

# Is Eight Enough? U Researcher Says Drink Up and Tells Why

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Drinking eight 8-oz. glasses of water a day is the right prescription not only for healthy kidneys but for efficient metabolism as well, according to a University of Utah health expert.

**E. Wayne Askew**, Ph.D., professor and director of the Division of Foods and Nutrition in the U of U College of Health, has found new evidence that eight 8-oz. glasses of water a day, or "8 x 8," as commonly expressed, not only helps maintain the body's hydration status, but may bolster its metabolic rate as well, resulting in more efficient burning of calories.

In three previous studies Askew and his graduate students found that dehydration depressed metabolism. In the most recent study designed to provide some physiological information on the advantages or disadvantages of different levels of water consumption, research subjects were given four, eight or twelve 8-oz. glasses of water a day.

On the morning of the fifth day before arising, they were hooked up to a machine that measured how many calories they burned per minute in a true resting condition. The concentration of their urine also was monitored, as well as blood indicators of hydration status.

The subjects "showed definite indications of dehydration with only four glasses a day as opposed to eight, where hydration was sufficient," said Askew. There was little difference in effect on hydration indicators such as blood volume and total body water, however, between eight and 12 glasses. Askew pointed out that the average adult water intake is five to six glasses per day, far less than the eight glasses commonly recommended.

Subjects also reported feeling better on eight glasses of water a day than on four: they had more energy, they were more inclined to study, and their concentration was better.

"Based upon our previous work on dehydration and resting metabolic rate, when people dehydrate 3 percent of their body weight (for example, you weigh 100 pounds and you lose three pounds of water), there's about a 2 percent decline in calorie burning per day," said Askew. "So if you exercise in a sweat suit or sit in a sauna to lose weight, you are only losing water and you may actually burn fewer calories as a result of the slightly depressed metabolism."

Askew said this is because the body's cells shrink or expand depending on the amount of fluid they contain. This compression and expansion of the cell changes the spatial relationship of the organelles (particles of living substances) inside the cell, altering the efficiency of metabolism.

"We think these changes in cellular size act as a signal for the regulation of cellular metabolism," said Askew.

Askew stressed, however, that "8 x 8" is only a rule of thumb because "everybody has a different requirement. It will probably be a little too much water intake for a small, inactive person who gets a lot of fluids from other sources. But it may not be enough for a large, active person. You should drink eight glasses and then see how you feel or check your urine color.

"The color of your urine should be very light yellow, almost straw-colored," said Askew. "If it's dark yellow, that's a sign you're not drinking enough." Askew cautions that this may not always be a reliable indication, however, since vitamin supplementation may "mask" the true color of urine.

Does 8 x 8 include the fluid you get from other sources? Askew said that the interpretation of this guideline is a source of some confusion. He believes that, while these fluids are helpful in meeting the daily fluid requirements, you should always strive to consume the eight glasses of water in addition to fluid from other sources, such as juice, coffee, soups, or even solid foods like lettuce or celery.

Most people probably don't drink as much as they should. "The problem with water intake and thirst," said Askew, "is that the thirst mechanism doesn't kick in until you've lost about 2-3 percent of your body weight."

Askew and his graduate students are planning another study with cyclists exercising a prescribed amount each day that will result in a greater sweat loss than those in the previous study. The subjects will be given six, eight and 12 glasses of water a day, and hydration status as well as performance measures will be observed. "Four glasses a day might be a little dangerous for them at that sweat rate."

Askew's water studies were funded in part by Suntory International, a company that markets bottled water.

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