PRE SLEEP DIETARY PROTEIN-DERIVED AMINO ACIDS ARE INCORPORATED IN MYOFIBRILLAR PROTEIN POST-EXERCISE OVERNIGHT RECOVERY

**KEY POINTS**

- 36 males: healthy, young, recreationally active
- A single bout of resistance type-exercise was performed in the evening (9:45 and 20:45 h) followed by drinks providing 20 g milk protein and 45 g carbohydrates were ingested after exercise. Subjects ingested the beverage PLA, PRO, or PRO+Ieu within 5 min of sleep.
- Utilised intrinsically labelled protein technique.
- Protein ingested prior to sleep is rapidly digested with ~55% of the ingested protein-derived amino acids appearing in the systemic circulation throughout overnight sleep.
- 30 g casein protein improves whole-body protein synthesis rates and allows for a positive overnight whole-body protein net balance.
- The casein protein ingested prior to sleep provided amino acids which are incorporated into myofibrillar protein during overnight sleep. BUT does not increase myofibrillar protein synthesis rates during.
- The addition of 2 g Leucine to 30 g of Casein did not further increase overnight muscle protein synthesis rates or incorporation rates into skeletal myofibrillar protein.

**RESULTS**

Proteins ingested before sleep are used to build new muscle!

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