

Can Humans Hibernate?

Sleep From *Sukkos* to *Pesach*? Scientists Research the Possibility of Human Hibernation

Some species of animals were created with the ability to sleep through the winter. Among the most famous hibernating animals are bears (though in our neighborhood the groundhog is more familiar). As soon as winter arrives and temperatures begin to dip, the bear curls up inside its den. Its body temperature falls and bodily functions virtually cease, allowing it to go for months without food and with minimal air for breathing. Now doctors are attempting to develop a method for placing humans in a state of hibernation to save their lives in medically threatening situations.

- Aviva Sternfeld

Imagine: A horrific traffic accident leaves one of the victims in critical condition. He is rushed to the hospital, but the injuries are too extensive for the surgeons to close up in time to save the man's life. He is bleeding to death faster than the trauma team can keep up with, leaving his vital organs gasping for oxygen and nutrition. It is only a matter of minutes at most until he suffers cardiac arrest. After that, death is right around the corner....

Serious though the patient's state is, the doctors are not yet prepared to give up. The chief doctor makes a quick decision and machines are attached to the patient's body. Pumps begin delivering liquids and soon a super-cold liquid is rushing through the victim's veins and arteries. The heart slows down until it has almost completely stopped and the lungs no longer fight to inflate and deflate. The body relaxes and goes cold, hovering between life and death. Time has stopped.

The doctors do not seem alarmed by this shocking development. They go about their work methodically, stitching up wounds, repairing damaged organs and returning them to their proper place. When they have completed the task, the pumps are restarted and warm blood begins to course through the patient's veins. Slowly, the vital signs return and the man begins to wake up. It will take several weeks for his wounds to heal, and after that he will be able to walk around like everyone else, only slightly worse for the wear.

Mimicking Animals

For many years it was treated as mere fantasy. Scientists had long dreamed of a time when the human body and its biological processes could be placed on hold. Imagine being able to voluntarily enter people into a state of hibernation.

Various members of the animal world were created with the ability to sleep through the winter. Bears are the most famous for this habit, but many other creatures are also known to sleep away the cold winter months. They cuddle up in their homes and enter an extended state of dormancy, with their bodies barely functioning.

Among the physiological changes that take place in a hibernating animal is an extreme drop in its body temperature. This is accompanied by a slow-down in the digestive system. Because the metabolism is in a state of suspended animation, the need for oxygen is nearly eliminated and breathing slows to a minimum. The hibernating animal may take as little as five breaths per minute. The heartbeat is also reduced to only several per minute. Because the body is using little energy, it can survive with almost no nutrition. Hibernating animals usually survive off the fat they accumulated during the late-summer and fall feeding frenzy.

Hibernating animals do not always sleep straight through the winter. Some will wake up from time to time to eat from the food supply they stored up for the winter. Or they may wake up to stretch their muscles, ensuring they will not atrophy. Some even move to a new location before continuing their hibernation.

Hibernation is the "energy saver mode" of the animal world. They enter this state in order to conserve energy in the winter when food is difficult to come by. (Incidentally, there are also animals that sleep through the hottest days of the summer.) The human body remains active even in extreme weather and humans have found other means of dealing with the hardships of the cold winter weather. But that doesn't mean that some people won't be jealous of hibernating animals.

The interest in human hibernation grew in the 1950s out of the Space Race. NASA spent huge sums of money on biological research to see whether humans could be subjected to suspended animation. It was believed that this might be useful for protecting astronauts from the harmful rays they would be exposed to while in the upper atmosphere.

Another reason NASA pursued this research was because once an astronaut was placed in hibernation he would not consume much food, water or oxygen. This would make long trips to outer space more practical and economical.

One of the researchers whose work was funded by NASA was James Lovelock. He experimented on rats by placing them in



A groundhog emerges from its den in the spring, after waking up from its winter hibernation.



Depiction of a polar bear hibernating in its icy den.

ice until they were frozen. As soon as their hearts stopped beating he revived them by placing a heated spoon on their chests to warm them. Later he experimented with using a microwave gun (which he created from radio parts) to revive them in a less traumatic manner.

Lovelock's experiments were avant-garde, but they never got past the animal stage. No astronaut was ever frozen and then revived using heated spoons. The idea of subjecting humans to suspended animation remained science fiction. Eventually, NASA lost interest in the project, though Lovelock's work did help to further scientific study.

Cases of Human Hibernation

Is it really possible for humans to hibernate? Some medical experts believe it is theoretically possible, despite the fact that the human body is not designed to tolerate such a state. History has recorded some cases of people entering hibernation.

In 1900, the *British Journal of Medicine* published a story about Russian peasants who would sleep through the winter each year. Residents of the northeastern Pskov region suffered from chronic hunger and

YOU EARN. WE PAY.



WE BUY YOUR CREDIT CARD POINTS, AND AIRLINE MILES

WE SPECIALIZE IN LARGE ACCOUNTS.

MINIMUM 100K PER ACCOUNT.

IMMEDIATE PAY.



Yanky Mashinsky

732.966.3328

Sales@YMDDeals.com