

# PROTEIN REQUIREMENTS FOR ACTIVE OLDER ADULTS

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# Outline

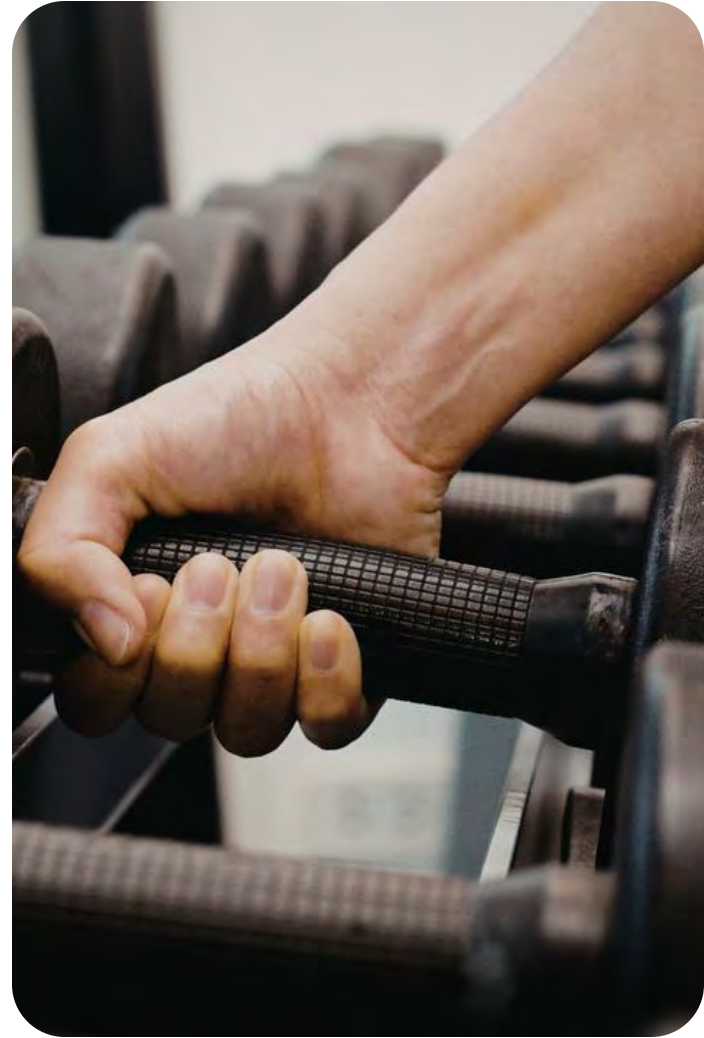
**01.**  
Background

**02.**  
Protein  
Considerations

**03.**  
Protein Myths

**04.**  
Case Study

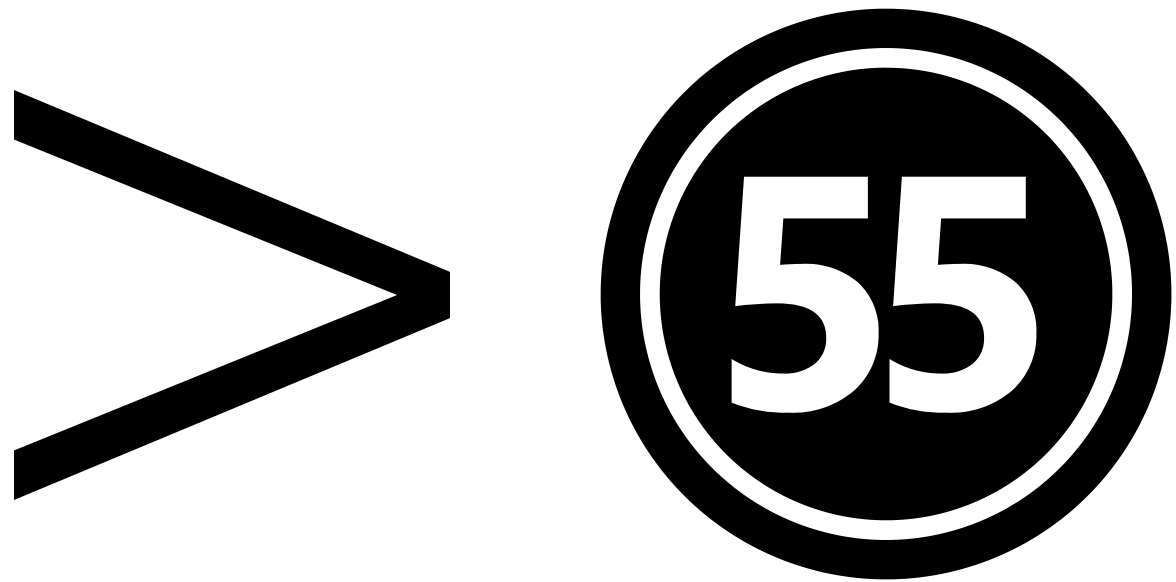




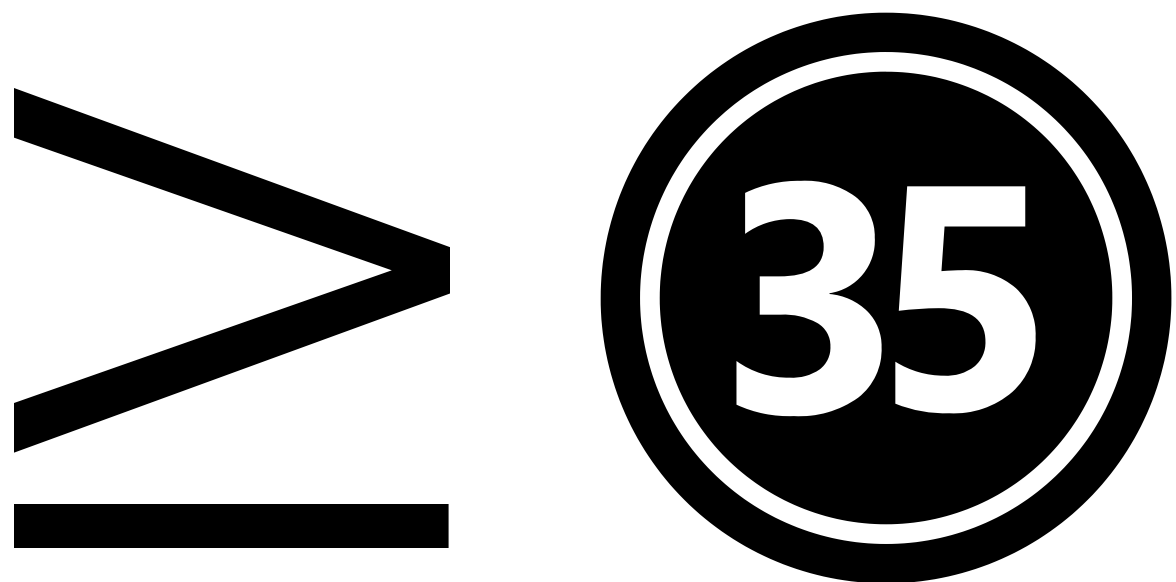
# Background



# Active Older Adults

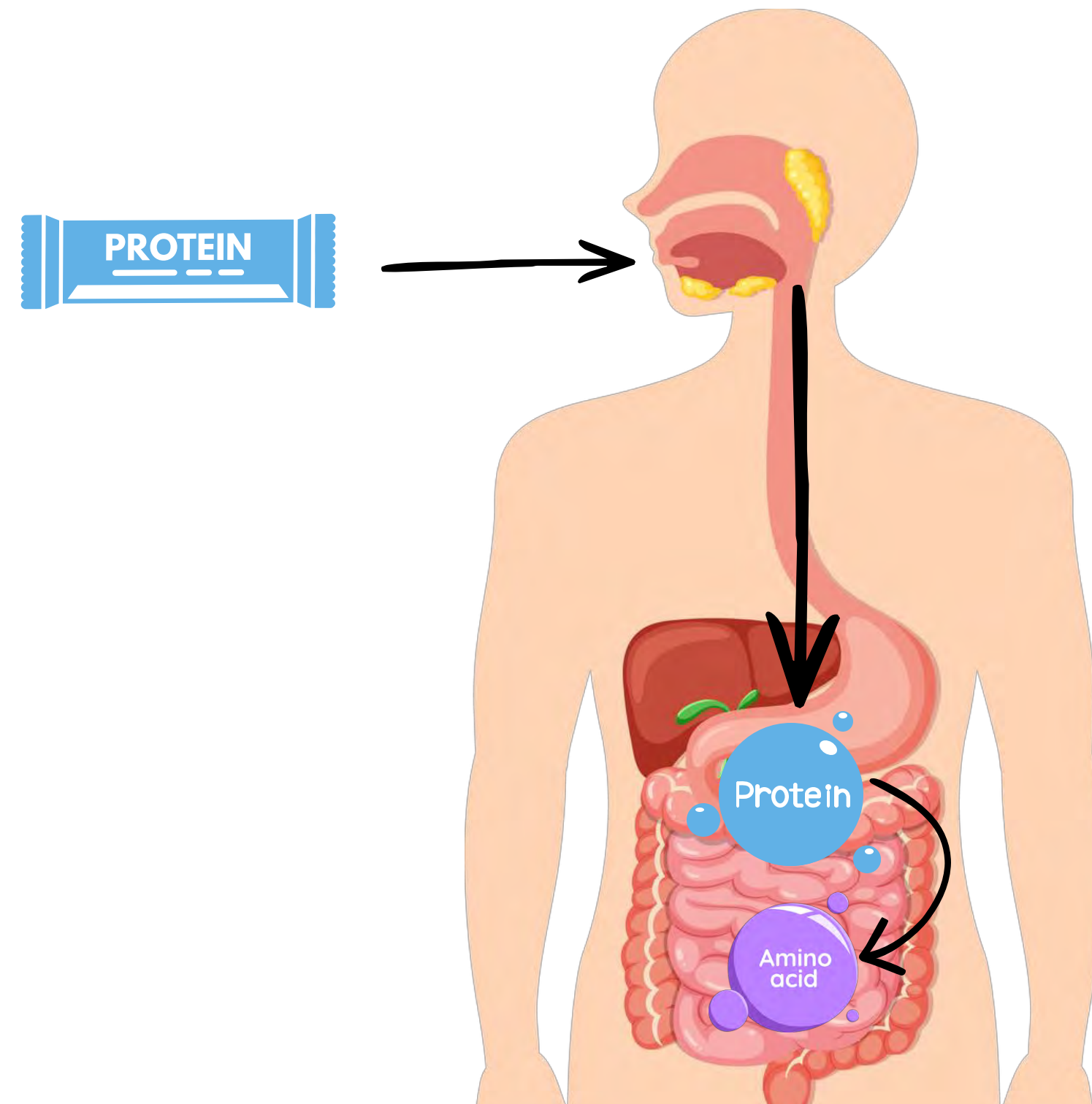


Age of participants in the majority of research investigating nutritional requirements



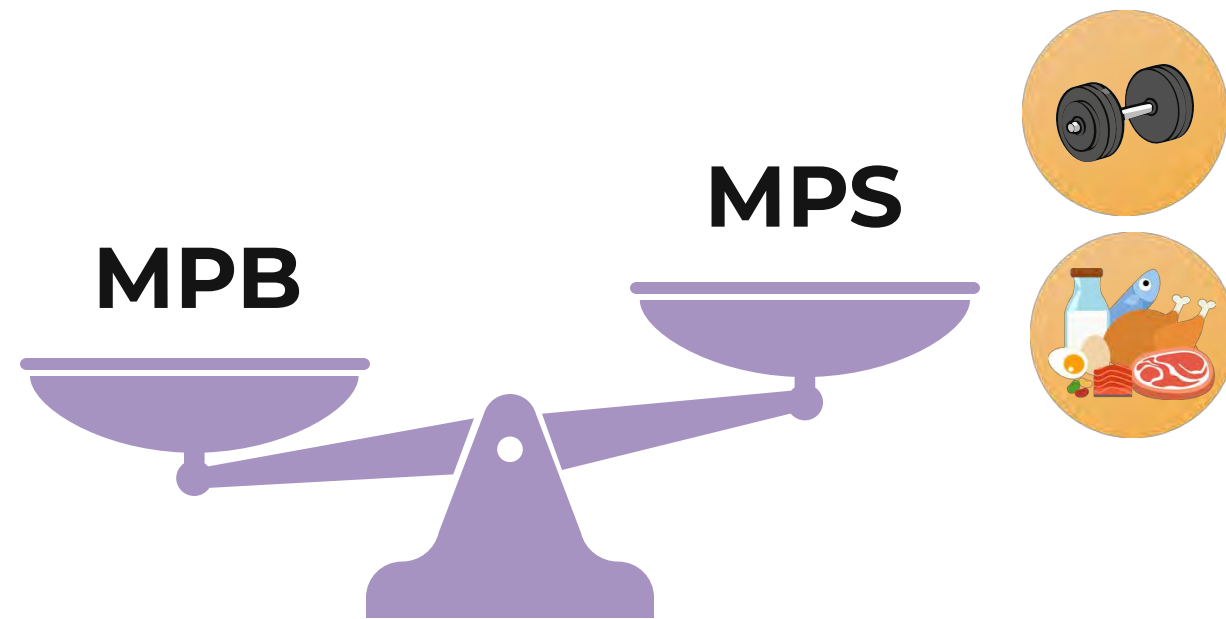
Master athletic competitions

# Protein Metabolism

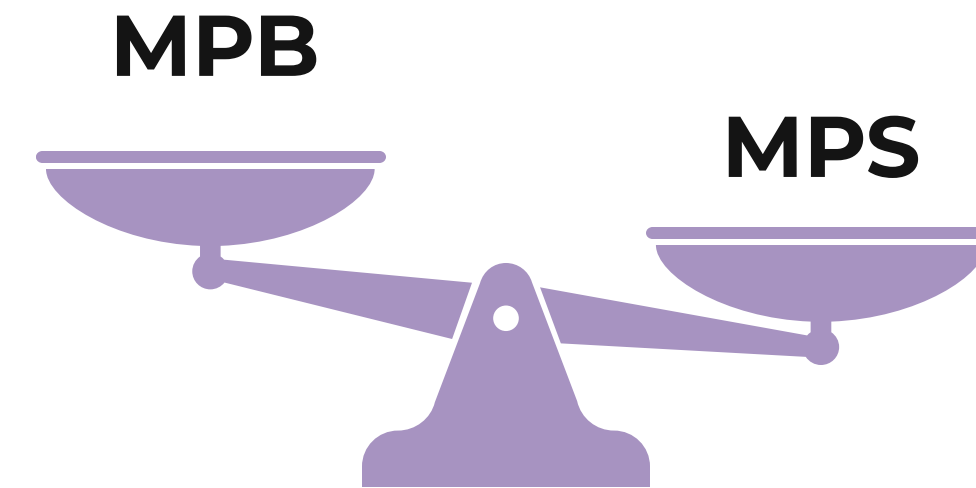


MPS = muscle protein synthesis  
MPB = muscle protein breakdown

# Protein Balance

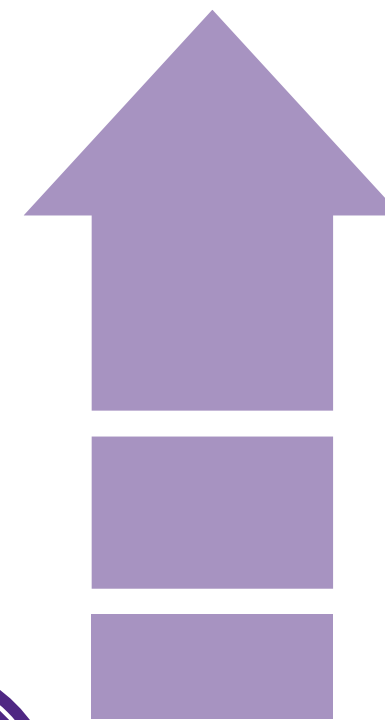


**Positive Protein  
Balance - Protein Gain**



**Negative Protein  
Balance - Protein Loss**

# Role of Dietary Protein



Muscle Mass

Strength

Function

# Aging Muscle



01

## Sarcopenia

Loss of muscle mass and strength

02

## Anabolic Resistance

Decreased ability to use dietary amino acids for MPS



# Protein Considerations for the Active Older Adult



# Protein Recommendations



01

**Dose**

02

**Timing**

03

**Type**

# Protein Dose & Timing

**RDA = 0.8 g/kg body mass/day**

(Burd et al 2019)



**~1.5 g/kg body mass/day**

Dose to optimize strength, power and lean mass gains

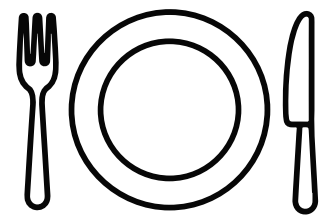
**0.4 g/kg body mass**

Dose after training and throughout the day

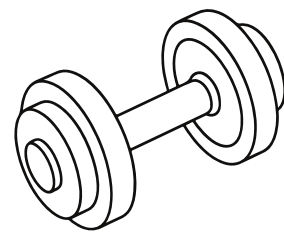


# Protein Dose & Timing

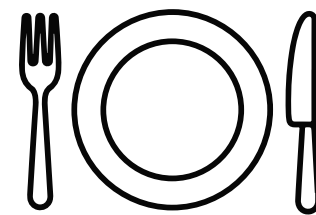
**1.6 g/kg body mass/day**



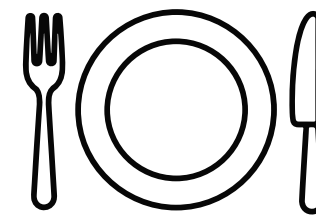
Breakfast



Post-Workout



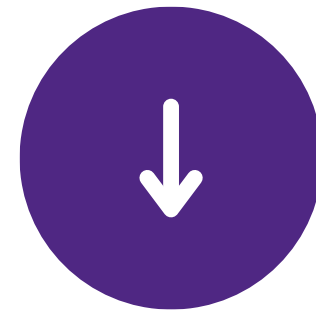
Lunch



Dinner

**0.4 g/kg body mass**

# Protein Type




## Animal-Based

 Fish

 Poultry

 Red meat

 Eggs

 Dairy milk

Whey (20%)

Casein (80%)

## Plant-Based

 Beans

 Nuts/seeds

 Grains \*Soy



# Protein Type

## Whey

- Rapidly digested
- During the day
- Higher leucine (EAA) content

## Casein

- Slowly digested
- Before bed

• Dairy



# Whey Protein Type



01

**Concentrate**

02

**Isolate**

03

**Hydrolysate**

# Protein Type

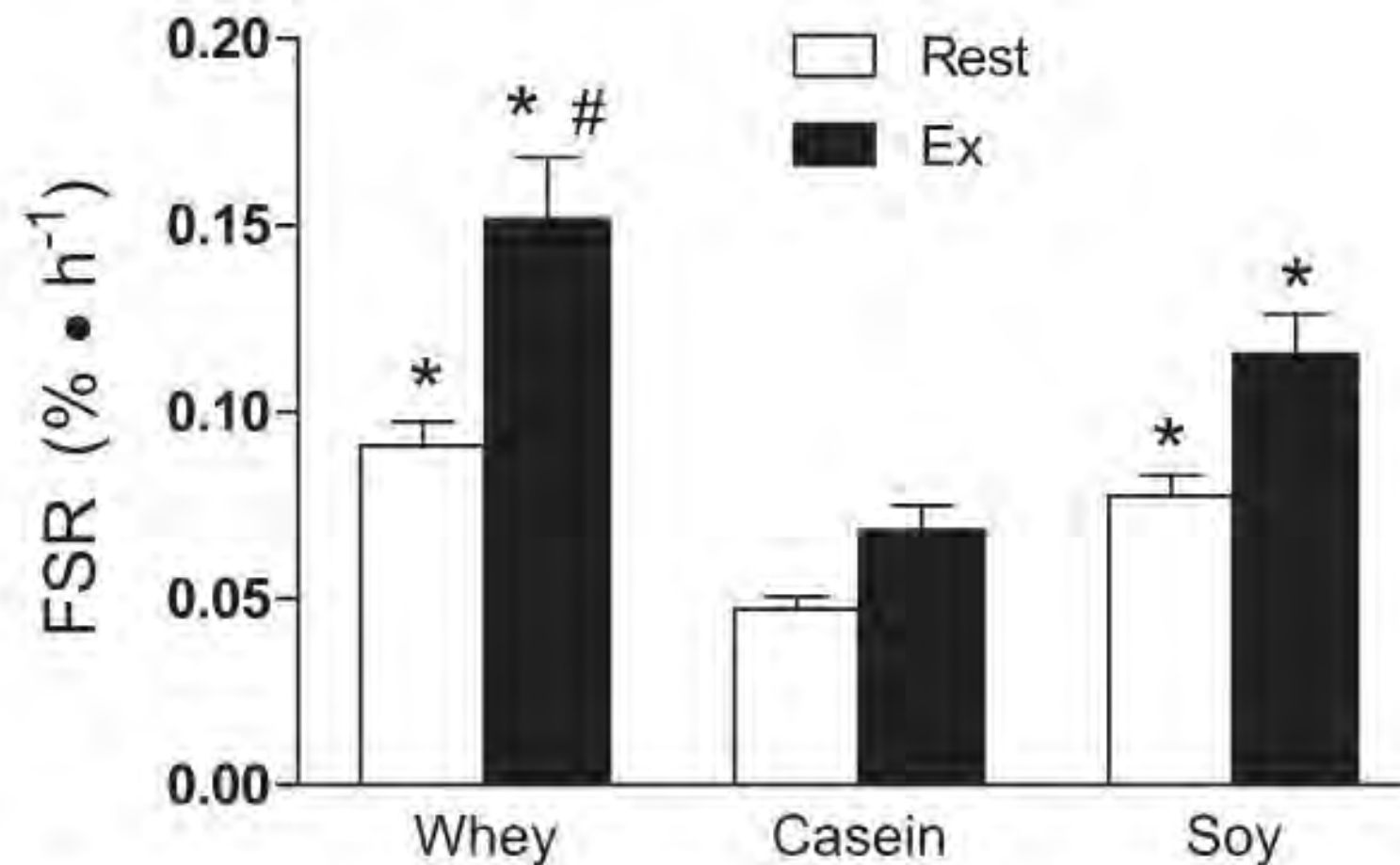
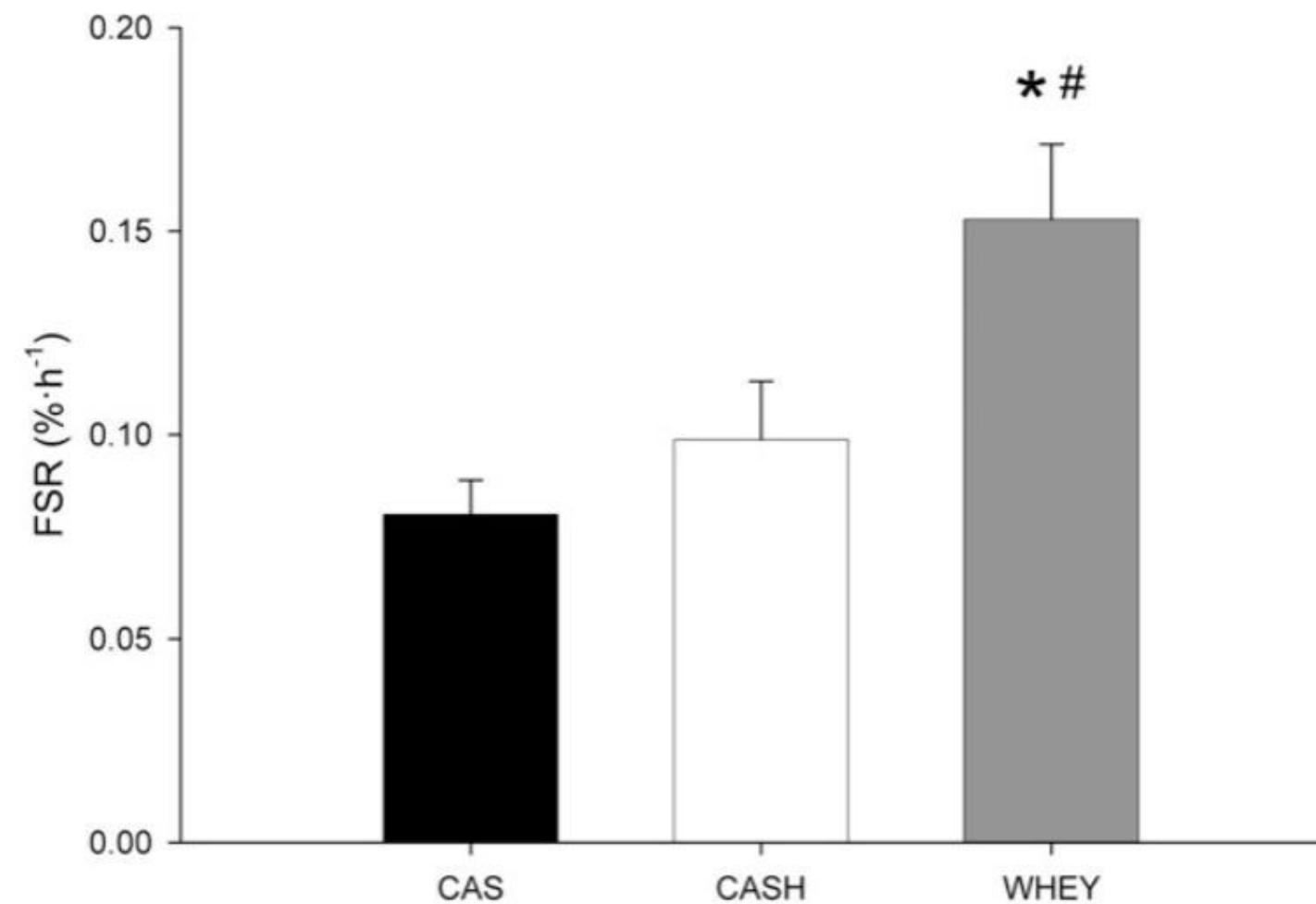


Fig. 5. Mixed muscle protein fractional synthetic rate (FSR) after ingestion of whey hydrolysate, casein, or soy protein at rest and after resistance exercise. \*Significantly different from casein for same condition ( $P < 0.01$ ). # Significantly different from soy for same condition ( $P < 0.05$ ). All values are means  $\pm$  SD;  $n = 6$  per group.

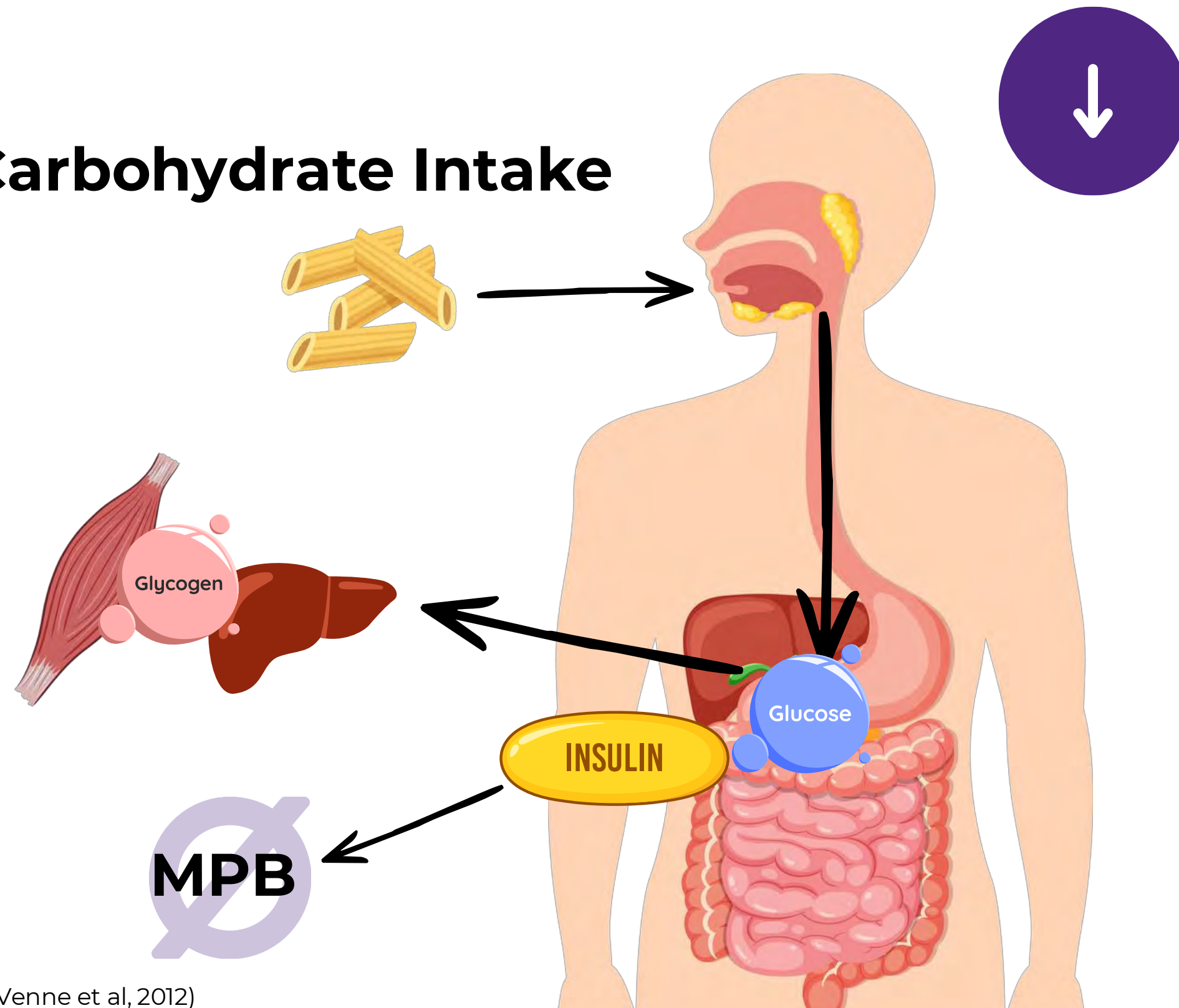
# Protein Type



**FIGURE 5.** Mean ( $\pm$ SEM) mixed muscle protein fractional synthetic rates (FSR), with tissue-free L-[1-<sup>13</sup>C]phenylalanine enrichments as precursor, after ingestion of casein (CAS;  $n = 16$ ), casein hydrolysate (CASH;  $n = 16$ ), and whey (WHEY;  $n = 16$ ). Data were analyzed with ANOVA with Bonferroni correction. \*WHEY significantly different from CAS,  $P < 0.01$ . #WHEY significantly different from CASH,  $P < 0.05$ .

# Other Considerations

## Carbohydrate Intake



(Churchward-Venne et al, 2012)



# Common Protein Myths

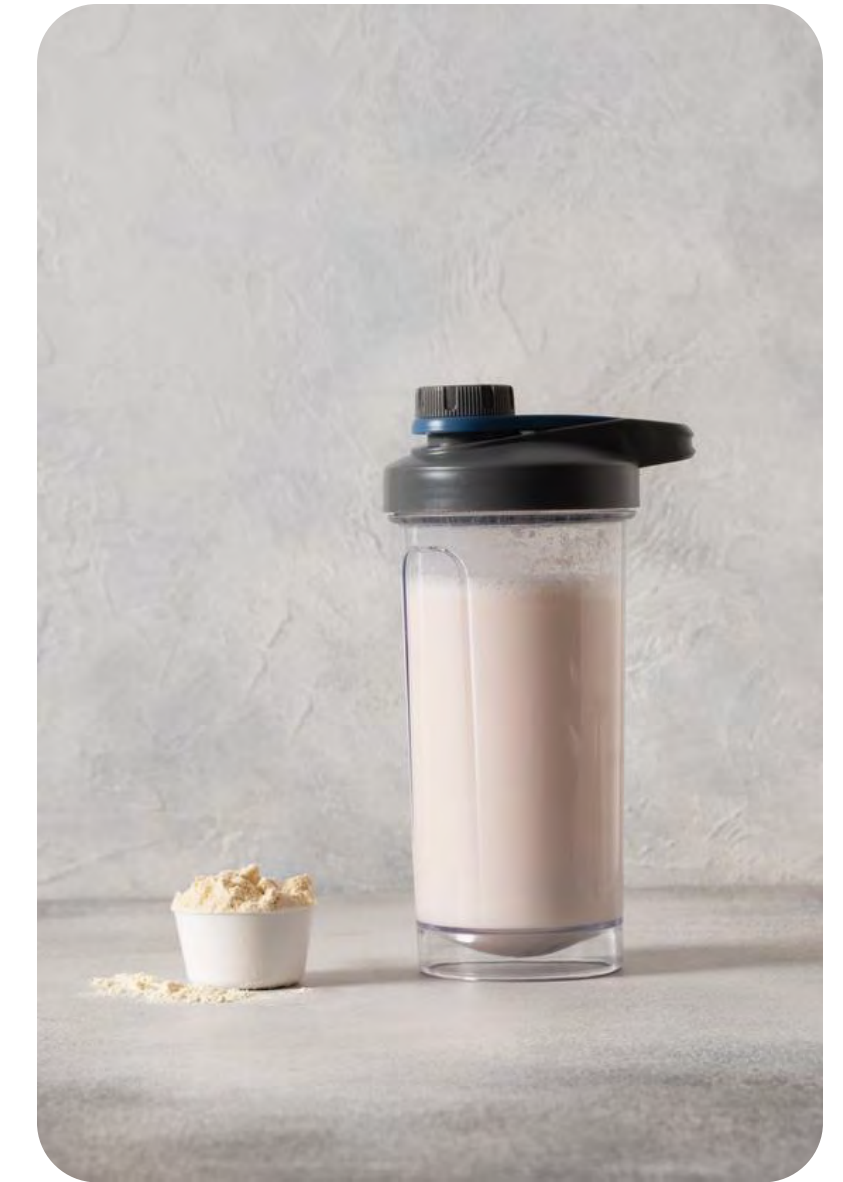


# Protein Myths



**More is better!**

**Protein causes kidney issues**



**You need to supplement**



# Case Study





# Case Study

**Name:** Arthur

**Age:** 75 years old

**Weight:** 80 kg

\*No health concerns

**Favourite workout:** strength training



# Case Study

**Weight:** 80 kg

**Recommended protein needs:** 0.4g/kg body mass

$80\text{kg} \times 0.4\text{g/kg body mass} = 32\text{g protein}$

# Case Study

**Aim for 32g protein 4x per day**

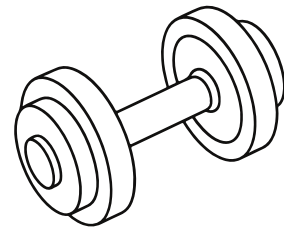


Breakfast

Oatmeal

- ½ c oats
- 1 c milk
- 1 tbsp peanut butter
- 1 banana
- ½ c Greek yogurt

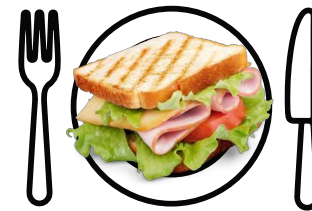
**31.5g protein**



Post-Workout

- 1 scoop vanilla Whey isolate

**28g protein**



Lunch

Turkey Sandwich

- 4 slices of turkey deli meat
- 2 slices whole wheat bread
- 3 slices tomato
- 2 outer leaves (lettuce)
- 1 tbsp light mayo
- 3 slices cheddar cheese

**32.6g protein**



Dinner

- 1 baked potato
- 3 oz sirloin steak
- 4 asparagus spears
- ½ c milk

**32.8g protein**

# Case Study - Protein Content of Various Foods



**3oz chicken breast  
= 25g**



**3oz salmon fillet  
= 22g**



**2 large eggs  
= 12g**



**3oz extra firm  
tofu = 13g**



**1c milk = 8g**



**1c Greek yogurt  
= 25g**



**3oz sirloin steak  
= 23g**



**1c cottage  
cheese = 22g**



**1c cooked  
quinoa = 8g**



**1c kidney beans  
= 14g**



**2 tbsp nutritional  
yeast = 7g**



**1c cooked oats  
= 5g**



**2 tbsp pumpkin  
seeds = 4g**



**2 tbsp peanut  
butter = 8g**



**2 slices whole  
wheat bread = 9g**



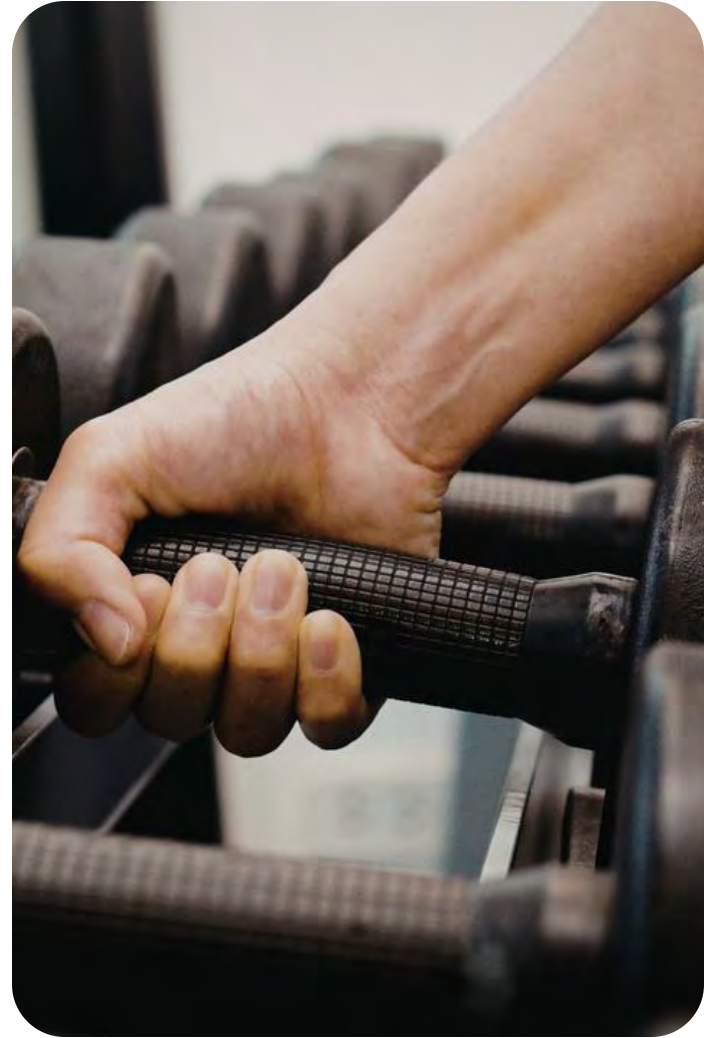
**1c lentils = 18g**



**1c cooked peas  
= 8g**



**1c cooked penne  
pasta = 6g**



# Conclusion



# Dietary Protein



**01**

**Optimize MPS**

**02**

**Prevent Sarcopenia**

**03**

**Timing, Dose and Type**

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**THANK YOU**

**Questions?**