

McCain's Moment

THE CHINESE
TOURISTS
ARE COMING!

WHERE ARE TODAY'S
HEROES?

KUDLOW:
DON'T MESS WITH
THE ECONOMY

FINE WINE
ACCESSORIES

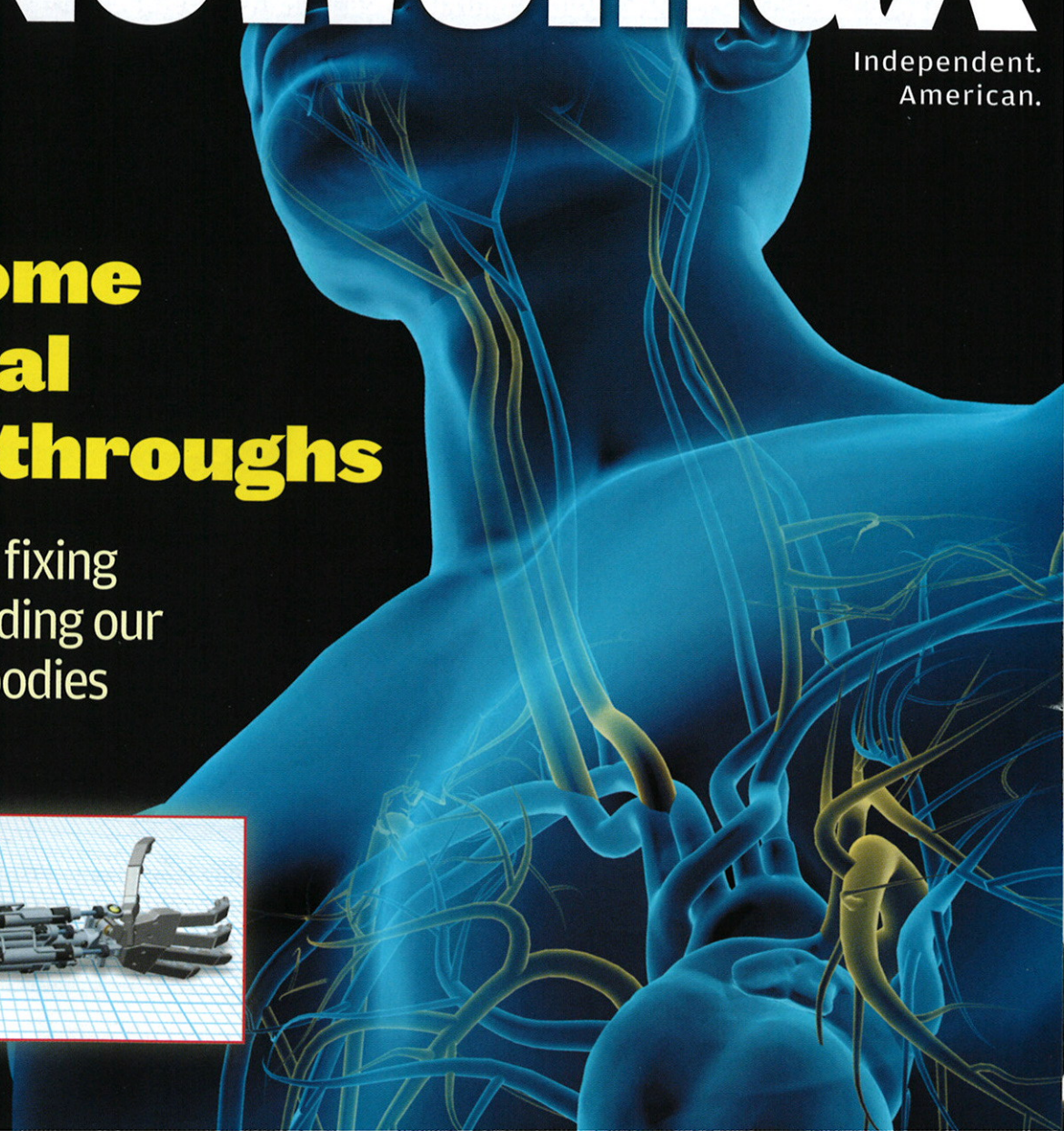
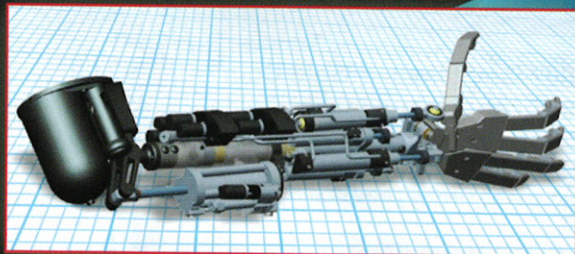
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26 Awesome Medical Breakthroughs

Exploring, fixing
and rebuilding our
battered bodies

ROCKET-POWERED ARM, Page 64



War's Wounded Help Create Innovations

Army Sgt. Josh Olson was patrolling in northern Iraq in 2003 when a rocket-propelled grenade hit his truck. Olson and his fellow 101st Airborne soldiers scrambled from the vehicle to return fire. That's when a second RPG exploded, damaging Olson's right leg so badly that doctors had to amputate it at the hip.

Olson's biggest fear was that he might never run again.

"In the infantry, you run every day," he explains. "I'd like to do it again. I *will* do it again," says the Spokane, Wash., native.

In prior eras, Olson's hope might have been a pipe dream. But as doctors work to save and heal the lives of brave soldiers like Olson, that's no longer the case.

"There's a reason that all those shows like *The Bionic Woman* are coming back," says Olson's physician, Dr. Dennis Clark.

Clark says he's seen more advances in prosthetics in the past decade than in all previous decades combined. "It's all about microprocessor technology, technology from jet manufacturing, and carbon fibers," he says. "And it's all about maximizing function and minimizing energy use."

Today, Olson is still in the Army and serves as captain of its national-champion marksmanship team.

Olson's case is a good example of how the urgent circumstances created by war are ushering in medical breakthroughs like never before. A few examples:



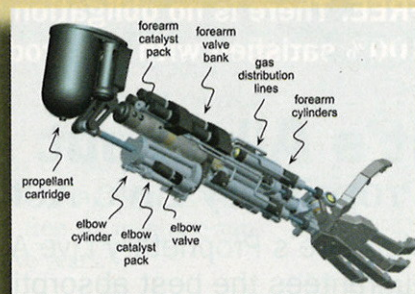
Sgt. Olson He's a war amputee, but continues to serve in the army.

Sensational Prosthetics:

Researchers at the Applied Physics Laboratory at Johns Hopkins University in Maryland have come up with a prosthetic arm that provides sensory feedback to the wearer. Scientists transfer nerves from the amputated limb into muscles near the prosthetic, which "allows for the natural sensation of grip strength and touch," according to the Applied Physics Laboratory. Scientists are testing prosthetic legs with advanced sensors and response mechanisms as well.

Portable Ventilator: The Simplified Automated Ventilator (SAVE) is a highly portable "smart" ventilator designed by AutoMedx of Germantown, Md., for use on the battlefield. The hand-held, 3-pound ventilator uses a battery to provide oxygen for up to five hours. A series of alarms lets the operator know of any problem that needs to be addressed.

The Rocket Arm: A team of scientists at Vanderbilt University have come up with a prosthetic arm that's powered by what amounts to a tiny rocket motor. A motor the size of a pencil uses high-pressure hydrogen peroxide and a catalyst, according to CNET. Instead of having a claw-like hand, the device has nimble fingers that can lift 25-pound weights and moves four times faster than conventional prosthetic arms.



The Shrimp-Shell Bandage:

A new type of bandage, called HemCon, uses the powdered shells of common shrimp to promote radically faster clotting. It could save thousands of lives each year, researchers say. The U.S. military has supplied the bandage to all soldiers in Iraq and Afghanistan. Chitosan, a component in shrimp shells, clots wounds six times faster than normal bandages, and stops bleeding in places a tourniquet can't reach. — Heather Boerner



Dr. Dennis Clark "It's all about technology."



The C-Leg
A new prosthetic

