



Clinical studies
Stand 2017



Anti-Hair Loss Effect of Factor Hair Activator

Introduction:

- Effect of Factor Hair Activator against hair loss

Test product:

- Factor Hair Activator

Test area:

- Shedded hair (collected hair to be counted)

Volunteers:

- Number of individuals: 30
- Age: 25 – 65
- Sex: 20 males and 10 females
- Volunteers with an average hair loss of 100 lost hair per day

Application:

- Duration: 3 months
(meetings D0, D31, D61, D91 and 12 hair collections)
- Frequency: twice a day

Test parameter:

- Reduction of daily shedded hair:
Quantifiable hair shedding reduction (hair count)

Study design:

The volunteers were randomly divided into two groups.

Group A: 15 Volunteers (10 males and 5 females) use Factor Hair Activator HAIR ACTIVATING

Group B: 15 Volunteers (10 males and 5 females) use a placebo

Day 0-3 (3 days)

Baseline hair collection, hair counting

Delivery of hair collection envelopes. Volunteers collected lost hair for 3 days (mornings and evenings- only combed hair and placed them in a prepared envelope- hair collection.

Day 0-30 (30 days)

The volunteers applied Factor Hair Activator twice a day- mornings and evenings

Day 27-30 (3 days)

The volunteers collected their hair loss in the morning and in the evening during the 3 days- only combed hair in the brush

Day 31

Collected hair counting



Day 31-60

Applicating of Factor Hair Activator twice a day – mornings and evenings

Day 57-60

The volunteers collected their hair loss in the morning and in the evening during the 3 days- only combed hair in the brush

Day 61

Collected hair counting

Day 61-90

Applicating of Factor Hair Activator twice a day – mornings and evenings

Day 87-90

The volunteers collected their hair loss in the morning and in the evening during the 3 days- only combed hair in the brush

Day 91

Collected hair counting

Material and Methods

Collected hair counting

Results:

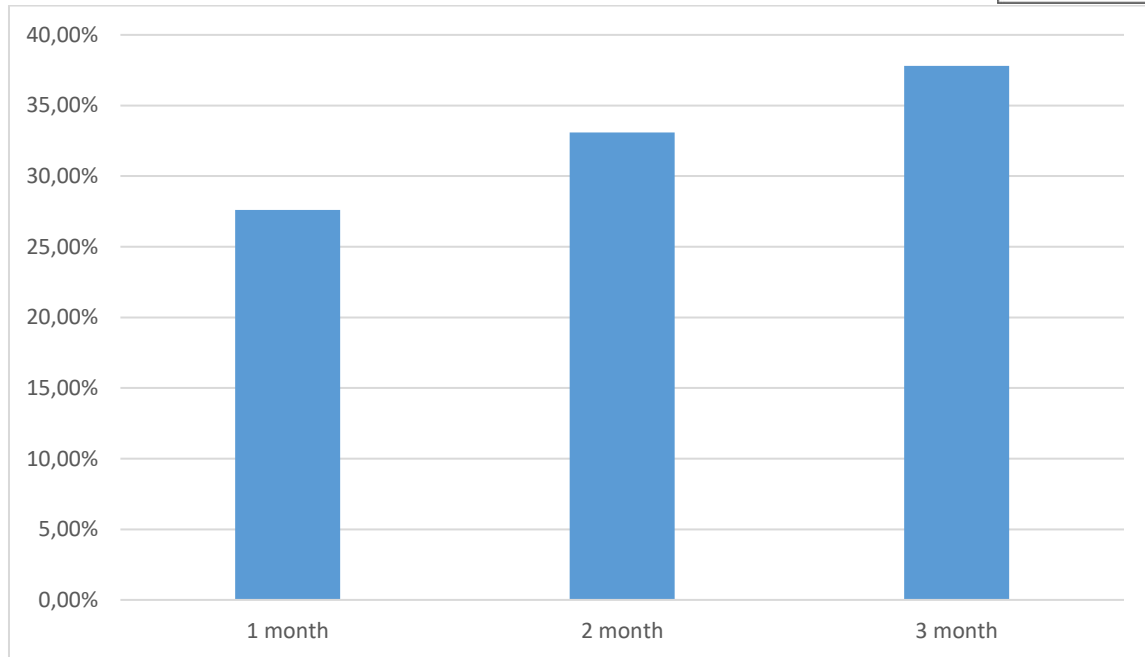
Group A

Results show that Factor Hair Activator HAIR ACTIVATING significantly reduces hair loss.

After one month of treatment the shedding hair number dropped by 28%, after 2 months by 33% and after 3 months by 38%.

Group B

Show no reduction of hair loss



Reduction of hair loss relatives to day 0



Effect of Factor Hair Activator on Hair Growth

Introduction:

- Effect of Factor Hair Activator on gene expression to assess hair growth

Test Product:

- Factor Hair Activator

Test area:

- Scalp zone at the back of the head

Volunteers:

- Number of individuals: 30
- Age: 25 – 65
- Sex: 20 males and 10 females

Application:

- Duration: 21 days
- Frequency: twice a day (morning and evening)

Study design:

The volunteers were randomly divided into two groups.

Group A: 15 Volunteers (10 males and 5 females) use Factor Hair Activator

Group B: 15 Volunteers (10 males and 5 females) use a placebo

The volunteers were instructed not to use oestrogen containing hair tonics, therapeutics with an influence on hair growth and hair shampoo containing caffeine until the end of the test.

- Day 1

Determination of all parameters

Before treatment 20 hairs including bulb of the defined scalp zone were plucked, pooled in a RNA se-free tube and frozen immediately at -80°C (t_0 =control).

Application of Factor Hair Activator twice a day *morning and evening.

- Day 7

Compliance check: demonstration of Factor Hair Activator



- Day 21

20 hairs with the bulb of the defined scalp zone were plucked, pooled in a RNA se-free tube and frozen immediately at -80°C (t_1).

The collected hair samples (t_0 and t_1) were analysed for the rate of gene expression using RT- PCR. These selected genes are important for hair growth, hair pigmentation and hair shine.

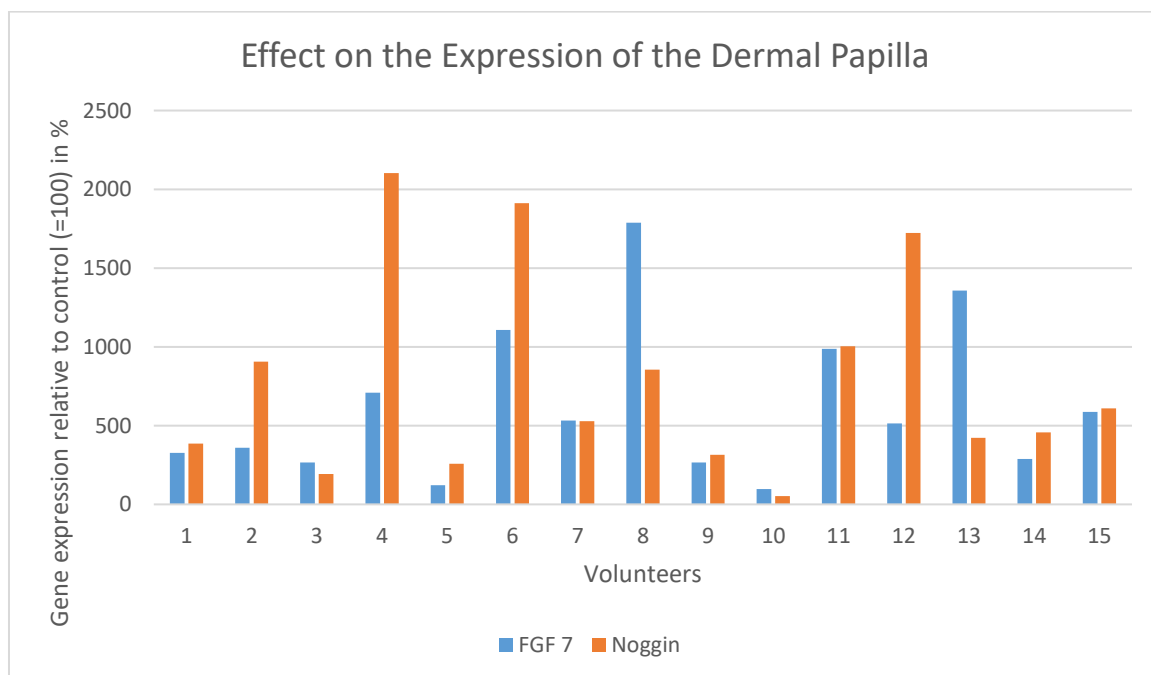
Test parameters

- Hair collecting: Plucking with the bulbs, pooled in in a RNA se-free tube and frozen immediately at -80°C using dry ice
- RT- PCR technology: to detect genes which are related to hair the importance of hair physiology and hair growth

Results

Group A:

After 21 days of treatment with Factor Hair Activator, the genes which are important for the induction of the hair follicle growth phase and the development of the hair were highly up regulated. The result shows that the effect on the gene expression the access hair growth did not depend on sex or age.





Group B:
Show no effect on the gene expression.



Effect on Dermal Papilla Cell Proliferation

Introduction:

The effect of Factor Hair Activator on the dermal papilla cell proliferation

Test product:

Factor Hair Activator
Extract was lyophilized and re-suspended in DMSO.

Cell type:

Human hair dermal papilla cells (hDPC)

Test parameters:

- VEGF (vascular endothelial growth factor) used as a positive control of cell proliferation
- MTT (3-(4,5-Dimethylthiazol-2-yl)-2,5-diphenyltetrazoliumbromide) assay

Study design:

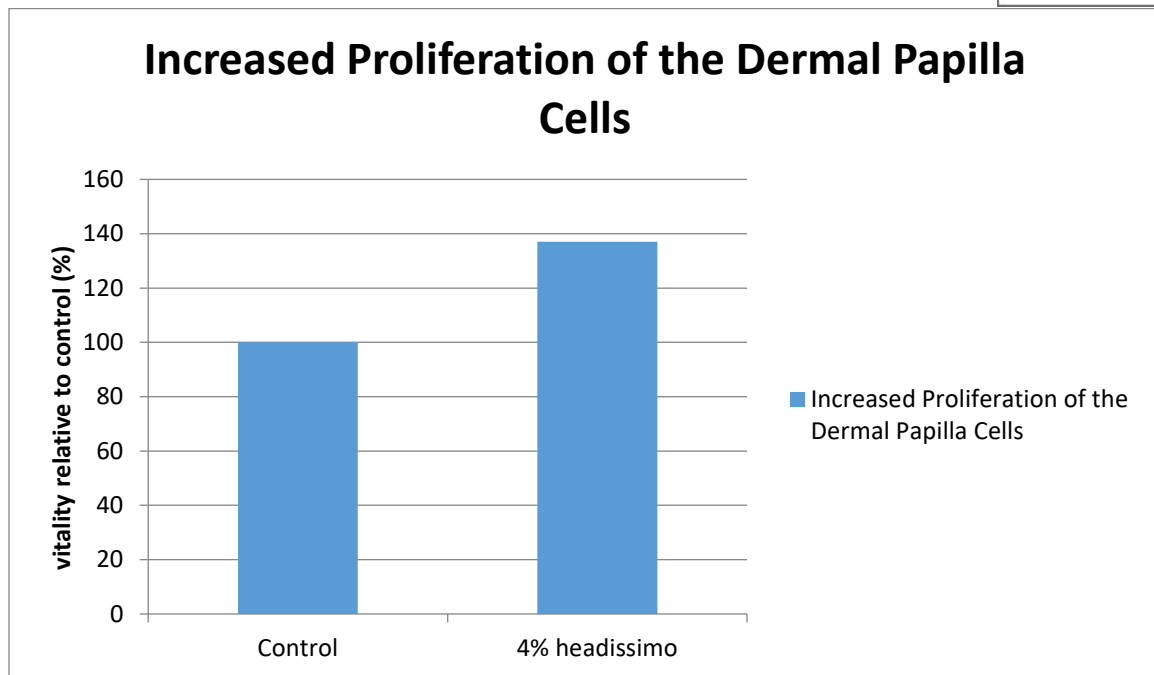
Cells were starved to stop cell proliferation for 18 hours and incubated with the test substance Factor Hair Activator HAIR ACTIVATING for 72 hours. After that period a mixture solution of MTT:DMEM (1:2) was added and cells were incubated for 4 hours at 37 degrees Celsius in darkness. The reaction was stopped, supernatant removed, DMSO added and incubated for 10 minutes. Finally the absorbance was measured at 550nm. The absorbance of untreated cells was taken as 100% viability (control).

Material and Methods:

- MTT: REF. M128 from Sigma. Absorbance measurements at 550 nm using TriStar LB941 (Berthold Technologies GmbH&Co.KG)
- VEG: Ref.11343663 from Immunotools

Results:

The results show that Factor Hair Activator HAIR ACTIVATING extract stimulates significantly the proliferation of dermal papilla cells.





Anti Hair loss effect shown with a phototrichogram analysis

Introduction:

The anti hair loss effect of Factor Hair Activator was monitored using the phototrichogram technique.

The anagen phase is the active growth phase of the hair follicles. The hair root cell is dividing rapidly. The telogen phase is the resting phase of the hair follicle.

At the end of the telogen phase the hair is shed and the hair follicle re-enters the anagen phase.

The hair density, the proportion of the hair in the anagen and telogen phase and the growth coefficient (A/T) was determined.

Test product:

Factor Hair Activator

Test area:

- Defined scalp zone at the back of the head about 2 sqcm

Volunteers:

- Number of individuals: 17
- Age: 25 – 65
- Sex: 10 males and 7 females

Volunteers presenting hair loss:

- Female with a telogen phase $\geq 20\%$
- Male with a telogen phase $\geq 20\%$
With a hair density ≥ 150 hair/sqcm

Application:

- Duration: 20 weeks
- Frequency: twice a day (mornings and evenings)

Study design:

- Week 0 Day 0



Volunteers came with fresh washed hair to the laboratory.
No additional products have been applied after shampooing.
Determination of all parameters and selection of volunteers.
Identification of the surface area (2sqcm) on the back of the scalp.
Hair was shaved on the defined zone and image acquisition of the studied zone using photomicroscope Nikon D90 Canfield Epiflash.

- Week 0 Day2

Volunteers came with fresh washed hair to the laboratory.
No additional products have been applied after shampooing.
Image acquisition of the studied zone defined on the scalp in Week 0 Day 0.
Determination of the hair formula:

- Hair density
- Density of the hair in the anagen phase
- Density of the hair in the telogen phase

Application of Factor Hair Activator twice a day (morning and evening)

- Week 20 Day 0

Volunteers came with fresh washed hair to the laboratory.
No additional products have been applied after shampooing.
Location of the zone defined in week 0. Hair was shaved and image acquisition of the studied zone.

- Week 20 Day 2

Volunteers came with fresh washed hair to the laboratory.
No additional products have been applied after shampooing.
Location of the zone defined in week 0.

Determination of the hair formula:

- Hair density
- Density of the hair in the anagen phase
- Density of the hair in the telogen phase

Test parameters:

- Measurements with phototrichogram technique:
Nikon D80 camera coupled with Canfield Epiflash equipped with contact lens.

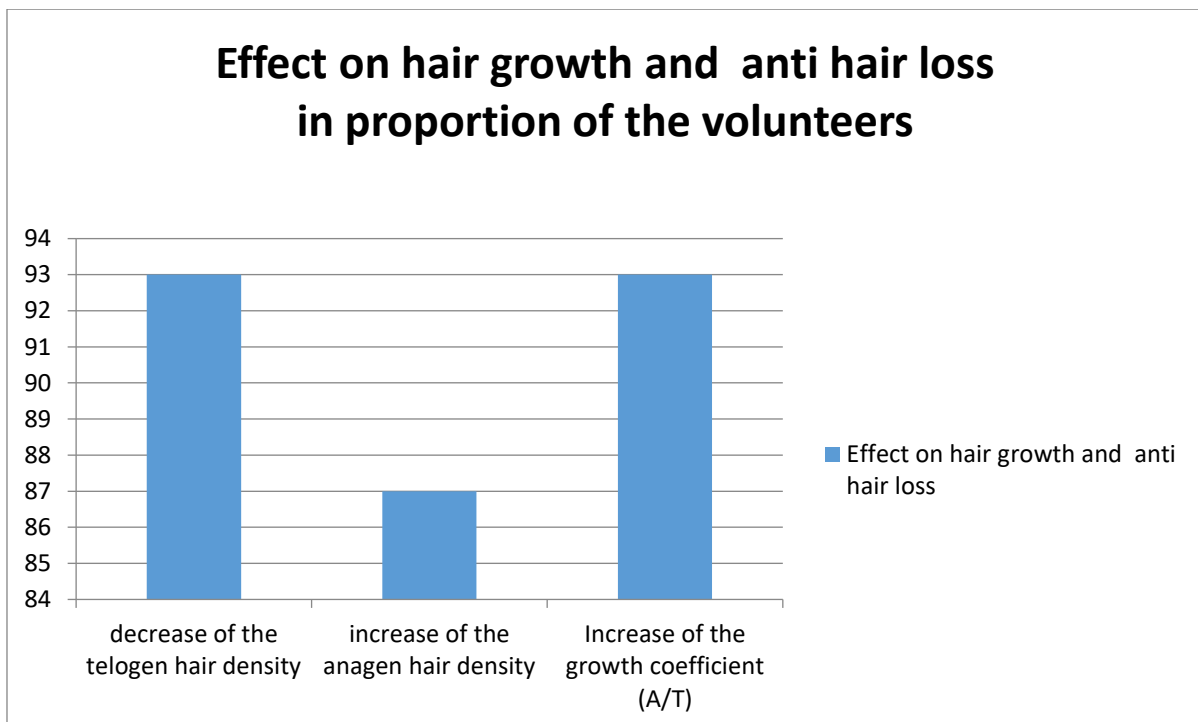
Evaluated parameters:

- Capillary density: total number of hair on studied zone per sqcm
- Density of the hair in the anagen phase (A)
- Proportion in % and density of the hair in the telogen phase (T)
- Growth coefficient (A/T)



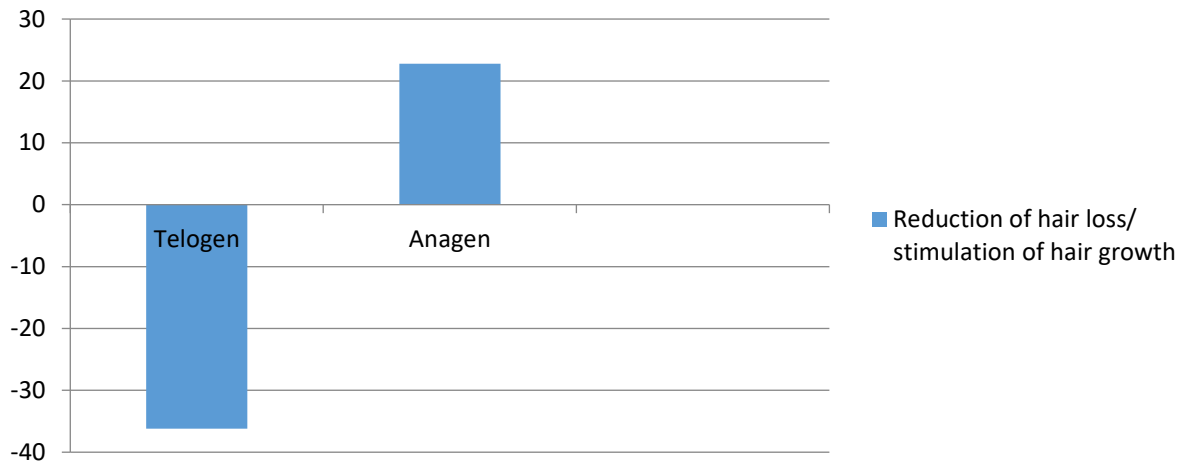
Results:

After 20 weeks of Factor Hair Activator twice a day a significant growth coefficient increase of 93% was observed. 93% of the volunteers presented a positive effect of Factor Hair Activator.



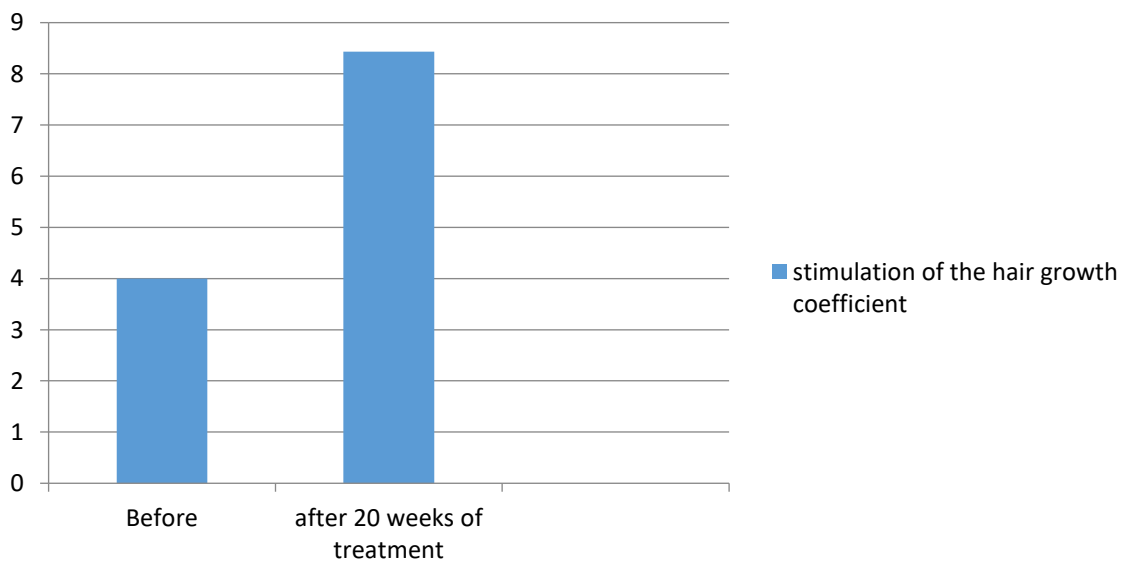
Versus initial conditions

Reduction of hair loss/ stimulation of hair growth and change in the density of the hair in the respective phase in %



Versus initial conditions

stimulation of the hair growth coefficient



Versus initial conditions

