



# Public Health Issue of Sleep Health: Standard Time not Daylight Savings Time

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## Abstract

Basics of sleep and the relationship between sleep and health are presented. A description of Standard and Daylight savings times is provided with advantages and inhibitors to sleep health is presented. Finally, adjustments for better sleep are discussed within the context of the current use of daylight savings time (DST).

**Keywords:** Sleep; Sleep Health; Public Safety; Standard Time

## Introduction

Sleep is essential to health. The American Heart Association has added Sleep Health as one the essential behaviors for Heart Health/Health. Sleep is determined by the level of sleepiness that accrues over the social/emotional and mental events of the day that we engage in, culminating into that familiar “feeling sleepy” (i.e., eyelid droop, yawning, difficulty concentrating, slight chill, muscle relaxation—feeling heavy sensation) [1]. A second factor of timing of the sleep interval is important in terms of the timing and duration of the sleep interval that is usually set by late adolescent/young adult years. However, behavioral factors of increased cognitive activity such as in excitement for an event or negative worry about something [1]. Thus, internal physiological factors of sleep need and sleep timings are expressed, and behavioral factors related to cognitive and emotional activity can perturb these events [1]. Commonly presented ideas of sleep hygiene underscore the sleepers’ setup of their sleep environment and personal behaviors that may be activating (e.g., nicotine use, exercise/eating/use of electronics close to bedtime) and thus have to be restricted. Importantly, valuable strategies of short to no napping during the daytime to not erode the sleep need and regularity of the

sleep cycle with typical bedtimes and waketimes becomes essential [1,2].

Sleep behaviors are complicated by external factors outside the direct control of the sleeper. Work and school schedules dictate a start time to attentive, concentrating behaviors which, for some may be incongruent to their readiness given the quality of the recent sleep intervals. With this circumstance, the sleeper needs to adjust their personal environment to ward off sleepiness and increase attentiveness. Light and light physical activity have been identified as the potent factors to alleviating some sleepiness a sleeper may feel with a mismatch to the demands of their cognitive/social behaviors to their fatigue secondary, possibly due to the previous night of poor sleep [1]. This familiar situation is described here to remind the reader, the Public Health Professional of the common situation faced that becomes ordinally exacerbated with an external schedule such as time of the day is modified as it is in daylight savings time (DST) [3]. At minimum, DST taxes the sleeper with additional adjustment to both sleep and wake behaviors they must do, twice a year for “spring ahead” and “fall back” clock hour changes.

Survey studies, reviews of reported epidemiological findings and physician opinions captured in publication on this topic consistently report changes in wake day behaviors secondary to DST [4]. Increases in reported myocardial infarctions, strokes and exacerbations of chronic illness conditions occurs. There has been a reported 24% increased risk in in hospital mortalities [5,6]. The higher rates of obesity of obesity, diabetes, heart disease and breast cancer alone with lower per capita income and higher health care costs has been reported from DST times. This situation is worsened by reporting's of cancer of chronic lymphocytic leukemia, cancers of the stomach, liver, prostate and non-Hodgkin's lymphoma are increase around the spring time changes of DST [7]. There are increased numbers of sleepers on university campuses reporting for medical/wellness assistance during adjustment times following DST changes [1,2]. While we came to implementing DST at the suggestion of Benjamin Franklin to "save more daylight" and use less candle light, an obsolete rationale in today's times. Following World War, I, several European countries used DST to minimize the need for electrical lighting [3]. The United States joined this practice later on in the war effort and year round starting in the time of World War II. A few years following this, public opinion shifted the timings away from DST time with data from traffic accident increases and difficulties related to school children traveling to school in the morning in the dark. Further, the bi-annual adjustments to sleepers' internal clocks (i.e., circadian rhythm) has impacted sleep quality from the cellular to behavioral levels. Studies have identified a loss of some 15-20 minutes following the "spring ahead" loss of one hour in time [7].

Standard time insures sleep health, better health overall. An established biologic clock of sleep wake intervals is assured with standard time. The body clock is stabilized with the certainty of regular light and dark exposure [1]. This facilitates the sleepers' ability to follow the natural day and night as the sun rotates toward the east and provides the light patterns worldwide. Sexton-Radek [2] reported a worsening of sleep disturbance secondary to mental fatigue in a patient with fragmented sleep. Standard time is aligned

in a balanced fashion to the individual circadian rhythm of sleep wake cycles. Given the misalignment consequences of DST, by contrast, better public safety and health is experienced with standard time. To conclude, however, DST means that sleepers need to acclimatize. Time changes and importantly, reductions in exposure to light, particularly in the morning where it signals the wake cycle are altered with DST schedules. Thus, standard time is optimal for Sleep Health and mental well-being, avoiding unnecessary problems for Public Health.

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