PhD SCHOLARSHIP : Neuromuscular and metabolic consequences of bariatric surgery: interest and characterization of physical activity as rehabilitation and prehabilitation strategies.

A fully funded 3-yr PhD scholarship is available at Université Côte d'Azur in Nice (France) in collaboration with the Université Clermont Auvergne (Clermont-Ferrand, France). The successful applicant will become part of a unique training and research environment, combining the expertise of the LAMHESS laboratory, the C3M laboratory, the University Hospital of Nice and the AME2P Laboratory, Université Clermont Auvergne.
As PhD student, you will be responsible for:

- Independently carrying out research and completing a PhD dissertation within three years;
- Collecting and analyzing neuromuscular function data (EMG, electrical stimulation, transcranial magnetic stimulation), as well as metabolic and functional data;
- Reporting the results in international peer-reviewed scientific journals and conferences.

Net remuneration around 2000€ monthly (healthcare included) from September 2021 to August 2024.

LABORATORIES

- LAMHESS Laboratory, Université Côte d'Azur, Nice, France
- C3M Laboratory, Université Côte d'Azur, Nice, France
- AME2P Laboratory, Université Clermont Auvergne, France.

SUPERVISORS

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PROJECT SUMMARY

Obese patients suffer from important functional limitations. Functional capacities are mainly accounted for by the ability to produce strength/power and to limit fatigue development. Although the cardiovascular and metabolic consequences of obesity have been extensively studied, much less is known about its consequences at the neuromuscular level on the determinants of strength and fatigue. Some data suggest that the chronic loading associated with overweight and the metabolic side effects of obesity may affect neuromuscular function in obese patients. Bariatric surgery is indicated in the most severe cases of obesity. It has powerful effects on weight reduction and metabolic profile modification. Unfortunately, little is known about the consequences of such acute unloading on the neuromuscular system. Currently, a strong reduction in muscle mass and strength is described within weeks after surgery,

which can have detrimental consequences on functional capacities. In this context, exercise-based strategies could be implemented either as a rehabilitation or a prehabilitation to limit the drastic reduction of muscle strength. Moreover, physical activity could act concomitantly with both body and fat mass reduction to improve the metabolic and functional profiles. The first objective of this project is to characterize the neuromuscular consequences of bariatric surgery, and their relations with body composition, metabolic profile and functional capacities modifications. The second objective is to investigate the effects of an adapted training program performed either in prehabilitation or in rehabilitation in order to compensate the deficits identified in the first part of the thesis program.

APPLICANT PROFILE The candidate should have a strong background in neuromuscular function analysis. Knowledge of metabolic and clinical testing is an asset. Since experiments will be performed with patients, experience in the health domain will be considered. French is not mandatory but the candidate must be willing to learn French during her/his PhD and she/he must be able to communicate in English. Full application must be sent in pdf format (gathered in one file) to the supervisors. Deadline is May 24th, 2021. The application must include the application form (see attached document), a detailed CV, one academic reference letter and a motivation letter. Interviews will be conducted by videoconference on May 27th.

APPLICATION FORM

Please do not overcome the number of pages indicated for each section. Additional documents (academic results, copies of academic degrees, letters of recommendation) may be added. **This form needs to be addressed to the PhD supervisor and co-supervisors, in PDF format before May, 24th 2021 at 12H00 am**.

CURRICULUM VITAE (2 pages maximum)

a) Civil status

Family Name:
First name:
Nationality:
Date and place of birth:
Age:
Postal address:
Phone:

b) Bachelor (Licence in France):

University:
Year of diploma:
Specialty:
Academic transcript (please provide a copy)

c) Master (first year):

University:
Year:
Supervisor:
Name of the master:
Academic transcript (please provide a copy)
Ranking / Number of students: (the document has to be testified)

d) Master (second year)

University:
Year:
Name of the master:
Academic transcript (please provide a copy)
Ranking / Number of students (the document has to be testified):

If the 2nd year of Master is in progress, please give information related to the completed semesters (generally September – February)

e) Final training period during the master

Supervisor:
Laboratory:
University:

Dates of beginning and end of the final training period:
Scientific title of the training period:
Publications, participation to scientific meetings:

Keywords defining your skills and knowledges in the context of your application:

1.
2.
3.
4.
5.

Motivation letter from the applicant (1 page maximum)

Recommendation letters