

Knuckle Cracking and Hand Osteoarthritis
American Board of Family Medicine
March-April 2011; Vol. 24; No. 2; pp. 169-174

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1) Characteristics of hand osteoarthritis:

- It increases in prevalence and severity with age.
- 22% of those aged between 71 to 100 years have symptomatic hand osteoarthritis.
- Risk factors include prior joint trauma, family history of hand osteoarthritis, and history of heavy labor involving the hands.
- Those with hand osteoarthritis have reduced grip strength, difficulty writing, difficulty handling small objects, and difficulty carrying objects.
- "Given this burden of suffering from hand OA and the lack of curative or disease-modifying treatments, factors that potentially protect against osteoarthritis warrant further investigation. One such factor is knuckle cracking."

2) Knuckle cracking is a behavior that involves manipulation of the finger joints that results in an audible crack, and it is often done habitually. It is estimated that 25% to 54% of people habitually crack their knuckles.

3) In this study, 20% of subjects habitually cracked their knuckles. The prevalence of habitual knuckle cracking in other studies include:

- 25% in adults older than 45 years
- 34% in 11-year-old children
- 54% among nursing home residents with a mean age of 78 years.

4) "Some people may crack knuckles because of the sense of relief it can bring, some because of habit, and some from both."

5) "Common urban legend suggests that KC will lead to arthritis of the hand joints," but this is not "supported in the medical literature."

6) "Previous studies have not shown a correlation between knuckle cracking and hand osteoarthritis."

7) In a 1975 study of 28 nursing home residents (average age 78 years), knuckle cracking was associated with a lower prevalence of osteoarthritis.

8) After knuckle cracking, there is an "immediate joint tension release and increased joint range of motion."

9) "During an attempt to crack a knuckle, the joint is manipulated by axial distraction, hyperflexion, hyperextension, or lateral deviation. This lengthens part or all of the joint space and greatly decreases intra-articular pressure, causing gases that have dissolved in the synovial fluid to form microscopic bubbles, which coalesce. When the joint space reaches its maximum distraction (up to 3 times its resting joint space distance), joint fluid rushes into the areas of negative pressure. The larger bubbles suddenly collapse into numerous microscopic bubbles, leading to the characteristic cracking sound. The maneuver leaves the joint space wider than it had been and synovial fluid more widely distributed. The stretching of joint ligaments required to produce the widened joint space also leaves the joint with greater range of motion. It typically takes at least 15 minutes for the joint to be able to be cracked again because of the time required for the microscopic bubbles to fully dissolve into solution and for the joint space to retract back to its resting position."

10) This study assessed 215 individuals, which is important because they "would need approximately 200 participants to reach statistical significance":
135 with osteoarthritis; 80 controls:

- Their mean age was 62 years (50 to 89 years).
- 43 (20%) habitually cracked their knuckles.
- Participant's hands were reviewed radiographically.

11) Participants were asked to quantify the frequency of their daily knuckle cracking:

- None
- 1-5 times/day
- 6-10 times/day
- 10-20 times/day
- >20 times/day

12) This "is the first study to correlate the duration and the total volume of previous knuckle cracking with osteoarthritis, in addition to the presence or absence of knuckle cracking."

- Participants described how frequently each day they crack each knuckle and for how many years they have been doing it.

13) "The prevalence of any knuckle cracking among the controls was not significantly different from prevalence in persons with osteoarthritis."

14) "This study represents the most comprehensive evaluation to date of habitual knuckle cracking and any association with hand osteoarthritis. Our findings support the conclusions of 2 previous studies that the presence of knuckle cracking is not associated with hand osteoarthritis."

15) "The duration of knuckle cracking has no correlation to the presence of osteoarthritis."

- There was "no significant correlation of knuckle cracking 'crack-years' with osteoarthritis in the respective joint."

16) These authors conclude, "a history of habitual knuckle cracking—including the total duration and total cumulative exposure to knuckle cracking—does not seem to be a risk factor for hand osteoarthritis."

17) "Knuckle cracking was not a risk for osteoarthritis in that joint." "A history of habitual knuckle cracking—including the total duration and total cumulative exposure—does not seem to be a risk factor for hand osteoarthritis."

COMMENTS

A lay argument against regular chiropractic care is that the cavitation of the joints increases the risk of osteoarthritis. This article assessed a clinically relevant number of individuals who cavitated their knuckle joints multiple times daily for years and suffered **no** increased risk of joint osteoarthritis.

Other studies have suggested that regular cavitation of joints may in fact reduce the risk of joint osteoarthritis.

This study further notes that joint cavitation improves the joint range of motion and reduces articular symptomatology.