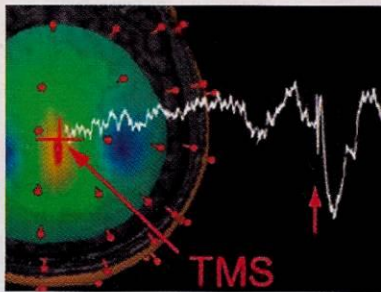


POWER NAP

A machine could cut your need to sleep.

A good night's sleep just takes too long. Scientists may soon be able to cut those eight wasted hours down to three or four—by waving a wand, more or less.

The technique, transcranial magnetic stimulation, involves an electromagnetic



Stimulating the brain at the marked spot induces the wave pattern of deep sleep.

coil that emits pulses of skull-penetrating, neuron-activating magnetic energy.

Depending on where the wand is and how fast it pulses, TMS can play all kinds of tricks. It can make a thumb twitch, create the illusion of a flash of light, or even treat depression. Neuroscientist Giulio Tononi of the University of Wisconsin set out to see if TMS could switch on certain sleep phases,

Working with a group of six sleeping men, Tononi and his team located a spot on the skull that they could zap to induce the brain waves characteristic of deep, non-REM sleep. Although Tononi's volunteers got only a few minutes of artificial sleep—not enough for the volunteers to draw meaningful subjective conclusions about sleep quality—previous studies have indicated that TMS applied at certain frequencies during sleep can improve memory. Even more intriguing, says Tononi, “there is the possibility that if you have particularly intense slow waves” like the ones the machine induces, “you may be able to do with less sleep.”

Electronic naps are a long way off, though. Between the armchair, the clicking coil, and electrodes, “it’s clearly not a machine that you can use at your house,” Tononi says. “It’s actually hard to get the person to sleep while doing these magnetic stimulations.” **Jessica Ruvinsky**