

Joint Management: A Knowledge Synthesis for a Web-Based Platform for Individuals with Mild to Moderate Knee Osteoarthritis.



S. Guay, S. Kahlon, K. Quinn

Masters of Clinical Science – Advanced Health Care Practice, School of Physical Therapy, Faculty of Health Sciences, Western University, London, ON

Background

- Knee osteoarthritis (KOA) is a common musculoskeletal condition resulting in reduced quality of life, decreased mobility, pain, stiffness, reduced range of motion, and increased disability¹
- Nonoperative KOA management emphasizes exercise as a first-line treatment^{1,2} however, there are many misconceptions surrounding the safety of exercising with KOA³
- Running is a form of exercise many individuals believe is harmful, despite its many known, and well-studied, positive health benefits⁴
- Infographics are a knowledge translation (KT) aid that assists in the dissemination of evidence into clinical practice⁵

Purpose

- Identify knowledge gaps between scientific literature and patient beliefs surrounding running and KOA
- Develop two KT products to address the knowledge gaps identified, particularly for:
 - The relationship between running and knee joint health
 - Benefits of running in individuals with KOA
- Seek patient-stakeholder and clinician-stakeholder feedback

Methods

- An electronic database search was conducted which reviewed 229 articles to identify the effects of exercise and running on KOA
- Emergent themes developed based on scoping review findings
- Two infographic topics were developed from the information gathered:
 1. Debunking myths regarding running and KOA
 2. Recommendations on running strategies to best manage and reduce KOA symptoms
- Rough drafts of infographics were produced on canva.com and later edited by a graphic designer to improve visual appeal
- Surveys were sent to patient and healthcare practitioner stakeholders for feedback and edit recommendations
- Target clinician audience: physiotherapists, family doctors, sports medicine doctors, and chiropractors
- Target patient audience: individuals interested in running, currently running or fearful of developing or aggravating symptoms of KOA through running

Results

IS RUNNING KNEE FRIENDLY?

- Moderate-volume running improves knee joint health more than a sedentary lifestyle or high-intensity running
- Runners have a better ability to perform activities of daily living (ex. housework, gardening, climbing a flight stairs) than non-runners
- Running helps with weight management, which further protects your knee from osteoarthritis (OA)

Running regularly (>1/week) 3x ↓ Knee OA

Participating in running events 2x ↓ Knee replacements

FOR RUNNERS

- Running moderate distances places an acceptable amount of impact through your knee. Some research says running <100km /week is best
- ↑ Cadence = more and shorter steps = ↓ forces through the knee
- Multiple shorter distance runs may be better tolerated than longer distance runs
- Running on a variety of surfaces may (i.e grass, road, track) helps your knee adapt and decreases the chance of injury
- If you're new to running, start slow and begin with walk/run programs

Disclosure: For individualized recommendations please consult your healthcare provider

Western HealthSciences
Advanced Health Care Practice – CMP Field
Affiliated with the School of Physical Therapy

JM JOINT MANAGEMENT

Infographic 1

EMERGENT THEMES

- Three emergent themes were developed based on our scoping review findings and incorporated into the infographics:
 1. Protective effects of running for KOA progression and development
 2. Running does not worsen KOA
 3. Running recommendations

TRUE OR FALSE RUNNING IS HARMFUL TO KNEES WITH OSTEOARTHRITIS (OA)

FALSE! HERE'S WHY...



RUNNING DOES NOT HARM, AND MAY EVEN PROTECT KNEE CARTILAGE

- Cartilage health and bony changes are no worse for lifetime runners.
- Running places forces through the joint that may improve health of the cartilage.



RUNNING DOES NOT WORSEN KNEE OA

- Recreational running protects knees from getting or worsening OA.
- Non-runners are twice as likely to have knee surgery for knee OA compared to runners.
- Runners 50+ years old with knee OA have less pain, stiffness and comparable x-ray reports to non-runners.



RUNNING CAN IMPROVE KNEE OA SYMPTOMS

- In adults with mild to moderate knee OA, recreational runners have less knee pain than non-runners.
- Exact running amount to reduce knee OA symptoms is unknown.
- More frequent exercise leads to less pain for people with knee OA.



RUNNING IMPROVES BONE STRENGTH

- Running improves bone density (a measure of bone strength) which reduces chance of bone injury.
- Recreational running leads to improved bone strength in runners with knee OA.

Disclosure: For individualized recommendations please consult your healthcare provider



Infographic 2

SURVEY RESULTS

- Healthcare provider stakeholders:
 - ≥88% reported the infographics were easy to read/understand
 - 88% reported they were likely to utilize these infographics
 - 28% reported they consult on the topic of KOA and running
- Patient stakeholders:
 - 96% found information on both infographics were valuable

Discussion

- Presentation of evidence-based research in the format of two infographics
- Stakeholder feedback resulted in an addition of a disclaimer to contact a healthcare practitioner for further guidance regarding initiating or continuing running with KOA
- Survey results demonstrated a discrepancy between clinician's desire to implement this information and actual dissemination of this information to patients
- Current evidence suggests that running is safe for knee joint health in individuals with and without KOA, and may have protective effects against KOA

Future Directions

- Sample population directed towards our target stakeholders
- Further research identifying running parameters for individuals with KOA is required
- Further quality research required on running and KOA
- Evaluation of educational materials in context of web-based platform

Conclusion

- We produced two knowledge translation products in the form of infographics
- We identified a knowledge gap between patients' beliefs surrounding KOA and the benefits/safety of running
- Evidence-based infographics are accessible to public on the Joint Management website

References

1. Katz JN, Arant KR, Loeser RF. Diagnosis and treatment of hip and knee osteoarthritis: a review. *Jama*. 2021 Feb 9;325(6):568-78.
2. Duong V, Daniel MS, Ferreira ML, Fritsch CG, Hunter DJ, Wang X, Wei N, Nicolson PJ. Measuring adherence to unsupervised, conservative treatment for knee osteoarthritis: a systematic review. *Osteoarthritis and Cartilage Open*. 2021 Apr 30:100171.
3. Bunzli S, BHealthSci PO, Ayton D, Dowsey M, Gunn J, Choong P, Manski-Nankervis JA. Misconceptions and the acceptance of evidence-based nonsurgical interventions for knee osteoarthritis. A qualitative study. *Clinical orthopaedics and related research*. 2019 Sep;477(9):1975.
4. Alentorn-Geli E, Samuelsson K, Musahl V, Green CL, Bhandari M, Karlsson J. The association of recreational and competitive running with hip and knee osteoarthritis: a systematic review and meta-analysis. *Journal of orthopaedic & sports physical therapy*. 2017 Jun;47(6):373-90.
5. Scott H, Fawcner S, Oliver CW, Murray A. How to make an engaging infographic? *Br J Sports Med*. 2017 Aug;51(16):1183-1184.