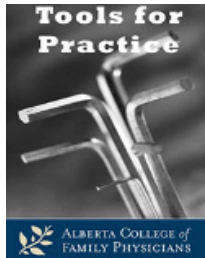


Tools for Practice is proudly sponsored by the Alberta College of Family Physicians (ACFP). ACFP is a provincial, professional voluntary organization, representing more than 4,800 family physicians, family medicine residents, and medical students in Alberta. Established over sixty years ago, the ACFP strives for excellence in family practice through advocacy, continuing medical education and primary care research. www.acfp.ca

June 15, 2020



Exercise-induced osteoarthritis: Running into problems?

Clinical Question: Does running increase the risk of developing osteoarthritis?

Bottom Line: Based on low-quality observational data, running likely does not increase the risk of developing osteoarthritis, except possibly in elite athletes. Additionally, recreational running may be associated with lowering the risk of knee osteoarthritis. Exercise is one of the most effective treatments for reducing osteoarthritic pain.

Evidence:

- Systematic review of 17 observational studies (including 7 cohort), 114829 patients. Compared “competitive runners” (professional/elite or represent their country at international competition), recreational runners, and controls:¹
 - Overall prevalence knee/hip osteoarthritis:
 - ~4% (all runners) versus 10% (control) (statistical significance not reported).
 - Separating runners by intensity of activity:
 - ~4% in recreational runners statistically lower than 13% in competitive runners.
 - ~4% in recreational runners not statistically different than 10% in controls.
 - Hip osteoarthritis: no difference.
 - Exception: one survey study found increased risk in 141 elite runners/cross-country skiers.²
 - Knee osteoarthritis:
 - Recreational running lowered risk of knee osteoarthritis:
 - 32% versus 38% control.
 - Competitive running versus control: no difference.
 - Largest cohort study, 16961 participants, followed for 11 years:³
 - No association in men >50 years old, or women of any age.
 - Exception: Men <50 years old who run/walk >30km/week had an increased risk of self-reported knee/hip osteoarthritis compared to sedentary controls (adjusted hazard ratio 2.4).

- Limitations: controls likely not completely sedentary, inclusion of case-control and cross-sectional studies, most cohort studies small (<100 participants), “diagnosis” of osteoarthritis variable (examples: relied solely on radiographs or patient recall).
- Systematic review, all types of runners, 15 observational studies:⁴
 - Lower risk of knee surgery due to osteoarthritis (3 case-control studies) in runners compared to non-runners: Odds Ratio=0.46 (statistically different).

Context:

- There is only a weak correlation between x-ray findings and osteoarthritis symptoms.⁵
- Knee injuries are associated with development of knee osteoarthritis, and some sports may be more prone to injury.⁶
- Exercise (any type) is one of the most effective treatments for osteoarthritis pain.⁷

Authors:

Adrienne J Lindblad BSP ACPR PharmD, Adam Keough MD CCFP (SEM), Joey Ton PharmD

Disclosures:

Authors do not have any conflicts of interest to declare.

References:

1. Allentorn-Geli E, Samuelsson K, Musahl V, *et al.* J Orthop Sports Phys Ther. 2017; 47(6): 373-90.
2. Kettunen J, Kujala UM, Kaprio J, *et al.* Am J Sports Med. 2001; 29(1):2-8.
3. Cheng Y, Macera CA, Davis DR, *et al.* J Clin Epidemiol. 2000 Mar 1; 53(3): 315-22.
4. Timmins KA, Leech RD, Batt ME, *et al.* Am J Sports Med. 2016; 45(6):1447-1457.
5. Lin DCM, Reichmann WM, Gossec L, *et al.* Osteoarthritis Cartilage. 2011; 19(5):543-9.
6. Thelin N, Holmberg S, Thelin A. Scand J Med Sci Sports. 2006; 16:329-33.
7. Ton J, Perry D, Thomas B, *et al.* Can Fam Physician. 2020 Mar; 66(3):e89-98.

Tools for Practice is a biweekly article summarizing medical evidence with a focus on topical issues and practice modifying information. It is coordinated by G. Michael Allan, MD, CCFP and the content is written by practising family physicians who are joined occasionally by a health professional from another medical specialty or health discipline. Each article is peer-reviewed, ensuring it maintains a high standard of quality, accuracy, and academic integrity. If you are not a member of the ACFP and would like to receive the TFP emails, please sign up for the distribution list at <http://bit.ly/signupfortfps>. Archived articles are available on the ACFP website.

This communication reflects the opinion of the authors and does not necessarily mirror the perspective and policy of the Alberta College of Family Physicians.