

# Almond Consumption as a Dietary Strategy for Improving Sleep and Mood in Middle-Aged Adults with Overweight or Obesity

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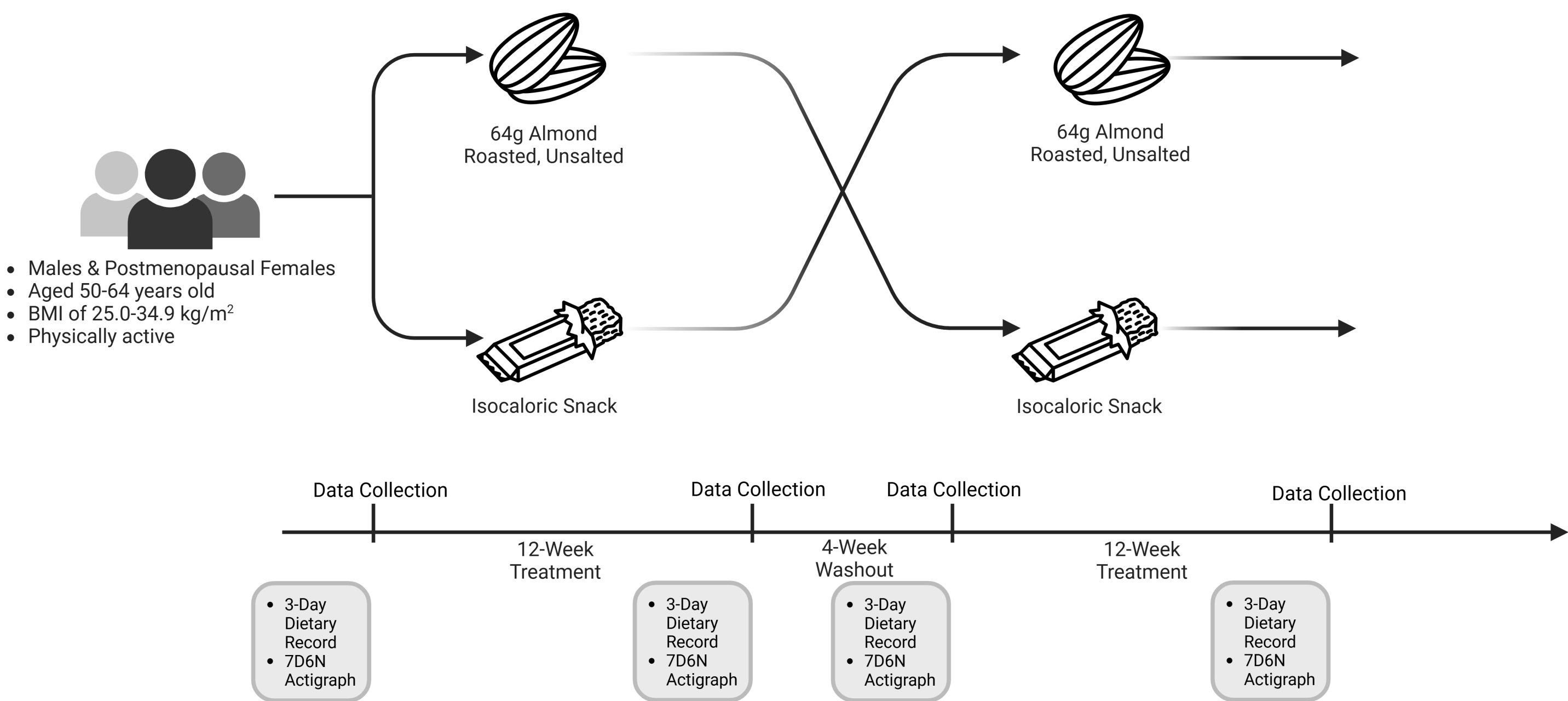
## Background

Sleep disturbances and mood disorders are common in middle-aged adults with overweight and obesity, impacting overall health and well-being. Almonds, rich in magnesium, melatonin, and polyphenols, may support sleep quality and mood through their roles in neurotransmitter regulation and circadian rhythm synchronization. This study investigates the effects of almond consumption on sleep and mood in physically active middle-aged adults, addressing a gap in dietary intervention research.

## Aims of the Research

- To examine the effects of almond consumption on **objective sleep quality** using actigraphy.
- To assess changes in **subjective sleep quality** using the Pittsburgh Sleep Quality Index (PSQI).
- To evaluate the impact of almond consumption on **mood** using the Profile of Mood States (POMS).

## Research Design/Methods



## Results

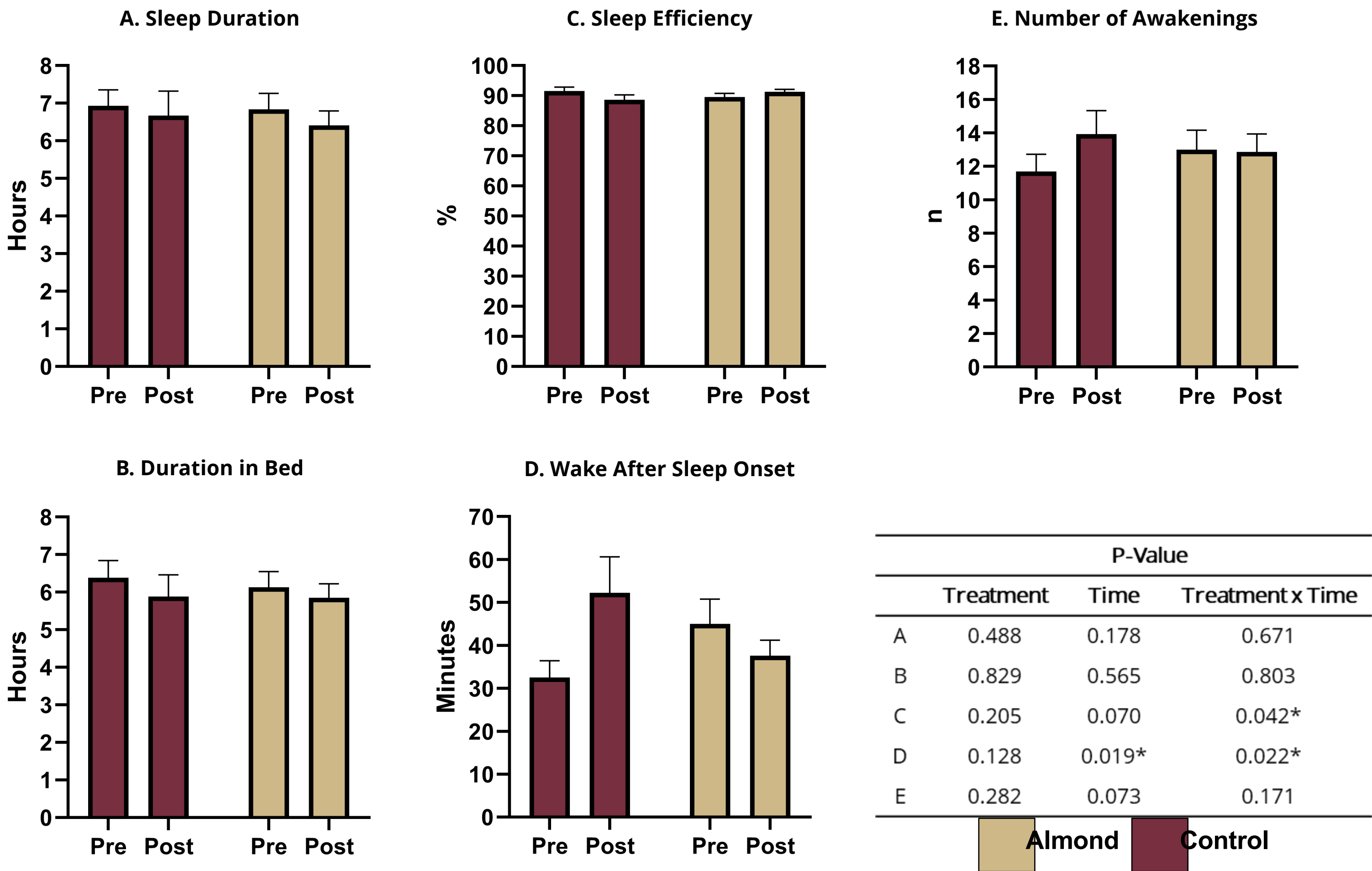
Participants' Characteristics at Baseline and Adherence Rate

Characteristic	Treatment (Mean ± SD)	
	Control	Almond
Age (Years)	58.0 ± 1.7	
Sex (n)	Male = 17, Female = 21	
Height (m)	1.68 ± 0.10	
Weight (kg)	82.7 ± 13.3	82.8 ± 12.4
BMI (kg/m <sup>2</sup> )	29.0 ± 3.4	29.0 ± 3.4
Total Body Fat (%)	31.8 ± 6.3	30.9 ± 8.8
PAL (Daily Step Counts)	10,490 ± 4,706	10,864 ± 4384
Energy Intake (kcal)	1886 ± 631	1858 ± 526
Adherence Rate (%)	89.2 ± 12.3	89.8 ± 9.4

BMI = body mass index, PAL = Physical Activity Level

\* Denotes P-values < 0.05.

Effects of Almond Intake for 12 Weeks on Objective Sleep Quality



Effects of Almond Intake for 12 Weeks on Subjective Sleep Quality

	Treatment (Mean ± SD)			
	Control		Almond	
	Baseline	12-Week	Baseline	12-Week
Subjective Sleep Quality	0.5 ± 1.0	0.6 ± 1.2	0.5 ± 1.1	0.5 ± 1.1
Sleep Latency	0.8 ± 0.8	0.8 ± 0.9	0.9 ± 0.8	0.9 ± 0.8
Sleep Duration	1.3 ± 1.1	1.2 ± 1.1	1.1 ± 1.0	1.2 ± 1.1
Habitual Sleep Efficiency*	0.6 ± 0.9	0.4 ± 0.8	0.3 ± 0.8	0.6 ± 1.0
Sleep Disturbances	1.3 ± 0.4	1.2 ± 0.4	1.2 ± 0.5	1.2 ± 0.4
Use of Sleep Medication	0.2 ± 0.4	0.2 ± 0.7	0.2 ± 0.5	0.2 ± 0.6
Daytime Dysfunction	1.0 ± 0.5	0.9 ± 0.7	0.8 ± 0.5	0.8 ± 0.5
Total PSQI	5.6 ± 2.7	5.4 ± 3.3	5.0 ± 2.8	5.5 ± 3.3

\* Denotes significant treatment x time effect (p < 0.05).

Effects of Almond Intake for 12 Weeks on Mood

	Treatment (Mean ± SD)			
	Control		Almond	
	Baseline	12-Week	Baseline	12-Week
Tension	1.0 ± 1.5	0.6 ± 1.4	0.5 ± 1.3	0.9 ± 3.0
Anger	0.1 ± 0.4	0.2 ± 0.5	0.1 ± 0.6	0.3 ± 0.8
Fatigue	1.0 ± 1.9	1.6 ± 3.0	1.1 ± 2.2	2.0 ± 3.4
Depression*	0.4 ± 1.2	0.1 ± 0.2	0.1 ± 0.4	0.4 ± 1.1
Confusion	0.7 ± 1.0	0.5 ± 0.8	0.7 ± 0.9	0.7 ± 1.1
Vigor	10.9 ± 5.2	11.2 ± 5.3	11.7 ± 4.9	11.1 ± 4.9
Esteem-related Affect	13.9 ± 3.6	14.5 ± 3.4	15.0 ± 3.2	15.0 ± 3.1
Total Mood Disturbance	78.4 ± 10.2	77.2 ± 10.2	75.9 ± 9.0	78.2 ± 11.2

\* Denotes significant treatment x time effect (p < 0.05).

## Conclusion

Replacing high-added-sugar snacks with almonds for 12 weeks led to measurable improvements in objective sleep efficiency and continuity, as assessed by wrist-worn actigraphy. Although subjective reports of sleep disturbance did not improve, participants indicated better habitual sleep efficiency. Additionally, preliminary data suggest that almond consumption may have a favorable influence on mood, even though the depression subscale score was higher in the almond group compared with controls after 12 weeks.

Overall, these findings underscore the potential benefits of almond consumption for sleep quality and aspects of mood, while highlighting the need for further investigation into possible mechanisms and long-term implications.

## Key References

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- Fernández-Rodríguez R, Jiménez-López E, Garrido-Miguel M, Martínez-Ortega IA, Martínez-Vizcaino V, Mesas AE. Does the evidence support a relationship between higher levels of nut consumption, lower risk of depression, and better mood state in the general population? A systematic review. Nutr Rev. 2022;80(10):2076-2088.