Hair transplantation is recommended in cases of definite male pattern baldness, where follicles will never grow new hair. Male pattern baldness, or androgenetic alopecia (AGA), is the most common type of baldness characterised by progressive hair loss. It affects both sexes, with a higher incidence generally reported in men.

Unpacking androgenetic alopecia
It usually starts during adolescence and people of all ethnicities can be affected, although the frequency may vary. Male pattern baldness has colossal psychological effects on the patient, irrespective of...
levels in the blood, but is due to a genetically increased sensitivity of the hair follicles to normal levels of circulating androgen. All these genes can easily be identified with genetic testing, which is highly recommended for any individual presenting with an early onset of alopecia, or with any close relative with baldness.

Miniaturisation (shrinking) of the hair follicles is the hallmark of AGA. It is caused by a shortening of the growth phase and miniaturisation of the hair follicle, which follows the formation of progressively thinner and shorter hair (Bergfeld, 1995). Hair thinning and, eventually, loss happens in a well-defined pattern where the hairline initially recedes. Hair gradually thins near the top of the head, often developing into partial or complete baldness in males.

In AGA, the replacement of terminal hair by vellus hair is a progressive and irreversible process that, unless treated, will lead to various degrees of baldness. Micro-inflammation in the follicular bulge will enhance the disruption of stem cells, resulting in irreparable damage if there is no early diagnosis and treatment. This means that the follicle will never grow new hair. Once definite baldness occurs, there are only two solutions: to accept the condition or perform a hair transplant!

Genetic predisposition plays a crucial role in the development of AGA in both men and women. The androgen receptor in the hair is responsible for causing male pattern baldness – specifically, DHT (dihydrotestosterone), which is produced by the action of 5-alpha-reductase on testosterone. This is, however, not related to testosterone and DHT levels in the blood, but is due to a genetically increased sensitivity of the hair follicles to normal levels of circulating androgen. All these genes can easily be identified with genetic testing, which is highly recommended for any individual presenting with an early onset of alopecia, or with any close relative with baldness.

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Hair transplant treatment options
Currently, there are three methods of hair transplantation:

**Strip surgery**
Hair follicles that need to be transplanted in a bald area are obtained from a strip that requires an incision at the back of the head. This procedure leaves a permanent linear scar.
3 Manual follicular unit extraction (FUE)
In manual FUE, the physician uses hand tools to manually punch out hair grafts in a donor site (the back of the head). The challenges of this technique include an increased risk of transection of the hair follicles that cannot be used to implant in the bald area. The success of this method hugely relies on a physician’s hand-eye coordination, whose fatigue, when harvesting hundreds of follicular groupings, can decrease precision. A lack of appropriate spacing when manually removing grafts may also cause hair density to look depleted and uneven on the donor area. The results might seem unnatural, although this hugely depends on the experience and expertise of the physician.

More effective and safer
Furthermore, the precision of robotic technology allows for harvesting a much higher amount of healthy hair (at a lower transection rate) and in a much shorter period of time. Nearly all hair is extracted in a healthy condition once human error is eliminated. Studies have indicated a 26% transection rate in FUE performed by the human hand, compared to 3% to 8% when performed by a robot. That’s a game changer!

In addition, this robotic system possesses several attributes that make the procedure incredibly safe. Sensors are constantly monitoring the force of the punches done by the robot, as well as the patient’s movements – alerting the physician to any potential discomfort in the patient that is usually caused when remaining in one position. The procedure is painless, has minimal downtime (5-7 days), and the results are permanent and natural.

4 Robotic hair restoration
ARTAS Robotic Hair Restoration – which is an FDA-approved, physician-controlled, robot-assisted technology – is a real state-of-the-art approach to minimally invasive hair transplantation. The ability of a robotic device to harvest grafts (extract the hair), create recipient sites in a bald area and place grafts has dramatically changed the field of hair transplantation.

How does the robotic approach work?
An image-guided robot’s arm that simulates a human arm delivers control, efficiency and reproducibility during the harvesting of follicular units in a way that is much more precise than when performed manually. It also eliminates the potential fatigue a physician might suffer when performing this exceptionally time-consuming procedure.

The ARTAS system essentially helps to extract follicular units (hair in groups 1, 2 or 3) one at a time from the back of the head without the need for a linear cut or, subsequently, a linear scar on the scalp that we see with strip surgery.

The robot uses sophisticated imaging technology that can determine the location, angle of the growth, and the direction of each follicular unit – and then plans a random pattern in which to extract them. With this approach, it is virtually impossible to detect the site of the grafted area once healed, as no scarring or visible unevenness will be present.

There is a clinically proven, permanent solution that can deliver natural-looking results with superb precision, less downtime, incredible safety, and which minimises potential human error, makes the decision much easier to take. Hair by robot? Why not?

www.8thsense.co.za
References available on request.
Should you require more information on the ARTAS Robotic Hair Restoration procedure, kindly contact the editor.

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