



Understanding Joint Hypermobility in Dancers

Written by Linda Bluestein, M.D.

Introduction

As a dancer, there is a good chance that at least some of your joints have a greater than average range of motion. **Joint hypermobility (JH)** is not a disease or diagnosis. It simply describes a condition in which a particular joint is able to move beyond the expected range. People with **limited joint hypermobility (LJH)** have only a few hypermobile joints, whereas people with **generalized joint hypermobility (GJH)** have many hypermobile joints. For those with **peripheral joint hypermobility (PJH)**, only the fingers and toes are hypermobile. It is possible to have some “loose,” hypermobile joints and other joints that are “stiff” and have less motion than average. Some individuals have joint hypermobility in their youth but limited range of motion as they get older, although this is generally less common among dancers who train to maintain their flexibility.

Many studies show a higher frequency of generalized joint hypermobility in dancers, with estimates ranging from 60-90%. While joint hypermobility is clearly advantageous for certain activities such as dance, it is also extremely important to understand how to work with a hypermobile body in order to minimize injury risk and optimize performance.

Determining Joint Hypermobility

Are you hypermobile? The quiz in Figure 1 may help determine if you have generalized joint hypermobility.

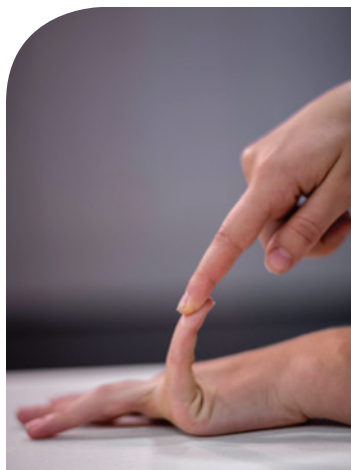
Figure 1. The Five Point Questionnaire.

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”?

Adapted from Grahame and Hakim, 2003.

A “yes” answer to two or more of these questions suggests there is a reasonable chance you have generalized joint hypermobility. This questionnaire has been validated by other researchers. A score of 2 or higher indicates an 80-85% likelihood that the test is positive in a person with the condition, and an 80-90% likelihood that the person has the condition being tested for and not something else.

Figure 2. Beighton Score.



2a. Hyperextension of 5th finger to beyond 90° (check both hands)



2b. Apposition of thumb to ventral aspect of forearm (check both hands)



2c. Hyperextension of elbow joint beyond 10° (check both arms)



2d. Hyperextension of knee joint beyond 10° (check both legs)



2e. Palms flat on floor with knees in full extension

How many of the maneuvers in Figure 2 can you do?

The Beighton score is a very commonly-used scoring system for determining whether or not someone has generalized joint hypermobility. The maximum score is 9 (all of the joints included on the Beighton score are hypermobile) and the lowest possible is zero (no joints included in this test are hypermobile). In adults over age 50, a score ≥ 4 is considered positive. After puberty but before age 50 scores ≥ 5 are considered positive. Children and pre-pubertal adolescents need a score of ≥ 6 in order to be considered positive and some researchers have advocated using this same cutoff for dancers since they purposefully train to be extremely flexible.

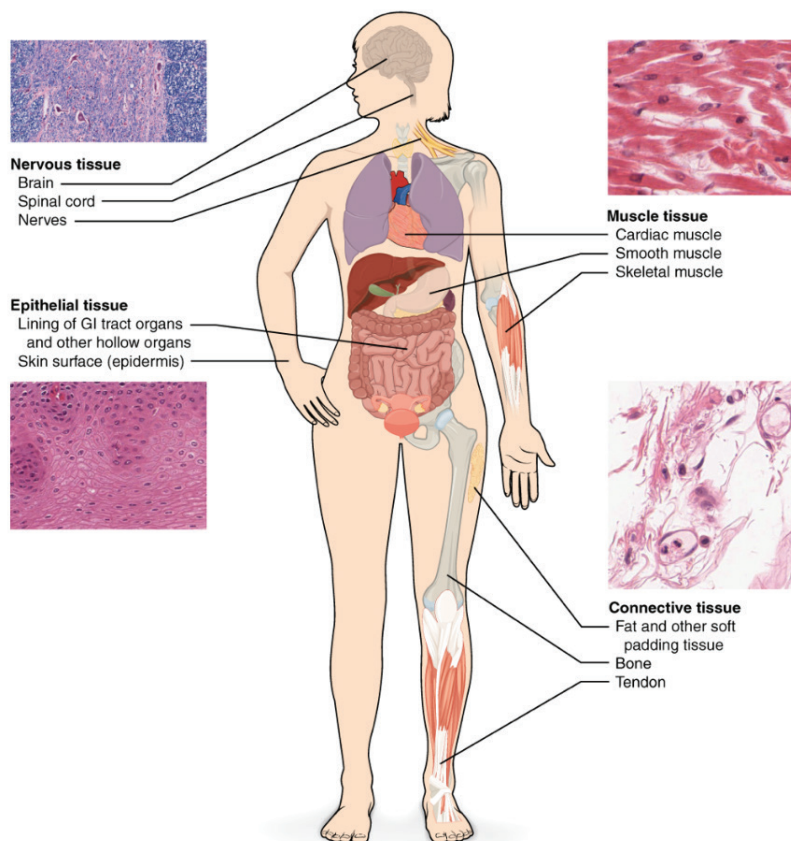
Causes of Joint Hypermobility

What causes hypermobility? Hypermobility can occur for many reasons and in many cases never causes any problems. Joint mobility is dependent on numerous factors including training, the shape of your bones, previous injury, muscle strength, and timing of the measurement(s). Other factors include tone, genetics, collagen strength, gender and age, with females typically having greater joint mobility than males and younger people having more mobility than older people. Hormonal changes that occur over the course of a woman's menstrual cycle also greatly influence joint mobility with the peak of joint hypermobility often occurring at the peak of progesterone levels, which are generally 7 days before the onset of menses. During this premenstrual period, dancers are at increased risk of injury and should be extra attentive to how they are moving and stretching.

Some people with hypermobile joints have no problems at all (this is known as **asymptomatic GJH**), whereas other people have problems that are related to their joint hypermobility (this is known as **symptomatic GJH**). Rarely, joint hypermobility is due to a connective tissue disorder. There are over 200 heritable disorders of connective tissue that have been identified

and these are collectively referred to as **Hereditary Disorders of Connective Tissue**. If a person has an underlying connective tissue disorder, they will likely have joint hypermobility in lots of different joints as well as differences that occur elsewhere throughout the body.

Figure 3. Types of Tissue



Connective Tissue

Everything in the body comes from only four types of tissue (see Figure 3), connective, muscular, nervous and epithelial (lining of internal cavities and outer layer of skin). Of these, connective tissue is the most abundant and most widely distributed. Its role is support and protection. Joints, areas where two or more bones are attached, are comprised of numerous types of connective tissue, including tendons, ligaments, cartilage and bone. Connective tissue is present in many other locations including the cornea, skin, intervertebral discs, blood vessels and gastrointestinal tract. It is not hard then to understand that if a person has a connective tissue disorder, they could have problems in a number of different parts of the body.

Potential Problems Associated with Joint Hypermobility

Is it possible to have too much of a good thing? Although some degree of joint hypermobility may be beneficial aesthetically, this increased range of motion can also cause some problems. Some studies suggest that dancers with joint hypermobility (especially if associated with symptoms like pain) get injured more easily and take longer to heal. If you have joint hypermobility, there are steps you should take to protect your joints from injury and help you achieve your dance goals.

Stability

It is important to identify any joints that are unstable. If your bones have difficulty staying in proper alignment, you will likely benefit from stability exercises. Physical therapy and complementary conditioning programs (e.g., Pilates, Gyrotonics, C-I Training, etc.) offer exercises that emphasize the development of endurance and strength in proper alignment, helping to reduce extra motion around the joints and potential injury. Studies show that people with joint hypermobility tend to have muscle weakness and fatigue even when they are otherwise asymptomatic.

Range of Motion

Dancers with joint hypermobility should be careful to avoid going into their hypermobile range of motion, especially when weight bearing (see Figure 4). This will help decrease wear and tear on the **ligaments** (connect bone to bone) and **tendons** (connect bone to muscle), which may be overstretched and weak in the hypermobile body. Caution should also be exercised when stretching, and prolonged stretching should be avoided.

Figure 4. Weight Bearing on Hyperextended Knees.



Knee hyperextension exploited and controlled

Proprioception

Proprioception (knowing where your body is in space and how it is moving) is often impaired in dancers with joint hypermobility. Dancers with hypermobile joints benefit from specific exercises to improve their proprioception in order to control movements at end range of motion (e.g. standing en pointe, grand battements), and stay out of their hypermobile range of motion as much as possible.

Pregnancy

Pregnancy can pose specific challenges for those with joint hypermobility. Hormonal changes of pregnancy can increase joint laxity. This can make joints even more prone to subluxation and dislocation. In pregnancy, it is important to see your general practitioner, midwife, obstetrician, and anyone else on your care team regularly (physical therapist, complementary training specialist, etc.) to



ensure your progress and health are being monitored appropriately. Careful management and planning can help control symptoms. A good birth plan can include special requests and/or recommendations to protect your joints.

Connective Tissue Disorders

How do you know if you have a connective tissue disorder? People with connective tissue disorders generally have stretchy skin, fragile tissues and joint hypermobility. Usually numerous family members are affected as many of these disorders are inherited. There are many different types of connective tissue disorders. Some are extremely rare (e.g. vascular Ehlers-Danlos Syndrome), whereas others are not uncommon (e.g., hypermobile Ehlers-Danlos Syndrome).

See your doctor if you think you may have a connective tissue disorder. You may be prone to **subluxation** (bones are not lined up properly) and **dislocation** (bones have completely lost contact with each other), which can be difficult to diagnose without an X-ray. It is important to establish a proper diagnosis and get appropriate medical care to manage symptoms and improve quality of life. Unfortunately, many physicians do not have an adequate understanding of these disorders and can frequently miss them in their diagnoses. It may be necessary to do some homework in order to seek out a provider who is familiar with these conditions. Having a good primary care physician is critically important as they can be helpful even if they do not have a detailed understanding of these conditions by validating your concerns, advocating for you and treating symptoms such as pain, gastrointestinal complaints and mood disorders. Depending on your symptoms, visiting a specialist may be necessary in order to have a proper and thorough evaluation (e.g., rheumatology for joint and muscle pain; gastroenterology for complaints involving the GI tract; genetics for possible genetic testing; pain management for pain, sleep disorder and fatigue, etc.).

Understanding hypermobility is an important first step toward optimizing performance and minimizing injuries. See the upcoming Healthy Dancer Canada resource, *Managing Hypermobility in Dancers*, for further information on staying well when dealing with hypermobility and connective tissue disorders.



Recommended Reading

Books

Smith, C. (2017). *Understanding Hypermobile Ehlers-Danlos Syndrome and Hypermobility Spectrum Disorder*. Redcliff-House Publications.

Di Bon, J. (2019). *Hypermobility Without Tears: Moving Pain-Free with Hypermobility and EDS*. Independently Published.

Podcasts

[Hypermobility Happy Hour](#)

Articles

Downie, A. (2019). [Born Flexible: Managing Hypermobility](#). *The Dance Current*.

McCormack, M. (2014). [The Hypermobile Dancer](#). *4Dancers*.

McCormack, M. (2010). [Teaching the Hypermobile Dancer](#). *The IADMS Bulletin for Teachers*, 2(1).

Websites

[The Ehlers-Danlos Society](#)

[EDS Wellness](#)

[Chronic Pain Partners](#)

Education for Physicians

[Ehlers-Danlos Syndromes Physician CME Education](#)

Image Credits

Figure 1

[The Five-Point Questionnaire](#). Retrieved from Malfait, F. et al. (2017). The 2017 international classification of the Ehlers-Danlos syndromes. *American Journal of Medical Genetics*, 175(1), 8-26.

Figure 2

Photos by Luca Papini Photography
Dancer: Lola Rose Jenkins

Figure 3

[Four Types of Tissue: Body](#). Retrieved from <https://opentextbc.ca/anatomyandphysiology/chapter/4-1-types-of-tissues/>

Figure 4

Photos by Luca Papini Photography
Dancer: Marie-Elena Leblanc Bellissimo

© 2019 Healthy Dancer Canada - The Dance Health Alliance of Canada, Linda Bluestein

