

## CASE SERIES

## MODIFYING MARCHING TECHNIQUE IN MILITARY SERVICE MEMBERS WITH CHRONIC EXERTIONAL COMPARTMENT SYNDROME: A CASE SERIES

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## ABSTRACT

**Background and Purpose:** The long-term effectiveness of both operative and non-operative management approaches for Chronic Exertional Compartment Syndrome of the lower legs (CECS) is moderate at best. Positive outcomes have recently been reported on modifying running technique in individuals with CECS. The purpose of this case series was to evaluate a training program aimed at changing marching technique in individuals with CECS, based on principles that aim to eliminate heel strike and decrease impact during foot strike.

**Study Design:** Case series.

**Methods:** Six service members with CECS underwent a five-week training program aimed at modifying marching technique. The program was comprised of foot/lower leg strengthening exercises, perception drills, and treadmill/outdoor marching bouts. Self-assessed leg condition, march endurance performance, and kinematic/kinetic measurements were assessed at baseline ( $T_0$ ), post-treatment ( $T_3$ ), and nine months post-intervention ( $T_{40}$ ).

**Results:** Moderate to fair pre- to post improvements on the self-assessed leg condition outcomes were demonstrated for most participants (4% to 73% improvements). These scores continued to improve until the 9 months follow-up. Marching performance improved during the intervention period in all but one subject, ranging from 6% to 38% improvement in marching time. Kinematic and kinetic data showed pre- to post-intervention changes that were reflective of the marching technique modification in most subjects. Post-intervention pain profiles of participants during marching showed that, in most subjects, the onset of leg pain was delayed compared to baseline.

**Conclusions:** A five-week intervention aimed at altering marching technique has demonstrated moderately promising results in a group of service members with CECS of the lower legs who had previously undergone other conservative management interventions without success. Due to the relatively small sample size and the variability in subject outcomes, further research is warranted.

**Key Words:** Chronic exertional compartment syndrome, lower leg, marching technique

**Level of Evidence:** 4

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