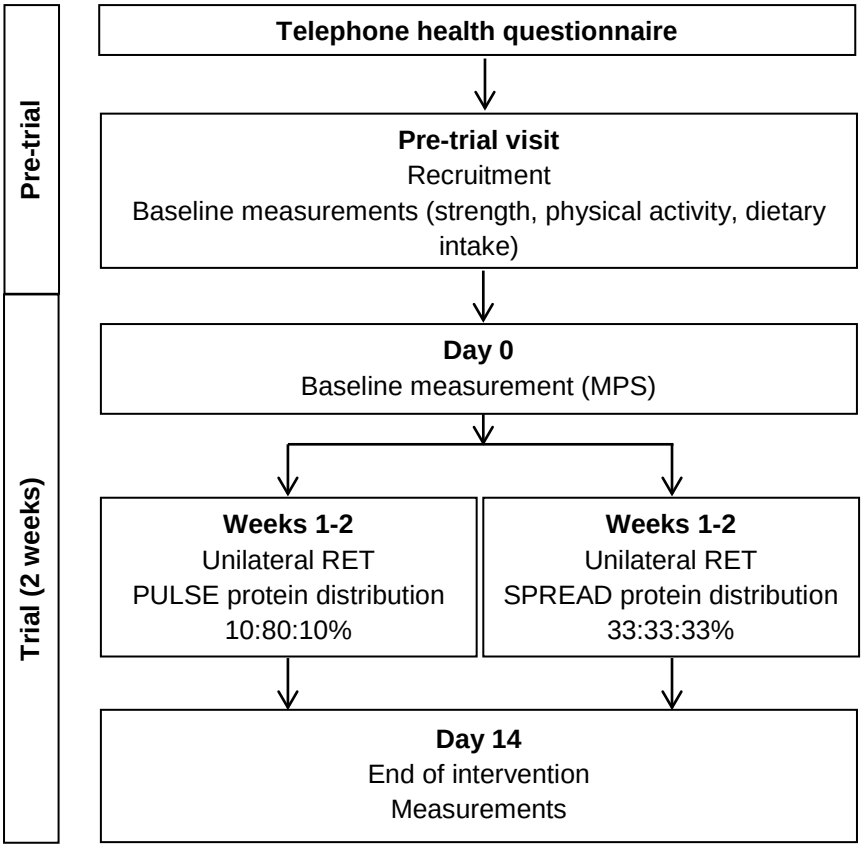
Effects of Dietary **PRO**tein **D**istribution and **R**esistance **EX**ercise training on muscle health in older adults (PRODREX)

Participant Flow

Nineteen participants were recruited to the study. Baseline data were collected on n=12 participants and n=10 completed the study. N=7 participants provided data for analysis of muscle fractional synthetic rate.



Baseline data

Baseline characteristics of the participants, mean (SD). [1]Significant difference between Spread and Pulse groups.

	Total	**Spread group**	**Pulse group**
N	12	7	5
Age (years)	72.7 (4.6)	70.4 (3.7)	75.8 (4.1)[1]
Height (cm)	161 (6)	161 (6)	162 (8)
BW (kg)	64.5 (12.4)	69.1 (12.3)	58.1 (10.5)
BMI (kg/m^2)	24.9	26.8	22.2
Protein intake ($g.kg^{-1}.day^{-1}$)	1.12 (0.31)	1.26 (0.20)	1.00 (0.31)
Energy intake (kcal)	1750 (362)	1858 (254)	1698 (381)
Protein CV	0.62 (0.18)	0.61 (0.26)	0.63 (0.12)

Step count	7504 (2856)	5754 (1110)	8904 (3142)
1-RM T (kg)	24.3 (6.7)	27.3 (7.5)	20.0 (0.9)[1,2]
1-RM UT (kg)	21.0 (4.0)	21.6 (4.7)	20.3 (3.1)

T=Trained leg; UT=Untrained leg

Per meal protein intake data from pre-trial and during trial 3-day food diaries, mean (SD). Expressed as intake relative to body weight and as percentage of total intake

	Breakfast	**Lunch**	**Dinner**
Pre-trial (g.kg^{-1})	0.21 (0.09)	0.35 (0.17)	0.53 (0.16)
Pre-trial (%)	18 (7)	36 (10)	46 (12)
Trial period			
Spread group (g.kg^{-1})	0.37 (0.05)	0.46 (0.08)	0.38 (0.05)
Spread group (%)	31 (3)	36 (6)	33 (6)
Pulse group (g.kg^{-1})	0.17 (0.07)	0.82 (0.15)	0.21 (0.19)
Pulse group (%)	15 (6)	69 (16)	17 (14)

Basic results

Muscle protein synthesis (MPS) fractional synthetic rate (FSR) in the trained leg was 1.02 (0.3) %.day^{-1} in the Spread group (n=3) and 1.16 (0.26) %.day^{-1} in the Pulse group (n=4), and 1.05 (0.24) 5.day^{-1} and 1.17 (0.29) %.day^{-1} in the untrained leg. There was no effect of training on MPS (p=.50). For both the trained and untrained legs, there was no difference in MPS between treatment groups (p=.54, p=.50).

	Spread group (n=3)	Pulse group (n=4)
Trained leg FSR (%/d)	1.02 (0.30)	1.16 (0.26)
Untrained leg FSR (%/d)	1.05 (0.24)	1.17 (0.29)

Knee extension strength increased pre-post trial by 31 (14) % in the trained leg (p=.005) and by 18 (18) % in the untrained leg (p=.021). The change in strength was significantly greater in the trained leg (p=.019). Between the Pulse and Spread groups there was no difference in either the post-trial knee extension strength (trained p=.257; untrained p=.995) or in the pre-post trial change in strength (trained p=.999; untrained p=.862).

	Total	Spread group	Pulse group
Pre-trial			
Trained leg 1RM (kg)	24.3 (6.7)	27.3 (7.5)	20.0 (0.9)[1,2]
Untrained leg 1RM (kg)	21.0 (4.0)	21.6 (4.7)	20.3 (3.1)
Post-trial			
Trained leg 1RM (kg)	30.4 (5.7)	32.5 (6.0)	27.2 (3.6)
Untrained leg 1RM (kg)	24.4 (3.6)	24.4 (4.2)	24.4 (3.2)

[1]Significant difference between Spread and Pulse groups. [2]Assumption of equal variance not met, Welch's t-test used.

Adverse events

Adverse Events: A tabular summary of all anticipated and unanticipated serious adverse events (life-threatening) and anticipated and unanticipated other adverse events (non-life threatening) which will include a description of the adverse event and the number of participants affected. For example, please see: https://bmcgastroenterol.biomedcentral.com/articles/10.1186/s12876-018-0916-6#Tab4 . If there were no adverse events associated with your trial then please include a statement to the effect of "There were no adverse events associated with this trial."

Adverse Event	Description	Number of participants affected
Serious Adverse Event	Participant 001 dizzy, nauseous, elevated blood pressure. Symptoms resolved with no medical intervention. SAE likely related to study. Participant 002 dizziness and vomiting resulting in hospital admission. Recovered with no medical intervention. SAE possibly related to study.	2
Adverse Event	Participant 008 vertigo. Likely related to study.	1
Adverse Event	Participant 011 dizziness. Likely related to study.	1
Adverse Event	Participant 004 and Participant 007: Cold (treated with medication). Unlikely related to study	2
Adverse Event	Participant 011 pain and swelling in knee. Possibly related to study.	1
Adverse Event	Participant 014 redness and itching on thighs after placement of compression bandage. Likely related to study.	1
Adverse Event	Participant 015 vomited. Likely related to study.	1
Adverse Event	Participant 016 cold, blocked sinus, headache, cough. Unlikely related to study.	1
Adverse Event	Participant 020 lightheaded, likely related to study.	1