Title: Development of an in silico stratification method for anti-sarcopenia drug trials

Tutor: Prof Marco Viceconti - https://www.unibo.it/sitoweb/marco.viceconti/en

Funding source: project In Silico World (Grant N. 101016503)

Research Project

As part of the In Silico World project, the team of Prof Marco Viceconti at the University of Bologna plans to develop an In Silico Trials technology to refine the testing of anti-sarcopenia drugs. Starting from some early work on the use of MRI-based, patient-specific models of the musculoskeletal dynamics, we will develop a combination of experimental and modelling methods to stratify patients who show a dynapenia due exclusively to sarcopenia, thus excluding patients with innervation deficits, or neuromuscular control problems. The candidate is expected to develop the protocol and validate it on a group of healthy volunteers and another of patients who need a total knee replacement.

The research contract (Assegno di Ricerca) has an annual salary before taxes of € 26,174.00. While the initial contract is for 12 months, if successful the post holder contract could be extended until the end of the project, in December 2025.

The ideal candidate for this position holds a degree in engineering, good spoken and written English, documented experience in computational biomechanics, and one or more of the following skills:

- Familiarity with musculoskeletal biomechanics
- Familiarity with human movement analysis
- Familiarity with dynamometric methods
- Familiarity with Medical imaging methods
- Familiarity with multibody dynamics modelling of the musculoskeletal system
- Previous experience in human biomechanics research
- Some programming skills
- Some basic knowledge of muscle physiology and motor control

While a PhD is not formally required, we expect most candidates to have one, or being very close to graduation.

Place of work: all activities will take place at the institutional sites of the department DIN, or at the istituto ortopedico Rizzoli (Bologna).

Sede di svolgimento delle attività: le attività si svolgeranno presso le sedi istituzionali del DIN e presso l'istituto ortopedico Rizzoli (Bologna).