

If Snap, Crackle and Pop are having a party in your vertebral column, don't stress: you might not be completely over the wall yet.

Why do joints crack?

A popular theory for joint cavitation (popping sound) used to be explained by the build-up of nitrogen gas bubbles in the joint space, which would burst with a popping sound when under compression.

New research by Kawchuk et al. (2015) shows something completely different. Have a look at the following dynamic MRI of a finger joint cavitation (<https://www.youtube.com/watch?v=aJLU-4M-hdE>). According to the authors, certain forces exerted on the joint in specific positions forms a vacuum-like cavity between the two bony surfaces. This cavity then briskly fills up with joint fluid. Forces are exerted on the tough, fibrous joint walls, causing the popping sound.

Another theory that also holds ground, is that of muscle tendons sliding over bone, and sometimes causes a popping sound. This type of popping is more prevalent in cases of tendinopathy or muscle spasm in the surrounding soft tissue.

Is it bad to crack my own joints?

A bit of background on movement:

Active motion is performed voluntarily using your own muscles (e.g. actively bending forward or turning your neck). *Passive motion* involves no active muscle input – the body part in play is passively being moved around the joint

by an external force. Passive motion can take place through typical active movement patterns (*passive physiological*) or involve movements that cannot be performed actively at all, such as pulling your finger joints apart (*passive accessory*).

Joint popping may sometimes occur during non-forceful *active* movement (for example, looking over your shoulder). As long as the popping is NOT PAINFUL in any way, there is usually little risk for long-term harm. If the popping is becoming increasingly uncomfortable or painful, have it checked out. Research on *passive* joint manipulation has different outcomes, however. Knuckle cracking, for example, has been shown not to be associated with joint degeneration as is popularly accepted.

In my personal opinion, any force applied to your body that you do not have muscular control over, needs to be handled with extreme care. As a rule of thumb, I always advise my patients not to do any forceful passive motion of any part of the spine (like, for example, forcing your neck through extreme angles of rotation and giving it an extra pull at the end of range). Especially in the vertebral column, uncontrolled joint manipulation may lead to a whole lot of bad things:

- Reactive muscle spasm
- Joint irritation and Inflammation
- Overstretching of ligaments, potentially leading to
- Joint instability
- Spinal disc injury

Uncontrolled spinal manipulation can have very serious effects, including vertebral fractures, stroke and even death. Therefore: **NEVER allow any person to attempt any cracking of your spine if he/she is not a registered medical professional with training in joint manipulation.**

How does joint manipulation done by a therapist, help?

Joint manipulation is done by carefully graded, passive accessory movement of a skeletal joint, performed to achieve a therapeutic effect.

Scientists believe that manipulation of the spine has the following effects:

- Stimulate and mobilise joints in the vertebral column, which is covered in a extensive network of nerve tissue;
- Pain-stilling response due to the alteration of the way the joint senses pain;
- Reflexive relaxation of the muscles surrounding the joints;
- Reduces joint stiffness

Can it still be effective without a pop?

Yes, certainly. Not all joints will necessarily be ready for cavitation. For this reason, physiotherapists will first do slow, gentle mobilisation techniques to assess and treat the joint in the available pain-free range of motion. If the tissue won't allow for a manipulation, the mobilisations done in preparation would have already been of great benefit for the structure treated.

Will therapeutic joint manipulation work instantly?

It is important to understand that joint manipulation is not a quick-fix once-off solution for your pain – in fact, it may not even be indicated as technique at all to treat your condition. The human body is an extremely integrated system, and no part of it can ever be treated in isolation. The road to recovery is a multi-level process, of which joint manipulation may only form a part. Other

concurrent treatment techniques and rehabilitation are of great importance to obtain optimal recovery.

Manipulation is a very effective method in the treatment of spinal joint pain. But remember, always respect your medical professional's opinion if he/she is not comfortable to manipulate. They are probably following the most important rule of medicine: First do no harm.