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February 23, 2011

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A Look Inside: The Visible Heart® Laboratory seeks solutions for muscle atrophy

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How Visible Heart research and the study of the hibernation habits of black bears could lead to remarkable translational clinical science

Working with Dr. Dave Garshelis from the Minnesota DNR, researchers from Dr. Iaizzo's Visible Heart® Laboratory are taking a closer look at the hibernation habits of black bears.

They discovered that the substances associated with bear hibernation have the ability to protect human organs from damage caused by a lack of oxygen.

Using the Visible Heart®, Iaizzo and his team have been able to test their hypotheses by injecting associated hibernation factors and other agents (such as omega-3 fatty acids) into the heart model prior to inducing a heart attack.

By monitoring the level of damage that occurs, they have found that the pre-conditioned hearts experience significantly less deterioration than the control group.

These results could have profound effects for ICU patients whose muscles weaken at a rate of 1% per day. Bears lose less than 25% of their muscle strength during an entire winter of hibernation while not eating, drinking, defecating, or urinating.

Although Iaizzo's work is not ready for clinical trials in humans, he hopes the research will one day have profound effect

- Limiting damage to cardiac muscles following heart attacks
- Preserving donor hearts for longer periods before transplantation

"Our continued success and the improved health of the world will depend on scientific collaboration. We are very fortunate to have a place like the Visible Heart® Laboratory where we can be teachers, researchers, and engineers," said Iaizzo.

--Kelly O'Connor

Fast Fact

Bears lose less than 25% of their muscle strength during an entire winter of hibernation.

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The heart of scientific discovery

Thanks to partnership and collaboration, the U is home to some of the leading cardiovascular discoveries of the 20th century.



Bear study would help critical care patients

Researchers hope that what they are learning about black bears could help them fight atrophy of the muscles in humans.



The Visible Heart Laboratory

In 1997, Dr. Iaizzo and his colleagues began working on large mammalian isolated heart models, and thus the Visible Heart® laboratory was created in collaboration with Medtronic, Inc.



Building on a legacy

In 1952 we performed the first successful open-heart operation. Nearly 60 years later, we're still revolutionizing the field of cardiology.

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