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Pre-Sleep Protein Does Not Disrupt Sleep or Recovery in Elite Athletes

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Protein Density Linked to Fat-Free Mass in Overweight Adults

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Pre-Sleep Protein Does Not Disrupt Sleep or Recovery in Elite Athletes



Sleep is a critical component of recovery, yet questions and beliefs remain around whether eating close to bedtime - particularly protein - may have a negative effect on sleep quality. A recent randomized, double-blind crossover study examined the effects of pre-sleep feeding (PSF) on sleep and recovery in elite NCAA Division I female athletes.

Twenty-one athletes completed four short intervention periods, each involving three consecutive nights of consuming one of the following 40 g pre-sleep treatments: α -lactalbumin (a tryptophan-rich whey fraction), casein protein, carbohydrate, or a non-caloric placebo. Supplements were consumed approximately 30 minutes before bedtime, at least two hours after the final meal. Objective sleep (total sleep time), recovery metrics (heart rate variability and resting heart rate), and subjective measures of sleep quality and recovery were assessed.

Across all interventions, there were no significant differences in:

- Objective sleep duration (~7.5 hours across groups)
- Subjective sleep quality or time to fall asleep
- Recovery markers, including heart rate variability and resting heart rate
- Perceived recovery

These findings suggest that consuming a 40 g protein dose before bed does not impair sleep quality or recovery in this population. From a practical perspective, this supports the use of pre-sleep nutrition as a strategy to help athletes meet daily protein and energy needs, particularly when daytime intake may be insufficient.

[Paterson et al, 2025](#)

Protein-Rich FSMP Boosts Nutrition and Strength

A multicenter, randomized, controlled study conducted in China evaluated the impact of a high-protein food for special medical purposes (FSMP) in 135 adults aged 45–80 years at risk of malnutrition (Mini Nutritional Assessment [MNA] ≤ 23.5). Participants were assigned to one of three 12-week interventions: a novel high-protein FSMP plus dietetic counseling, an established FSMP plus counseling, or counseling alone.

At 12 weeks, both FSMP groups showed significantly greater improvements in MNA scores compared with control (+2.3 and +3.1 points, respectively; both $P < 0.001$), with no significant difference between the two FSMP formulations. These findings indicate improved overall nutritional status with FSMP use beyond dietary counseling alone.



Secondary outcomes supported these results. Both FSMP groups demonstrated increases in handgrip strength compared with control, with gains of approximately 2–3 kg, suggesting improved muscle function. The novel FSMP group also showed a greater increase in body weight (+1.2 kg vs control), while both FSMP groups contributed to improvements in BMI and calf circumference over time.

No significant differences were observed for mid-upper arm circumference or SARC-F scores. Importantly, both FSMP interventions were well tolerated, with no differences in adverse events or gastrointestinal outcomes across groups.

Overall, a 12-week intervention with a high-protein FSMP, alongside dietetic counseling, was associated with improvements in nutritional status and measures of muscle function in adults at risk of malnutrition, with similar efficacy observed between novel and established formulations.

Wang et al. 2026

Plant and Dairy Protein Diet Shows Clinical Benefit in Cirrhosis

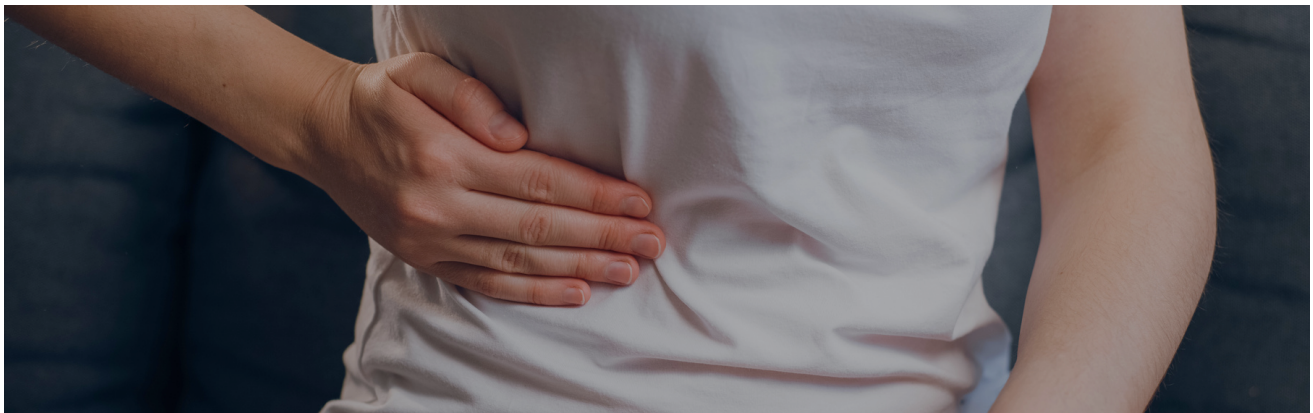
A controlled, randomized clinical trial investigated the effects of a plant- and dairy-protein-based diet on clinical and biochemical outcomes in 46 patients with liver cirrhosis. Participants were assigned to either a prescribed diet emphasizing vegetable and dairy protein sources (n=23) or an isocaloric standard diet (n=23) for 12 weeks.

The study assessed a range of outcomes, including disease severity (Model for End-Stage Liver Disease [MELD] score), inflammatory biomarkers (hs-CRP, TNF- α , IL-6), oxidative stress markers (malondialdehyde, total antioxidant capacity, total oxidant status), and anthropometric measures. Dietary intake and physical activity were also monitored throughout the intervention period.

After 12 weeks, the plant and dairy protein group showed a significant reduction in MELD score, suggesting an improvement in overall liver disease severity. In contrast, no significant changes were observed in inflammatory or oxidative stress biomarkers between groups. Anthropometric measures, including BMI, mid-arm muscle circumference, and triceps skinfold thickness, also remained unchanged.

These results indicate that a diet emphasizing plant and dairy protein sources may contribute to measurable improvements in clinical disease severity in cirrhosis, even without detectable changes in inflammation or oxidative stress markers over the study period.

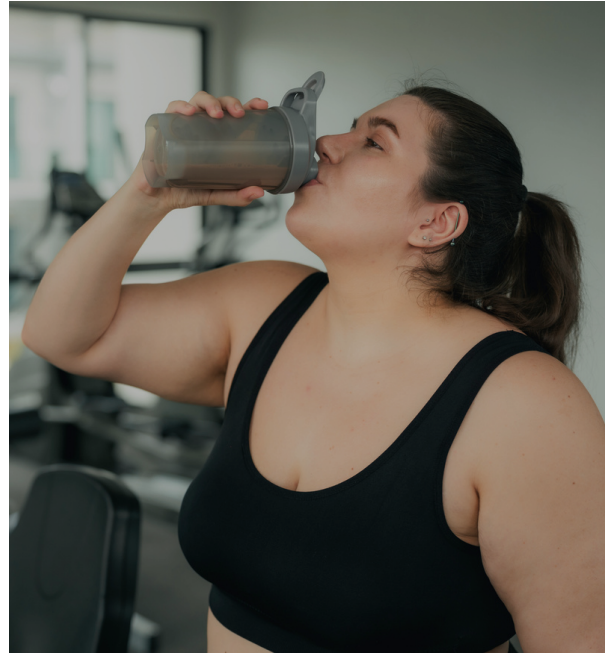
[Ranjbar et al. 2025](#)



Protein Density Linked to Fat-Free Mass in Overweight Adults

A cross-sectional analysis of 2,299 adults with overweight or obesity from the Fasa Adult Cohort Study examined relationships between dietary patterns, protein density, and fat-free mass index (FFMI). Dietary intake was assessed using a validated food frequency questionnaire, identifying “Healthy” and “Unhealthy” patterns, while body composition was measured via bioelectrical impedance analysis.

Initial results showed a positive association between the Healthy dietary pattern and FFMI in men, although this relationship was no longer significant after adjusting for fat mass.



Similarly, the Unhealthy pattern was only associated with higher FFMI in men after accounting for adiposity, suggesting that overall dietary patterns may be confounded by body size.

In contrast, protein density (protein relative to energy intake) was consistently associated with higher FFMI in both men and women, independent of fat mass. Physical activity also played a significant role, mediating the relationship between protein density and muscle mass.

These findings suggest that protein density, rather than overall dietary pattern alone, is a more consistent factor associated with lean mass, highlighting the combined importance of protein intake and physical activity in supporting body composition.

[Ariya et al. 2026](#)



Probiotics Support Postoperative Recovery in Elderly Hip Fracture Patients

A randomized controlled trial evaluated whether perioperative probiotics could serve as an alternative to preoperative carbohydrate supplementation in elderly patients (≥ 65 years) undergoing hip fracture surgery within an enhanced recovery after surgery (ERAS) framework. A total of 170 patients were assigned to one of three groups: standard fasting (control), preoperative carbohydrate drink, or perioperative probiotics administered from admission through discharge.

The primary outcome (time to first postoperative flatus) was shorter in both the nutrition and probiotic groups compared with control, indicating faster gastrointestinal recovery. The probiotic group showed the greatest improvement, along with more favorable changes in markers of intestinal barrier integrity.

Secondary outcomes, including blood glucose, insulin, inflammatory markers (CRP), pain scores, delirium incidence, and length of hospital stay, did not differ significantly between groups. Importantly, no increase in adverse events was observed with either intervention.

These findings suggest that both preoperative carbohydrate intake and perioperative probiotics can support postoperative gastrointestinal recovery, with probiotics representing a safe and practical option within ERAS protocols for elderly surgical patients.

[Liu et al. 2026](#)