The relationship of lower extremity persistent pain and osteoarthritis on running and physical activity in recreational runner: large prospective cohort study (Running Through)

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Introduction

Over the past forty years, running has become one of the most popular physical leisure activities. An estimated 50 million people in Europe participate in running to stay healthy.[1] However, despite the popularity and potential health benefits, the injury incidence associated with running is significant.[2] Furthermore, in a systematic review, runners reported increased prevalence of osteoarthritis compared to sedentary controls.[3] Thus, there is a need to quantify symptomatic osteoarthritis and running habits in this population.

Objectives

1) Describe physical activity and running habits of recreational runners in the United Kingdom
2) Investigate the association between lower extremity persistent pain on walking and running training load.

Methods

- Prospective study 'Running Through' on community runners, joggers, and Nordic Walkers was collected via electronic survey February-October 2021.
- Weekly messages captured running distance, pace, and injuries.
- Inclusion Criterion:
  - i. Age ≥ 18 years
  - ii. Participation in running activities

Outcome

- Persistent pain = 'pain on most days of the last month.'

Statistical Analyses

- Analyses of covariance (ANCOVA)
- Confounders controlled for included:
  - i. Age, Body Mass Index, Sex
  - ii. Year of running
  - iii. Previous lower extremity injury

Results

- 5,304 people clicked on the link, 2,603 completed the survey
- Followed for median 9 (1, 24) weeks
- No difference in weekly training load for that reported persistent lower limb pain [-0.1 (-2.1-2.0) km]
- Increase in running pace for those that reported persistent lower limb pain [7.3 (1.0-14.4) min/km]

Table 1. Demographics

Variable	All Participants (n = 2,603)	Lower Extremity Persistent Pain* (n = 685)	No Lower Extremity Persistent Pain (n = 1,918)
Age (years) §	49.8 (12.7)	50.6 (12.4)	49.5 (12.7)
Body Mass Index §	24.3 (4.3)	24.5 (4.2)	24.0 (3.7)
% Female	42%	41%	44%
Smoker			
Current	2%	1%	2%
Former	13%	14%	13%
Cigarettes/Day†	5 (1, 10)	12 (4, 21)	5 (1, 9)
Diabetes	1%	1%	1%
Asthma	14%	18%	12%
Taking Blood Pressure Medication	8%	9%	6%
Lower Extremity Osteoarthritis	1.5%	1.5%	0%

Table 2. Running Habits

Variable	All Participants (n = 2,603)	Lower Extremity Persistent Pain* (n = 685)	No Lower Extremity Persistent Pain (n = 1,918)
Days of Exercise/Week †	5 (4, 6)	5 (4, 6)	5 (4, 6)
Terrain Run on			
Track	4%	5%	4%
Road	72%	70%	73%
Trail	19%	21%	18%
Treadmill	1%	2%	<1%
Distances Ran			
One Mile	17%	19%	16%
5km	78%	77%	79%
10km	59%	55%	61%
Half Marathon	22%	21%	23%
Marathon	3%	4%	3%
Km per week †	22.5 (9.7, 35.3)	22.5 (9.6, 35.5)	22.4 (9.7, 35.1)
Running Pace (sec/km) †	6.2 (5.5, 6.9)	6.2 (5.6, 6.9)	6.0 (5.4, 6.7)

*Persistent pain was defined as reporting pain on most days of the last month

§mean (standard deviation); †median (interquartile range)

Conclusion

- Lower limb pain is common amongst runners but they maintain high levels of physical activity
- Runners with persistent lower extremity pain report running similar weekly running distance
- However, these runners may run at a slower pace and choose softer running surfaces.
- These findings could inform better strategy engagement for those who suffer from joint pain in regular running activities

References

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3. Timmins KA, et al. . Running and knee osteoarthritis: a systematic review and meta-analysis. Am J Sport Med. 2017;45(6):1447-57.