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Beyond Beauty: Plastic Surgeons Creating Real Life “Bionic Women”

By David J. Levens, MD, PA, FACS

While the cosmetic aspects of plastic surgery typically earn more media attention than the reconstructive side of the practice, several emerging reconstructive techniques are well worth headlines.

For example, at a recent conference of the American Society of Plastic Surgeons (ASPS) in Baltimore, presenters described advances in peripheral nerve surgery which might have seemed like science fiction a decade ago.

Peripheral nerves control the body’s motor and sensory functions. Injuries can significantly impact a patient’s ability to perform normal activities. But new reconstructive plastic surgery techniques are helping to restoring patients’ movement, giving amputees better control of prosthetic devices, reducing facial paralysis and even diminishing the pain of some migraine headaches.

A new nerve transfer procedure is being used to help amputees gain better control over their prostheses. Often, there is little muscle left following an upper arm amputation, making it difficult to maneuver the artificial limb. Surgeons are transferring the remaining nerves in the upper arm to chest and back muscles, allowing those muscles to help control and power prostheses. The procedure works by redirecting nerve fibers from a neighboring muscle to the damaged muscle. Both the original muscle and the nerve branches that were redirected to the damaged muscle then begin to grow extra branches. Within months, the damaged muscle regains function from the “borrowed” nerve fibers.

Remarkable progress is also being made in peripheral nerve treatments that restore symmetry to patients with facial paralysis and in pain management – particularly for diabetics and migraine headache sufferers.

Tissue walls in the feet of some diabetics can become stiff over time and tighten around nerves. Constricted nerves are also a cause of migraine headaches. Plastic surgeons are freeing the space around these nerves to relieve pressure and alleviate pain or numbness.

Patients with facial paralysis, due to trauma or tumors, often lose the ability to use facial muscles around the mouth which leads to asymmetry or a permanent frown.

Having a permanent frown may negatively impact people's perceptions of an individual. Botox® can be used to paralyze the normal functioning muscles while patients have physical therapy to strengthen the damaged muscles and restore symmetry to the face.

As plastic surgeon and course instructor Ivica Ducic, MD, said, "We are definitely entering into a new age of reconstructive plastic surgery." The notion of a bionic man or woman isn't just fantasy anymore.

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