# Growth of skeletal muscle in response to feeding different amounts of protein

Submission date	Recruitment status	<ul><li>Prospectively registered</li></ul>
13/09/2012	No longer recruiting	☐ Protocol
Registration date	Overall study status	Statistical analysis plan
01/10/2012	Completed	[X] Results
<b>Last Edited</b> 15/09/2015	<b>Condition category</b> Musculoskeletal Diseases	Individual participant data
13/03/2013	Minschloskeigraf Diseases	

# Plain English summary of protocol

Background and study aims

Exercise and diet affect the muscles' ability to make new proteins (muscle protein synthesis). Consuming protein after resistance exercise increases muscle protein synthesis (e.g., for building muscle). However, the best dose of protein to consume is not currently known. If too much protein is consumed, then the excess will be used for energy rather than for building muscle. This information is needed to improve diet and exercise strategies to increase muscle mass not only for healthy young exercisers, but also for helping more vulnerable groups, such as the elderly, to maintain muscle mass. The aim of this study is to determine the response of muscle protein synthesis to different doses of whey protein consumed at rest and following resistance exercise.

# Who can participate?

Trained male weightlifters aged between 18-35, who have been doing resistance training for at least 6 months.

# What does the study involve?

Participants are randomly allocated to consume one of four doses of whey protein after exercise. Chemical tracers are injected into the bloodstream for delivery to the muscle, and blood and muscle samples are taken to determine the rate at which muscle proteins were made following each dose of protein.

What are the possible health benefits and risks of participating?

The results of this study may help both young and old people who would benefit from muscle growth. The risks of participation include the potential for pain due to the vigorous exercise. However, we used trained experienced weightlifters for this study. Taking a muscle sample may cause pain or discomfort. Injecting the tracers can cause pain or discomfort through infection. However, this is extremely rare.

Where is the study run from? University of Birmingham (UK).

When is the study starting and how long it is expected to run for? December 2008 to June 2011.

Who is funding the study? GlaxoSmithKline Nutritional Healthcare (UK).

Who is the main contact? Dr Oliver C Witard oliver.witard@stir.ac.uk

# Contact information

# Type(s)

Scientific

#### Contact name

Dr Oliver Witard

# Contact details

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# Additional identifiers

EudraCT/CTIS number

**IRAS** number

ClinicalTrials.gov number

Secondary identifying numbers N/A

# Study information

#### Scientific Title

Response of myofibrillar muscle protein synthesis to increasing doses of whey protein at rest and following exercise subsequent to a meal in resistance trained males

# **Study objectives**

Twenty grams of whey protein will be sufficient for the maximal stimulation of myofibrillar-muscle protein synthesis (MPS) rates at rest and after resistance exercise in trained, young adult males.

# Ethics approval required

# Old ethics approval format

# Ethics approval(s)

National Research Ethics Service, Black Country, Birmingham, 08/02/2012, ref: 08/H1202/131

# Study design

Parallel research design single-blind intervention study

# Primary study design

Interventional

# Secondary study design

Randomised controlled trial

# Study setting(s)

Other

# Study type(s)

Treatment

# Participant information sheet

Not available in web format, please use the contact details below to request a patient information sheet

# Health condition(s) or problem(s) studied

Metabolic health of muscle / sarcopenia (age-related muscle loss)

#### **Interventions**

Each participant was randomly assigned to one of four groups. Each participant ingested one of four doses (0, 10, 20 or 40g) of whey protein after the exercise.

# Intervention Type

Supplement

# Primary outcome measure

Myofibrillar (contractile proteins) muscle protein synthesis

# Secondary outcome measures

Amino acid concentrations

# Overall study start date

01/01/2008

# Completion date

01/06/2011

# **Eligibility**

# Key inclusion criteria

- 1. Male, aged 18-35 years
- 2. Healthy (no known metabolic disorder)
- 3. Experienced weight lifter for more than 6 months (at least 2 leg resistance training sessions per week)

# Participant type(s)

**Patient** 

# Age group

Adult

# Lower age limit

18 Years

# Upper age limit

35 Years

#### Sex

Male

# Target number of participants

48 participants were completed

# Key exclusion criteria

Not simultaneously taking part in another scientific / clinical study

# Date of first enrolment

01/01/2008

# Date of final enrolment

01/06/2011

# Locations

### Countries of recruitment

Scotland

**United Kingdom** 

# Study participating centre University of Stirling

Stirling United Kingdom FK9 4HG

# Sponsor information

# Organisation

GlaxoSmithKline Nutritional Healthcare (UK)

# Sponsor details

GSK House 980 Great West Road Brentford Middlesex London United Kingdom TW8 9GS

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claire.2.lawrence@gsk.com

# Sponsor type

Industry

#### Website

http://www.gsk.com/

### **ROR**

https://ror.org/01xsqw823

# Funder(s)

# Funder type

Industry

### **Funder Name**

GlaxoSmithKline Nutritional Healthcare (UK)

# **Results and Publications**

# Publication and dissemination plan

Not provided at time of registration

Intention to publish date

Individual participant data (IPD) sharing plan

# IPD sharing plan summary

Not provided at time of registration

Study outputs

Output typeDetailsDate createdDate addedPeer reviewed?Patient-facing?Results articleresults01/01/2014YesNo