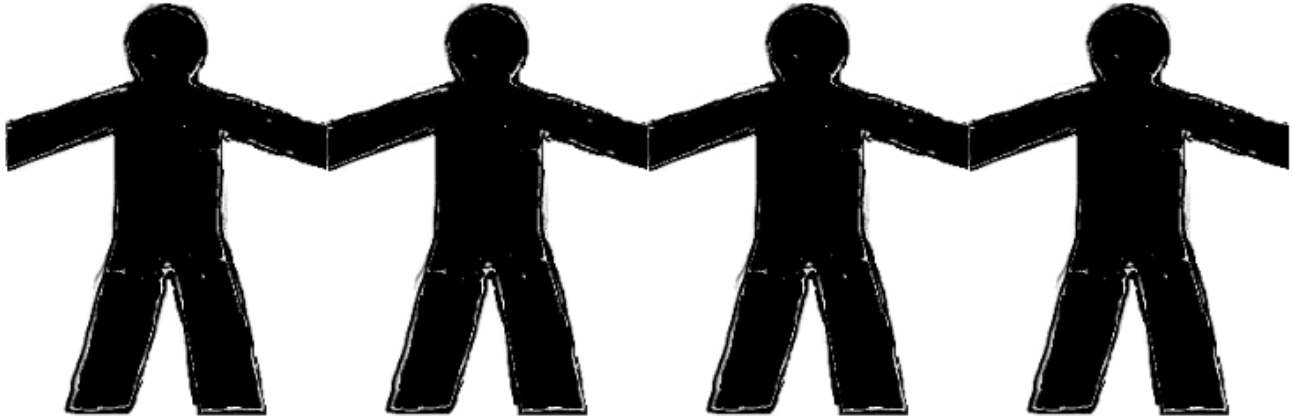
Original Research | Published: 19 March 2024

Is joint hypermobility linked to self-reported non-recovery from COVID-19? Case–control evidence from the British COVID Symptom Study Biobank

Article PDF

Jessica A Eccles, Dorina Cadar, Lisa Quadt, Alan J Hakim, Nicholas Gall, Covid Symptom Survey Biobank Consortium, Vicky Bowyer, Nathan Cheetham, Claire J Steves, Hugo D Critchley, Kevin A Davies.

https://doi.org/10.1136/bmjph-2023-000478

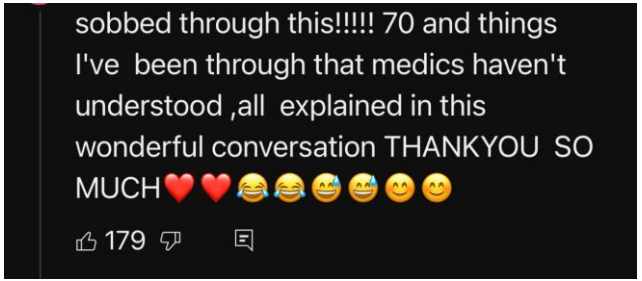


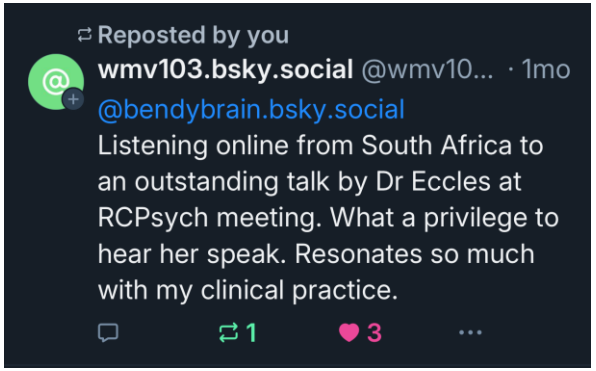
Why is it important to think body-brain?

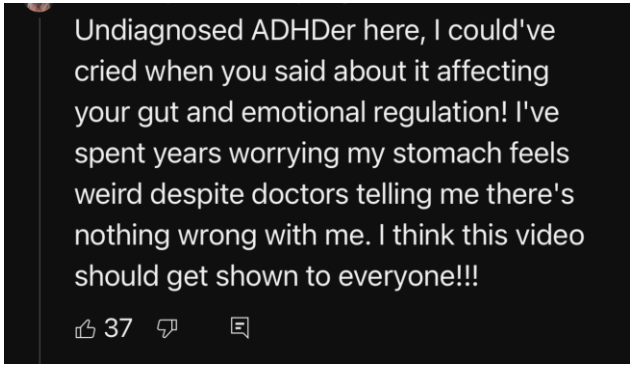
We need more research into why this relationship exists, more recognition and awareness, and improved access to personalised healthcare.

- Nearly half of neurodivergent individuals surveyed by Embracing Complexity (a coalition of neurodevelopmental charities) felt that treatment of mental or physical health symptoms was worse because they were neurodivergent.

- Previous Patient and Public Involvement work conducted by the team tells us that neurodivergent individuals and their families:
  - (1) struggle for years to get an assessment and diagnosis for both mental and physical health problems
  - (2) feel a strong sense of being dismissed, misbelieved or overlooked when interacting with professionals and institutions
  - (3) repeatedly encounter poor understanding and few/no adjustments for their needs within healthcare and educational settings

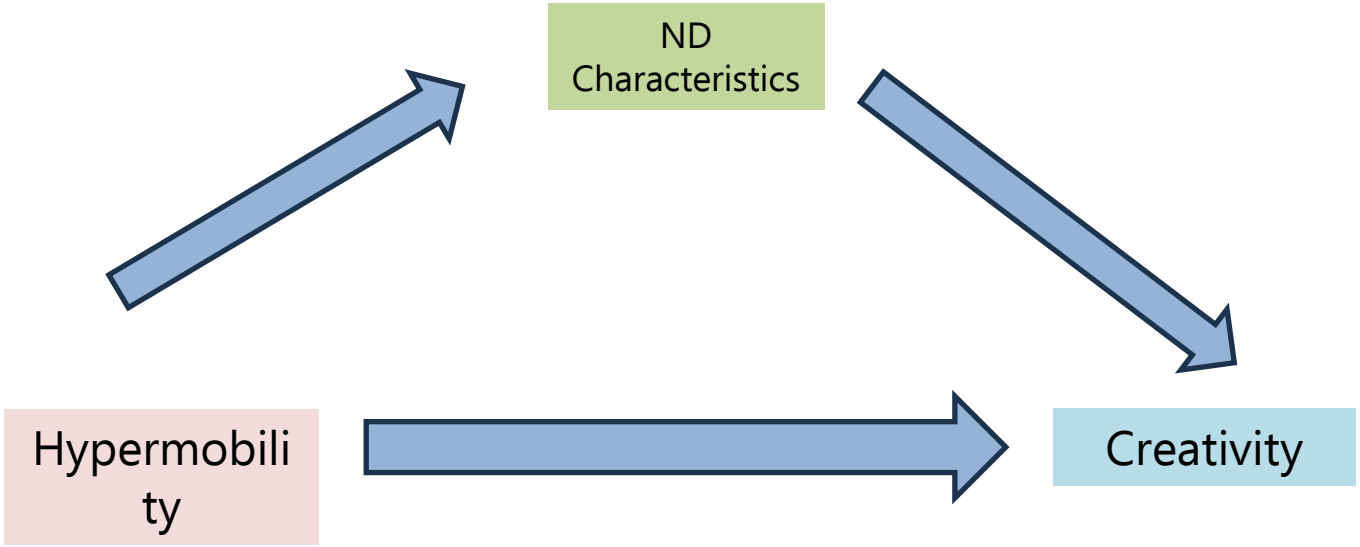






ND/HM and creativity

250 people in general population



Quadt…Eccles; under review

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Inspiration and help along the way

Prof. Hugo Critchley

Prof. Kevin Davies

Dr. Lisa Quadt

Sedsconnective

Rebecca Dew

Nigel Cole

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- CIRU @RSCH
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- Prof Kevin Davies
- Prof Neil Harrison, Dr Christopher Muller-Pollard
- Ben Erin, Seb Shaw, Nigel Cole
- SPFT: The dream neurodevelopmental team inc nurse consultant Rebecca Dew

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[Sedsconnective.org](#)

Please check out EDS UK GP toolkit and EDS UK school toolkit

Q&A

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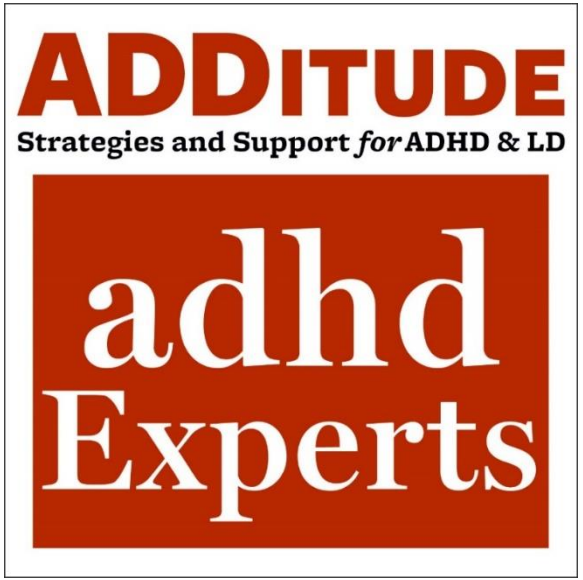
Enter your questions in the box below the video player

Resources

- **Read:** ADHD at the Center: A Whole-Life, Whole-Person Condition
- **Read:** How ADHD Can Intensify Physical Health Conditions
- **Read:** ADHD, Autism, and Neurodivergence Are Coming Into Focus
- **Study:** Chronic Fatigue Twice as Likely Among Children with ADHD

ADHD Experts Podcast | *Episode #560*



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LIVE WEBINAR: May 30, 2025, at 4pm ET
Solve My Problems
with Sharon Saline Psy.D.
https://www.additudemag.com/webinar/adhd-help-live-solve-my-problem/

LIVE WEBINAR: June 5, 2025, at 1pm ET
Some Kind of Wonderful: How Music Affects the ADHD Brain
with Roberto Olivardia, PhD
https://www.additudemag.com/webinar/how-does-music-affect-the-brain-adhd/

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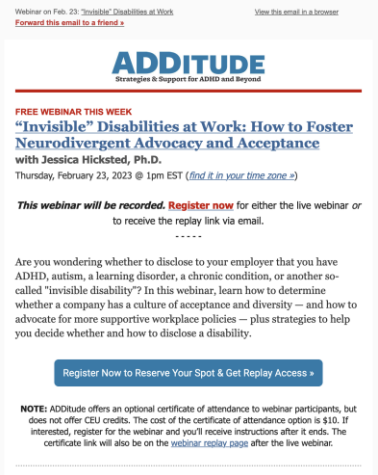
Webinar on Feb. 23: "Invisible" Disabilities at Work View this email in a browser
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FREE WEBINAR THIS WEEK

"Invisible" Disabilities at Work: How to Foster Neurodivergent Advocacy and Acceptance

with Jessica Hicksted, Ph.D.

Thursday, February 23, 2023 @ 1pm EST (find it in your time zone »)

This webinar will be recorded. Register now for either the live webinar *or* to receive the replay link via email.

Are you wondering whether to disclose to your employer that you have ADHD, autism, a learning disorder, a chronic condition, or another so-called "invisible disability"? In this webinar, learn how to determine whether a company has a culture of acceptance and diversity — and how to advocate for more supportive workplace policies — plus strategies to help you decide whether and how to disclose a disability.

Register Now to Reserve Your Spot & Get Replay Access »

NOTE: ADDitude offers an optional certificate of attendance to webinar participants, but does not offer CEU credits. The cost of the certificate of attendance option is $10. If interested, register for the webinar and you'll receive instructions after it ends. The certificate link will also be on the webinar replay page after the live webinar.