

Dose response of alpha lactalbumin supplementation on serum Tryptophan (TRP):Large Neutral Amino Acid (LNAA) ratio.

ACTRN12623001300662

Status	RECRUITING
Sponsor	Deakin University -Centre for Sports Research
Enrollment	16 participants

Plain Language Summary

Getting a good night's sleep is influenced by many factors — including the amino acid tryptophan, which the brain uses to produce melatonin (the hormone that triggers sleep). Tryptophan has to compete with other amino acids to cross into the brain, so eating more tryptophan doesn't automatically mean more melatonin. However, a protein called alpha lactalbumin, found in whey, is naturally high in tryptophan and may shift this balance in favour of sleep.

This crossover study will give participants four different doses of alpha lactalbumin supplement at different sessions (in random order), and then measure the ratio of tryptophan to competing amino acids in their blood, as well as their melatonin levels. The goal is to find the optimal dose and timing of supplementation — setting the foundation for future research on improving sleep quality through nutrition.

Eligible participants are healthy, recreationally active adults aged 18–35 who meet weekly exercise guidelines. People with existing sleep disorders, taking sleep aids or antidepressants, doing shift work, or with a PSQI sleep quality score above 5 are not eligible. Dairy allergy and heavy alcohol consumption are also exclusions.

Key Eligibility Criteria

Inclusion (1)

- Participants must be aged 18-35yrs, recreationally active i.e. completing at least 150 to 300 min moderate-intensity activity or 75–150 min of vigorous-intensity activity a week, plus muscle-strengthening activities 2 or more days a week.

Exclusion (3)

- Participants must not be facing any existing sleeping disorders such as insomnia or consuming any nutraceutical or herbal sleeping aids such as melatonin gummies, chamomile or other herbs which could influence exogenous melatonin production.
- Participants will be screened using the Pittsburgh Scale Quality Index (PSQI) questionnaire and a score of >5 will be excluded from the trial.
- Excessive beer or wine consumption (>17 standard drinks per week), dairy allergy, high caffeine use (e.g., >5 mg·kg⁻¹·d⁻¹), antidepressant or sleep medication use, current or recently finished night shift work, recent transmeridian travel, fluctuating bedtimes, and pregnancy are also exclusions from this trial due to confounding influences that may have on the circadian rhythm, exogenous melatonin production or the plasma TRP:LNAA ratio.

Locations (1 total)

VIC, Australia

<https://www.anzctr.org.au/Trial/Registration/TrialReview.aspx?ACTRN=ACTRN12623001300662>

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