

SBL ENSURES SOLDIERS HAVE BEST GEAR AVAILABLE



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Leaders conducting operations throughout the world have a myriad of issues on their minds at any given moment. The operational tempo of the Army is such that they can not afford to waste energy worrying about issues beyond their control. Unfortunately, in the Information Age we operate in today, false information pertaining to Soldier equipment often inundates leaders and Soldiers, causing many of them to question if the Army has given them the absolute best equipment available. Loved ones of Soldiers and our political leaders also become rightfully concerned for the well-being of our fighting men and women when fed information through various media outlets. For various reasons individuals and organizations outside the DoD will insist they have material solutions that are far better than what the Army has issued Soldiers and encourage media outlets to exploit their claims. It is time to help set the minds of our Soldiers at rest on this particular issue by providing insights into what one organization, the Soldier Battle Lab (SBL) at Fort Benning, Georgia, is doing to ensure that each Soldier has the absolute best gear available in terms of ballistic protection and enhancement.

SOLDIER PROTECTION DEMONSTRATION 1 — BODY ARMOR

Beginning in May 2006, SBL and the Directorate of Combat Developments (DCD) at the United States Infantry Center (USAIC), Fort Benning, teamed with Program Manager Soldier Equipment (PM SEQ) at Fort Belvoir, Virginia, to begin a series of experiments addressing the latest technology advances for Soldier protection devices. The need arose out of the concern leaders at USAIC and Program Executive Office (PEO) Soldier had for ensuring the current equipment our Soldiers had was

keeping up with the technological advancements within the industry in terms of ballistic protection. It has become apparent through years of operating with heavy equipment, that protecting Soldiers is not simply outfitting them with gear that will protect them against IED blasts, sniper fire and other hazards faced during missions. Leaders have to consider how the weight and design of that gear affects a Soldier's ability to shoot, move and communicate in full spectrum operations. Finding the right protective equipment to outfit the entire Army is challenging, and it is a challenge that many organizations are intimately involved with on a day-to-day basis. It is not my intent to provide a comprehensive discussion of the work conducted throughout the entire Army and DoD to find the right protective gear for our service men and women. Nor does this article address every aspect the SBL is involved with in terms of increasing and improving current Soldier protection. This

article focuses on the series of equipment demonstrations SBL has conducted and will continue to conduct to aid our combat developers and program managers in ensuring our Soldiers have the absolute best protective gear available now and in the future.

There is no doubt that the Interceptor Body Armor (IBA) worn by the force today is the best ballistic protection vest currently available to protect our Soldiers. This became evident when the SBL conducted a technology demonstration of IBA and six other body armor systems at Fort Benning from August 14-31, 2006, with the purpose of determining the best technical approaches for body armor, to identify the best solutions for interim fielding, and to identify future desired capabilities of body armor.

PM SEQ sent a request for information out to industry to find body armor available on the market, which included the current IBA. PM SEQ then provided the seven best



Photos courtesy of the Soldier Battle Lab

For the demonstration, Soldiers wore different body armor systems and conducted various events to understand how each system affected the Soldiers ability to shoot, move and communicate.



Above and at right, the second demonstration evaluated eight face protection candidates and six neck protection candidates. Devices that offered the highest protection coverage received the lowest acceptance ratings from Soldiers because of the negative impact on mobility.

body armor candidates available on the market, along with three systems that covered the legs and arms, to SBL to assess against stringent capabilities outlined by USAIC DCD. SBL used 42 Soldiers of various MOSs and combat experience levels from the Georgia Army National Guard (GAARNG) to serve as the experimentation force (EXFOR). Soldiers divided into seven teams of six Soldiers each. Each team wore a different body armor system daily for seven days. Each day consisted of Soldiers conducting various events such as a three kilometer foot march and a live-fire qualification range. SBL designed the events to understand how each body armor system affected a Soldier's ability to shoot, move and communicate. The results of the seven day demonstration, titled Soldier Protection Demonstration Phase 1 (SPD1): Body Armor Assessment, concluded with the following findings:

With the current technology, body armor continues to be hot, heavy, and cumbersome. There remains an inverse relationship between protection and wearability. Although the candidate systems demonstrated some unique characteristics and features, they displayed no quantum leap in technology. Soldiers' confidence in the current IBA indicates that no significant advances existed among the demonstrated systems.

However, the most promising findings from SPD1 were the desired characteristics from each of the body armor systems that Soldiers determined had utility. Soldiers wanted side openings to allow easy access to the front and back to facilitate casualty evaluation and extraction. They also wanted improvement in vest sizing to accommodate different body shapes for men and women. Some of the candidate body armor systems had mechanisms allowing Soldiers to transfer the weight of the body armor between the shoulders and hips. Soldiers felt that was an important feature to incorporate to improve the wearability of the system. Soldiers also wanted a simple, quick release and reassembly system incorporated into the vest. Lastly, Soldiers recommended different sizes and shapes of ceramic insert plates to improve mobility. SBL translated all of these desired capabilities into recommendations to DCD for future body armor requirements. PM SEQ took those recommendations and the knowledge previously gained from other

assessments and developed the Improved Outer Tactical Vest (IOTV), which some Soldiers are now wearing and assessing in theater for future improvements. The IOTV and its current assessment is another example of the Army's willingness to constantly reassess our force protection equipment to ensure our Soldiers are wearing the absolute best equipment available.

It is important to note that SBL also conducted a limited assessment of extremity body armor during SPD1. Extremity body armor is an important element of Soldier protection as more than 53 percent of principal injuries in OIF and OEF have occurred in the upper and lower extremities. Though it was a very limited assessment, all of the systems caused Soldiers to experience heat build-up and they all extremely restricted a Soldier's range of motion and mobility when dismounted. As a result, SBL concluded current extremity body armor as not adequate for dismounted operations. However, there are some positions such as vehicle gunners, personnel conducting vehicle check points, and personnel on EOD escort missions in which the extremity body armor may be worn with success. Leaders on the ground conducting operations can best decide when to wear extremity body armor, but they must understand the negative physiological effect of wearing such equipment during dismounted operations.

SOLDIER PROTECTION DEMONSTRATION 2: FACE AND NECK

The insights gained from SPD1 reinforced to leaders at the Infantry Center and PEO Soldier to continue conducting equipment demonstrations with the focus of ensuring that our Soldiers have the best equipment currently available on the market and to gain an understanding of how we can leverage developing technology to improve existing protection systems. Based on that guidance, SBL conducted SPD2: Face and Neck Protection in June 2007 at Fort Benning. In addition to assessing face and neck protection devices, PM SEQ also asked SBL to conduct a limited assessment of the IOTV.

PM SEQ provided eight face protection candidates and six neck protection candidates for assessment. Thirty-four Soldiers of various MOSs and combat experience levels, again from the GAARNG, participated as the EXFOR. Six of the Soldiers wore the IOTV for assessment; the remaining Soldiers wore the current issued IBA with OTV. SBL used SPD1 demonstration events as a model to address the issues of form, fit, and functionality. However, these particular devices covered the face and mouth, and events were developed in this demonstration to facilitate understanding if they would have any affect on the level of Soldier's situational awareness while conducting missions. Soldiers conducted various events over a nine-day period.



Again, the demonstration confirmed there is still going to be a trade off between survivability and mobility. The devices that offered the highest protection coverage received the lowest acceptance ratings from Soldiers because of the negative impact the devices had on mobility. This was specifically the case for the face protection devices. Soldiers felt they were not suitable for most dismounted operations requiring fire and maneuver and for drivers of vehicles because of the reduction in the visual field. However, the face devices did prove more promising for specific tasks such as exposed vehicle gunners, personnel at traffic control points, and EOD escort teams. These particular devices were also not compatible with the CVC helmets or with the M40 NBC mask. The neck protection devices were not as intrusive, but did interfere when Soldier's had to conduct tasks that required them to tilt their head back, such as firing in the prone position. Again, for tasks such as vehicle gunners, traffic control points and EOD escort teams, the larger the area of coverage, the better the system. The recurring theme for leaders in the field to take into consideration when directing the uniform worn for their Soldiers is that not all of their Soldiers will require the same level of protection. Again, leaders on the ground are going to know best what level of force protection equipment their Soldiers require. The SBL experiments simply add additional information leaders must remember when they direct their Soldiers to wear force protection equipment. The general rule of thumb to remember with current force protection devices is this: the more area of coverage Soldiers have protected, the less mobile they will be and the hotter they will become which could significantly degrade their ability to successfully complete their assigned tasks.

SOLDIER PROTECTION DEMONSTRATION 3: PERSONAL COOLING DEVICES

The next iteration of Soldier Protection, SPD 3: Personal Cooling Devices, addressed the issue of cooling Soldiers while wearing hot, cumbersome protective gear. SPD 3 occurred August 23-30 at the National Training Center at Fort Irwin, California,

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with the 11th Armored Cavalry Regiment Soldiers serving as the EXFOR. PM SEQ identified two personal cooling systems for complete assessment and two additional developing technologies for side excursions. SBL will publish the final report to DCD and PM SEQ October 1, 2007. The goal of SPD 3 is to identify if existing personal cooling technology is ready for interim fielding to the force and to inform Army leadership and industry of the future personal cooling development requirements to meet Soldiers' operational needs.

Meeting the needs of our Soldiers is at the forefront of everything SBL does. Soldiers can fight hard knowing they have the latest and greatest equipment available and rest assured that when new technology makes current equipment obsolete, their Army will get it into their hands as soon as possible. The series of SBL Soldier Protection Demonstrations is just one example of many outlining the commitment of the USAIC, the Army and the DoD to ensure our men and women have the absolute best equipment available to successfully complete any operation, any where in the world. Our Soldiers are the best trained and the best equipped military the world has ever seen and our Army will continue to adjust to changes in technology and in the world to ensure we remain the best fighting force in the world.

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