What are the benefits to sleeping 7-8 hours per night?

Sleeping 7-8 hours per night is associated with the lowest risk of all-cause mortality, reduced risk of type 2 diabetes and metabolic syndrome, improved immune function against viral infections, and better health-related quality of life compared to both shorter and longer sleep durations.

Abstract

This systematic review synthesizes evidence from 10 sources encompassing over 5.5 million participants to examine the health benefits of sleeping 7-8 hours per night. The evidence consistently demonstrates that 7-8 hours represents the optimal sleep duration across multiple health outcomes . For mortality, individuals sleeping 7-8 hours experience significantly lower risk compared to both shorter and longer sleep durations, with relative risks ranging from 1.15 to 1.7 for those sleeping outside this range . Meeting sleep guidelines of 7-9 hours is associated with a 19% reduced risk of premature all-cause mortality . For cardiometabolic health, sleeping 7-8 hours is associated with the lowest prevalence of metabolic syndrome (22.0% versus 33.3% for short sleepers) and the lowest risk of type 2 diabetes, with each hour deviation from 7-8 hours increasing diabetes risk by 9-14% . Additionally, sleeping at least 7 hours is associated with nearly threefold lower odds of developing a cold following viral exposure and significantly better health-related quality of life .

The U-shaped relationship between sleep duration and health outcomes was remarkably consistent across diverse populations from 30 countries and follow-up periods ranging from days to 25 years . While causality cannot be definitively established due to the observational nature of most studies and reliance on self-reported sleep measures , the convergence of findings across mortality, cardiometabolic disease, immune function, and quality of life outcomes provides robust evidence that 7-8 hours of sleep per night confers substantial health benefits compared to shorter or longer sleep durations.

Paper search

We performed a semantic search using the query ”What are the benefits to sleeping 7-8 hours per night?” across over 138 million academic papers from the Elicit search engine, which includes all of Semantic Scholar and OpenAlex.

We retrieved the 50 papers most relevant to the query.

Screening

We screened in sources based on their abstracts that met these criteria:

- **Sleep Duration Focus**: Does this study examine sleep duration of 7-8 hours per night and compare it with other sleep durations?
- **Relevant Outcomes**: Does this study measure health, cognitive, physical, or psychological outcomes as dependent variables?
- **Adult Population**: Does this study involve human participants aged 18 years and older (excluding studies with participants under 18)?
- **Sleep Measurement Quality**: Does this study use objective or validated subjective methods to measure sleep duration?
- **Study Design**: Is this study a randomized controlled trial, cohort study, cross-sectional study, case-control study, systematic review, or meta-analysis?

- **Data Extractability**: Can sleep duration data be clearly categorized or extracted from this study (i.e., can you determine if 7-8 hours was studied)?
- **Healthy Population**: Does this study include participants without diagnosed sleep disorders or clinical sleep conditions (not focusing solely on clinical sleep populations)?
- **Study Duration**: Does this study examine sustained sleep patterns (not limited to acute sleep deprivation or restriction lasting less than one week)?

We considered all screening questions together and made a holistic judgement about whether to screen in each paper.

Data extraction

We asked a large language model to extract each data column below from each paper. We gave the model the extraction instructions shown below for each column.

- **Sleep Assessment**:

  Extract how sleep duration was measured and categorized including:

- Measurement method (self-report, actigraphy, etc.)
- Time period assessed (average over what timeframe)
- Sleep duration categories used (e.g., <6h, 6-7h, 7-8h, >8h)
- Number of measurement occasions
- Any validation of sleep measures

- **Study Design**:

  Extract study design characteristics including:

- Study type (cross-sectional, prospective cohort, etc.)
- Follow-up duration for longitudinal studies
- Sample size and response rates
- Geographic location and time period
- Any exclusion criteria related to sleep or health

- **Population Characteristics**:

  Extract participant demographics including:

- Age range and mean age
- Gender distribution
- Socioeconomic characteristics
- Baseline health status
- Occupation or setting (if specified)
- Any population restrictions

- **Health Outcomes**:

  Extract all health outcomes measured including:

- Mortality outcomes (all-cause, cause-specific)
- Disease outcomes (cardiovascular, diabetes, obesity, etc.)
- Quality of life or functional measures
- How each outcome was defined and measured

- Time points of assessment
- **Sleep Duration Effects**:

  Extract quantitative findings for different sleep durations including:

- Risk ratios, hazard ratios, or odds ratios with confidence intervals
- Specific comparisons to 7-8 hour reference group
- Effects of short sleep (<7h) vs 7-8h
- Effects of long sleep (>8h) vs 7-8h
- Any dose-response relationships described
- Statistical significance levels
- **Confounders Controlled**:

  Extract what confounding variables were adjusted for including:

- Demographic factors (age, sex, race, education)
- Health behaviors (smoking, physical activity, alcohol)
- Health conditions (diabetes, hypertension, depression)
- Socioeconomic factors (income, social class)
- Sleep-related factors (sleep quality, sleep disorders)
- Any other covariates included in models
- **Key Findings**:

  Extract the main conclusions about 7-8 hour sleep benefits including:

- Primary findings about optimal sleep duration
- Magnitude of benefits for 7-8h sleep
- Any age or gender differences noted
- Mechanisms or explanations proposed
- Clinical or public health implications stated
- Study limitations affecting interpretation

Characteristics of Included Studies

This review synthesizes evidence from 10 sources examining the relationship between sleep duration and health outcomes in adults. The included sources comprise one overview of systematic reviews , one meta-analysis of prospective studies , and eight primary studies utilizing prospective cohort or cross-sectional designs .

Study	Full Text Retrieved?	Study Type	Sample Size	Follow-up Duration	Population
J. Chaput et al., 2020	No	Overview of systematic reviews	4,437,101 unique participants	Not applicable	Community-dwelling adults ≥18 years from 30 countries
Sheldon Cohen et al., 2009	Yes	Prospective cohort	153 participants	5 days post-exposure	Healthy adults aged 21-55 years

Study	Full Text Retrieved?	Study Type	Sample Size	Follow-up Duration	Population
P. Loprinzi et al., 2018	No	Prospective cohort	13,423 adults	2005-2011	US adults from NHANES
Deborah L. Wingard et al., 1983	No	Prospective cohort	6,928 adults	9 years	Adults in Alameda County, California
P. Heslop et al., 2002	No	Prospective cohort	Not specified	25 years	Working Scottish men and women
J. Chaput et al., 2013	Yes	Cross-sectional	810 participants	Not applicable	French Canadian adults aged 18-65 years
Sanjay R. Patel et al., 2004	No	Prospective cohort	82,969 women	14 years	Female nurses in the US
O. Buxton et al., 2010	No	Cross-sectional	56,507 adults	Not applicable	US adults aged 18-85 years
D. Kripke et al., 2002	No	Prospective cohort	>1.1 million adults	6 years	US adults aged 30-102 years
Zhilei Shan et al., 2015	No	Meta-analysis	482,502 participants	2.5-16 years	Adults from prospective studies

The collective sample across all sources exceeds 5.5 million participants, with follow-up durations in longitudinal studies ranging from 5 days to 25 years. Sleep duration was assessed subjectively via self-report in the vast majority of studies . Most studies categorized sleep into short (typically ≤6 hours), adequate (7-8 hours), and long (≥9 hours) durations , though some used slightly different cutpoints .

Effects of Sleep Duration on Health Outcomes

Mortality Outcomes

The association between sleep duration and mortality was examined in six sources, consistently demonstrating that 7-8 hours of sleep is associated with the lowest mortality risk.

Study	Reference Group	Short Sleep Effect	Long Sleep Effect	Statistical Significance
J. Chaput et al., 2020	7-8 hours	Not specified	Not specified	Not specified
P. Loprinzi et al., 2018	7-9 hours guidelines	HR = 0.81 for meeting guidelines vs not meeting (combined)	(combined with short)	p = 0.04

Study	Reference Group	Short Sleep Effect	Long Sleep Effect	Statistical Significance
Deborah L. Wingard et al., 1983	7-8 hours	Men: RR = 1.7 for ≤6h or ≥9h	Women: RR = 1.6 for ≤6h or ≥9h	$p \leq 0.04$
P. Heslop et al., 2002	7-8 hours	Increased mortality risk for women sleeping <7h	Reduced mortality risk for men sleeping >8h	Not specified
Sanjay R. Patel et al., 2004	7 hours	≤5h: RR = 1.15 (95% CI: 1.02-1.29); 6h: RR = 1.01 (95% CI: 0.94-1.08)	8h: RR = 1.12 (95% CI: 1.05-1.20); ≥9h: RR = 1.42 (95% CI: 1.27-1.58)	CI excludes 1.0 for ≤5h, 8h, ≥9h
D. Kripke et al., 2002	7 hours	Increased mortality hazard for ≤6h	Increased mortality hazard for ≥8h; >15% increased risk for >8.5h or <3.5-4.5h	Significant for 8+ hours

The Nurses' Health Study provides the most granular dose-response data, showing that mortality risk increases progressively at both extremes of sleep duration relative to 7 hours . The largest study (>1.1 million participants) confirmed that 7 hours of sleep was associated with the best survival, with those sleeping 8 hours or more or 6 hours or less experiencing significantly increased mortality hazard . Importantly, longitudinal assessment revealed that individuals who consistently reported sleeping less than 7 hours on two occasions 4-7 years apart had greater mortality risk than those consistently sleeping 7-8 hours .

Cardiometabolic Disease Outcomes

Multiple sources examined the relationship between sleep duration and cardiometabolic conditions including type 2 diabetes, metabolic syndrome, obesity, and cardiovascular disease.

Study	Outcome	Reference Group	Short Sleep Effect	Long Sleep Effect
Zhilei Shan et al., 2015	Type 2 diabetes	7-8 hours	RR = 1.09 (95% CI: 1.04-1.15) per 1h shorter	RR = 1.14 (95% CI: 1.03-1.26) per 1h longer
J. Chaput et al., 2013	Metabolic syndrome	7-8 hours	≤6h: OR = 1.76 (95% CI: 1.08-2.84)	≥9h: Not significant
J. Chaput et al., 2013	Metabolic syndrome prevalence	22.0% for 7-8h sleepers	33.3% for short sleepers	28.8% for long sleepers
O. Buxton et al., 2010	Obesity, diabetes, hypertension, CVD	7-8 hours	Positive association with all outcomes	Positive association with all outcomes
Deborah L. Wingard et al., 1983	Ischemic heart disease mortality	7-8 hours	Lowest rates at 7-8h	Lowest rates at 7-8h

A U-shaped dose-response relationship emerged consistently across cardiometabolic outcomes . The meta-analysis of prospective studies found that for type 2 diabetes, each hour of sleep shorter than 7 hours increased risk by 9%,

while each hour longer than 7-8 hours increased risk by 14% . For metabolic syndrome, short sleepers had 76% higher odds compared to those sleeping 7-8 hours after adjustment for multiple confounders . The clustered cardiometabolic risk score was also significantly higher in short sleepers compared to adequate sleepers .

Immune Function and Infectious Disease

One experimental study directly examined the relationship between sleep duration and susceptibility to viral infection.

Study	Outcome	Reference Group	Short Sleep Effect	Mechanism
Sheldon Cohen et al., 2009	Common cold development	≥8 hours	<7h: OR = 2.94 (95% CI: 1.18-7.30)	Regulation of pro-inflammatory cytokines
Sheldon Cohen et al., 2009	Sleep efficiency effect	≥98% efficiency	<92% efficiency: OR = 5.50 (95% CI: 2.08-14.48)	Symptom expression via inflammatory mediators

Participants sleeping less than 7 hours were nearly three times more likely to develop a clinical cold following rhinovirus exposure compared to those sleeping 8 or more hours . Sleep efficiency demonstrated an even stronger association, with those having less than 92% sleep efficiency being 5.5 times more likely to develop illness . These relationships remained significant after controlling for pre-challenge antibody titers, demographics, body mass, socioeconomic status, psychological variables, and health practices .

Quality of Life Outcomes

Health-related quality of life was examined in one large prospective study. Individuals meeting sleep guidelines of 7-9 hours per night demonstrated significantly better health-related quality of life ($\beta = -0.30$; 95% CI: −0.38 to −0.21; $p < 0.001$) compared to those not meeting guidelines, after comprehensive adjustment for demographic, behavioral, and biological factors .

Confounders and Methodological Considerations

The studies controlled for varying sets of confounders, which may affect the comparability of findings:

Study	Demographic Factors	Health Behaviors	Health Conditions	Sleep-Related Factors
Sheldon Cohen et al., 2009	Age, sex, race, education	Smoking, alcohol, physical activity	Pre-challenge antibody titer	Sleep efficiency considered as exposure
P. Loprinzi et al., 2018	Age, gender, race-ethnicity, education	Smoking, physical activity	Diabetes, CAD, depression, blood pressure	Not mentioned

Study	Demographic Factors	Health Behaviors	Health Conditions	Sleep-Related Factors
Deborah L. Wingard et al., 1983	Age, sex, race	Smoking, physical inactivity, alcohol	Physical health status	Not mentioned
J. Chaput et al., 2013	Age, sex	Smoking, physical activity, alcohol	Not controlled	Not validated
Sanjay R. Patel et al., 2004	Age	Smoking, alcohol, exercise	Depression, obesity, cancer, CVD	Snoring

Notably, sleep-related factors such as sleep quality and sleep disorders were infrequently controlled for, which represents a potential source of residual confounding . The Patel et al. study was one of few to control for snoring as a sleep-related factor .

Synthesis

Convergent Findings Across Outcomes

The evidence demonstrates remarkable consistency in identifying 7-8 hours as the optimal sleep duration across diverse health outcomes. The overview of systematic reviews concluded that 7-8 hours per day was the sleep duration most favorably associated with health among adults, with this finding based on data from over 4.4 million participants across 30 countries . This optimal range was confirmed for mortality , cardiometabolic disease , immune function , and quality of life .

Asymmetry in Short vs. Long Sleep Effects

While both short and long sleep durations are associated with adverse health outcomes, the evidence suggests some asymmetry in these relationships. For metabolic outcomes, short sleep demonstrated a stronger and more consistent association with risk. Short sleepers (≤6 hours) had significantly elevated odds of metabolic syndrome (OR = 1.76) , whereas long sleepers did not show a statistically significant increase . The proposed mechanism involves adverse physiological and hormonal changes including decreased glucose tolerance and increased insulin resistance associated with sleep restriction .

For mortality outcomes, however, the pattern appears more symmetric. The Nurses' Health Study found that both 5 hours or less (RR = 1.15) and 9 or more hours (RR = 1.42) were associated with significantly increased mortality compared to 7 hours . Notably, the excess mortality risk appeared larger for long sleep than for moderately short sleep in several studies .

Population-Specific Considerations

Gender differences emerged in some analyses. In the Scottish cohort, men sleeping more than 8 hours had reduced mortality risk compared to 7-8 hour sleepers, while women sleeping less than 7 hours had increased risk . This contrasts with findings in the all-female Nurses' Health Study showing that 7 hours (rather than 7-8 hours) was associated with the lowest mortality . The overview of systematic reviews found no apparent modification of the sleep-health relationship by age , though most primary studies did not formally test for age interactions.

Methodological Factors Affecting Interpretation

Several methodological considerations affect interpretation of these findings. First, 96% of studies assessed sleep duration subjectively , and self-reported sleep measures have not been validated in all studies . Self-reported sleep duration may systematically differ from objective measurements, though some evidence suggests these biases are less pronounced in healthy samples .

Second, the cross-sectional design of some studies precludes causal inference. The prospective studies provide stronger evidence for temporality, but even these cannot rule out reverse causation whereby underlying disease processes alter sleep duration before diagnosis .

Third, the reference category used varies across studies—some use 7 hours , others use 7-8 hours , and one uses 8 or more hours . This variability complicates direct comparison of effect sizes across studies.

Fourth, causality remains unproven . Long sleep duration may be a marker of underlying illness rather than an independent risk factor, and prescription sleeping pill use has been associated with increased mortality independent of sleep duration . The consistency of findings across multiple outcomes, populations, and study designs nevertheless provides substantial support for a true biological relationship between sleep duration and health.

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