ACCIDENTAL DEATH AND THE SHIFT
TO DAYLIGHT SAVINGS TIME [1]

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Summary.—Records of all accidental deaths in the USA for a 3-yr. period suggest that the minimal sleep loss associated with the spring shift to Daylight Savings Time produces a short-term increase of the likelihood of accidental death, while the fall shift has little effect.

Recent data suggest that insufficient sleep and disrupted circadian rhythms contribute to major public health problems. For example, it is estimated that in the USA, sleep-related accidents annually cause approximately 25,000 deaths and 2.5 million disabling injuries per year; see Coren (1996b) for a review. Coren (1996a) reasoned that as a society we are so sleep-deprived that even a minor loss of sleep can increase sleep-related accidents. He confirmed this by showing that the shift to Daylight Savings Time affected accident rates, with an increase in traffic accidents following the spring shift (one-hour sleep lost) and a decrease in accidents in the fall (one-hour sleep gained). Similar increases in traffic accidents following the spring shift to Daylight Savings Time have been shown by Monk (1980) and Hicks, Lindseth, and Hawkins (1983).

Using an archival data base it is possible to test this hypothesis over a broader scope not restricted to traffic accidents. Every accidental death in the USA reported to the National Center for Health Statistics for the years 1986 through 1988, was coded by date of occurrence. Since over 80% of accident-induced mortality occurs within four days of the accident, data for analysis were restricted to the first four workdays in the weeks preceding the Daylight Savings Time change, immediately following, and one week after the change. This identified 8,429 accidental deaths in the spring and 8,771 in the fall. The resultant distribution of accidents around the shift to Daylight Savings Time is shown in Table 1.

Immediately following the spring shift accidental death rate increased by 6.5% compared to the week before [$\chi_1^2 = 5.52$, $p < .05$] and 6.4% compared to the week after ($\chi_1^2 = 5.64$, $p < .05$). The fall shift showed no change before (−3.0%, $\chi_1^2 = 1.34$, ns) or after (−0.1%, $\chi_1^2 = 0.01$, ns).

These data seem to confirm that the spring shift to Daylight Savings

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TABLE 1
Total Number of All Accidental Deaths in the USA as Recorded by the National Center for Health Statistics Over the Years 1986 Through 1988, For the Monday Through Thursday Around Spring and Fall Time Shifts

Time Period Sampled	Spring DST Shift	Fall DST Shift
Week Preceding Time Change	2751	2984
Week of the Time Change	2929	2894
Week Following the Week of the Time Change	2749	2893

Time increases accidental deaths over the short term, however, the fall shift has little effect on this measure of susceptibility to accidents. The supposition that the increase in accidents is due to the hour of sleep lost with the spring time adoption of Daylight Savings Time seems reasonable, given the facts that the majority of people in western societies are chronically sleep deprived (Coren, 1996b) and the empirical evidence that even the small time change associated with the shift to Daylight Savings Time may disrupt normal sleep patterns detectably for several days after the change (Monk & Folkard, 1976).

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