



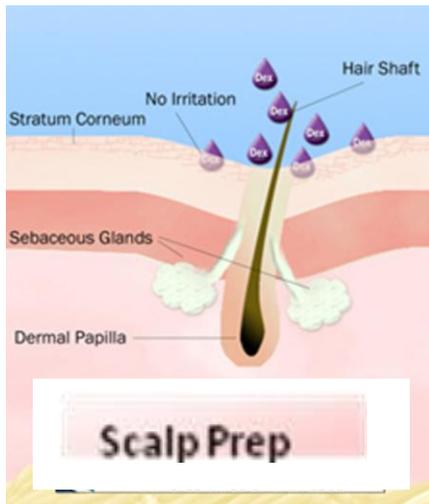
HOW XTC IMPROVED MINOXIDIL PENETRATION - 5 WAYS!



What Hinders Minoxidil from Working Well

1. Sebum from sebaceous gland blocks the hair follicle.
2. Minoxidil therefore, cannot penetrate through the sebum as easily to get to the dermal papilla (where hair growth occurs).
3. Minoxidil (which contains up to 70% alcohol) stays on the surface causing, in many cases, irritation and itching of the scalp and drying of the hair shaft. Minoxidil works at the dermal papilla, not on the scalp surface.

Limited Penetration = Limited Results!



Helping Minoxidil to Work Better

1. Utilize XTC Scalp Prep to break up and dissolve sebum.
2. Scalp Prep also hydrates the Stratum Corneum layer (outer layer of skin on the scalp) making it more permeable to gases and liquids, such as Hair Boost.

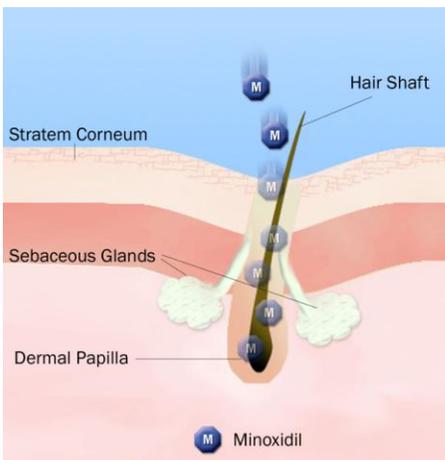


Before Xtreme Scalp Prep

After Xtreme Scalp Prep

Hair Boost- Minoxidil made BETTER 5 WAYS+:

- Dropper applies directly to the scalp not hair
- **Scalp Prep** provides much better penetration
- **Carrier** reduces common irritation by reducing Alcohol and Propylene Glycol
- **Carrier** helps penetrate in the hair follicle
- **1 time** a day not 2 for better compliance & great morning hair
- **Plus** -Higher strength, 10% & 15%



How Did We Improve our Minoxidil formula Hair Boost?

1. After Scalp Prep has hydrated the outer layer and dissolved the sebum, Hair Boost is a Minoxidil in carrier solution penetrates down to the dermal papilla. Remember, Minoxidil only works at the dermal papilla level, not on the scalp, so if it can't penetrate it can't work to re-grow hair.
2. Carrier Enhancement Agent is a product which neutralizes the alcohol in the Hair Boost, while maintaining it in a liquid state to allow for better penetration, less irritation, and dryness of the scalp. Use of the carrier lotion allows you to use less Hair Boost to achieve a larger effective dosage level by converting it into a lotion that is more easily absorbed. Because of the improved delivery system, the amount of Hair Boost needed was significantly reduced (by 50%) to 1ml daily.
3. The carrier lotion is the result of years of research and development. The carrier maintains Hair Boost in a liquid state longer allowing it to penetrate down into the follicle where it will have the maximum effect on the growth of the hair shaft. Pharmacia & Upjohn Company recommends using 2ml of Minoxidil daily but because of the improved delivery system, the amount of Hair Boost needed was



WHY XTC Hair Boost?

Minoxidil is the only topical hair product FDA proven to stop hair loss and to re-grow hair in both men and women. Clinical research shows that increasing the concentration of Minoxidil from 2% to 5% will improve the quantity of hair growth, while simultaneously decreasing the length of time for successful results.

Product Characteristics	Unique	Familiar
Alcohol Content	Lower	70%
Product Form	Liquid	Liquid
Penetration	Maximum	Limited
Carrier Lotion	YES	NO
Saw Palmetto	5% 10%	NO
Higher Strengths	10% 15%	NO
Side Effects	Minimal	YES

What hinders other Minoxidil formulas from working well?

- Sebum from sebaceous gland blocks the hair follicle. Xtreme Growth Therapy (XGT) & Hair Boost therefore, cannot penetrate through the sebum as easily to get to the dermal papilla, where hair growth occurs.
- Minoxidil / Rogaine and other Topicals (which can contains up to 70% alcohol) stays in the surface causing, in many cases, irritation and itching of the scalp and drying of the hair shaft.
- Minoxidil works at the dermal papilla, not on the scalp surface.



5 Ways That Hair Boost is Made Better

- ✓ Dropper applies 1ml directly on the scalp, not hair
- ✓ Carrier Lotion neutralizes the effects of Alcohol and Propylene Glycol eliminating irritation
- ✓ Carrier Lotion penetrates in the hair follicle where hair growth occurs
- ✓ Working in conjunction with XTC Scalp Prep and our improved delivery system, a once daily application is all that is required
- ✓ XTC Hair Boost Minoxidil is available in higher strengths and the added benefits of 5% Saw Palmetto, equals better results

Saw Palmetto

Prevents the binding of dihydrotestosterone (DHT) to Androgen Receptors and therefore, may also be used to prevent hair loss and other undesirable effects of DHT. Herbalists recommend Saw Palmetto as a natural alternative to Propecia.

Effectiveness and Safety

Numerous double-blind clinical studies on the Saw Palmetto Extract have shown it to be effective in nearly 90% of the patients usually in a period of 4-6 weeks. Detailed toxicity studies from clinical trials, indicated the Saw Palmetto Extract is without toxicity or side effects.

XTC Hair Boost works better than 5% Minoxidil and even 5% Minoxidil with Carrier Lotion. Through our experience many clients, especially females, over time wanted an upgrade from their Minoxidil 5% with Carrier Lotion. XTC is dedicated to continuous research and product development we now offer this version.

Results...Our clients personally experienced much better results when upgrading from a Minoxidil in Carrier Lotion to XTC Hair Boost a Minoxidil formula w/ 5% Saw Palmetto. Saw Palmetto aides in topical DHT blocking ability, and combined with the Carrier Lotion, which “carries” it down to the dermal papilla.



Response of the Hair Follicle to Minoxidil

We have known for over 30 years that minoxidil stimulates hair growth, yet our understanding of its mechanism of action on the hair follicle is very limited. Topical minoxidil shortens telogen, causing premature entry of resting hair follicles into anagen. Minoxidil may also cause prolongation of anagen and increases hair follicle size. Orally administered minoxidil lowers blood pressure by relaxing vascular smooth muscle through the action of its sulphated metabolite, minoxidil sulphate, as an opener of K_{ATP} channels. There is some evidence that the stimulatory effect of minoxidil on hair growth is also due to the opening of potassium channels by minoxidil sulphate. A number of *in vitro* effects of minoxidil have been described in cultures of various skin and hair follicle cell types including stimulation of cell proliferation, inhibition of collagen synthesis, and stimulation of vascular endothelial growth factor and prostaglandin synthesis. Some or all of these effects may be relevant to hair growth.

There are a number of ways in which minoxidil may stimulate hair growth; it may increase the linear growth rate of hair, increase the diameter of the hair fiber, alter the hair cycle, either shortening telogen or prolonging anagen, or act through a combination of these effects. Present evidence suggests that minoxidil acts mainly on the hair cycle; it may also increase hair diameter.

Little is known of the effect of minoxidil on normal human hair growth and studies have been limited mainly to the response of androgenetic alopecia to topical minoxidil. In male pattern balding (male androgenetic alopecia) there is a gradual reduction in the duration of anagen and a prolongation of the latent period of the hair cycle (the time between shedding of the telogen hair and the onset of the next anagen).^[6] Hair follicles also become miniaturized.^[7] There is some controversy over whether female androgenetic alopecia is the same entity as male balding. Nevertheless, the follicular changes are very similar, if not identical, although prolongation of the latent period has not yet been demonstrated in women. Clinical trials of topical minoxidil in male and female hair loss all show a remarkably rapid increase in hair growth, measured by hair counts or hair weight. The increase is evident within 6-8 weeks of starting treatment and has generally peaked by 12-16 weeks. It seems improbable that a response of this rapidity can be accounted for by reversal of follicular miniaturization, and a more likely explanation is that minoxidil triggers follicles in the latent part of telogen into anagen. The hypertrichosis that develops in humans taking minoxidil orally, and occasionally following topical use, may affect the forehead as well as other sites such as the limbs. The increased length of hair at these sites suggests that minoxidil also prolongs the duration of anagen in humans.

Minoxidil sulphate is one of several chemically unrelated drugs which cause opening of plasma membrane adenosine triphosphate (ATP)-sensitive potassium channels (K_{ATP} channels), and its relaxant effect on vascular smooth muscle is mediated through this mechanism. These potassium channels sense the metabolic state of the cell -- channel opening is inhibited by ATP when energy levels are high and is activated when energy stores are depleted. The consequence of K_{ATP} status depends on the cell and tissue type. It has also been suggested that potassium channel activity is required for early-stage cell proliferation by G_1 progression of the cell cycle. Minoxidil was shown to increase DNA synthesis.



Several lines of evidence, from clinical observations, animal studies and *in vitro* experiments, suggest that the promotion of hair growth by minoxidil is related in some way to its action as a potassium channel opener.

Whatever the mechanism whereby minoxidil modulates hair growth, there must be a primary effect on cell function. The hair follicle is a complex structure comprising epithelial, dermal, pigment and immune cells, and a perifollicular vasculature and neural network. Interactions between these cells are involved in regulating epithelial growth and differentiation and the hair cycle. Several of these cell types have been used in isolation to study minoxidil action, but attempts to localize minoxidil or a minoxidil metabolite binding to a specific cell population within the hair follicle have been unsuccessful. The idea that minoxidil stimulates hair growth by increasing cutaneous blood flow has been the subject of two studies giving contradictory results.

VEGF has a central role in promoting angiogenesis as well as influencing diverse cell functions including cell survival, proliferation and the generation of nitric oxide. The perifollicular capillary network is coupled to the hair cycle, increasing during anagen and then regressing during catagen and telogen. Capillary proliferation during anagen was temporally and spatially associated with expression of VEGF in the outer root sheath of murine hair follicles. Transgenic over expression of VEGF in the outer root sheath increased perifollicular vascularization and led to accelerated hair growth following depilation and the growth of larger hairs. A fivefold increase in VEGF protein occurred in extracts of cells incubated with minoxidil, and there was a similar increase in mRNA expression.

A variety of responses to minoxidil have been described in cultured cells. Some have potential relevance to hair growth, such as the effects on cell growth and senescence and the stimulation of VEGF and prostaglandin synthesis. Others, such as the effects on collagen synthesis, are more difficult to explain. Why is minoxidil important? Although the benefits in androgenetic alopecia have been demonstrated in clinical trials, there is perhaps a tendency to dismiss the significance of minoxidil. Yet, it remains the only medical treatment of proven efficacy when used topically and is the only treatment approved for hair loss in women. Minoxidil affects hair cycling, causing premature termination of telogen and probably prolonging anagen. Understanding how minoxidil exerts these effects may lead not only to better treatments for hair loss but also will increase our understanding of the mechanisms responsible for controlling the hair cycle.



MINOXIDIL WARNING

NOTE: A copy of the Minoxidil warnings should be provided to each client with a sign off from them agreeing that they have read and understand the Minoxidil warnings provided to them.

Do not use Minoxidil if skin is:

- Red or inflamed
- Infected
- Irritated
- Painful to touch (such as severe sunburn)

Do not use Minoxidil:

- If you have no family history of hair loss
- If you have ever had an allergic reaction to Minoxidil
- If you are pregnant or nursing
- If you are under 18 years of age

Stop using Minoxidil and see your Doctor if you get:

- Chest Pain
- Rapid heartbeat
- Faintness and/or dizziness
- Sudden, unexplained weight gain
- Swollen hands or feet
- Redness or irritation on treated areas of your scalp

Minoxidil should be applied only to the scalp. Do not use on other areas of the body.