

Final report

Project title: **Creaky knees and exercise beliefs and participation. A mixed-methods study**

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Plain language summary:

This report entails the planning, methodology, results and subsequent actions of our interview study into the influence that knee crepitus has on peoples' emotional and physical behaviours. Specifically, we sought to discover if people have concerns about knee crepitus, and whether these concerns influence decisions regarding exercise.

Crepitus: We have defined crepitus as any noise or sound that people may perceive coming from their knee joints.

BACKGROUND: A literature review of the current information about osteoarthritis, crepitus and patient perspectives/attitudes towards crepitus and exercise in general confirmed several things:

1. Osteoarthritis is a significant burden of disease in Australia.
2. Crepitus can be defined as a range of sounds elicited from any joint, which can sometimes be palpable.
3. Crepitus can be present in disease and normal states and may not be regularly measured for diagnostic purposes.
4. Although clinicians and health professionals place little emphasis on the presence of crepitus, it is something that can cause concern for patients.
5. Exercise is effective for prevention and treatment of joint health, however, many Australians do not meet current Australian exercise guidelines.

WHAT WE DID: Therefore, we conducted focus group and individual interviews of people with knee crepitus to inform the creation of a wider survey to collect information about the perspectives and exercise behaviours of people with crepitus. We theorised that people with knee crepitus may be concerned about their knees and hesitant or worried about exercise/movement that elicited any sounds.

After receiving ethics approval from UNSW Sydney, we commenced recruitment for the study. Recruitment was conducted through email invitations, social media posts and flyers in public places (e.g. doctor's office, cafes, gyms). People included were anyone aged over 18 years who had knee crepitus, with or without osteoarthritis, and with some level of concern about their crepitus. Twenty-four participants consented to take part in the study. The participants ranged in age from 21-69 years.

Two researchers guided the interviews, in a way that allowed for stimulation of conversation and thorough history taking of the participants' knee crepitus and experiences. Transcripts from these interviews were then analysed.

WHAT WE FOUND: Five key themes emerged, guided by the questions asked of the participants. These were:

- 1) the types of crepitus that the participants described varied
- 2) when they experienced their crepitus
- 3) what their crepitus meant to them
- 4) their attitudes and exercise behaviours regarding crepitus
- 5) the sources of advice received or wanted concerning their crepitus.

The results revealed that crepitus came in a range of different sounds for participants and could be variable depending on types of movement. Whilst no distinct patterns could be identified between types of movement and types of sounds, a range of descriptions were provided, for example from a "squeak" to the "loudest creak she'd ever heard", and ranged in description, such as "squeak", "little pops", "click", "grating", "cracking" and sounding like a "tin man".

The presence of crepitus caused a level of concern in most participants. However, it was not a high priority concern for most and their true concerns were only elicited from deeper questioning. For example, a participant described initially not being too concerned about the noise, but later admitting that they were worried it meant they would need a joint replacement sooner. Participants who had associated symptoms, particularly pain, stiffness, locking or catching, were more concerned about other symptoms than their crepitus.

Most participants were physically active and wanted to remain active. They all thought that exercise was good for their knee joint health, though it may depend on the type of exercise. The 'right type' of exercise that was considered beneficial for joints varied. Though most believed that strengthening exercises and non-twisting/lower impact exercises were positive for their joints. Generally, participants had not ceased exercise, but they may have modified their activities due to crepitus and associated symptoms. Some people had intentionally done more strength training to try alleviating their crepitus.

Participants agreed that more understanding about what causes crepitus and what exercise was safe for knee health would be beneficial. People with crepitus are interested to understand more about the cause of crepitus, and to be guided by health professionals as to what they can do to remain physically active, and if appropriate delay the onset of more concerning symptoms, such as pain.

HOW WE WILL USE THESE FINDINGS TO BENEFIT PEOPLE / INFORM FURTHER RESEARCH TO HELP PEOPLE IN THE FUTURE:

This study has informed researchers' understanding of the attitudes and beliefs of people with knee crepitus, allowing them to be better equipped to conduct broader study on the topic. With the current findings, we plan to conduct a larger population survey to capture information we may have missed. This may include getting responses from people with a greater variety of exercise habits and knowledge about their own health. The survey will hopefully reinforce our current evidence for the

attitudes and beliefs of people in the community with knee crepitus. The findings from these studies will be able to inform health professional approaches to education and management for people with crepitus and recognise opportunities to address any concerns, gaps in knowledge or misconceptions people may have. It is clear that people wish to be informed on what is going on in their own joints and want to be assured by health professionals what exercise is safe to do. From what we have learnt, we are now better equipped to do this.

WHY THIS PROJECT IS IMPORTANT:

Many people hear noises (crepitus) in their knees when they move. This can occur in people with osteoarthritis and those that do not have any other symptoms or conditions. It was important to find out how concerned people are when they hear crepitus in their knees and what they do about it. We found that people do not seem to be too concerned if they get crepitus with no other symptoms such as pain and they do like to keep active. Though they may modify what activities that they do. They also do not see a health professional to just to ask about their crepitus. This is important to know, as we can then try to find ways to promote positive messages to keep people active for their knee and overall health.