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Study verifies that the knee exoskeleton consistently reduces metabolic cost

News Release

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ORLANDO, Fla., Nov.13, 2017 – A study by the University of Michigan Human Neuromechanics Laboratory suggests that battle-equipped soldiers would be less fatigued if they wore Lockheed Martin's [NYSE: LMT] FORTIS Knee-Stress Relief Device (K-SRD)™ exoskeleton on inclined terrain. The independently funded study states that "K-SRD consistently decreased the cost of transport of walking up an incline with a load."

Cost of transport measures energy consumed in ambulatory tasks such as walking and climbing stairs. The study demonstrated that all participants conserved energy using the K-SRD, reducing overall exertion.

These initial tests were conducted with four trained participants. Each wore the exoskeleton and carried a 40-pound backpack while walking at various speeds on a treadmill inclined to 15 degrees. All showed a statistically significant reduction in exertion as compared to performing that same task without the K-SRD unit. More testing is anticipated and will be expanded to reflect urban scenarios, including ascending and descending stairs with weight to assess potential for first responders.

"The study results show K-SRD's potential to increase mobility for dismounted troops," said Keith Maxwell, exoskeleton technologies program manager at Lockheed Martin Missiles and Fire Control. "By reducing the effort in walking and climbing, there's less fatigue. This technology can literally help our fighting men and women go the extra mile while carrying mission-essential equipment."

Now in development, the K-SRD uses Dermoskeleton™ technology licensed from B-TEMIA, to counteract overstress on the lower back and legs. It supports and boosts leg capacity for physically demanding tasks that require lifting or dragging heavy loads, or walking with load on inclines or stairs. K-SRD reduces fatigue and increases endurance.

About Lockheed Martin

Headquartered in Bethesda, Maryland, Lockheed Martin is a global security and aerospace company that employs approximately 97,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services.

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