

Full Name of the Doctoral Candidate

Charalampidou Ioanna

Title of the Doctoral Dissertation

"The Effect of GLP-1 Receptor Agonist-based treatment on Body Composition and Lean Muscle Mass in Adults with Obesity: The Role of Dietary Protein Consumption in Lean Muscle Mass Maintenance"

Three- Member Committee

1. Papandreou Christopher, Assistant Professor, Hellenic Mediterranean University
2. Filippatos Theodosios, Associate Professor of Internal Medicine, Department of Internal Medicine, University Hospital of Heraklion
3. Zafiropoulos Vasileios, Professor, Hellenic Mediterranean University

Abstract

Introduction

Obesity is a major global public health challenge. While weight loss is essential, the preservation of lean body mass (LBM) is critical for maintaining metabolic health, functional capacity and long-term treatment outcomes. Glucagon-like peptide-1 receptor agonists (GLP-1 RAs) are highly effective in reducing body weight; however, evidence shows both fat and lean mass are reduced, raising concerns about sarcopenia and sarcopenic obesity. The maintenance of muscle mass is crucial in vulnerable populations such as older adults or patients with chronic diseases.

Research Aim

This study aims to examine the effects of GLP-1 receptor agonists (GLP-1 RAs) on body composition in adults with obesity, with particular emphasis on lean muscle mass (LMM). Recognizing the risk of sarcopenia associated with pharmacologically induced weight loss, the research evaluates whether higher dietary protein intake can mitigate LMM loss.

Methodology and Sample:

In a randomized controlled trial with an intervention period ranging from 3 to 6 months, depending on the titration schedule and the specific medication used, participants (aged 40-65 years, BMI ≥ 30 kg/m² and ≤ 45 kg/m²) will receive either GLP-1-based RA treatment alone or in combination with dietary guidance emphasizing increased protein intake.

Significance of the Study:

The research tries to determine whether protein-focused dietary strategies can mitigate LMM loss during pharmacological weight loss. The findings are expected to inform more personalized. muscle-preserving approaches to obesity management and improve the sustainability of weight-loss interventions.

Keywords

Obesity, body composition, pharmacologically induced weight loss, GLP-1 receptor agonists, lean muscle mass, dietary protein.