

Editorial Note on Muscle Weakness in Elderly Persons with Type 2 Diabetes

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EDITORIAL

Sarcopenia, or age-related loss of skeletal muscle mass, leads to decreased skeletal muscular strength, mobility limits, physical impairment, and, eventually, high mortality among the elderly. However, little is known about the causes or risk factors for skeletal muscle mass reduction in older persons. Furthermore, whereas weight growth and abdominal fat accumulation are known to be important risk factors for the development of type 2 diabetes, the changes in body composition following the start of diabetes are not well studied. We revealed that elderly people with type 2 diabetes have a distinct body composition and lower skeletal muscular strength when compared to nondiabetic older persons in a cross-sectional study. We also discovered that older persons with type 2 diabetes lost knee extensor strength faster than nondiabetic counterparts.

The consequences of type 1 diabetes on protein metabolism seem to be evident, with insulin deficiency causing a significant increase in catabolism, particularly in skeletal muscle. However, the influence of type 2 diabetes on protein metabolism is less obvious, as past studies' findings have been inconsistent. Few studies have looked at the impact of type 2 diabetes on skeletal muscle mass in people.

We studied changes in total and regional lean and fat mass over 6 years in the Health, Aging, and Body Composition Study (Health ABC Study) using accurate measurements of body composition using dual energy X-ray absorptiometry (DEXA) and computed tomography (CT). The study's goal was to look at the effect of type 2 diabetes on changes in body composition, with a focus on skeletal muscle, in community-dwelling, well-functioning older persons. We expected that older people with type 2 diabetes

would lose leaner skeletal muscle mass than older people without diabetes.

Endurance exercise training has been shown in epidemiological and intervention studies to be effective for diabetes prevention and treatment. In contrast, there has been little study on the impact of resistance exercise on diabetes treatment. Some of these researches used a resistance training method based on moderate-intensity and high-volume exercises. This sort of exercise may include a large amount of aerobic activity, which sedentary older persons may find difficult to manage. High-intensity, low-volume resistance training, on the other hand, may be a more bearable workout modality that both increases muscle growth and glucose uptake. As a result, the goal of this study was to see if high-intensity, low-volume progressive resistance training (PRT) can improve glycemic control and other metabolic abnormalities in a group of Latino older persons with poor glycemic control and no personal history of frequent exercise.

In older adults, weak muscle strength, but not muscle mass, is related with poor physical function. Muscle strength evaluated in middle-aged or elderly people is highly predictive of functional limitations and disability up to 25 years later. The effects of diabetes on muscular strength and quality, on the other hand, have never been studied in a population-based investigation. Because most people with diabetes are obese, have more muscle mass, and have a higher total body fat mass, comparing their muscle strength to those who do not have diabetes may be misleading with precisely quantify regional muscle mass and quantitatively assess in vivo skeletal muscle quality, defined as maximal voluntary contractile force or torque per unit regional muscle mass of the given body compartment, thanks to the development of body composition analysis.

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Received: May 21, 2021, **Accepted:** May 26, 2021, **Published:** May 31, 2021

Citation: Bandelow S (2021) Editorial Note on Muscle Weakness in Elderly Persons with Type 2 Diabetes. *J Gerontol Geriatr Res.* 10: 555.

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