

St. Vincent Medical Center's Joint Replacement Institute Receives Prestigious Frank Stinchfield Award

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From the medication that helps people cope to the advanced surgical procedures that have transformed their lives, modern medicine wouldn't be possible without clinical research. The Joint Replacement Institute (JRI) of Los Angeles' research team collaborated on an investigation into the relationship between patient aging and the wear of total hip replacement implants. This work has been awarded the Hip

Society's prestigious Frank Stinchfield Award for ground-breaking research.

The research team began working on this study during the spring of 2010, shortly after fourth-year student Andrew Battenberg arrived for his medical school rotation. He had heard me lecture at an American Academy of Orthopedics annual meeting and expressed interest in participating in our research. With a strong background in bioengineering, an innate curiosity, and a passion for advancing medical technology, Andrew was an asset to the team. He worked tirelessly alongside our joint replacement fellow, Dr. Jeff Hopkins, and undergraduate student, Andy Kupiek.

In this study, we monitored the physical activity of hip joint replacement patients within 4 years of surgery and then again more than 10 years after surgery. We utilized a microprocessor worn on the ankle called the StepWatch Activity Monitor (SAM). Similar in principle to the Holter monitor used in cardiology, The SAM records the motion of the leg in real time for up to 15

consecutive days. The team used a digital edge-detection program to analyze multiple X-ray images of the hip replacements taken over time in order to measure the amount of wear.

The analyses demonstrate that as people age, first their gait speed decreases. Then, the number of steps they take decreases. As a result, the wear of their hip joints decreases substantially over time. The highest activity and wear occurs within the first five years of joint replacement. The data collected in this study over 13 years indicate that if the hip is working well at five years, there is little risk that the hip will wear out during their lifetime.

In November 2011, our report was submitted to The Hip Society and in mid-December we were notified that our work had won the Frank Stinchfield Award. The research paper, "Decreasing Patient Activity with Aging: Implications for Cross-Linked Polyethylene Wear" will be presented at the American Academy of Orthopaedic Surgeons (AAOS) conference in San Francisco, California on February 11, 2011. The

JRI group's study manuscript will be processed by Clinical Orthopaedic and Related Research and published in about a year.

The JRI is a clinic of St. Vincent Medical Center, located in Los Angeles, California offering specialized surgical services for the treatment of arthritis. The center has

state-of-the-art imaging equipment, allowing for on-site evaluation of patients. The JRI is also a leading clinical and basic science research center. Our physicians and research scientists closely monitor and study the clinical performance of various joint replacement devices and procedures. Our goal is to improve the lives of patients through the clini-

cal application of cutting-edge research. The JRI has been performing research and treating patients since 1991 and moved to St. Vincent Medical Center in 2008.

To learn more about the JRI, visit www.jri-docs.com.

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