HYPERMOBILITY AND THE EHLERS-DANLOS SYNDROMES (EDS)

Quick Facts – *New Zealand Focus - Health Professional Version - 2021*

Includes Generalised Joint Hypermobility (GJH) and Hypermobility Spectrum Disorders (HSD)

If you have a patient with **hypermobile joints** (see 'Assess for Hypermobility' on page 2) and has one or more of the following:

- Unusual or unexplained musculoskeletal pain that doesn't "make sense"
- Recurrent subluxations/dislocations
- Unusual skin – very soft and young-looking, fragile or hyperextensible (stretchy)
- An unusual set of symptoms from many body systems that simply don't make sense to be there in one person
- A patient where you are beginning to think it is all in their head because there is no such illness

Then think, "Could this be EDS?" Use the following tool to help identify if they *may* have Hypermobile EDS (hEDS) or a Hypermobility Spectrum Disorder (HSD). It only takes a few minutes.

JUST GAPE (because it's been right in front of you all the time!) – Based on RCGP EDS Toolbox

JUST	**Joints and Uther Soft Tissues**	1. Does the patient (or their family) have a lot of trouble with their joints, tendons, ligaments and muscles?	Eg, hypermobility, dislocations, 'fibromyalgia', chronic pain, TMJ dysfunction, 'clicky' hips at birth, rotator cuff tendinopathy, lateral epicondylitis (tennis elbow), medial epicondylitis (golfer's elbow), work-related upper limb disorder (repetitive strain injury), Greater Trochanteric Pain Syndrome, Iliotibial Band Syndrome, patellar tendon problems (incl Osgood-Schlatter disease), Achilles tendon problems, plantar fasciitis, acquired pes planus, ankylosing spondylitis, psoriatic arthritis, reactive arthritis, undifferentiated spondyloarthritis
G	**Gut**	2. Do they have a functional gut disorder or malabsorption?	Eg, Irritable Bowel Syndrome, intermittent dysphagia or globus, oesophageal reflux or spasm, dyspepsia, nausea, vomiting, recurrent abdominal pain, bloating, constipation, diarrhoea, urgency, fast or slow GI transit, steatorrhoea, unexplained weight loss, unexplained nutrient or vitamin deficiencies
A	**Allergy/ Atopy/ Auto-immune**	3. Do they have asthma/eczema/ hayfever/rhinitis, multiple food/ drug/other allergies or intolerances, itching or urticaria, or more than one autoimmune condition?	Eg, anaphylaxis, any chronic urticarial condition such as polymorphic light eruption, hives, dermatographia, flushing, MS, thyroid disease, coeliac disease, Crohn's disease, Ulcerative Colitis
P	**Postural Symptoms**	4. Do they experience symptoms when standing that are usually relieved by lying down?	Eg, light-headedness, fast palpitations, fatigue, shaking, sweating, breathlessness, fainting or headaches
E	**Exhaustion**	5. Do they feel exhausted a lot of the time, or that they can't seem to think as clearly as normal?	Eg,fatigue, 'tired all the time', CFS/ME, 'brain fog', 'fibro fog', memory/reasoning/word-finding/concentration problems which vary day to day, falling asleep after meals

By Emma Reinhold and Lisa Jamieson, June 2018

https://www.rcgp.org.uk/clinical-and-research/resources/toolkits/ehlers-danlos-syndromes-toolkit.aspx

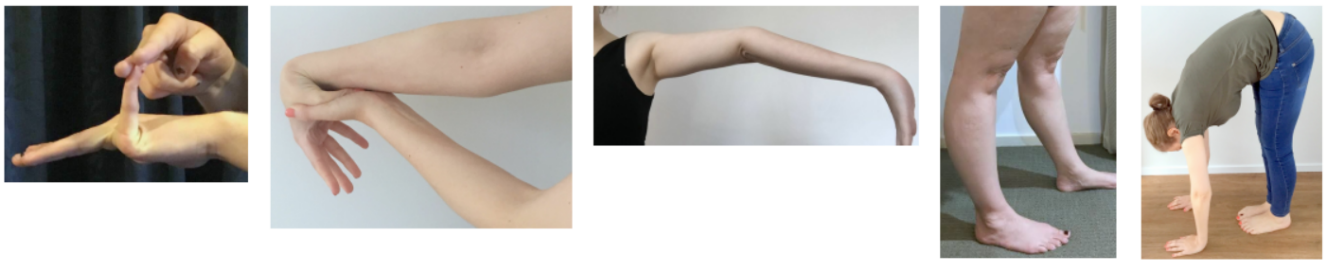
If the patient has symptoms in several of these areas, it *may* be EDS/HSD but needs to be investigated more thoroughly. It is suggested you make another appointment with the patient after you have had more time to read up and to have the hEDS Diagnostic Checklist on hand.

CLINICAL ASSESSMENT IN A PATIENT WHO SEEMS HYPERMOBILE OR WHERE EDS/HSD IS A POSSIBILITY BECAUSE 'JUST GAPE' SYMPTOMS RAISE YOUR SUSPICION

ASSESS FOR HYPERMOBILITY - Details follow

1	Beighton Score	Child - Puberty	Score ≥6
		Age 20-50 years	Score ≥5
		Age > 50 years	Score ≥4
2	5-Point Questionnaire	At any age historically or now	Score ≥2

BEIGHTON SCORE – Assessment tool for hypermobility



1 2 3 4 5

1 point for each side for 1-4 and 1 point for 5. Total 9. If ≥ 4/9, hypermobility is present

THE FIVE-POINT QUESTIONNAIRE

Use in cases where it is not possible to do Beighton Score or where superimposed pain and stiffness in an adult will give a falsely low Beighton Score.

1. Can you now (or could you ever) place your hands flat on the floor without bending your knees?
2. Can you now (or could you ever) bend your thumb to touch your forearm?
3. As a child, did you amuse your friends by contorting your body into strange shapes or could you do the splits?
4. As a child or teenager, did your shoulder or kneecap dislocate on more than one occasion?
5. Do you consider yourself "double-jointed"?

A "yes" answer to ≥ 2/5 questions suggests joint hypermobility with 80–85% predictive value.

USE THE OFFICIAL DIAGNOSTIC CHECKLIST:

DIAGNOSTIC CRITERIA FOR HYPERMOBILE EHLERS-DANLOS SYNDROME (hEDS)*

*hEDS is by far the most common type of EDS at 80-90% of all cases

Download from: https://www.ehlers-danlos.com/heds-diagnostic-checklist/

Investigations

- There are no specific or suggestive laboratory or imaging findings BUT
- There are specific known genetic mutations/abnormalities for Classical (cEDS) and (Vascular) vEDS (and most of the rare types) but not for (Hypermobile) hEDS (the most common).
- Clinical diagnosis is made first using clinical criteria followed by genetic confirmation wherever possible and practical (not needed or available for the most common - hEDS).

IF YOU SEE VASCULAR RUPTURE OR SPONTANEOUS PNEUMOTHORAX IN A YOUNG ADULT OR CHILD - CONSIDER VEDS AS AN UNDERLYING CONDITION

MANAGEMENT

DEAL WITH ACUTE EMERGENCIES

- Vascular rupture – appropriate vascular surgery or interventional radiology referral
- Spontaneous pneumothorax - acute management with chest drain if appropriate
- Dislocations – appropriate orthopaedic referral
- Acute pain – usual principles

DIAGNOSIS

- Give a tentative clinical diagnosis. Assure the patient you don't think it's all in their head – this is often what they have been told for a long time.
- Offer patient information on Ehlers-Danlos Society website https://www.ehlers-danlos.com/ and to look for support groups – See References.
- If available refer to a clinician with experience or interest in EDS.
- A multidisciplinary team best leads care. Practically this often means the primary care doctor will refer to the appropriate specialist as and when needed, e.g. orthopaedic surgeon, neurosurgeon.

PAIN – INITIAL (ACUTE)

- Usual principles for initial management of acute or chronic pain
    - Usually start with paracetamol and work up as needed
    - There are no specific analgesics proven to have significant advantage in HSD/EDS

INJURIES – instability, subluxations, dislocations, tendon & ligament injuries – initial emergency and acute (short term) strategies

- Each individual injury episode (dislocation) should be treated as a new trauma on its own merits and not just passed off as "part of your condition". Aim is to return to the pre-injury state. Even though a

dislocation may be due to less force than in someone without EDS, the associated tissue effects and damage will likely be no less severe, e.g. Bankart lesion in shoulder.

- Dislocation - initial reduction
    - Because those with EDS may have severe pain, instability or injury elsewhere in the same region, some typical traction and twisting movements used for reduction may need to be modified to prevent injury elsewhere from the procedure itself, e.g. with shoulder dislocation pulling from the wrist or forearm may injure wrist or elbow. May need to modify hand position and grip. The force needed to reduce may be less than that needed for non-EDS. Some patients can "spontaneously reduce".
    - Protect skin – it may be fragile. Use padding if needed.
    - Ligament and tendon injuries may take longer to heal and may recur after relatively less trauma after the first episode.
- Subluxations may respond well to gentle manipulation rather than actual reduction.
    - For patient dislocation and subluxation management, see "*I'm popping out for a while*".
    - Some respond well to physical therapies such as gentle manipulation and mobilisation by an osteopath or musculoskeletal specialist.
- Splinting and bracing are important after reduction.
- Immediate post-trauma physiotherapy is useful but it is important to take into account the somewhat different approach needed in EDS.
- Rehabilitation is aimed at return to independent living.

JOINT INSTABILITY AND PAIN – LONG TERM STRATEGIES TO STABILISE

- Physiotherapy
- External bracing
    - Braces and splints can be useful to prevent or after dislocation/subluxation as well as for comfort.
    - Specific hypermobility-focused splint types can improve function and reduce pain even in the absence of current or recent subluxation/dislocation. As an example, finger splints along the lines of ring splints can be very helpful to prevent finger hyperextension to improve overall finger stability.
    - Neoprene or elastic supports and compressive clothing are also used and can be useful as they allow proprioceptive feedback as well as support and pain relief. Discuss options with physiotherapist or occupational therapist.
- Surgery may have a sub-optimal outcome but may be important in critical areas, e.g. craniocervical instability. When referring to or discussing with an orthopaedic surgeon, neurosurgeon, etc., be clear that the patient has EDS where issues may include slow healing, early recurrence and poor response to local anaesthetic agents.
- Non-surgical approaches to joint stabilisation such as sclerosant prolotherapy offer some hope and may be appropriate in selected circumstances in adults. Materials (chemical/sclerosant) injected

into ligaments are thought to induce healing with scarring and shortening which in turn may increase joint stability and thereby reduce pain and subluxation.

PHYSIOTHERAPY and other physical therapies

- As there are limited management options, physiotherapy is key
- Traditional techniques of physiotherapy often need adapting for EDS and always require taking a wider view of the patient
- Physiotherapy should be aimed at empowering the patient towards self-management
- Aim for social rehabilitation training for independence with help of occupational therapists where needed
- Appropriate strategies:
    - Education and reassurance
    - Most patients will benefit from an individualised, carefully graduated exercise and activity programme
    - Aspects of The Muldowney Protocol is worth considering
- Osteopathy, myofascial release and similar interventions are worth considering.
- NB - Make sure the practitioner knows the patient has EDS so that they can modify techniques so as not to injure.

SURGERY AND ANAESTHESIA

- Surgical complications may be increased due to slow healing and potential for bleeding. Appropriate strategies should be planned and discussed in EDS context.
- Recurrence after surgery may occur because of the inherently abnormal ligaments.
- Some issues with anaesthesia:
    - Unstable neck may be an issue with positioning
    - Slow and suboptimal response to local anaesthetic incl. epidurals
    - Tourniquet can cause bruising and compartment syndrome
    - Positioning can cause unexpected subluxations including temporomandibular joint during anaesthesia

GENERAL SUPPORT

- Remind patients that their disease and their pain is real - they are likely used to being told that there is nothing wrong and that it's all in their head.
- Support groups and websites offer advice on how to cope with day-to-day living with a painful chronic disease that may significantly disrupt life. https://www.ehlers-danlos.org.nz https://www.facebook.com/groups/LooselySpeakingNZ/

- Chronic pain teams may help to design an overall pain management strategy
- Psychology support can be helpful

NEXT STEPS AND SPECIALIST REFERRAL

- Many patients can be managed by their GP and physiotherapist with occasional input from an EDS "specialist" - physician, rheumatologist, geneticist or other doctor with an interest in EDS.
- Some with complex or severe issues will need a truly multidisciplinary team that may include orthopaedics, neurosurgery, gastroenterology, etc.
- Appropriate referrals for specific interventions, e.g. hand therapist, sclerosant prolotherapy.
- Some rheumatologists and musculoskeletal specialists have experience in diagnosing and managing EDS. Local availability will likely be variable.
- Access to specialist care is generally very limited within District Health Boards in the public sector.
- There are a small number of specialists with EDS expertise in private practice.
- Hopefully access will improve in the coming years as the clinician base expands.
- In general referral must be from a GP or other doctor.

Lifestyle and Diet

You will likely find that many patients are very complex. Prescribing for a myriad of symptoms is even more complex as so many EDS patients have weird drug intercations and reactions and some quite unusual side-effects that can be worse than the original symptoms.

There seems to be a big role for diet and "food as medicine" Essentially comes down to:

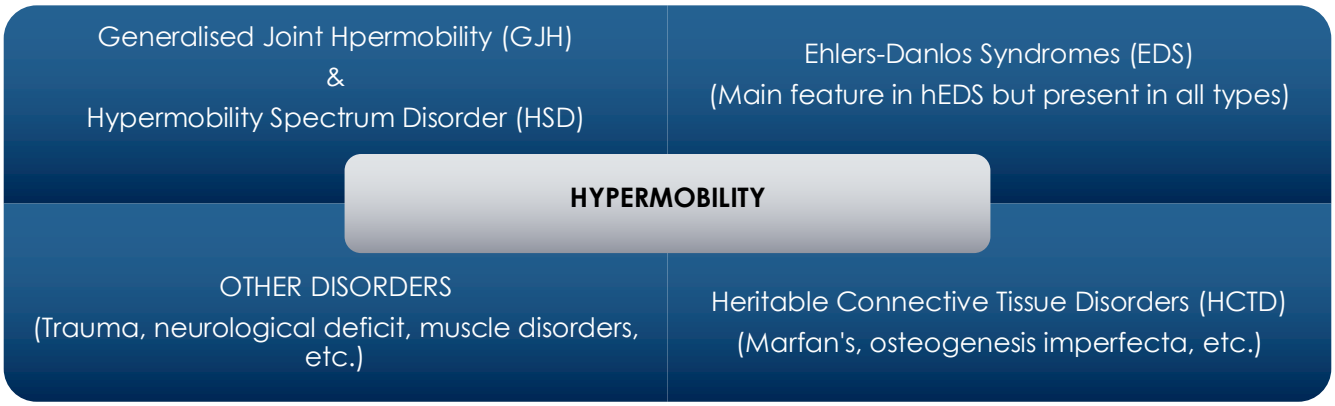
- Unprocessed foods – eating fresh and cooking from scratch
- Low sugar
- Tending to low carb
- Gluten/grains and dairy can be a real problem
- For some low histamine
- Looking for "triggers" – not just for migraine but along those lines
- Exercising appropriately for current symptoms and instability – the best exercise is the one the patient will do!!
- Some describe the diets as Paleo-Mediterranean

These won't cure but help to set a stable platform to work on and tend to give more stable energy.

HYPERMOBILITY AND EDS - CLINICAL PRIMER

Some degree of joint hypermobility is common, especially in children. It is usually "benign" in that there are no apparently detrimental effects. The trick is to differentiate these from the person who is borderline symptomatic or overtly part of a more significant clinical picture.

The spectrum of hypermobility disorders includes GJH (Generalised Joint Hypermobility), HSD (Hypermobility Spectrum Disorder), hEDS (Hypermobile Ehlers-Danlos Syndrome) and the other EDS types (Ehlers-Danlos Syndromes).



THE HYPERMOBILITY SPECTRUM

Phenotype (Clinical)	Beighton Score	Musculoskeletal Features	Systemic Features
Asymptomatic GJH (Generalised Joint Hypermobility)	Present	Absent	Absent
HSD (Hypermobility Spectrum Disorder)	Present	Present	Absent
hEDS (Hypermobile EDS)	Present	Present	Present

GENERALISED JOINT HYPERMOBILITY (GJH)

There is a spectrum of GJH

1. Asymptomatic (non-syndromic) GJH – hypermobility without other symptoms. Other causes, e.g. neurological deficit must be excluded.
2. Symptomatic GJH that doesn't meet criteria for hEDS – HSD
3. A well-defined syndrome - hEDS

Joint hypermobility can lead to micro- and macro-trauma, which in the long run can be a leading cause of pain and in adulthood degenerative changes. This can range from hyperextension injury to mild subluxation through to frank dislocation. Each event leads to surrounding collateral damage.

Micro-trauma may not be obvious to see but leads to pain and joint degeneration. Often the patient knows the joint is "out" - subluxed - but this is not seen clinically or on x-ray. Macro-trauma is seen as an actual visible subluxation/dislocation.

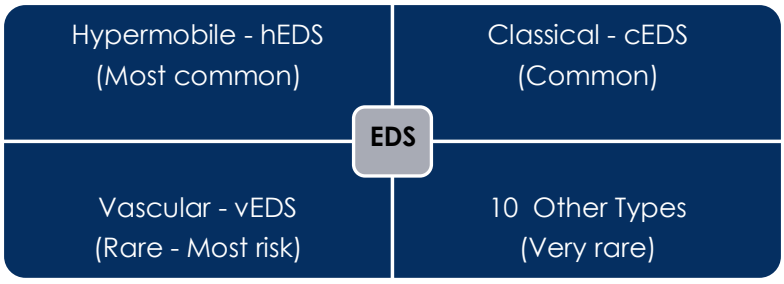
HSD – HYPERMOBILITY SPECTRUM DISORDER

- Relatively common
- Hypermobility and significant additional symptoms limited to the musculoskeletal system
- Pain may be significant and debilitating

EDS – EHLERS-DANLOS SYNDROMES

EDS (Ehlers-Danlos Syndromes) are a group of inherited disorders characterised by defects in collagen mainly affecting the ligaments and soft tissues.

- Relatively rare – literature commonly states 1:2500 but likely at least double that. F>>>M
- Basis is likely abnormal collagen – different types of collagen in each of the EDS types
- The commonest (>80-90%) is hEDS – genetic basis currently not known
- cEDS is next most common
- vEDS is uncommon but is mentioned because it can be very dangerous if missed



CLINICAL CLASSIFICATION OF EDS				
EDS SUBTYPE	***ABBREV***	***INHERITANCE***	***GENETICS***	***COLLAGEN***
Classical	cEDS	AD	COL5A1, COL5A2	Type 5
Vascular	vEDS	AD	COL3A1	Type 3
Hypermobile	hEDS	AD	Unknown	Unknown
10 other types				

hEDS – HYPERMOBILE EDS

- Most common
- See downloadable hEDS Diagnostic Checklist for details and how to apply criteria at https://www.ehlers-danlos.com/heds-diagnostic-checklist/

HSD - Hypermobility Spectrum Disorder (Not a form of EDS)

- If hypermobile with significant pain but don't have all hEDS features - consider HSD
- Management similar to hEDS

cEDS – CLASSICAL EDS

- Relatively common
- **Major criteria**
    - Skin features - hyperextensible skin, atrophic scarring (esp. knees & elbows)
    - Generalised Joint Hypermobility
- **Minor criteria**
    - Easy bruising
    - Soft, doughy skin
    - Skin fragility
    - See rest of list in main reference

vEDS – VASCULAR EDS

- Rare and dangerous
- **Major criteria**
    - Family history proven vEDS
    - Arterial rupture at young age
    - Spontaneous colon perforation in absence of other disease
    - Uterine rupture without predisposing cause
    - Carotid-cavernous sinus fistula without trauma
- **Minor criteria**
    - Bruising not related to trauma or in unusual sites
    - Thin, translucent skin with easily visible veins
    - Characteristic facial appearance
    - Spontaneous pneumothorax
    - See rest of list in main reference

Genetic testing is important in vEDS.

ALL OTHER TYPES – See References

Other features that can occur in EDS, mainly in hEDS (not an exhaustive list)

- Overall effect on life may range from severe (bed-ridden) to relatively minor
- Sleep disturbance, chronic fatigue, POTS, functional GIT disorders, unusual hernias, internal hernias, dysautonomia, Raynaud's, some cardiac features, osteoarthritis secondary to joint instability, headaches, TMJ dysfunction, increased gynaecological presentations, pelvic floor dysfunction, anxiety, depression, unusual scarring, severe bruising, slow healing, poor response to local anaesthetics. Multiple other features that affect quality of life may be part of the spectrum.
- MCAS (mast cell activation syndrome) masquerading as unusual allergies

EASY TO FIND WEB REFERENCES TO GET YOU ON YOUR WAY

GENERAL BASIC INFORMATION

1. RCGP (Royal College of GPs) - The Ehlers-Danlos Syndromes Toolkit - http://www.rcgp.org.uk/eds
2. Assessing Joint Hypermobility - video showing how to do this properly - https://www.ehlers-danlos.com/assessing-joint-hypermobility/
3. hEDS Diagnostic Checklist - Ehlers-Danlos Society - ***on back of this page*. -** https://www.ehlers-danlos.com/heds-diagnostic-checklist/
4. Ehlers-Danlos Society – Best overall resource for patients and doctors (not NZ focused) - https://www.ehlers-danlos.com/
5. Matthew Preston - https://www.matpre.nz/ehlers-danlos - ***includes this article***
6. Just GAPE tool: From RCGP EDS Toolkit - a great, easy to remember tool to remember the major features of EDS

MORE DETAILED CLINICAL INFORMATION

1. The 2017 International Classification of the Ehlers–Danlos Syndromes - https://onlinelibrary.wiley.com/doi/full/10.1002/ajmg.c.31552
2. Hypermobile Ehlers–Danlos Syndrome - https://onlinelibrary.wiley.com/doi/full/10.1002/ajmg.c.31538
3. Pain Management in the Ehlers–Danlos Syndromes - https://onlinelibrary.wiley.com/doi/full/10.1002/ajmg.c.31554
4. Dislocation/subluxation management or “I’m just popping out for a while!” - Jason Parry - https://ehlers-danlos.com/wp-content/uploads/Dislocation-Subluxation-Management.pdf
5. Recommendations for anaesthesia in EDS - Wiesmann et al. Orphanet Journal of Rare Diseases 2014, 9:109. - http://www.ojrd.com/content/9/1/109
6. Local anaesthetic failure in EDS - https://ehlers-danlos.com/wp-content/uploads/local-anesthetic-failure.pdf
7. New Zealand Guidelines for managing EDS published by RDNZ - Hypermobility and Ehlers-Danlos Syndromes (EDS) - New Zealand Guideline 2019 - see www.matpre.nz or https://baynav.bopdhb.govt.nz/media/2677/nz-eds-guideline-v1-2019-nzord-rdnz.pdf
8. ER Safety Tips for Ehlers-Danlos Syndrome Patients - https://www.painnewsnetwork.org/stories/2017/12/13/er-safety-tips-for-ehlers-danlos-patients
9. Bay of Plenty District Health Board (BOPDHB) Grand Round Talk/Presentation - Ehlers-Danlos Syndrome - June 2018 - https://vimeo.com/277009100/38da6c1066

PATIENT INFORMATION AND SUPPORT

1. Ehlers-Danlos Society – Best overall resource for patients and doctors (not NZ focused) - https://www.ehlers-danlos.com/
2. Ehlers-Danlos Society **New Zealand** – https://www.ehlers-danlos.org.nz
3. Loosely speaking – **New Zealand** support Facebook page – https://www.facebook.com/groups/LooselySpeakingNZ
4. RDNZ – Rare Disorders New Zealand at http://www.raredisorders.org.nz
5. Dislocation/subluxation management or “I’m just popping out for a while!” - Jason Parry - https://ehlers-danlos.com/wp-content/uploads/Dislocation-Subluxation-Management.pdf
6. Wallet card for patients - https://ehlers-danlos.com/wp-content/uploads/walletcard.pdf

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