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Impact and correlates of night-time calf cramp

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Background: Night-time muscle cramps affect approximately one in two people over 60 years of age yet the impact of these cramps has not been empirically explored, the cause is poorly understood and no treatment has demonstrated consistent efficacy or safety in clinical trials.

Aim: For night-time calf cramp (the most common presentation of night-time cramp) to evaluate the impact on quality of sleep and health-related quality of life and to identify correlates.

Methods: Eighty adults who experienced night-time calf cramp at least once per week and eighty age and sex matched controls that never experienced night-time cramp were recruited from the Greater Newcastle and Central Coast regions of New South Wales, Australia. All participants: Completed the SF-36v2, the Medical Outcomes Study Sleep Survey (MOS-SS) and a bespoke survey examining health and lifestyle factors, exercise, lower limb symptoms and footwear characteristics and were assessed clinically using reliable tests of foot/ankle and toe strength, range of ankle dorsiflexion, hamstring flexibility, foot alignment, calf circumference, peripheral circulation and sensation.

Results: People who experienced night-time muscle cramps reported more sleep disturbance ($p < 0.001$), less adequate sleep ($p = 0.001$), less quantity of sleep ($p = 0.02$) and more snoring ($p = 0.03$). Both sleep problem summary indices for the MOS-SS identified people who experienced night-time muscle cramp as having more sleep problems than the controls. People who experienced night-time muscle cramps had lower health-related quality of life for the SF-36 domains role physical ($p = 0.007$), bodily pain ($p = 0.003$) and general health ($p = 0.02$). SF-36 domains that primarily relate to mental health were not significantly different between groups. The impact of night-time calf cramps on health-related quality of life was largely explained by their negative impact on quality of sleep. Logistic regression analyses identified the following factors as being independently associated with night-time calf cramps: Muscle twitching (OR 4.6; 95% CI: 1.6 to 15.5; $p = 0.01$), lower limb tingling (OR 4.1; 95% CI: 1.6 to 10.3; $p = 0.003$) and foot dorsiflexion weakness (OR 1.02; 95% CI: 1.01 to 1.03; $p = 0.002$) which represented other measures of lower limb weakness in the model.

Conclusions: Night-time calf muscle cramps are associated with substantially reduced quality of sleep and reduced physical aspects of health-related quality of life and are independently associated with clinical features of neurological dysfunction and potential musculoskeletal therapeutic targets.

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