**" DEVELOPMENT OF ULTRASOUND BIOMARKERS FOR THE DIAGNOSIS AND FOLLOW-UP OF SARCOPENIA"**

Nikolaos Barotsis1, **Angeliki Galata2**, Eleftheria Antoniadou3, Anastasia Hadjiconstanti4, George Panayiotakis5

1. Rehabilitation Department, Patras University Hospital, Rion, Greece, European Program “New Researchers”
2. Physical & Rehabilitation Medicine specialist, European Program “New Researchers”
3. Physical & Rehabilitation Medicine specialist, Consultant in Rehabilitation Department, Patras University Hospital, Rion, Greece, European Program “New Researchers”
4. Department of Medical Physics, University of Patras, European Program “New Researchers”
5. Professor of Medical Physics, University of Patras, European Program “New Researchers”

**Introduction:** The estimation of appendicular muscle mass is necessary for the diagnosis of sarcopenia. Ultrasonography presents several advantages in the examination of musculoskeletal system, compared to other imaging modalities. However, its role in the diagnosis of sarcopenia is still under investigation.

**Aim:** Τhe aim of our study is to evaluate: (a) the reliability of quantitative ultrasound measurements of facial, upper and lower limb muscles; (b) the usefulness of ultrasonography in the diagnosis of sarcopenia; and (c) the efficacy of a specialized exercise programme.

**Material – Method:** The study included 85 individuals over 65 years of age. They were assessed according to the diagnostic algorithm suggested by the revised European consensus on definition and diagnosis of sarcopenia (EWGSOP2). Individuals fulfilling the clinical diagnostic criteria underwent full body dual energy absorptiometry for the estimation of appendicular muscle mass. All participants of this study were examined by ultrasound of facial, upper and lower limb muscles. Sarcopenia was diagnosed in 20 out of 85 individuals. Sarcopenic patients were referred to an exercise program comprising strengthening and balance exercises for 12 weeks, after which clinical and laboratory tests were repeated.

**Results:** The preliminary data of our study indicate that quantitative musculoskeletal ultrasound is a reliable imaging modality for the estimation of skeletal muscle mass. Portability, non-exposure to ionizing radiation and reduced cost of ultrasound equipment are important advantages over the gold standard imaging techniques used in the diagnosis of sarcopenia.

**Conclusions:** Ultrasound can become an important diagnostic tool in the assessment of sarcopenia.

**Key** **words:** Sarcopenia, dual energy X-ray absorptiometry (DXA), ultrasound, exercise

**Acknowledgements:** Operational Program "Human Resources Development, Education and Lifelong Learning”, the European Union (European Social Fund/ ΕΣΠΑ 2014- 2020) and Greek national funds.