

hot test tubes were pressed against their arms. In Japan a scientist named T. Hirai showed that Zen meditators were so focused on the moment that they never habituated themselves to the sound of a ticking clock (most people eventually block out the noise, but the meditators kept hearing it for hours). Another study showed that master meditators, unlike marksmen, don't flinch at the sound of a gunshot. None of this, oddly, has been duplicated for a Vegas show.

In 1967 Dr. Herbert Benson, a professor of medicine at Harvard Medical School, afraid of looking too flaky, waited until late at night to sneak 36 transcendental meditators into his lab to measure their heart rate, blood pressure, skin temperature and rectal temperature. He found that when they meditated, they used 17% less oxygen, lowered their heart rates by three beats a minute and increased their theta brain waves--the ones that appear right before sleep--without slipping into the brain-wave pattern of actual sleep. In his 1970s best seller, *The Relaxation Response*, Benson, who founded the Mind/Body Medical Institute, argued that meditators counteracted the stress-induced fight-or-flight response and achieved a calmer, happier state. "All I've done," says Benson, "is put a biological explanation on techniques that people have been utilizing for thousands of years."

Several years later, Dr. Gregg Jacobs, a professor of psychiatry at Harvard Medical School who worked with Benson, recorded EEGs of one group of subjects taught to meditate and another given books on tape with which to chill out. Over the next few months, the meditators produced far more theta waves than the book listeners, essentially deactivating the frontal areas of the brain that receive and process sensory information. They also managed to lower activity in the parietal lobe, a section of the brain located near the top of the head that orients you in space and time. By shutting down the parietal lobe, you can lose your sense of boundaries and feel more "at one" with the universe, which probably feels a lot less boring than it sounds when you try to tell your friends about it.

Studies of the meditating brain got much more sophisticated after brain imaging was discovered. Or maybe not. In 1997 University of Pennsylvania neurologist Andrew Newberg hooked up a group of Buddhist meditators to IVs containing a radioactive dye that he hoped would track blood flow in the brain, lighting up the parts that were the most active. But the only way for Newberg to freeze-frame the exact moment when they reached their meditative peak was to sit in the next room, tie a string around his finger and snake the other end under the door and leave it next to the meditators. When they reached meditative Nirvana, they pulled the string, and Newberg released the dye into the subjects' arms. His results showed that the brain doesn't shut off when it meditates but rather blocks information from coming into the parietal lobe. Meanwhile, Benson took a group of highly focused Sikhs who could meditate while an fMRI machine clanked away, and he measured the blood flow in their brains. Overall blood flow was down, but in certain areas, including the limbic system (which generates emotions and memories and regulates heart rate, respiratory rate and metabolism), it was up.

At the University of Wisconsin at Madison, Richard Davidson has used brain imaging to show that meditation shifts activity in the prefrontal cortex (right behind our foreheads) from the right hemisphere to the left. Davidson's research suggests that by meditating regularly, the brain is reoriented from a stressful