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# Musculoskeletal injury rates in multiday marathon runners performing a repeat course

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Monaco abstracts 271, British Journal of Sports Medicine 2017; 51 (4):390-391, Published online 1 February 2017. <http://dx.doi.org/10.1136/bjsports-2016-097372.271>

## Abstract

**Background** Ultramarathon events are increasingly popular amongst non-elite athletes. However, there is little research investigating musculoskeletal injury rates, specifically multiday events using the same racing route.

**Objective** To describe musculoskeletal injury rates in runners completing ten marathons over ten consecutive days.

**Design** Observational.

**Setting** Sports-injury clinic.

**Participants** 27 athletes entered the study (age  $45.1 \pm 7.47$  yrs, mass  $74.5 \pm 12.39$  kg, years running  $11.6 \pm 9.42$  yrs, average weekly mileage  $41.9 \pm 12.72$  miles). 26 athletes completed all 10 marathons on a repeat, anti-clockwise, circular road course. One athlete withdrew due to serious injury.

**Main Outcome Measurements** Musculoskeletal injuries were recorded by trained medical staff three times each day. An injury audit questionnaire was used to document injury rate, type and location. Injuries were defined as a specific musculoskeletal abnormality that the runner perceived to effect performance.

**Results** 26 athletes sustained 108 injuries, averaging 4 injuries per athlete. 89% of injuries involved the lower extremity, 24.1% occurred in the foot, 18.5% the hip/buttock, 16.7% the ankle and 16.7% in the lower leg. The most common injuries were blisters (15.7%), Achilles tendinitis (11.1%), medial tibial stress syndrome (10.2%), iliotibial band syndrome (ITBS) (9.3%) and low back pain (LBP) (9.3%). 64.3% of injuries were sustained to the left limb. Chi-squared analysis revealed more injuries in days 1–3 than days 4–6 ( $p=0.013$ ) and days 7–10 ( $p=0.001$ ).

**Conclusions** Lower extremity injuries are highly likely in multiday marathon running; the most common being blisters, Achilles tendinitis, medial tibial stress syndrome, ITBS and LBP. Athletes entering these events should engage in appropriate injury prevention programmes. The majority of injuries were sustained to the left limb and during the first three days. Multiday marathon event organisers should consider alternating route direction to reduce injury risk; potentially the result of prolonged, altered gait biomechanics. However, further investigation of injury risk factors using larger sample sizes is required.