

A Monthly e Magazine
ISSN:2583-2212

Popular Article

April, 2026 Vol.6(4), 1117-1121

Adolescent Insomnia: The Role of Diet in Sleep Quality

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doi.org/10.5281/ScienceWorld.20024780

Introduction

Insomnia is a common sleep problem, especially among young adults and teenagers. It makes it difficult to fall asleep or stay asleep, even when there is enough time to rest. Because of this, people often feel tired, unfocused, and less productive during the day. Insomnia can affect both mental and physical health in serious ways. In adolescents, insomnia is quite common, particularly among older teenagers and girls. Its occurrence is similar to other major mental health issues like depression. Sleep is very important because it helps the body recover and supports brain function. When sleep is disturbed, it can lead to irritability, stress, and poor daily performance. Many teenagers develop unhealthy habits that worsen insomnia. For example, excessive use of mobile phones, laptops, and other screens at night exposes them to bright light and mental stimulation. These delays sleep and makes it harder to fall asleep on time. In addition, academic pressure, early school schedules, and busy extracurricular activities reduce the time available for proper sleep.

According to sleep guidelines, children aged 6–13 years need about 9–11 hours of sleep, while teenagers aged 14–17 years require around 8–10 hours each night. However, many adolescents do not get enough sleep due to lifestyle and environmental factors.

Diet also plays an important role in sleep quality. What we eat can influence how well we sleep. Although research in this area is still developing, studies suggest that unhealthy eating patterns are linked to poor sleep. Short sleep duration is often associated with problems like obesity, metabolic disorders, and irregular sleep habits. In this context, understanding the



relationship between nutrition and sleep is important. A balanced diet and healthy lifestyle can help improve sleep quality and overall well-being.

Prevalence and clinical diagnosis of insomnia in adolescence

Insomnia is the most frequent sleep problem in adolescence, with a 10.7% lifetime and a 9.4% present prevalence, according to the diagnostic and statistical manual of mental disorders (DSM) fourth edition (DSM-IV) in a US sample of 13-16 year old adolescents. Importantly, chronic insomnia is high in adolescents, and there is a considerable female incidence of the condition, with gender differences arising after puberty (de Zambotti, 2018).

Types of Insomnia

- Acute insomnia – Short-term sleep problem (few days to weeks), often due to stress or life changes
- Chronic insomnia – Long-term problem (at least 3 times a week for 3 months or more)
- Onset insomnia – Difficulty falling asleep
- Maintenance insomnia – Trouble staying asleep or waking frequently
- Early morning insomnia – Waking up too early

Classification of Insomnia

- **Primary insomnia** – Not linked to any other medical or mental condition
- **Secondary insomnia** – Caused by other issues like illness, depression, anxiety, or medications

Based on cause:

- **Behavioural insomnia** – Due to poor sleep habits (screen time, irregular schedule)
- **Psychological insomnia** – Linked to stress, anxiety, or overthinking
- **Medical insomnia** – Associated with diseases like pain, asthma, or hormonal imbalance

Symptom of Insomnia

Sleep duration, difficulties waking up, tiredness in school, and family financial situation among school-aged girls and boys (aged 6-10 years) can predict insomnia symptoms among female and male adolescents (aged 14-16 years).

- Difficulty falling asleep at night
- Waking up frequently during sleep
- Waking up too early and not falling asleep again
- Feeling tired even after sleeping
- Daytime sleepiness and low energy
- Poor concentration and memory



- Irritability, stress, or mood swings
- Reduced performance in daily activities
- Headaches or body discomfort due to poor sleep

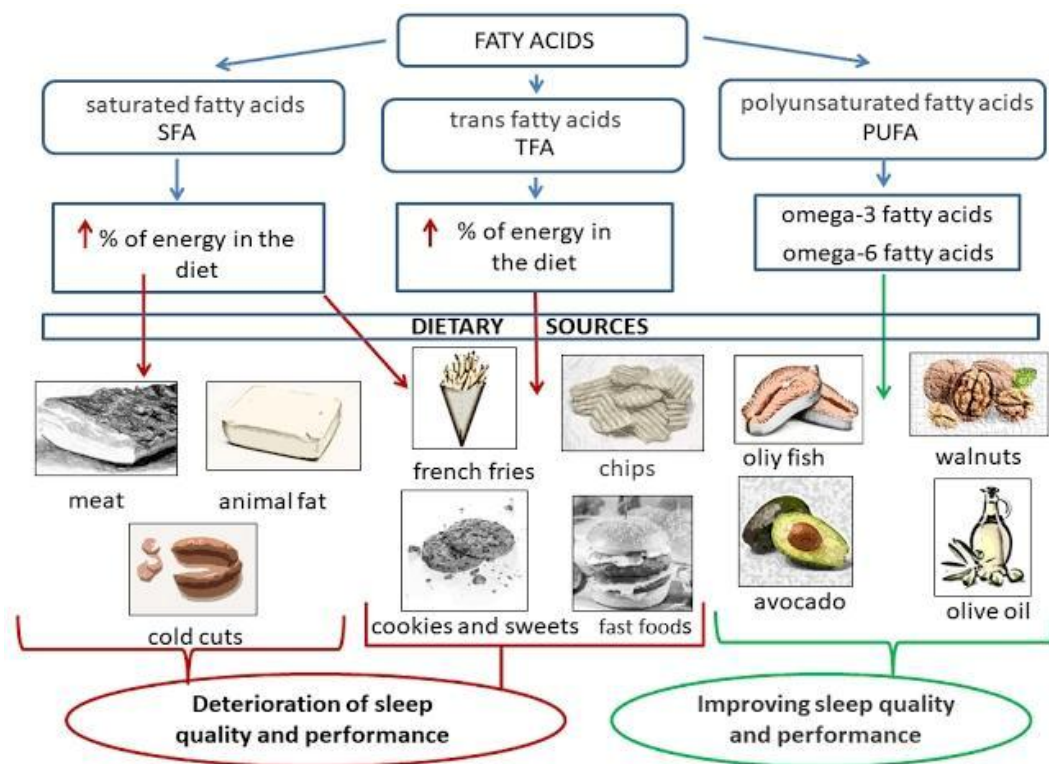


Fig.2: Dietary Patterns and Sleep Disorder

The connection between diet and sleep is strongly affected by the type of nutrients we eat, especially macronutrients like carbohydrates, proteins, and fats. When a person does not get enough sleep, they are more likely to choose unhealthy foods. These foods usually contain more fat, are highly processed, and have more simple carbohydrates compared to complex ones. They also tend to have a high glycemic index, which means they can quickly raise blood sugar levels.

Table.1: Food effects on sleep cycle

FOOD	EFFECT ON SLEEP CYCLE
Vegetable (Magnesium - rich foods) (Leafy green)	Relaxes muscles, promotes sleep
Fruits	Promotes relaxation, serotonin production
Sugar & carbohydrate	Fluctuation in blood
Caffeine	Disrupts Sleep cycle, reduce sleep quality



Nuts (Almonds & Walnuts)	Abundant source of magnesium, tryptophan
Seed (Chia seed, flax seed)	Rich in magnesium, omega-3 fatty acid
Magnesium- rich foods	Relaxed muscle, promotes sleep
Heavy meals	Indigestion, discomfort, poor sleep quality
Tannin & Tea effect	For relaxation and sleep promotion
Whole grains (brown rice)	Promotes stable blood sugar, relaxation
Herbal teas	Promotes relaxation, improves sleep quality
Daily milk, yogurt	Contain tryptophan, promote relaxation
Fatty fish	Rich in omega- fatty acids, promotes relaxation
Legumes (lentils, chickpeas)	Promotes stable blood sugar, relaxation
GABA – rich foods (Fermented Foods)	Promotes relaxation, reduces stress

Sleep and physical activity (PA) play a vital role in maintaining good health and cognitive functions. According to the World Health Organization, it is recommended that adults aged 18–64 years should perform at least 150–300 min of moderate-intensity aerobic PA or at least 75–150 min of vigorous-intensity aerobic PA, or an equivalent combination of moderate- and vigorous-intensity activity throughout the week (Dąbrowska-Galas M, 2021) physical activity can improve sleep of people experiencing insomnia. It has been observed that moderate to vigorous physical activity (>150 minutes per week, WHO, 2020) decreases insomnia symptoms and associated daytime impairment in chronic insomnia (Ferreira, 2023).

Conclusion

Adolescence is a critical stage of growth and development, and proper sleep is essential for both physical and mental health. Insomnia is a common and serious issue among teenagers, affecting their focus, mood, and daily performance. Compared to other sleep disorders, it is more common and harder to manage. Therefore, early identification and proper care are important. There is also a need for more research on how sleep, diet, and lifestyle factors are connected, especially in people at risk of chronic diseases. Ensuring good sleep in teenagers is important for building a healthy future.

References

- de Zambotti, M., Goldstone, A., Colrain, I. M., & Baker, F. C. (2018). Insomnia disorder in adolescence: diagnosis, impact, and treatment. *Sleep medicine reviews*, 39, 12-24.
- Donskoy I, Loghmanee D. Insomnia in Adolescence. *Medical Sciences*. 2018; 6(3):72. <https://doi.org/10.3390/medsci6030072>
- Dąbrowska-Galas M, Ptaszkowski K, Dąbrowska J. Physical Activity Level, Insomnia and Related Impact in Medical Students in Poland. *International Journal of*



Environmental Research and Public Health. 2021; 18(6):3081.
<https://doi.org/10.3390/ijerph18063081>

Ferreira, M. F., Bos, S. C., & Macedo, A. F. (2023). The impact of physical activity on objective sleep of people with insomnia. *Psychiatry Research*, 320, 115019.

Krystal, A. D., Ashbrook, L. H., & Prather, A. A. (2021). What is insomnia? *JAMA*, 326(23), 2444. <https://doi.org/10.1001/jama.2021.19283>

Sejbuk, M., Mirończuk-Chodakowska, I., & Witkowska, A. M. (2022). Sleep Quality: A Narrative Review on Nutrition, Stimulants, and Physical Activity as Important Factors. *Nutrients*, 14(9), 1912. <https://doi.org/10.3390/nu14091912>

