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## Battling Baldness Goes High-Tech

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**FOX NEWS**

**Skim any magazine or supermarket tabloid and there will be a myriad of 'revolutionary' treatments for hair loss.**

There are before and after pictures of men with thinning or male pattern baldness that are transformed from members of a Franciscan monastery order to a caricature of a full-headed, buff cowboy.

Although hereditary hair loss affects nearly 80 million people, 30 million of which are women, the number of effective medical treatments is still relatively limited.

### **New Tools for Hair Loss**

Traditionally, hair loss has been treated by two drugs: minoxidil (Rogaine) and finasteride (Propecia). Propecia is not Food and Drug Administration approved for women, but has been approved for off-label use for post-menopausal women as a last resort option before transplantation.

"Most people, even if they have transplants, use a combination of minoxidil and/or Propecia," said Dr. Neil Sadick, a dermatologist in New York City who specializes in hair loss.

But there's new help on the horizon. At home laser treatments are becoming increasingly popular, although doctors are not sold on their effectiveness.

And, having already cloned sheep and other animals, science is now cloning hair for transplantation – though the use of this new science is limited.

In men, hair loss is usually based on genetics. Hair follicles sensitive to the male hormone dihydrotestosterone get choked and die. With women, there can be many more sources: pregnancy, iron deficiency anemia, hormonal problems, and the use of antidepressants, particularly serotonin inhibitors.

With hair transplantation, called follicular unit transplantation, individual follicular units are harvested directly from the donor area, including the scalp. The units are then transplanted or first microscopically dissected from a strip that has already been surgically removed - generally from the back of head - and then transplanted to the thinning area.

Hair transplants are limited by the amount of healthy hair on a person's head.

Because of this limitation and the progression of baldness, one transplant might not be enough. To address this problem doctors and scientists have begun to conduct trials on hair cloning.

Sadick said the trials include extracting the growing part of hair follicles in mice and attempting to multiply them in a Petri dish.

"If this is successful, then there can be an unlimited supply of hair to transplant through a small donor area of 3 to 4 millimeters," said Sadick.

Dr. Marc Avram, a dermatologist in New York City said cloning trials are in their earliest phases and it may be several years before this possible breakthrough becomes a reality for hair loss sufferers.

### **At Home Laser Treatment**

Other new hair loss treatments use no drugs. Instead, they use lasers, such as the **HairMax Laser Comb**, which was approved by the FDA in February.

The at-home use Laser Comb is part of a treatment modality called low-level laser therapy or LLT. Low-level laser therapy is based on the scientific principle of photobiotherapy, which occurs when laser light — absorbed by cells — stimulates of cell metabolism and improves blood flow.

Lasers work by emitting a continuous low energy laser light to stimulate the scalp, thereby dilating the blood vessels and increasing circulation to the hair follicles. Although physicians are not exactly sure how photobiotherapy works, the energy delivered by lasers seems to stave off "miniaturization" — the decrease in size of hair diameters.

Lasers are not approved for use in women and should not be used by pregnant women.

Studies done by HairMax comb's manufacturer, Lexington International, showed that men who used the comb for six months had "significant" hair growth.

But some doctors say patients should not expect outstanding results from the HairMax laser comb, which costs \$500 and is available without a prescription.

Avram said studies done by the comb's manufacturer were too small to be demonstrative.

"It may be an nice additional option, but certainly not a first line treatment like minoxidil or finasteride," he said.

And by using the laser home treatment, without a prior evaluation by a physician, people could risk missing the diagnosis of an underlying medical condition causing the baldness, according to a posting by specialist Dr. Robert M. Bernstein on his hair transplant blog, [bernsteinmedical.com](http://bernsteinmedical.com).

Bernstein said this is particularly a concern for women, whose hair loss tends to be diffuse and the cause may not be readily apparent.

As LLT therapy has been available for 10 years (predominantly in Europe), there are other lasers, such as the Revage Laser, which may be administered or obtained through a doctor's office for treatment of thinning hair.

Sadick's group is currently conducting trials of lasers using higher energy sources than those of the HairMax comb.

Until trials are completed for the latest lasers and cloning techniques, a commitment to steady use of existing drugs, coupled with available laser treatment and transplantation are the still the standard weapons in the battle against baldness.

*This article was reviewed by Dr. Manny Alvarez.*