COMAP Research 4 You in Derby

Centre Of Metabolism, Ageing & Physiology

R4U DERBY

RESEARCH 4 YOU (R4U)

The University of Nottingham
Centre of Metabolism, Ageing & Physiology
(COMAP)
Research Community

Research Bulletin
Edition 2
December 2023

Foreword

Welcome to the Research Community for the Centre of Metabolism, Ageing and Physiology (COMAP).

COMAP is a University of Nottingham research group based at the Royal Derby Hospital, with a volunteer research community known as R4U (Research For You).

As the name suggests, COMAP is interested in better understanding what happens to the human body with ageing and age-associated disease, and how some of these changes may be delayed or modified with interventions.

If you are reading this newsletter you have signed up to join R4U. R4U is crucial to the work that COMAP do, and as an R4U member we will keep you updated on that work that we are doing and ask for help with research design and promotion – this is known as Patient and Public Involvement, or PPI for short.

We will also use this newsletter to let you know of any opportunities to take part in research as a volunteer, and of any public events we are aware of that we think you might be interested in.

Please let us know if you have any comments or suggestions on how this newsletter or any other aspect of R4U could be improved.

Finally, if you no longer wish be part of this group, Please send an email entitled 'unsubscribe me' to MS-COMAP-Research@exmail.nottingham.ac.uk

Meet the Team

COMAP is comprised of 8 permanent academics- 5 scientists and 3 doctors, plus a number of post-PhD research fellows, technicians and PhD students.

In each edition of this newsletter, we will introduce you to two or three members of the team.

Prof Kenny Smith- Kenny arrived in Derby in 2004, from Dundee, as part of a team of researchers promoting human based research. Kenny has over 40 years' experience investigating the role of nutrition and exercise on muscle mass and function. His specific expertise is in using special compounds (known as stable isotopes) to measure rates of muscle growth and loss in response to nutrition, exercise and hormones in individuals with conditions where muscle loss is a feature, including older age. These techniques allow us to understand whether loss of muscle is being regulated by building or breaking down of muscle proteins, with an ultimate aim to develop interventions to promote muscle mass and functional maintenance for a better quality of life.

Dr Pardeep Pabla- Pardeep is one of the postdoctoral researchers in COMAP and has been at the University of Nottingham for almost 10 years. Pardeep completed an undergraduate degree in Sport and Exercise Sciences at Loughborough University before a master's degree and PhD in muscle physiology at the University of Nottingham. Pardeep's first postdoctoral position investigated the effect of different nutritional supplements on blood sugar levels and appetite in patients with type 2 diabetes. Pardeep is currently running a study looking at the effect of neuromuscular stimulation on muscle growth in older adults.

Spotlight on Findings

Having been in Derby for a little over 20 years, COMAP has published a lot of exciting research.

Recognising that scientific manuscripts aren't always the easiest to digest, each edition of this newsletter will provide a non-specialist overview of work from COMAP (old and new), including a take-home message.

Abstract

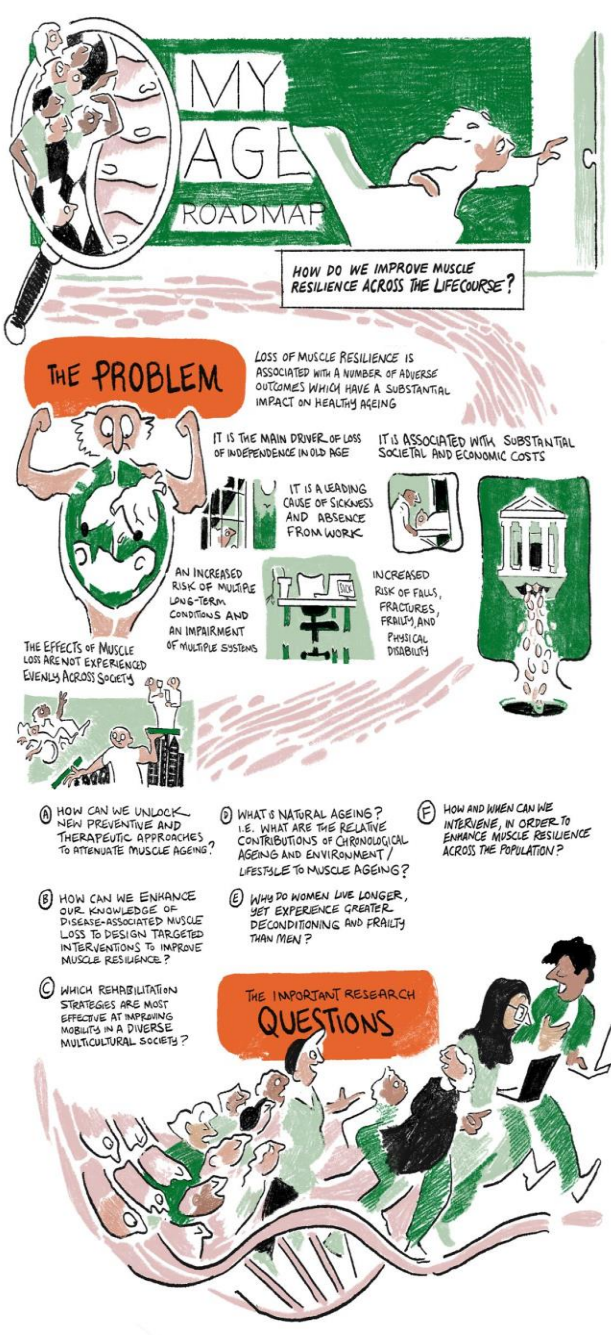
Publication Journal: Experimental Physiology

Year: 2023, COMAP author(s): Eleanor Jones, Yuxiao Guo, Phil Atherton, Beth Phillips, Mat Piasecki

The amount of force produced by a muscle is partly controlled by how fast the nerve signals to the muscle (firing rate). This could be affected by how the muscle contracts, either shortening (concentric) or lengthening (eccentric), which could change the response to fatigue. We measured the electrical activity of the muscle in 12 younger volunteers before and after stepping exercise to exhaustion, including concentric contractions and eccentric contractions on separate legs. Muscle strength and control decreased after both types of exercise, but the firing rate only increased after eccentric contractions. The regularity of these firings which is associated with muscle control decreased after both contraction types. These results show that nerve and muscle communication are altered following fatigue caused by exercise and differs according to the type of muscle contraction. This is important when considering exercise programmes used to improve nerve and muscle function particularly in those with muscle limitations. We have collected some pilot data and are planning to continue to investigate if these responses are the same in older adults.

Video link explaining study:
https://www.youtube.com/watch?v=qigKqrem5Dg
Paper (open access):
https://physoc.onlinelibrary.wiley.com/doi/10.1113/EP091058

Collaboration is Key

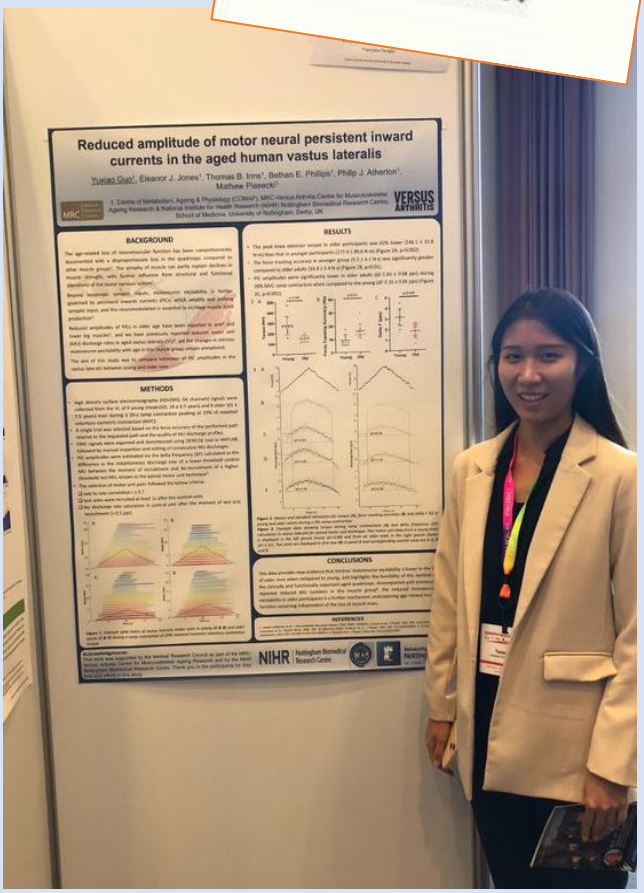


COMAP members work with many other research groups in the UK and across the world. One example is via MyAge - a national network of researchers taking an interdisciplinary approach to investigate muscle resilience across the life course: from cells to society

https://www.ukanet.org.uk/myage/

Congratulations!

Two of our hardworking COMAP postgraduate research students recently gained their PhD's. We're very proud of them both!



Congratulations to **Dr Eleanor Jones**, seen here celebrating after successfully defending her thesis **"Understanding neuromuscular responses to pharmacological and exercise interventions: Manipulating motor unit plasticity in humans to improve muscle function."**

Congratulations to **Dr Celia Guo** after she also successfully defended her thesis **“Exploration of central and peripheral neural properties in young and older adults.“**

Picture Description: COMAP celebrate two postgraduate research students who have successfully defended their doctoral theses this year.

Call for Help

All research relies on a public voice to make sure our research is relevant and understandable to the needs of the people we are hoping to help.

In addition, much COMAP research also relies on individuals who volunteer as research participants. In each edition of this newsletter, we will let you know of any activities we need help with, including any studies that are looking for research volunteers.

University of Nottingham

Exercise for **older adults**

Want to help research on the impact of exercise in older people?
Interested of exercise on brain and body health?

- Participate in exercise training 3 **days a week for 4 weeks.**
- **Blood** samples will be taken and you will be asked to answer some questions.
- We will pay an **inconvenience allowance** for participants who complete the study

You will need to attend the Royal Derby Hospital for one day each week for 4 weeks

Researchers at the **Royal Derby Hospital** are looking for:

- healthy volunteers aged **65-80** years.

If you would like more information please contact me at:

Email: hatice.ekici@nottingham.ac.uk Tel: 01332 724676

Volunteers needed for a study looking to explore the effects of 'motor control training' on muscle and brain function in older adults

Centre Of Metabolism, Ageing & Physiology

Call for Help

We need your help!

Researchers from The University of Nottingham based at The Royal Derby Hospital are looking for healthy male & female volunteers aged over 60 years.

University of Nottingham
UK | CHINA | MALAYSIA

Assessing the ability of electrical muscle stimulation to "switch-on" muscle building

- Involves blood and muscle samples
- 3 full-day laboratory visits needed
- An inconvenience allowance will be paid

Want more information?

Please contact:
Pardeep.pabla@nottingham.ac.uk
Tel: 01332 724651 or Text: "poem" to 07515 412197

Volunteers needed for a study looking to explore the effects of neuromuscular stimulation on muscle building in older adults

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Finally.....

We'd like to take this opportunity to wish all our R4U members, research participants and supporters a very merry Christmas and a happy and healthy 2024.

We really couldn't run our research without you, so a BIG BIG thank you from us all here at COMAP!