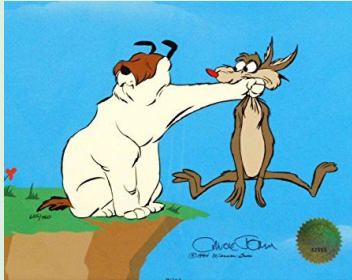


Intelligence vs Artificial Intelligence



Suspended Animation

Avery and Sophie Jensen

Overview - pages

[Title page](#)

[Slide 2 - Overview](#)

[Slide 3 - Introduction](#)

[Slide 4-5 - History or background](#)

[Slides 6-7 - Plan and Implementation](#)

[Slide 8 - Upsides to this advancement](#)

[Slide 9 - Downsides to this advancement](#)

[Slide 10 - Summary](#)

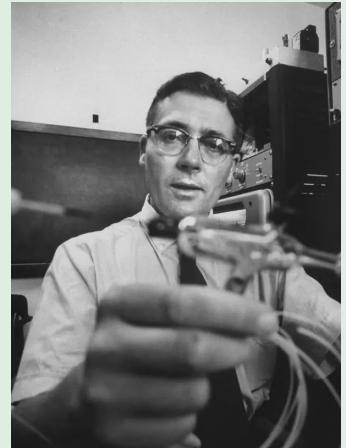
[Slide 11 - References](#)

Introduction

- ❑ Suspended Animation
 - Stopping an organism's heart - through freezing
 - Between life and death
 - Evidences of success have happened
 - Used in fiction

History/Background

- ❑ 1950s - NASA funded research
 - James Lovelock - tried theory on hamsters
- ❑ British Medical Journal
 - Russian Peasants - able to "hibernate"



<https://psmag.com/social-justice/big-sleep-potential-benefits-hibernation-humans-83327>

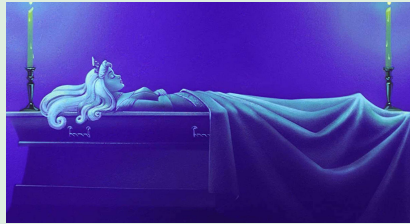
One recipient of that funding was a young James Lovelock. The scientist would dunk hamsters into ice baths until their bodies froze. Once he could no longer detect a heartbeat, he would re-animate them by placing a hot teaspoon against their chest (in later experiments, Lovelock warmed to the space-age theme by building a microwave gun out of spare radio parts to more gently revive his test subjects). These experiments on the flexibility of life would set him on the path to his most famous work, the "Gaia hypothesis" of the world as a living super-organism.

IN 1900, THE BRITISH Medical Journal published an account of Russian peasants who, the author claimed, were able to hibernate. Existing in a state approaching "chronic famine," residents of the northeastern Pskov region would retreat indoors at the first sign of snow, and there gather around the stove and fall into a deep slumber they called "lotska." Waking once a day to wash some hard bread down with water, the family took it in turns to watch the fire, only rousing themselves fully once spring had broken. No trace of the sleepy peasants of Pskov has ever emerged since, but the fantasy of human hibernation persists, and very occasionally, something that looks very similar to it crosses into reality.

History/Background

❑ Used in Fiction

- Romeo and Juliet
- Sleeping Beauty
- Star Wars
- Captain America
- Avatar



❑ Evidence of Past Suspended Animation

- Mitsutaka Uchikoshi
- Anna Bâgenholm



<https://www.theguardian.com/world/2006/dec/21/japan.topstories3>

When a passing climber found him 24 days later, Mr Uchikoshi's body temperature had fallen to just 22C (72F), he had a barely discernable pulse and he was suffering from multiple organ failure and blood loss.

Doctors who treated Mr Uchikoshi believe he lost consciousness after his fall and that his body's natural survival instincts kicked in, sending him into a state akin to hibernation as the temperature on the mountain dropped as low as 10C.

"He fell into a state similar to hibernation and many of his organs slowed, but his brain was protected," Dr Shinichi Sato, head of the hospital's emergency unit, told reporters. "I believe his brain capacity has recovered 100%."

Doctors said they did not expect him to experience any lasting ill-effects.

Mr Uchikoshi said he could not remember anything after the second day of his ordeal on the mountain, a popular spot for hikers and picnickers. One report that emerged while he was still in hospital said he had sipped bottled water and barbecue sauce before falling unconscious.

Experts say it remains unclear how Mr Uchikoshi managed his extraordinary feat of

survival with his metabolism almost at a standstill

<https://psmag.com/social-justice/big-sleep-potential-benefits-hibernation-humans-83327>

Anna Bågenholm was on a skiing holiday in Norway when she crashed head first into a frozen stream and became trapped under the ice. When rescuers finally arrived, the Swedish radiologist had been submerged for 80 minutes, and her heart and breathing had stopped. Doctors at Tromsø University Hospital recorded a body temperature of 13.7°C, the lowest ever observed in a victim of accidental hypothermia. By all accounts she appeared to have drowned. And yet, after careful re-warming and 10 days spent in intensive care, Bågenholm woke up. She went on to recover almost fully from her cold brush with death. Under normal circumstances, even a few minutes trapped underwater would be enough to drown a person, and yet Bågenholm had survived for over an hour. Somehow the cold had preserved her.

Plan and Implementation

- ❑ Could affect all life
- ❑ Ex: waiting for medical care
- ❑ Delay onset of cell death
- ❑ Buy more time for surgery
- ❑ Internal bleeding/ heart attack victims



<https://amp.theguardian.com/science/2019/nov/20/humans-put-into-suspended-animation-for-first-time>

Doctors have put humans into a state of suspended animation for the first time in a groundbreaking trial that aims to buy more time for surgeons to save seriously injured patients.

The process involves rapidly cooling the brain to less than 10C by replacing the patient's blood with ice-cold saline solution. Typically the solution is pumped directly into the aorta, the main artery that carries blood away from the heart to the rest of the body.

Plan and Implementation

- ❑ Future Prospects: Far space travel
- ❑ Astronauts put into state of sleep
- ❑ Allows for travel across space
- ❑ Energy and cost savings

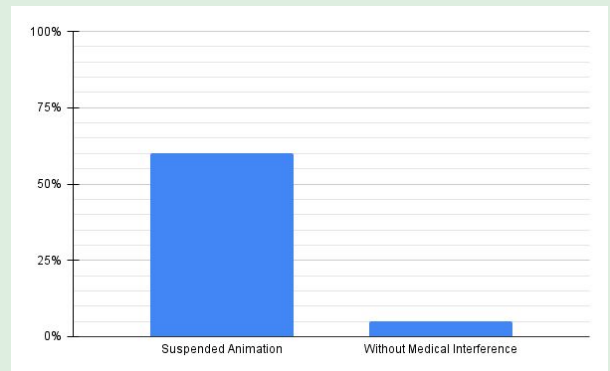


<https://amp.theguardian.com/science/2019/nov/20/humans-put-into-suspended-animation-for-first-time>

Suspended animation could be an alternative to traditional travel. Controlled reduction of humans' overall body temperature could effectively send space travelers into a state of hibernation, allowing for significantly reduced consumption of resources while simultaneously avoiding some of the negative effects of long-term cohabitation in cramped crew quarters.

Pros/Upsides to this advancement

- ❑ Medical
 - Gives doctors more time to operate
 - 55% better chance of survival
- ❑ Space
 - Travel without needing food/water



<https://psmag.com/social-justice/big-sleep-potential-benefits-hibernation-humans-83327>

SUSPENDED ANIMATION, THE ABILITY to set a person's biological processes on hold, has long been a staple of science fiction. Interest in the field blossomed in the 1950s as a direct consequence of the space race. NASA poured money into biological research to see if humans might be placed in a state of artificial preservation. In this state, it was hoped, astronauts could be protected from the dangerous cosmic rays zapping through space. Sleeping your way to the stars also meant carrying far less food, water, and oxygen, making the ultimate long-haul flight more practical.

[Humans put into suspended animation for first timeThe Guardianhttps://www.theguardian.com/science/2015/nov/11/humans-...](https://www.theguardian.com/science/2015/nov/11/humans-put-into-suspended-animation-for-first-time)

Doctors have placed humans in suspended animation for the first time. Surgeons have minutes to operate – there is less than 5% chance the patient would normally survive

Cons/Downsides to this advancement

- ❑ Doesn't save enough energy
- ❑ Ethical implications of freezing humans
- ❑ Issues with bringing humans out
- ❑ Full hibernation is still unheard of

<https://vce.usc.edu/volume-1-issue-1/the-frozen-undead-ethical-implications-of-suspended-animation-and-cryonics/>

The most important ethical concern in cryonics is legitimacy, or the lack thereof. People are trusting scientists and engineers to revive their frozen bodies in the future. This is an enormous amount of faith in our advancement of biomedical technologies. What if this assurance of resuscitation is false hope? We have basic human rights that apply to everyone. The right to live is one of the most fundamental human rights. Although patients have the right to choose cryonics, this “false hope” could indirectly alter their choice. For example, an individual decides to choose the option of cryonics in his life insurance policy. Later in his life, he suffers from a coma and does not wake up for months. He is sent to a cryogenic freezing facility and will be kept there for however long that facility exists. However, many patients come back after being in a comatose state for years. The option of cryogenics cannot even begin to promise resuscitation in the future. This patient could have potentially awakened.

<https://www.dailymail.co.uk/sciencetech/article-10755573/Suspended-animation-space-travel-never-possible.html>

Chilean researchers set out to investigate whether people could hibernate like bears, which would effectively allow us to snooze during trips through space that last longer than a lifetime.

In naturally hibernating mammals – such as bats, several marsupials and rodents –

energy expenditure can be reduced by 98 per cent of normal levels.

However, the Universidad Austral de Chile researchers found that hibernation seems to only be beneficial at small sizes.

Summary

- ❑ Medical care would be significantly better
- ❑ Travel to new planets
- ❑ Would it save enough energy?
- ❑ Are there unforeseen consequences?

After researching, we have decided that we are for the idea of suspended animation. Suspended animation could help a lot of people, and even further space research. We believe that the only time suspended animation will be used will be in life or death situations, in the medical area, or to further explore space and expand our knowledge of it, in the scientific area. We also assume that it would be strictly voluntary, so the ethical issues would be solved. While there are ethical issues with it, we believe that the possibilities of it being able to help advances in science, and save people's lives, outweigh these concerns.

References

[Injured hiker survived 24 days on mountain by 'hibernating' | World news | The Guardian](#)

[Humans put into suspended animation for first time | Medical research | The Guardian](#)

[Suspended animation for emergency medicine: your questions answered | New Scientist](#)

[The Big Sleep: Suspended Animation and the Potential Benefits of Human Hibernation - Pacific Standard](#)

[The Frozen-Undead: Ethical Implications of Suspended Animation and Cryonics - Viterbi Conversations in Ethics](#)