



## NEWS RELEASE

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### PrimusRS REHAB AND TRAINING SYSTEM TAKES TO SPACE System to be Used By NASA Researchers To Develop And Test Next Generation Space Suits

**NEW ORLEANS, LA. May 30, 2007**--BTE Technologies, the leading provider of advanced solutions for physical testing and rehabilitation, announced today that NASA has begun using its flagship clinical evaluation system, PrimusRS™, to develop, test and refine the next generation of Advanced Extra Vehicular Activity (EVA) suits.

"It's difficult for us here on the ground to imagine the kinds of movement patterns, conditions and stressors encountered by our astronauts in space or on the moon," said Ken Johnson, Director of Clinical Integration at BTE Technologies. "By using PrimusRS, researchers at NASA don't have to imagine. They are creating realistic and effective simulations to design and test more effective and safer spacesuits."

EVA suits (or Extravehicular Mobility Unit [EMU] spacesuits)—the familiar white, helmeted uniforms used in space when astronauts need to go outside of their protected environment—were originally adapted from pressure suits designed for pilots of high altitude military and experimental aircraft.

"Space suit design has come a long way, but as we continue with the vision for space exploration to the moon and Mars, there are still many enhancements we can make," said Luis E. Velasquez, Biomechanics Engineer. "The number of EVAs performed will be increasing dramatically. It's critical that we use task-oriented simulations that emulate and evaluate the physical and physiological characteristics of suited astronauts."

PrimusRS works by simulating movement patterns and biomechanics and can replicate virtually any activity to measure the performance of muscles performing almost any task. The system is primarily used in clinical settings, but its comprehensive measurement and data collection capabilities make it a powerful tool for researchers as well.

"Precision measures are critical for high-demand clinical, sports-medicine and research environments," said Johnson. "NASA is the first site in the US to purchase this latest research model that allows for data collection every five milliseconds. Simply put, it is one of the most comprehensive clinical and research systems available."

The first phase of research using PrimusRS focuses on isometric evaluations in order to understand and gather information about the strength capabilities of individuals while wearing a prototype space suit. This phase will provide the stepping stones for later testing and knowledge into future suit design, tool design and task design.

The future phases of research will focus on more dynamic testing, using the system's array of resistance modes, speeds, set-ups and attachments to replicate conditions and functional tasks astronauts are likely to encounter, particularly in lunar surface missions. Traditional isokinetic dynamometers are being replaced by this new isotonic technology as it more closely and accurately simulates the true forces and torques encountered on the job.

"The dynamic testing will address suit pressure effects on strength, isolated joint strength, and additional evaluations of planetary suit prototypes to help us define and understand the physiological performance required for mission-critical tasks, such as habitat assembly and deployment, EVA tool usage, and ladder/ramp climb and descend," said Velasquez. "We also need to evaluate the suit's capabilities in emergency situations. Can an astronaut assist an incapacitated crewmember? If a Rover breaks down on the lunar surface, can you walk back to base?"

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Mission planners will be able to use the testing results and data collected and tracked by PrimusRS to review any number of key safety and efficacy factors. Those data will be used to help streamline the timing, duration, task arrangement, personnel, and overall efficiency of the EVA tasks.

"PrimusRS is an ideal way for clinicians and researchers alike to measure precisely the dynamic forces encountered by people in everyday work and recreation settings," concluded Johnson. "We're very excited that NASA has chosen PrimusRS to measure and help guide their not-so-everyday work as well."

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BTE is the leading producer of musculoskeletal testing and rehabilitation technologies. The company provides advanced physical and occupational evaluation and therapy solutions for the healthcare industry and works with employers and payers to reduce workers' compensation and disability expenses. With nearly 30 years of experience and innovation, BTE offers clinicians, employers and researchers the most advanced rehabilitation and evaluation technology available. BTE Technologies operates from offices in Baltimore, Maryland and Greenwood Village, Colorado. For more information, please visit [www.BTETech.com](http://www.BTETech.com).

#### Media Contacts

Visit booth #326 at the American College of Sports Medicine® annual conference, May 30 – June 2, 2007, for additional information. To arrange interviews with Mr. Johnson or Mr. Velasquez at ACSM, please contact:

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