

Exactech Presents New Research on AI, Radiomics and Polyethylene Technology at ORS 2025

GAINESVILLE, Fla. (Feb. 18, 2025) – [Exactech](#), a global leader in medical technology, presented 15 new studies describing new research and advancements in total joint arthroplasty and trauma solutions at the 2025 Orthopaedic Research Society (ORS) Annual Meeting in Phoenix, Ariz. The studies explored the company's latest innovations leveraging artificial intelligence (AI) and machine learning (ML) image segmentation and predictive modeling, CT image-based radiomic analysis, computer-assisted surgical navigation, clinical outcomes research and enhanced implant materials.

One ML-based study analyzed pre-operative CT scan data of the deltoid muscle to assess the influence of image acquisition and processing parameters on the extraction of radiomic measurements. Using an ML framework, the study identified the most stable radiomic features across multiple scanning protocols, finding that shape-based features were the most robust and least affected while second-order texture features were most impacted by variations in image processing parameters. Another ML-based study examined the relationships between these stable radiomic features and the amount of shoulder motion a patient has before shoulder arthroplasty. They reported several deltoid radiomic features were predictive of pre-operative motion, which is also predictive of post-operative motion.

"These radiomic studies provide new insights that can be incorporated into pre-operative planning software with applications for improved clinical decision support tools," said Chris Roche, Exactech Senior Vice President of Extremities. "Shoulder surgeons do not currently assess the deltoid using any quantitative method when considering their patients for shoulder arthroplasty. Our new research not only provides a repeatable method to quantitatively assess the deltoid, but we also identified the specific radiomic features that are clinically meaningful and predictive of shoulder arthroplasty outcomes."

Other studies confirmed Activit-E® polyethylene's superior oxidation resistance and mechanical durability for joint arthroplasty. Compared to conventional ultra-high-molecular-weight polyethylene (UHMWPE), Activit-E outperformed in aggressive knee wear testing and simulated *in-vivo* aging conditions. Its peroxide crosslinked, vitamin E-stabilized composition is designed to enhance implant longevity and patient outcomes.

"These findings reinforce Exactech's commitment to developing the most advanced implant materials that offer greater durability and performance," said Luis Alvarez, Director of Engineering and Development. "With our new Activit-E polyethylene, we are advancing material technology to improve long-term success in total joint replacements."



EXACTECH, INC
2320 NW 66th Court
Gainesville, FL 32653
USA

 352.377.1140

 352.378.2617

Additional research covered the development of a novel 3D classification of the TKA patients based on unsupervised machine learning clustering models, which can be applied to the company's Newton® Knee balancing technology.

For more information, visit www.exac.com.

About Exactech

Exactech is a global medical technology leader that empowers orthopaedic surgeons with innovative implants, surgical instruments and the Active Intelligence® (AI) ecosystem of smart technologies to give patients EXACTLY what they need to regain mobility. Visit www.exac.com for more information and connect with us on [LinkedIn](#), [Vumedi](#), [YouTube](#), [Instagram](#) and [X](#).

Media Contact

Courtney Adkins
Marketing Communications Director
media@exac.com