

## ORIGINAL RESEARCH

## SIXTY SECONDS OF FOAM ROLLING DOES NOT AFFECT FUNCTIONAL FLEXIBILITY OR CHANGE MUSCLE TEMPERATURE IN ADOLESCENT ATHLETES

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## ABSTRACT

**Background:** Physiotherapists and other practitioners commonly prescribe foam rolling as an intervention, but the mechanistic effects of this intervention are not known.

**Purpose:** The aim of this investigation was to establish if a single bout of foam rolling affects flexibility, skeletal muscle contractility and reflected temperature.

**Methods:** Twelve adolescent male squash players were evaluated on two separate occasions (treatment and control visits) and were tested on both legs for flexibility of the hip flexors and quadriceps, muscle contractility (as measured by tensiomyography) and temperature of the quadriceps (assessed via thermography) at repeated time points pre- and post a 60s rolling intervention (pre-, immediately post, 5, 10, 15, and 30 minutes post). They rolled one leg on the treatment visit and did not perform rolling on the control visit.

**Results:** The main outcome measure was the flexibility of hip flexor and quadriceps at repeated time points up to 30 minutes post intervention. The average foam rolling force was 68% of subject's body weight. This force affected the combination of hip and quadriceps flexibility ( $p=0.03$ ; 2.4 degrees total increase with foam rolling) but not each muscle independently ( $p = 0.05 - 0.98$ ) following a single 60s bout. Muscle contractility is not affected ( $p = 0.09 - 0.93$ ) and temperature is not increased by foam rolling across time points ( $p=0.19$ ).

**Conclusions:** A single sixty-second bout of rolling applied to the quadriceps induces a small significant change in flexibility that is of little practical relevance, while muscle contractility and temperature remain unchanged. Investigation of larger doses of rolling is merited in athletic populations to justify current practice.

**Level of Evidence:** 2c

**Keywords:** Adolescent, flexibility, tensiomyography, thermography

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