DETERMINANTS OF INTRA-INDIVIDUAL VARIATION IN ADAPTABILITY TO RESISTANCE TRAINING OF DIFFERENT VOLUMES WITH SPECIAL REFERENCE TO SKELETAL MUSCLE PHENOTYPES

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Determinants of intra-individual variation in adaptability to resistance training of different volumes with special reference to skeletal muscle phenotypes

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You can have a dedication here if you wish.

THESIS FOR DOCTORAL DEGREE (Ph.D.)

The title of your thesis

by
Your name

Thesis for Philosophy of Doctoral Degree in Sport Sciences, at The Swedish School of Sport and Health Sciences (GIH), which, according to the decision of the dean, will be publicly defended on *DATE*. The thesis defense will be held at the auditorium at The Swedish School of Sport and Health Sciences (GIH), Stockholm.

Opponent
Profesor . . . .

Principal supervisor
Profesor. . .

Co-supervisor(s)
-Professor. . .
-Professor. . .
-Professor. . .

Examination board
-Associate professor. . .
-Professor . . .
-Professor . . .

Abstract

The preface pretty much says it all.

Second paragraph of abstract starts here.

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1. Introduction

P{oper} skeletal muscle functioning is essential in everyday life by enabling movement and thus complex interaction with our environment. Nutrition and pharmacological agents can have substantial effects on skeletal muscle mass and function. However, resistance exercise of sufficient volume, intensity and frequency is the most potent stimuli to promote morphological and functional changes in the human neuromuscular system. Exercise training can be modulated indefinitely by combining different variations of training variables and in addition, adaptation to exercise training is a phenomenon characterized by great inter-individual variability. The purpose of the present project is therefore to explore potential determinants of variation in adaptability to resistance-exercise modulated by selected exercise-training variables.

(Pinedo-Villanueva et al., 2019)

2. Background

2.1 Exercise training variables affecting training outcomes

2.2 Exercise volume

2.2.1 Meta-analysis of exercise volume

2.3 Molecular determinants of training-induced muscle hypertrophy
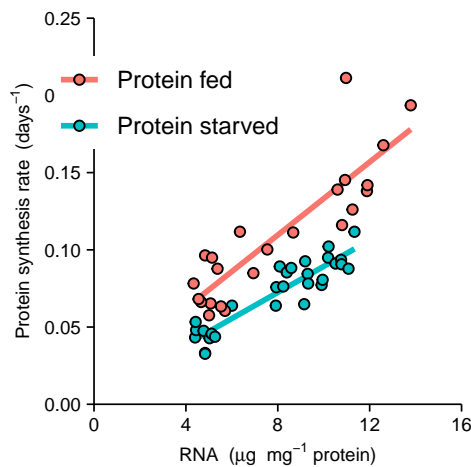
2.3.1 Protein synthesis

Figure 2.1: Data from Millward et al. 1973. Group A were fed a diet containing protein, group B were starved or fed a diet not containing protein.

2.3.2 The mammalian target of rapamycin (mTOR) and translational efficiency

The mammalian target of rapamycin (mTOR) is a large serine-threonine protein kinase wich in complex with oyher regulatory proteins forms a signaling hub responsible for responses to environmental cues such as nutrients and mechanical stress.

mTOR has several phosphorylation sites

Phosphorylation of Ser2448 is mediated by S6K1 to reduce mTOR activity in a negative feedback loop .

Ser2448 is phosphorylated by S6K1, changes in nutrient avaliability modifies S6K1 and Ser2448, Ser2448 phosphorylation is abolished when S6K1 is depleted

When the C-terminal is deleted, mTOR gets constitutively active

2.3.3 Ribsome biogenesis

Transcription of ribsomal RNA (rRNA)

2.4 Transcriptional activity related to muscle hypertrophy

2.4.1 Methods for studying transcriptional regulation

3. Aims and hypotheses

4. Methods

TO DO:

- For methods discussion, compare product length, efficiencies and ct values in relation to RQI-values. See Fleige 2006 for reference.

4.1   Training protocols

A full body protocol was used in study I including

5. Results

6. Discussion

Conclusion

If we don't want Conclusion to have a chapter number next to it, we can add the `{-}` attribute.

More info

And here's some other random info: the first paragraph after a chapter title or section head *shouldn't be* indented, because indents are to tell the reader that you're starting a new paragraph. Since that's obvious after a chapter or section title, proper typesetting doesn't add an indent there.

References

Pinedo-Villanueva, R., Westbury, L. D., Syddall, H. E., Sanchez-Santos, M. T., Dennison, E. M., Robinson, S. M., & Cooper, C. (2019). Health care costs associated with muscle weakness: A uk population-based estimate. *Calcif Tissue Int*, *104*(2), 137–144. Journal Article. `http://doi.org/10.1007/s00223-018-0478-1`