



ARTHRITIS FOUNDATION

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JOINT HYPERMOBILITY

This information leaflet is published by the Arthritis Foundation
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for all people with arthritis.



The Bone and Joint Decade is a global campaign to improve the quality of life for people with musculoskeletal conditions and to advance understanding treatment of those conditions through research, prevention and education.

WHAT IS JOINT HYPERMOBILITY?

If you have joint hypermobility, some or all of your joints will have an unusually large range of movement. You may have known that your joints were very ‘supple’ even from an early age. You may have been ‘double-jointed’, or able to twist your limbs into unusual positions. Athletes sometimes train to achieve what they call ‘flexibility’. Some doctors call it ‘joint hyperlaxity’.

Women are often more supple than men of the same age, and certain racial groups are more supple than others. In general, we become less supple as we get older.

HOW IS HYPERMOBILITY MEASURED?

Variations between one person and another make it difficult to measure hypermobility. For many years the most popular system was that devised by Carter and Wilkinson and modified by Professor Peter Beighton. This system is often referred to as the ‘Beighton score’ and is still in use.

If you think you may have hypermobility, you can check your own ‘Beighton score’ using the tests shown in Figure 1. Give yourself 1 point for each of the five simple tests you can do. Do the tests on the arm and leg on both sides of your body, so the maximum score is 9 points. Most people score less than 2, and only about three or four in a hundred healthy people score 4 or more points. If you score 4 or more in the tests and have had joint pains (arthralgia) in four or more joints for longer than 3 months then it is likely that you have hypermobility, but you should still consult your doctor to determine whether hypermobility is the cause of the symptoms in your joints, or whether something else is causing the pain.

Although the Beighton score is a useful guide, doctors will now consider other factors and symptoms in order to confirm a diagnosis of hypermobility.

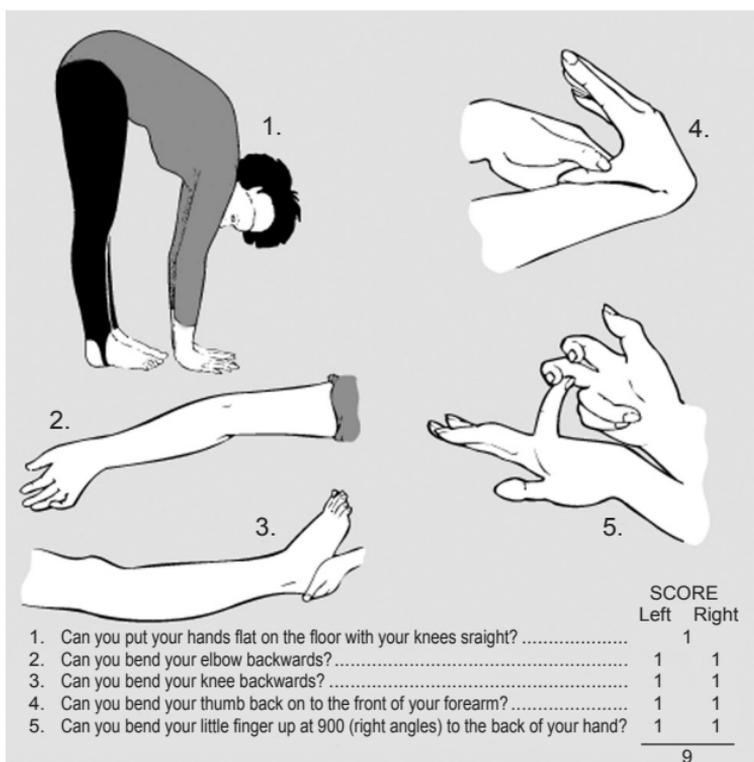


Figure 1. Beighton's modification of the Carter and Wilkingson scoring system. Give yourself 1 point for each of the manoeuvres you can do, up to a maximum of 9 points.

WHAT CAUSES JOINT HYPERMOBILITY?

Current thinking suggests there are four factors that affect different people to varying degrees and each is explained in detail in the following sections.

The shape of the ends of the bones

Some joints normally have a large range of movement, like the shoulder and hip. Both these joints look like a ball in a socket. If you inherit a shallow rather than a deep socket, you will have a relatively large range of movement, but only at these particular joints. If your hip socket is particularly shallow, then your hip may dislocate easily.

Weak or stretched ligaments caused by protein problems

Ligaments are made up of several types of protein fibre. These proteins include elastin, which gives elasticity, and collagen, which gives strength. The collagen fibres in your ligaments

tend to bind together more as you get older, which is one reason why we get stiffer with age. These fibres are built up by biochemical reactions in the body. A small difference in one of these biochemical reactions can alter the protein fibres and cause weak or easily stretched ligaments. If your joint hypermobility is caused by altered collagen fibres, then you will usually score highly on the Carter and Wilkinson (or Beighton) system across a wide variety of joints, with the knee and the base of the thumb being particularly supple.

These proteins also have other effects. We know that women are almost always more supple than men of the same age. This suggests that the female sex hormones alter the collagen proteins. Women are generally more supple just before a period, and even more so in the latter stages of pregnancy, because of the effect of a hormone called relaxin. This hormone allows the pelvis to expand so the head of the baby can pass through.

Different races have differences in their joint mobility, which may reflect differences in the structure of the collagen proteins. People from the Indian sub-continent, for example, often have much more supple hands than Europeans.

The tone of your muscles

The tone (or stiffness) of your muscles is controlled by your nervous system, and influences the range of movement in the joints. Some people use special techniques to change their muscle tone and increase their flexibility. Yoga, for example, can help to relax the muscles and make the joints more supple. Gymnasts and athletes can sometimes acquire hypermobility in at least some of their joints through the exercises they do in training.

Your sense of joint movement (proprioception)

If you find it difficult to detect the exact position of your joints with your eyes closed, then you may develop hypermobile joints. This happens

because you are likely to over-stretch a joint before you notice you are doing so.

WHAT ARE THE SYMPTOMS?

If, for one or more of the above reasons, you have hypermobile joints, then you may have the following symptoms. The most frequent symptom is pain. This usually happens after hard physical work or exercise, because your muscles have to work much harder if the joints are supple than if they are stiff. As a result, what doctors call an 'over-use' develops in the muscles around the joint (though the pain may appear to come from the joint itself). Athletes often experience this after hard training or after an event. Sometimes fluid collects inside the hypermobile joint, making it feel tense and stiff. This is probably because your body is trying to repair the small amounts of damage that are caused if the joint is over-stretched. Your pain will often get worse as the day goes on and improve at night with rest. Sometimes, however, pain also occurs at night.

If your hypermobile joints are caused by altered collagen protein, then collagen may also be weakened in other parts of your body. This can lead to hernias or varicose veins. You may also have a flat arch to your foot, and this can lead to foot ache particularly after standing for a long period. Backache may affect you if the base of your spine is particularly supple, sometimes as a result of one of the bones in the back (vertebra) slipping on another. This is called a spondylolisthesis.

These problems do not mean that you have a disease – they are just the unfortunate effects of having joints that are more supple than most.

We must emphasize that only some people with hypermobile joints develop these symptoms. For reasons we do not fully understand, a large proportion of hypermobile people do not have any symptoms or problems.

WHY IS IT EASY TO INJURE HYPERMOBILE JOINTS?

You do risk injuring hypermobile joints if you over-stretch them. Sometimes the joint can dislocate. This occurs particularly at the shoulder, and may need a doctor to manipulate it back into place. Some people learn to manipulate their own joints back into place after such injuries.

HOW CAN PHYSIOTHERAPY HELP?

Opinions vary but research has shown the value of exercise. In most cases you can reduce your symptoms by doing gentle exercises to strengthen and condition the muscles around the joints which are particularly supple. These exercises may be against weights, or may just be the sort that anybody can do at home – a physiotherapist can advise on these. The important thing is to do these strengthening exercises frequently and regularly and not to overdo them. Use small weights, if any, and if you are worried that you might be in danger of overdoing the exercises, again, ask a physiotherapist for advice.

Some people with joint hypermobility find it helpful to keep moving – you can wear a splint or a firm elasticated bandage over the supple joint to protect against dislocation. Occupational therapists or physiotherapists can advise on these.

WHICH TABLETS CAN RELIEVE THE SYMPTOMS?

If rest and physiotherapy fail to control the symptoms of hypermobile joints, your doctor may prescribe painkillers. Paracetamol is probably the best and safest and you can buy it from high-street chemists. You can take up to eight 500 mg tablets a day. Your doctor may prescribe a stronger, compound painkiller such as cocodamol or codydramol if necessary. Note that

these sometimes cause side-effects such as constipation or dizziness.

If the joint often swells up, especially after dislocation, a non-steroidal anti-inflammatory drug (NSAID) such as ibuprofen may be better. This can also be purchased from chemists without a prescription and you can take up to eight 200 mg tablets a day. Your doctor may prescribe a higher dose if needed, or a different NSAID (there are many available). NSAIDs are more likely than painkillers to cause side-effects such as indigestion, diarrhoea, ankle-swelling and skin rashes, and there is a small risk of bleeding from the stomach. Because of this NSAIDs will not be given to people who have had stomach ulcers, and will not usually be given to people over the age of 60. Newer NSAIDs known as COX-2 inhibitors (or 'coxibs') are less likely to cause stomach problems but they have been linked with increased risks of heart attack and stroke, so they are not suitable for people who have had either in the past, or for people with uncontrolled high blood pressure.

You can also get either painkillers or NSAIDs as a spray or a cream, which allows them to be applied directly onto the troublesome joint. This method tends to be less effective, but does reduce the side-effects.

Long-term ('chronic') pain can get you down, and you may need help to cope with this. Some centres offer pain management programmes – so ask your doctor about these.

WILL SURGERY HELP HYPERMOBILE JOINTS?

In general, you should avoid surgery if possible, not least because supple tissue does not always heal well and quickly. Also, some hypermobile people are prone to bruising easily, and may require more blood transfusions if major surgery is carried out.

However, if you have the bad luck to rupture a tendon (which is more common if you have supple collagen) this should usually be repaired surgically. Otherwise, you should avoid operations if you can. Operations such as removing a kneecap that dislocates frequently, or stabilizing a very supple joint with a pin to fuse it, should be avoided if possible, as they may increase the risk of osteoarthritis later in life.

Trials are being carried out of a laser technique to tighten the joint, particularly at the shoulder and possibly at the knee. This seems to stabilize joints in the short term, but its long-term benefits and consequences are not yet known. At present the technique is only available in specialist centres.

IS THERE ANY LINK WITH OSTEO- ARTHRITIS?

Many doctors believe that joint hypermobility is linked to the development of premature osteoarthritis. In a normal joint the ends of the bones are covered by a layer of smooth, slippery gristle called cartilage. This helps to spread the forces evenly when you put pressure on the joint, and allows the ends of the bones to move freely against each other. Osteoarthritis causes the cartilage to roughen and become thin, which can lead to pain and stiffness in the joint. (See AF booklet 'Osteoarthritis'.) If your hypermobility is due to abnormally shaped bone surfaces or to an abnormal sense of joint position, then you are more likely to develop osteoarthritis. However, in general, the symptoms of osteoarthritis seem to be no worse in people who are hypermobile than in people who are not.

Recently supplements have been advertised that might protect in the long-term against the development of arthritis. One example is glucosamine. Opinions vary on its benefits, though trials conducted in the last two years look promising,

especially for the knee, and it seems to do no harm.

HOW CAN I HELP MYSELF?

As described above, exercise and some sports may bring on your symptoms and cause pain. Non-contact sports are safer, but choose the right one. You should not play squash, for example, because you often have to twist your joints under stress in confined spaces. This is one of the worst possible pursuits for people who are hypermobile or who are prone to hypermobility.

Children do not have to avoid physical education – what is important is to avoid overstretching the joints. Swimming can help, where the weight of the body is supported by water, and so can cycling. We also recommend simple strengthening exercises.

There is no specific diet to help joint hypermobility, but you should aim to eat a healthy, balanced diet and to keep your weight under control. Climate change (involving either changes in temperature or humidity) does not seem to affect the symptoms of hypermobile joints.

ARE THERE ANY ADVANTAGES IN HAVING HYPERMOBILE JOINTS?

There are some advantages in having hypermobile joints. They can help you in certain sports like gymnastics and diving. Hurdlers must have a wide range of movement at the hip, and swimmers, particularly those using butterfly stroke, need a wide range of movement at the shoulder. Athletics coaches will aim to promote ‘flexibility’, alongside strength and endurance, if the athlete is to perform competitively.

Flexible fingers can help musicians, particularly keyboard players and string players, though, in the latter case, only the hand that stops the

strings needs to be supple. For the bowing arm, a flexible shoulder may be more help. Some famous musicians, including the violinist Paganini and the pianist Rachmaninov, were well known for the exceptional flexibility of their fingers.

Dancers need the widest range of movement of all, in most (though not necessarily all) joints. However, some dancers will always be unable to perform certain movements, and teachers and choreographers must recognize this.

WILL HYPERMOBILITY BE PASSED ON TO MY CHILDREN?

Since the range of movement at the joints depends upon so many different factors this is very hard to predict and may require the specialist advice of a rheumatologist or geneticist.

If your hypermobility is caused by abnormal collagen proteins, and so is widespread affecting many joints, perhaps with easy bruising, there is fairly strong evidence that the condition can be passed from one generation to the next. At worst, providing your partner is not affected, half of your children are likely to inherit the condition, though the degree to which the child is affected is very variable, and girls are often affected more than boys.

Where joint hypermobility affects one or a small number of joints, particularly the hip and/or shoulder, suggesting shallow sockets in these joints, the condition is also likely to be inherited, broadly as suggested above.

If you have acquired your hypermobility by regular training, it is unlikely that it will be inherited by your children. It is not yet known whether hypermobility resulting from abnormal proprioception is inherited or not. About a quarter of people affected by hypermobility have no previous family history of it.

It is even harder to predict whether inherited

hypermobility will lead to osteoarthritis later in life. The best clue here may be to look at other members of your own family. If osteoarthritis is common in your family, it is reasonable to expect that your hypermobility will mean you are just as likely as any other family member to develop osteoarthritis, and perhaps slightly more so.

RARER INHERITED CONDITIONS ASSO- CIATED WITH JOINT HYPERMOBILITY

This booklet has concentrated on the vast majority of people with hypermobile joints, only some of whom will develop symptoms. Doctors usually say this group of people has 'benign hypermobility syndrome'. This means that other parts of the body are not affected.

Occasionally, joint hypermobility is just one part of a more widespread problem. In these much rarer conditions, there is more serious damage to the tissue proteins, with the result that other parts of the body are involved. These rarer conditions include osteogenesis imperfecta (OI), Marfan's syndrome and Ehlers-Danlos syndrome (EDS).

Osteogenesis imperfecta causes the bones to become fragile. Marfan's syndrome involves the heart, the eyes and the blood vessels. Ehlers-Danlos syndrome is the most difficult to diagnose because there are many different types. The most severe form causes weakness of the major blood vessels, which may swell (the swelling is called an aneurysm).

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