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Effect of oral magnesium supplementation on physical performance in healthy elderly women involved in a weekly exercise program: a randomized controlled trial.

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Abstract

BACKGROUND:

Magnesium deficiency is associated with poor physical performance, but no trials are available on how magnesium supplementation affects elderly people's physical performance.

OBJECTIVE:

The aim of our study was to investigate whether 12 wk of oral magnesium supplementation can improve physical performance in healthy elderly women.

DESIGN:

In a parallel-group, randomized controlled trial, 139 healthy women (mean ± SD age: 71.5 ± 5.2 y) attending a mild fitness program were randomly allocated to a treatment group (300 mg Mg/d; n = 62) or a control group (no placebo or intervention; n = 77) by using a computer-generated randomization sequence, and researchers were blinded to their grouping. After assessment at baseline and again after 12 wk, the primary outcome was a change in the Short Physical Performance Battery (SPPB); secondary outcomes were changes in peak torque isometric and isokinetic strength of the lower limbs and handgrip strength.

DynX used in this trial for isometric exercise and strength measurements.

RESULTS:

A total of 124 participants allocated to the treatment (n = 53) or control (n = 71) group were considered in the final analysis. At baseline, the SPPB scores did not differ between the 2 groups. After 12 wk, the treated group had a significantly better total SPPB score (Δ = 0.41 ± 0.24 points; P = 0.03), chair stand times (Δ = -1.31 ± 0.33 s; P < 0.0001), and 4-m walking speeds (Δ = 0.14 ± 0.03 m/s; P = 0.006) than did the control group. These findings were more evident in participants with a magnesium dietary intake lower than the Recommended Dietary Allowance. No significant differences emerged for the secondary outcomes investigated, and no serious adverse effects were reported.

CONCLUSIONS:

Daily magnesium oxide supplementation for 12 wk seems to improve physical performance in healthy elderly women. These findings suggest a role for magnesium supplementation in preventing or delaying the age-related decline in physical performance.

TRIAL REGISTRATION:

ClinicalTrials.gov NCT01971424.

Comment in

- Assessing magnesium by 24-h urinary excretion. [Am J Clin Nutr. 2015]
- Reply to MM Joosten et al. [Am J Clin Nutr. 2015]
- A critical appraisal on the association and effects of magnesium and bone density on physical performance in elderly women. [Am J Clin Nutr. 2015]
- Reply to CP Unocc et al. [Am J Clin Nutr. 2015]

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Sarcopenia and Dynapenia in Patients With Parkinsonism.

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Abstract

OBJECTIVES:

To estimate prevalence of sarcopenia and dynapenia in outpatients with Parkinson disease (PD) and to investigate their association with the features of the disease.

DESIGN: Cross-sectional study.

SETTING: A specialized tertiary care center.

PARTICIPANTS: Consecutive patients (n = 364) aged 65 years or older, affected by parkinsonian syndromes.

MEASUREMENTS:

Skeletal muscle mass (SMM), as well as strength and gait speed (GS) were assessed by bioimpedence analysis, handgrip dynamometry, and the 4-meter walking test, respectively. Based on these assessments, sarcopenia was diagnosed using the European Working Group on Sarcopenia in Older People criteria. Dynapenia was defined as handgrip strength less than 30 kg in men and less than 20 kg in women.

DynX device was used in to measure handgrip strength.

RESULTS:

In total, 235 patients (64.6%) had a diagnosis of idiopathic PD. Low SMM index was recorded in 27 patients. Due to gait disturbances and postural instability, GS could not be measured in 98 patients and was found to be reduced in 61.3% of those assessed. Prevalence of sarcopenia and dynapenia was 6.6% (95% confidence interval [CI] 4.3-9.7) and 75.5% (95% CI 70.8-79.9), respectively. Sarcopenia tended to be higher in patients unable to perform GS assessment and was unrelated to the type of parkinsonian syndrome. It was associated with older age, longer disease duration, more severe disease, and higher disability in activities of daily living, as assessed by disease-specific clinical rating scale. Dynapenia was directly associated with parkinsonism other than PD, older age, and disability, whereas regular physical therapy appeared to be a preventive factor. However, it was unrelated to disease duration and severity. Finally, the disability score of activities of daily living was inversely correlated with handgrip strength and GS, whereas no association was found with SMM index.

CONCLUSION:

Being primarily motor disorders, parkinsonian syndromes are characterized by progressive disability in performing activities of daily living. Impaired functional status is a prominent feature of this patient population, independently of disease duration and severity. Sarcopenia is mainly related to advancing disease and, due to a significant sparing of SMM, is an infrequent condition, likely to play a minor role in disability. Several factors could be responsible for this favorable body composition (eg, motor symptoms, levodopa therapy) and deserve further investigation. The prognostic impact of sarcopenia also needs to be addressed.

KEYWORDS:

Parkinson disease; disability; dynapenia; parkinsonism; sarcopenia

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