

Army Researchers Advance 'Third Arm' Project

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Soldiers may be asked to carry heavier, more lethal weapons in the near future, but they soon might have a "third arm" to improve their accuracy and reduce fatigue.

Using a mechanical apparatus that resembles something out of a sci-fi movie, the lightweight device will help redistribute some of the burden Soldiers carry in their arms and shoulders to their abdomen. Engineers at the Army Research Lab (ARL) at Aberdeen Proving Ground, MD, have been developing a mechanical third arm that attaches to a user's back hip.

The project, unveiled last year at a conference, is scheduled to be tested again sometime this spring with a minimum of 15 Soldiers.

"Right now we have a prototype that's essentially a research platform that we're using to investigate different types of materials — how materials and structures can stabilize a weapon or a shield, reduce fatigue on the Soldiers' arms, but also improve accuracy," said mechanical engineer Dan Baechle.

The project is currently on its second prototype model with improvements based on Soldier feedback. Some of the improvements include an extendable hinge plate so that a single plate can fit Soldiers of different sizes and body types. Baechle said further research must be completed before the device can be fielded. The current prototype at 3.5 pounds can now support weapons such as the M249 light machine gun that weighs about 27 pounds.

The project not only helps stabilize weapons but can aid Soldiers for defensive purposes while carrying 20-pound shields. The project team developed a custom mount to help alleviate muscle fatigue.



**Army Research Lab engineer Dan Baechle demonstrates how to strap on a mechanical device designed to improve Soldiers' accuracy and reduce fatigue.
(Photo by Joe Lacdan)**

Concept development began in late 2015 when ARL engineers brainstormed ideas on how to make a dismounted Soldier more lethal. Engineers began building the first prototypes in 2016. The focus of the project centered on providing stability for dismounted Soldiers.

“We started out with just trying to think of a way to help improve the lethality for the dismounted Soldier,” Baechle said. “Generally that means stabilizing the weapon or giving the Soldier a more powerful weapon. Can we stabilize that weapon to improve accuracy? But also if we’re stabilizing the weapon and taking the load off of the Soldiers’ arms, does that improve the Soldier’s readiness? Does it also improve the Soldier’s accuracy with the weapon?”

Read more about the new device at https://www.army.mil/article/201229/army_researchers_advance_third_arm_project_to_next_testing_phase.

(Joe Lacdan writes for the Army News Service.)