

Are Joint Hypermobility & Fibromyalgia Connected?

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Could there be a possible link between joint hypermobility and fibromyalgia? Or do these two syndromes simply overlap and mimic each other? They certainly share the same symptoms of wide spread musculoskeletal pain and stiffness, but does the liaison end there or do they share a similar underlying disease process? The jury is still out within the medical community, but research teams across the world are in the process of finding out.

Joint hypermobility can be defined as having supple joints that have the ability to perform movements beyond the normal range. It is most common in young women and its prevalence can vary between populations. For example, it is believed to affect about 5 % of the Caucasian population compared to a frequency 38 % of Middle Eastern women.¹

Joint hypermobility can be diagnosed by asking an individual to perform a series of hyperextensive movements. For example, placing their palms on the floor by leaning forward without bending their knees or placing the palm of their hand on the table and extending their fifth finger backwards by 90 degrees. If a person can perform a certain number of these abnormal ranges of movement then they are diagnosed as having hypermobile joints.

It is believed that hypermobile joints can be genetically determined or physically acquired, possibly through sport or work activities or performing constant repetitive actions with a specific joint.¹ The majority of people with joint hypermobility suffer no ill effects, however, the laxity of the joints can predispose some individuals to develop musculoskeletal pain and stiffness in their joints and muscles. The underlying cause of this condition is not precisely understood, but current research points towards defective collagen fibres² and some researchers now consider hypermobility to be a heritable disorder of connective tissue.³

Fibromyalgia is a syndrome characterised by a range of symptoms including widespread pain, sleep disturbance, fatigue, exercise intolerance, cognitive difficulties, anxiety and irritable bowel complaints. It is most frequently observed among women and recent surveys have revealed that it affects 2% of the population (3.4 % of women and 0.5 % of men).⁴

Fibromyalgia can be diagnosed using criteria proposed by the American College of Rheumatology (ARC) in 1990. Individuals should have a history of widespread pain for at least three months and exhibit tenderness in at least 11 of 18 specific tender points sites when pressed upon with a force of about 4 kg.⁵ The exact underlying disease processes of fibromyalgia are as yet unknown, however, there is increasing evidence to support mechanisms of faulty pain perception and a lack of deep sleep. The constant interruption of deep sleep during the night disrupts the release of growth hormone, which is responsible for repairing and restoring the body from the day's activities.⁶ Any tiny tears in the muscles or imbalance of chemicals that have built up during the day are left unchecked. It is like living in a body that is never fully MOTed, leaving you stiff and sore and feeling totally unrefreshed when you awake in the morning.

Faulty pain perception arises from high levels of the chemical substance P, used to transmit pain signals, combined with low levels of serotonin that work to depress pain, causing all pain messages to be greatly amplified.⁷ It is like the brain receiving the messages at full blast with no control over the volume switch. This state of play is referred to as 'central sensitisation'.

Fibromyalgia is managed with a combination of medications and physical therapies. Tricyclic anti-depressants like amitriptyline are used in low doses and act as painkillers, as well as increasing the amount of time spent in deep sleep.⁸ Muscle relaxants and painkillers like Tramadol can be employed to depress levels of pain by interrupting the pain signals and increasing the levels of serotonin.⁹ Exercise can be hard to tolerate, but is important to maintain on a regular basis to keep the muscles flexible and conditioned. Learning to pace activities through the day and knowing your boundaries is a vital step in managing fibromyalgia.

How do these two syndromes compare in the field of research? Current research studies have come up with conflicting results. Researchers Acasuso-Diaz and Collantes-Estevez from Cordoba in Spain believe the two disorders are associated and that mobile joints may play an important role in the underlying cause of fibromyalgia. Their study in 1998 compared 66 women with fibromyalgia to 70 women diagnosed with

other rheumatic diseases. Statistical analysis revealed a significant difference between these two groups, with 27 % of the women with fibromyalgia having hypermobile joints compared to only 11.4 % of the women with other rheumatic disorders.¹⁰

This conclusion is supported by a study in 1993 by Buskila et al from Beer-Sheva in Israel working in association with A. Gedalia based in New Orleans, USA.¹¹ In this study 338 children between the ages of 9-15 were assessed for symptoms of joint hypermobility and fibromyalgia. Children who could perform at least three hypermobile movements were considered to have hypermobility and those who fulfilled ARC criteria were diagnosed as having fibromyalgia. In total, 43 children were found to display hypermobility and 21 fulfilled the criteria for fibromyalgia. 40 % of the 43 children with joint hypermobility also had fibromyalgia and the authors concluded by statistical analysis that the two conditions were highly associated in children.¹¹

In contrast to these results researcher Karaaslan and his colleagues from Ankara in Turkey did not find a strong association between fibromyalgia and joint hypermobility. They began their studies with 88 women with widespread pain diagnosed as fibromyalgia and 84 healthy controls. On independent examination of the fibromyalgia participants they found that only 56 of the 88 fulfilled the ARC diagnostic criteria. When the reduced number of fibromyalgia participants was tested for hypermobile joints, 8 % displayed the symptoms of joint hypermobility compared to 6 % of the healthy controls. Interestingly though, out of the 32 remaining participants with widespread pain who did not fulfil the ARC criteria, 31% displayed hypermobile joints.²

The researchers concluded that those participants fulfilling the ARC criteria for fibromyalgia showed little association with joint hypermobility, demonstrating an almost equal frequency when compared with the healthy controls. Whereas those with widespread pain showed a much closer link and could in fact have joint hypermobility, which has been misdiagnosed as fibromyalgia. They reasoned *“hypermobility most likely plays a role in musculoskeletal pain in some individuals, but not necessarily in fibromyalgia.”*¹

It seems evident from all three studies that joint hypermobility is linked to widespread musculoskeletal pain in some individuals. However, the research studies conflict as to whether there is a direct link to fibromyalgia. It is feasible that joint hypermobility could mimic and be misdiagnosed as fibromyalgia, underlining the importance of the ARC criteria. Nevertheless, rheumatologists tend to differ in opinion as to whether strict adherence to ARC criteria is beneficial, but in the light of the evident overlap in symptoms some criteria need to be in place to prevent misdiagnosis.

Interestingly, joint hypermobility has also been linked to osteoarthritis.^{1 & 12} It is believed that these two conditions may share the same defects in connective tissue or the increased risk of trauma to the joints in individuals with hypermobility may increase the risk of developing osteoarthritis.¹ This additional connection suggests that hypermobile joints are unlikely to have a singular connection with fibromyalgia. It also detracts from the results by Acasuso-Diaz et al who compared the frequency of joint hypermobility in fibromyalgia with a group consisting of a range of rheumatic conditions, including, osteoarthritis, rheumatoid arthritis, lupus, carpal tunnel syndrome, tendonitis and osteoporosis. Perhaps if they had compared the frequency in fibromyalgia with the same number of participants with osteoarthritis a similar or even stronger association may have been found between hypermobility and the latter.

How could joint hypermobility predispose to fibromyalgia? It is suggested that excessive or inappropriate physical activity undertaken by people with joint hypermobility can lead to hyper extension of the joint capsule with repeated microtrauma to the ligament structures and surrounding muscles. This idea is supported by studies of hypermobile military recruits who suffer muscular and ligament lesions due to the excessive physical activity.¹ If the microtrauma to the muscles and ligaments is constantly repeated, this could lead to over activation of the pain receptors around the joints causing them to become hypersensitive. This hypersensitivity could lead to amplification of the pain signals, eventually creating a more widespread pain syndrome and triggering the additional symptoms of fibromyalgia. It is suggested that good muscle tone could protect hypermobile joints and physical conditioning with regular but not excessive exercise could help prevent the development of musculoskeletal pain.

In summary, Mary-Ann FitzCharles a rheumatologist from McGill University in Montreal states that, *“There is increasing evidence that at least a sub-group of patients with soft tissue musculoskeletal pain,*

widespread pain, or fibromyalgia are hypermobile. Clearly, hypermobility is not the only or the major factor in the development of widespread pain or fibromyalgia, but rather a contributing mechanism in some individuals."¹ Further research is the only way forward to shed more light on this issue and it will be interesting to see what is discovered over the next decade.

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