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# ANHI | April 2024 Nutrition Research Review

## Identifying Children at Risk of Growth & Nutrient Deficiencies in the Food Allergy Clinic

**Publication:** The Journal of Allergy & Clinical Immunology
**Publish Date:** March 2024
**Authors:** Venter C, Meyer R, Bauer M, Bird JA, Fleischer DM, Nowak-Wegrzyn A, Anagnostou A, Vickery BP, Wang J, Groetch M

### ABSTRACT

Food allergies affect growth in children by decreasing the availability of nutrients through decreased dietary intake, increased dietary needs, food-medication interactions, and psychosocial burden. Guidelines on food allergy management frequently recommend nutrition counseling and growth monitoring of children with food allergies. The objective of this review is to provide clear guidance for clinicians to identify children with food allergies who are at

nutritional risk and ensure prompt intervention. This article provides a narrative review summarizing information from national and international guidelines, retrospective studies, population studies, review articles, case reports, and case series to identify those with food allergy at greatest nutritional risk, determine the impact of nutritional interventions on growth, and develop guidance for risk reduction in children with food allergies. The authors report children with food allergies are at increased risk of nutritional deficiencies and poor growth. Nutritional assessment and intervention can improve outcomes. Identifying poor growth is an important step in the nutrition assessment. Therefore, growth should be assessed at each allergy evaluation. Interventions to ensure adequate dietary intake for growth include appropriately prescribed elimination diets, breast-feeding support and assessment, supplemental formula, vitamin and/or mineral supplementation, appropriate milk substitutes, and timely introduction of nutrient-dense complementary foods. Access to foods of appropriate nutritional value is an ongoing concern. Nutrition intervention or referral to registered dietitian nutritionists with additional training and/or experience in food allergy may result in improved growth and nutrition outcomes.

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## Effect of Early Preventive Supplementation with Calcium & Phosphorus on Metabolic Bone Disease in Premature Infants

**Publication:** BMC Pediatrics
**Publish Date:** March 2024
**Authors:** Xu X, Ma H, Cheng S, Xue J

### ABSTRACT

The objective was to study the effect of early preventive calcium and phosphorus supplementation on metabolic bone disease in preterm infants.

This retrospective study analyzed 234 preterm infants with a gestational age < 32 weeks or birth weight < 1500 g who were hospitalized in the Neonatology Department of the Second Hospital of Shandong University from 01.2018 to 12.2020. One hundred thirty-two premature infants hospitalized from 01.2018 to 06.2019 did not receive prophylactic calcium and phosphorus supplementation in the early postnatal period. These infants received calcium or phosphorus supplementation at the time of hypocalcemia or hypophosphatemia diagnosis. One hundred two

premature infants hospitalized from 07.2019 to 12.2020 received early preventive calcium and phosphorus supplementation after birth. The levels of serum calcium and phosphorus, alkaline phosphatase, 25-hydroxyvitamin D, calcitonin, and parathyroid hormone at different time points and growth indicators at six months of age were compared between the two groups of infants. The number of cases of metabolic bone disease and fracture between the two groups was compared. Results showed 1) A total of 12 infants (5.13%) among the 234 preterm infants were diagnosed with metabolic bone disease, including 2 (1.96%) in the prophylactic supplementation group and 10 (7.58%) in the nonprophylactic supplementation group. Fractures occurred in 3 premature infants (25.0%) with metabolic bone disease, all of whom were in the group that did not receive prophylactic supplementation. 2) There was no significant difference in serum calcium and calcitonin levels between the two groups. The levels of serum phosphorus and 25 hydroxyvitamin D in the prophylactic supplementation group were higher than those in the nonprophylactic supplementation group ($P < 0.05$). In comparison, alkaline phosphatase and parathyroid hormone levels were lower in the prophylactic supplementation group than in the nonprophylactic supplementation group ($P < 0.05$). Preterm infants in the prophylactic supplementation group had higher weight, length, head circumference, and bone density values than those in the nonprophylactic supplementation group ($P < 0.05$). The authors concluded preventive supplementation with calcium and phosphorus after birth can effectively improve calcium and phosphorus metabolism, and reduce the incidence of metabolic bone disease and fractures in premature infants.

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## The Impact of Prehabilitation on Outcomes in Frail & High-Risk Patients Undergoing Major Abdominal Surgery: A Systematic Review & Meta-Analysis

**Publication:** Clinical Nutrition
**Publish Date:** March 2024
**Authors:** Skorepa P, Ford KL, Alsuwaylihi A, O'Connor D, Prado CM, Gomez D, Lobo DN

### ABSTRACT

**Background & aims:** Prehabilitation comprises multidisciplinary preoperative interventions including exercise, nutritional optimization and psychological preparation aimed at improving surgical outcomes. The aim of this systematic review and meta-analysis was to determine the impact of prehabilitation on postoperative outcomes in frail and high-risk patients undergoing

major abdominal surgery.

**Methods:** Embase, Medline, CINAHAL and Cochrane databases were searched from January 2010 to January 2023 for randomized clinical trials (RCTs) and observational studies evaluating unimodal (exercise) or multimodal prehabilitation programs. Meta-analysis was limited to length of stay (primary end point), severe postoperative complications (Clavien-Dindo Classification Grade 3) and the 6-minute walk test (6MWT). The analysis was performed using RevMan v5.4 software.

**Results:** Sixteen studies (6 RCTs, 10 observational) reporting on 3339 patients (1468 prehabilitation group, 1871 control group) were included. The median (interquartile range) age was 74.0 (71.0-78.4) years. Multimodal prehabilitation was applied in fifteen studies and unimodal in one. Meta-analysis of nine studies showed a reduction in hospital length of stay (weighted mean difference -1.07 days, 95 % CI -1.60 to -0.53 days, $P < 0.0001$, $I^2$ -19 %). Ten studies addressed severe complications and a meta-analysis suggested a decline in occurrence by up to 44 % (odds ratio 0.56, 95 % CI 0.37 to 0.82, $P < 0.004$, $I^2 = 51$ %). Four studies provided data on preoperative 6MWT. The pooled weighted mean difference was 40.1 m (95 % CI 32.7 to 47.6 m, $P < 0.00001$, $I^2 = 24$ %), favoring prehabilitation.

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## Diabetic Sarcopenia: A Proposed Muscle Screening Protocol in People with Diabetes

**Publication:** Reviews in Endocrine & Metabolic Disorders
**Publish Date:** February 2024
**Authors:** de Luis Román D, Gómez JC, García Almeida JM, Vallo FG, Rolo GG, López Gómez JJ, Tarazona Santabalbina FJ, Paris AS

### ABSTRACT

**Objectives:** To propose the grounds for “diabetic sarcopenia” as a new comorbidity of diabetes, and to establish a muscle screening algorithm proposal to facilitate its diagnosis and staging in clinical practice. Method: A qualitative expert opinion study was carried out using the nominal technique. A literature search was performed with the terms “screening” or “diagnostic criteria” and “muscle loss” or “sarcopenia” and “diabetes” that was sent to a multidisciplinary group of 7 experts who, in a face-to-face meeting, discussed various aspects of the screening algorithm.

**Results:** The hallmark of diabetic sarcopenia (DS) is muscle mass atrophy characteristic of people with diabetes mellitus (DM) in contrast to the histological and physiological normality of muscle mass. The target population to be screened was defined as patients with DM with a SARC-F questionnaire > 4, glycosylated hemoglobin (HbA1C) ≥ 8.0%, more than 5 years since onset of DM, taking sulfonylureas, glinides and sodium/glucose cotransporter inhibitors (SGLT2), as well as presence of chronic complications of diabetes or clinical suspicion of sarcopenia. Diagnosis was based on the presence of criteria of low muscle strength (probable sarcopenia) and low muscle mass (confirmed sarcopenia) using methods available in any clinical consultation room, such as dynamometry, the chair stand test, and Body Mass Index (BMI)-adjusted calf circumference. DS was classified into 4 stages: Stage I corresponds to sarcopenic patients with no other diabetes complication, and Stage II corresponds to patients with some type of involvement. Within Stage II are three sublevels (a, b and c). Stage IIa refers to individuals with sarcopenic diabetes and some diabetes-specific impairment, IIb to sarcopenia with functional impairment, and IIc to sarcopenia with diabetes complications and changes in function measured using standard tests

**Conclusion:** Diabetic sarcopenia has a significant impact on function and quality of life in people with type 2 diabetes mellitus (T2DM), and it is important to give it the same attention as all other traditionally described complications of T2DM. This document aims to establish the foundation for protocolizing the screening and diagnosis of diabetic sarcopenia in a manner that is simple and accessible for all levels of healthcare.

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## Diagnostic Criteria & Measurement Techniques of Sarcopenia: A Critical Evaluation of the Up-to-Date Evidence

**Publication:** Nutrients
**Publish Date:** February 2024
**Authors:** Voulgaridou G, Tyrovolas S, Detopoulou P, Tsoumana D, Drakaki M, Apostolou T, Chatziprodromidou IP, Papandreou D, Giaginis C, Papadopoulous K

### ABSTRACT

Sarcopenia, a geriatric syndrome characterized by progressive skeletal muscle mass and function decline, poses a significant health risk among the elderly, contributing to frailty, falls,

hospitalization, loss of independence and mortality. The prevalence of sarcopenia varies significantly based on various factors, such as living status, demographics, measurement techniques and diagnostic criteria. Although the overall prevalence is reported at 10% in individuals aged 60 and above, disparities exist across settings, with higher rates in nursing homes and hospitals. Additionally, the differences in prevalence between Asian and non-Asian countries highlight the impact of cultural and ethnic factors, and variations in diagnostic criteria, cut-off values and assessment methods contribute to the observed heterogeneity in reported rates. This review outlines diverse diagnostic criteria and several measurement techniques supporting decision making in clinical practice. Moreover, it facilitates the selection of appropriate tools to assess sarcopenia, emphasizing its multifactorial nature.

Various scientific groups, including the European Working Group of Sarcopenia in Older People (EWGSOP), the International Working Group on Sarcopenia (IWGS), the Asian Working Group on Sarcopenia (AWGS), the American Foundation for the National Institutes of Health (FNIH) and the Sarcopenia Definition and Outcomes Consortium (SDOC), have published consensus papers outlining diverse definitions of sarcopenia. The choice of diagnostic criteria should be aligned with the specific objectives of the study or clinical practice, considering the characteristics of the study population and available resources.

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