Scientists Keep Human Hearts Alive in Lab to Track Abnormal Beats

Researchers 'reanimate' parts of human hearts to find elusive sources of arrhythmia

The Ohio State University Wexner Medical Center

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The Ohio State University Wexner Medical Center

NEWS PACKAGE

SUGGESTED TEASE

STILL TO COME, REAL LIFE RESEARCH THAT SEEMS MORE LIKE SCIENCE FICTION.

WHAT DOCTORS ARE LEARNING BY BRINGING PARTS OF HUMAN HEARTS BACK TO LIFE IN THE LAB, NEXT IN HEALTH NEWS.

ANCHOR LEAD

AS MANY AS <u>SIX MILLION</u> AMERICANS MAY SUFFER FROM IRREGULAR HEARTBEATS.¹ IN ONE FORM, KNOWN AS PERSISTENT ATRIAL FIBRILLATION, THE HEART BEATS ERRATICALLY 24-HOURS A DAY.

THOSE ARE THE HARDEST CASES TO TREAT,
AND HAVE A LOWER RATE OF SUCCESS.
BUT THAT MAY SOON CHANGE - THANKS TO
SCIENTISTS WHO BRING PARTS OF HUMAN HEARTS
BACK TO LIFE TO LOOK FOR NEW ANSWERS.
CLARK POWELL HAS DETAILS.

(PACKAGE START) -----

(Nats - Sound):02

CG: Courtesy: The Ohio State University Wexner Medical Center :00 - :03

STEVE HINES HAS SPENT MORE TIME GOING TO DOCTOR APPOINTMENTS THAN HE EVER IMAGINED.

Shots of Steve going in hospital

HE NEVER KNEW ANYTHING WAS WRONG UNTIL A ROUTINE PHYSICAL SHOWED HIS HEART WAS BEATING ERRATICALLY. :09

Shot of Steve walking by

"There will be 2 or 3 regular beats then it'll be a real low one or it'll be real guick." :08

CG: Steve Hines Had irregular heartbeat

Shots of Steve getting prepped

IT WAS PERSISTENT A-FIB, AND TWICE DOCTORS HAVE PERFORMED ABLATIONS - MAKING TINY SCARS ON HIS HEART TO STOP THE IRREGULAR BEATS. BUT AFTER BOTH TREATMENTS, THE A-FIB

Shots of Dr. Hummel looking at images

CAME BACK.:10

CG: Dr. John Hummel
Ohio State Wexner Medical Center

"He is really a poster child for challenge we have with persistent atrial fibrillation." :07

Shot of Fedorov at desk NOW, THAT CHALLENGE IS BEING MET HEAD-ON INSIDE A LAB AT THE OHIO STATE UNIVERSITY Shot of team walking into lab WEXNER MEDICAL CENTER. VADIM FEDOROV (vuh-**DEEM FED**-ehr-ov) AND HIS TEAM BRING THE ATRIA, OR UPPER CHAMBERS OF Shots of hands putting heart in dish DONATED HUMAN HEARTS, BACK TO LIFE TO LOOK FOR ANSWERS. :14 CG: Vadim Fedorov, Ph.D. "It's amazing. You can see the heart beating back again. **Ohio State Wexner Medical Center** Of course the diseased heart doesn't beat appropriately." :07 Shot of team in lab BUT IT DOES GIVE SOME INSIGHT INTO WHY IT'S NOT BEATING APPROPRIATELY. Shot of hands with heart THE HEART IS PLACED IN A DISH SURROUNDED BY 4 CAMERAS AND INJECTED WITH DYE TO Shots of cameras DETECT ELECTRICAL ACTIVITY. NORMAL IMAGING CAN CAPTURE ABOUT TWO 3-D images from cameras HUNDRED RECORDINGS OF THE HEART. THIS RECORDS 40-THOUSAND IN 3-D.:17 "We can see through the heart. We can see at many Vadim Fedorov (CG'd earlier) different depths.":05 Shot of Hummel with images THAT ALLOWS MAPPING OF THE HEART LIKE NEVER BEFORE. AND GIVES DOCTORS NEW Shot of Steve in procedure TARGETS IN COMPLEX CASES LIKE STEVE'S.:06 / "I don't think that we would have been able to fix his Dr. Hummel (CG'd earlier) atrial fibrillation without Vadim's work.":06 Dr. Hummel (cover w/video) "You don't really see this being done anywhere else because it's not easy.":04 "I'm pretty fortunate because I've been able to be with Steve Hines (CG'd earlier) people that (cut out pause) think outside the box and that's cool. I like thinking outside the box.":09 AT OHIO STATE WEXNER MEDICAL CENTER, THIS Shot of heart in dish IS CLARK POWELL REPORTING. :03 (PACKAGE END) -----THE DONATED HEARTS COME FROM PEOPLE ANCHOR TAG WHO ARE GETTING NEW HEARTS THROUGH TRANSPLANT. SCIENTISTS SAY THEY CAN KEEP THE HEART TISSUE ALIVE FOR UP TO 12 HOURS TO CONDUCT THEIR EXPERIMENTS.

SOCIAL MEDIA

Share it! Suggested tweet:

Scientists <u>@OSUWexMed</u> revive parts of human hearts in the lab to find new causes of irregular beats. http://bit.ly/2joc00R

Suggested post:

It may sound like science fiction, but it's real. Scientists revive parts of human hearts in the laboratory so they can search for the causes of irregular heartbeats. Go inside the lab at The Ohio State University Wexner Medical Center to see this groundbreaking research: http://bit.ly/2joc00R

EXTRA BITES

CG: Vadim Fedorov, PhD
Ohio State Wexner Medical Center

Fedorov explains what he does after reanimating heart tissue: "Then, we can inject special fluorescent dye which can sense electricity."

Fedorov talks about the goal of his research: "If we define where this loop, we can put electrode right there, ablate it, destroy it, patient will be free from arrhythmia hopefully forever."

Hummel says Fedorov's work locates new problem regions: "He's developed a model using human hearts where we've been able to study and confirm, not only that these regions exist, but what the underlying physiology looks like."

CG: Dr. John Hummel
Ohio State Wexner Medical Center

Hummel talks about the applications of this research: "The day is coming where we will be able to leverage that knowledge into ways to identify definitively which regions in a human being's heart are responsible not only for triggering atrial fibrillation, but for maintaining it, sustaining it."

Hummel talks about the importance of these experiments: "I think these sorts of efforts will be the things that make a pivotal change in our ability to manage people's disease states as we go forward."

Hummel explains how improved heart mapping helps him: "It removes a lot of barriers in terms of our understanding and our confidence in what we're seeing. So that's really unique."

CG: Steve Hines Had irregular heartbeat Hines talks about his procedures:

"I've had a total of 3 ablations. This last one being a little different, I guess."

CG: Steve Hines Had irregular heartbeat Hines talks about his reasons for volunteering: "It's pretty exciting because you know win or fail, they're going to learn something from it, whether this works or this doesn't work; it's all going to help one way or the other."

References

¹Atrial Fibrillation Fact Sheet, Centers for Disease Control and Prevention, August 2015. Online: https://www.cdc.gov/dhdsp/data statistics/fact sheets/fs atrial fibrillation.htm

For viewer information on this story contact:

The Ohio State University Wexner Medical Center: 1-800-293-5123 Log onto http://wexnermedical.osu.edu - click on "Media Room"

Produced by:



1800 West 5th Ave. Columbus, Ohio 43212 Phone: (614) 932-9950 Fax: (614) 932-9920

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