



Is Daylight Savings Time Helpful or Harmful? – History & Effects

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Each year in early November, we all set our clocks back by one hour to mark the end of Daylight Saving Time. Or at least, most of us do. A [Rasmussen poll](#) shows that 12% of Americans actually think they need to set clocks *forward* an hour in the fall, instead of back.

If setting clocks back in the fall is a problem for some people, setting them forward in the spring is even worse. At that time, people who get the change wrong end up two hours late for everything instead of two hours early. And even those who change the clock correctly lose an hour of sleep.

With all this confusion and hassle, many people question whether Daylight Saving Time – or DST, for short – is really worth the effort. Another [Rasmussen poll](#) shows that most Americans admit they don't see the point of it – nearly half say it isn't worthwhile, while only 33% think it is.

In fact, some people argue that changing our clocks twice a year is actually harmful. They say tampering with our sleep schedules is bad for our health and makes us less productive at work, harming the economy. But others claim that DST is useful because it saves energy and prevents traffic accidents.

Sorting out this debate is no simple matter. Studies on DST have found that it has a variety of effects, some helpful and some harmful. So to figure out whether DST is really worthwhile, it is necessary to look at all these different effects and see how the advantages stack up against the disadvantages.

History of Daylight Saving Time

Many people credit Ben Franklin as the inventor of Daylight Saving Time, but that's actually a myth. Franklin wrote an essay in 1784 suggesting that the people of Paris should get up earlier to save money on candles, but he meant it as a joke.

The first person to suggest the idea seriously was George Hudson of New Zealand, in 1895. He was a part-time entomologist, and he wanted more daylight after his work day was over to collect insects. 10 years later, British builder William Willett came up with a similar idea. He suggested that setting back the clocks in summer would save on lighting costs and give Britons more time for daylight hobbies, such as golf.

A few parts of Canada adopted Willett's idea, but it didn't really catch on until World War I. The German empire and its allies started using DST to conserve fuel, and Britain and its allies soon followed suit. Most countries abandoned DST when the war was over, but the U.S. returned to it during World War II. Today, every U.S. state except Hawaii and most parts of Arizona observes DST.

Effects of Daylight Saving Time

In modern-day America, DST has three official purposes, as outlined by the [U.S. Department of Transportation \(DOT\)](#):

- 1. Saving Energy.** During DST, the sun sets later in the day. This means people don't need to use as much electric lighting in the evenings. It also rises later in the morning, but that doesn't matter because the days are so long. By the time most people get up, the sun has already risen.
- 2. Preventing Traffic Accidents.** The time shift means that people do more of their driving in daylight. The DOT claims this reduces the number of accidents because people can see better.
- 3. Reducing Crime.** Crimes are more likely to take place when it's dark out. The change to DST means people are more likely to be out and about during daylight, when crime is less common.

Based on this list, it sounds like the benefits of DST should well outweigh the hassle. However, some people question how well DST really meets these goals. And others argue that DST also has some other effects that aren't so positive. They point to studies that show changing our clocks can throw off our sleep schedules, harming our health and [productivity](#).

Effects on Electricity Use

The original purpose of Daylight Saving Time was to reduce the need for electric lighting. Back when DST was first used in the United States, most of our nation's electricity was used for lighting. So at that time, anything that cut down on lighting use offered big energy savings.

Today, however, America's usage of energy has shifted. According to the [Energy Information Administration](#), lighting now accounts for only around 10% of the electricity used in the country. And with the rise of super-efficient [LED bulbs](#), the U.S. will probably spend even less on lighting in the future. So the benefits of using DST to save energy are no longer as clear-cut.

Studies on how DST affects our energy use have found conflicting results. For instance, in 2008 the [U.S. Department of Energy \(DOE\)](#) did a study to see how much energy our nation had saved by expanding the period of DST by four weeks in 2007. It found that during those four weeks, the U.S. reduced its daily electric use by about 0.5% compared to the year before.

According to the DOE, the benefits of extending DST varied from region to region. The benefit was greatest in California, which cut its electric use by nearly 1% each day. However, a separate study done in California found a very different result. When the [California Energy Commission](#) examined the effects of the 2007 change, it found "little or no effect" on the state's energy use.

Other studies show that in some areas, DST can actually *increase* energy consumption. For example, in 2006 the State of Indiana started observing DST, which up until then had not been implemented in most of the state. Two years later, researchers at the [National Bureau of Economic Research \(NBER\)](#) published a paper on the effects of the change. They found that Indiana had actually increased its use of electricity by around 1% following the adoption of DST.

The authors concluded that DST had reduced the need for lighting – but this change was offset by increased use of [heating](#) and [air conditioning](#). Overall, they found that the change had cost the state \$9 million in energy costs. Furthermore, they estimated there was an extra \$1.7 to \$5.5 million in "social costs" from increased air pollution.

Effects on Gasoline Use

Electricity use is only part of our nation's total energy use. It's possible that DST could also affect our use of other types of energy, such as [gasoline](#). For instance, having the sun set later could make it easier for people to [bike to work](#), reducing gas use. On the other hand, it could also encourage them to go out more in the evening, thereby increasing gas use.

To measure these possible effects, the DOE study looked at how the nation's traffic volume and gas consumption had changed from 2006 to 2007. That study found no significant change either way.

However, other studies suggest that people do drive more during DST. For example, a 1993 study in [Science of the Total Environment](#) found that DST leads to more traffic in the evenings, more fuel use, and more pollution. A 2008 analysis in [Energy Policy](#) points to several studies showing that increased gas consumption during DST more than offsets any energy savings from lower electricity use.

Effects on Health

When we adjust our clocks in the spring and fall, it takes us a while to get used to the change. Some studies show this isn't just an annoyance – it's actually a threat to our health.

Changing the clocks disrupts our normal sleep patterns. We notice this most in spring, when we have to wake up earlier. But even in the fall, a later bedtime can make it harder to get to sleep at night. That, in turn, makes us feel groggy during the day.

Studies disagree about how long it takes our bodies to adjust to the time change. A 2009 report in [Sleep Medicine](#) says it takes anywhere from a day to three weeks. However, a 2007 study in [Current Biology](#) suggests that we never adjust completely.

The switch also affects our health in a variety of other ways, including:

- **Depression.** Studies in other countries show that the switch to DST can make people depressed. A German study, published in [Economics Letters](#), found that people's mood and life satisfaction drop for about a week after the switch. An 2008 study in [Sleep and Biological Rhythms](#) found that in Australia, suicide rates rise in the weeks following the switch to DST. A [BBC News](#) story from 2011 reports that Russian officials noted the same problem, but in the fall rather than in the spring. As a result, Russia decided to stop setting its clocks back and use DST all year.
- **Heart Attacks.** Several studies show that the number of heart attacks rises when DST starts. For example, a 2008 study in the [New England Journal of Medicine](#) looked at heart attack rates in Sweden dating back to 1987. It found that during the first week of DST, the rate was about 5% higher than normal. A 2010 study at the [University of Alabama at Birmingham](#) found an even bigger effect: Heart attack risk increases by 10% in the first two days after the switch to DST – and then drops by 10% after the switch back in the fall.
- **Activity Level.** Some people argue that extra daylight in the afternoon is good for our health because it encourages us to be more active. However, studies suggest this doesn't really work. A 2014 study in the [International Journal of Behavioral Nutrition and Physical Activity](#) measured the activity level of children in nine countries before and after the time change. It found that European and Australian children only increased their outdoor play time by about two minutes for each extra hour of daylight – and American children didn't increase it at all. A 2014 study of American adults in the [Journal of Physical Activity and Health](#) also found no increase in physical activity during DST.

Effects on Safety

One goal of Daylight Saving Time is to prevent traffic accidents, and studies seem to show that it really does. A 1995 study in the [American Journal of Public Health](#) found that there are fewer fatal crashes during DST. More recently, a 2007 study by the [RAND Corporation](#) analyzed decades of crash data and found that DST reduces accidents significantly. Crashes involving pedestrians fall by 8% to 11% during DST, and crashes for people in cars fall by 6% to 10%.

But although road accidents fall overall, that's not necessarily true just before or just after the switch to DST. A 2001 study in [Sleep Medicine](#) found that there are significantly more accidents both on the Monday after the switch to DST in the spring and the Sunday after the switch back in the fall. The authors concluded that accidents are more common because drivers are sleep-deprived.

However, other studies contradict this finding. The RAND study found that DST not only reduces crashes in the long term, it does nothing to increase them in the short term. A 2000 study of Swedish drivers in [Accident Analysis & Prevention](#) and a 2008 study of Finnish drivers in [BMC Public Health](#) report the same result.

Accidents can happen in the workplace too – especially when people show up to work sleepy. A 2009 study in the [Journal of Applied Psychology](#) found that mining accidents spike by about 6% on the Monday right after the switch to DST. And the accidents that happen on that day are a lot more severe – about 67% worse than usual. In a

[New York Times editorial](#), the authors of the study say that U.S. miners miss nearly 2,600 days of work each year due to injuries they suffer on this one day.

Effects on Crime

The final purpose of Daylight Savings Time is to reduce crime. In this area, it definitely seems to work. A 2015 paper in [The Review of Economics and Statistics](#) finds that when DST begins in the spring, robbery rates drop by about 7%. The biggest part of this drop comes from a 27% decline during the hour closest to sunset – the one hour that gains extra sunlight.

The authors explain that robberies are most common between 5pm and 6pm. During this hour, people walking to their homes or cars after work make good targets for thieves. But when it's lighter out at this time, it's easier to identify a robber – and there are more witnesses on the street. This makes thieves reluctant to attack because they're more likely to get caught.

The switch to DST doesn't affect all crimes equally. For example, rates of aggravated assault don't go down during DST – possibly because that's a crime that usually takes place indoors. However, the authors say there's "suggestive evidence" that DST could reduce other violent crimes, including rape and murder.

Effects on the Economy

Daylight Saving Time affects the U.S. economy in a variety of ways – some positive, some negative. These include:

- **Lower Productivity.** The loss of sleep right after the switch to DST in spring tends to make us less productive at work. A 2012 study in the [Journal of Applied Psychology](#) shows that workers spend more time "cyberloafing" – that is, surfing the Internet instead of working – on the Monday after DST starts.
- **Problems for Farmers.** There's a common myth that DST was started to give farmers more hours of daylight for their work. In reality, most farmers oppose DST because it messes with their schedules. Having less light in the morning gives them less time to get their crops ready to go to the market. And for dairy farmers, it's difficult to deliver the milk an hour early, because cows prefer to be milked at the same time each day.
- **Time Spent Resetting Clocks.** Every time we switch to or from DST, we have to spend about 10 minutes resetting all our clocks. That's 10 minutes we can't devote to more productive activities. 10 minutes isn't much, but multiply it by all the people in the country and it adds up. According to the [American Enterprise Institute](#), just the act of changing our clocks costs our country about \$2 billion a year.
- **Effects on Spending.** There's one group of people that DST is definitely good for: our nation's retailers. It turns out that when people have extra daylight at the end of the work day, they're more likely to go shopping. Businesses involved in outdoor sports, such as golf, are also happy about the time change. Michael Downing, a professor at [Tufts](#) who wrote a [book on DST](#), says the golf industry lobbied hard for the expansion of DST back in 1986. Since it passed, the industry has been earning an extra \$400 million each year.

Proposals to Fix Daylight Saving Time

Obviously, Daylight Saving Time has both advantages and disadvantages. Changing our clocks twice a year costs us time. It can also cause sleep loss, health problems, workplace accidents, reduced productivity, and problems for farmers. But at the same time, DST reduces the rates of crime and traffic accidents and boosts spending in the sports and retail sectors.

Obviously, our goal should be to adjust our use of DST so it does the most good, and the least harm, for society as a whole. The trouble is, different groups disagree on the best way to do this.

Here are some of the proposals various groups have made on the best way to handle DST in future:

- **Keep It As Is.** As noted above, the sports and retail industries like DST just the way it is. According to Downing, the biggest supporters of DST include golf courses, convenience stores, gas stations, and sellers of barbecue grills and charcoal. Every time there's a proposal to expand DST, these groups are eager to back it. So any attempt to get rid of DST will definitely meet with major opposition from these groups. Other groups that favor DST are urban workers and people who enjoy outdoor sports.
- **Drop It Completely.** Farmers, on the other hand, would like to see an end to DST. They set their schedules by the sun, not the clock, and they'd rather not have to adjust to deal with their customers' changing schedules. Several scientists have also come to oppose DST after studying its health effects. David Wagner and Christopher Barnes, the authors of the two studies on DST in the *Journal of Applied Psychology*, argue that DST has "substantial costs, without any benefit."
- **Use It All Year.** Some groups suggest that the best solution is to stay on DST year-round. That way, we could keep all the benefits of the extra hour of daylight, while avoiding the problems associated with the time shift. In fact, staying on DST all year could actually boost its benefits. For example, a 2004 study in *Accident Analysis & Prevention* shows that keeping DST all year could reduce the number of deaths from auto accidents. The authors estimate that the change would save 171 pedestrians and 195 drivers and passengers each year. And a 2001 study by the *California Energy Commission* shows that year-round DST could cut the state's daily power use in winter by 3400 MWh, or about 0.5%. It would also reduce peak electric demand by a little over 3%, reducing the need for new power plants.
- **Double Down.** Some people argue that we could maximize the benefits of DST by expanding it even more. In Britain, a group called *10:10* is pushing to set the clocks an hour later all year long. In other words, both Standard Time and DST (or Summer Time, as it's called in Britain) would be an hour later than they are now. The group argues that this would save even more energy and prevent more accidents than DST does now. The California Energy Commission study also looked at this plan and found that it could save the state some energy. However, the savings were smaller and less certain than for year-round DST.
- **Split the Difference.** Perhaps the oddest suggestion is the one advanced by *StandardTime*, a group that opposes DST. Its idea is to have the Central and Pacific time zones stay on DST all year, while the Eastern and Mountain time zones stay on Standard Time. That would give the country just two time zones, Eastern and Western. *StandardTime* argues that this would make cross-country travel and teleconferencing much easier. However, it would also mean that the timing of sunrise and sunset would vary widely across the nation. For instance, if the sun rose at 6:15 in New York City, it would rise after 9am in Texas. That would make it even harder to get out of bed in the morning than it is now on the Monday after the DST change.

Final Word

Of all the proposals to fix Daylight Savings Time, year-round DST seems to have the most going for it. After all, most of the problems associated with DST are really problems with the process of changing the clocks. It's not DST itself that causes heart attacks, depression, reduced productivity, and workplace accidents. All these problems come from the sleep loss caused by the sudden time shift.

By contrast, the main advantages of Daylight Savings Time are the reductions in crime and road accidents. These benefits aren't related to the time change – they'd be the same if we stayed on DST all year. In fact, year-round DST could actually improve traffic safety still more, as well as boosting energy savings.

So all in all, it looks like the best way to get the most out of DST is to set our clocks forward – and then leave them there. We already spend twice as many months on DST as we do on so-called Standard Time, so maybe it's time to accept that DST is the new normal. If we drop Standard Time completely, we can stop messing around with our clocks and our bodies twice a year, and just get on with our lives.

What are your views on Daylight Saving Time? Should we keep it, change it, or just get rid of it?

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Amy Livingston is a freelance writer who can actually answer yes to the question, "And from that you make a living?" She has written about personal finance and shopping strategies for a variety of publications, including *ConsumerSearch.com*, *ShopSmart.com*, and the *Dollar Stretcher* newsletter. She also maintains a personal blog, *Ecofrugal Living*, on ways to save money and live green at the same time.