Future Force Warrior

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Wars are evolutionary, with each new conflict bringing more powerful and advanced weaponry. Weapons that are successful on the modern battlefield today can quickly become outdated and ineffective in just a few years. The reality of the battlefield compels continuous change in the race to keep at least one step ahead of the enemy.

In order to remain that step ahead, the U.S. Army is developing an advanced infantry uniform that will provide superhuman strength and greater ballistic protection than any uniform to date. Soldiers will also be able to increase their level of awareness of their surroundings and their own bodies.

As production and development of each stage of the Future Force Warrior program moves ahead, completed stages of the new uniform/armor will be brought onto the battle field instead of waiting until 2010 to field the entire system. The Future Force Warrior's combat gear will consist of four main parts, the helmet, warrior physiological status monitoring system, liquid body armor, and the exoskeleton. These four parts of the armor will combine to create a uniform that informs, protects and enhances the abilities of its wearer.

The **Helmet** will employ a voice-activated, drop-down screen in the helmet's visor to access information without having to put down their weapons. This screen can display maps and real-time video provided by scout teams, satellites, or planes. A GPS tracker will also be used in the helmet.

The **Warrior Physiological Status Monitoring System** will be the layer closest to the body which monitors physiological conditions such as core body temperature, skin temperature, heart rate, body position (standing or sitting) and hydration levels. This data is monitored by the soldier, medics and commanding officers who might be miles away. Knowing the condition of a platoon of soldiers allows commanders to make better strategic decisions.

Liquid Body Armor will be the successor to the tried and tested Kevlar vests and SAPI ceramic plates of today. It consists of many pockets in the uniform's fabric being filled with magnetorheological fluid. One type of magnetorheological fluid consists of small iron particles suspended in silicon oil. The fluid transforms from liquid to solid in just milliseconds when a magnetic field or electrical current is applied to it. The current causes the iron particles to lock into a uniform polarity and stack on top of each other, creating an impenetrable shield. How hard the substance becomes depends on the strength of the electrical current. Once the charge is removed, the particles unlock, and the substance goes back to a fluid state. This special armor is still in development at MIT and any test prototypes are just experimental at best. It is estimated that it will be at least another 10 years before an effective production model will be produced.

The **Exoskeleton** feature of the combat armor is also still under much development. It is projected that in the joints of the Future Force Warrior uniform is a fabric filled with nano machines that mimic the action of human muscles, flexing open and shut when stimulated by an electrical pulse. These nano machines will create lift the way muscles do and increase overall lifting ability by 25 to 35 percent. In addition to increasing strength, the exoskeleton will also increase the soldier's stability. With this added strength and stability, weapons can then be mounted directly to the uniform system. The exoskeleton will merge structure, power, control, actuation and biomechanics.

Cost is not a factor for this sort of product because of the US Government's extremely large budget and no need for FDA approval.

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