

The Effect of Taoist Soap on Alopecia (Hair Loss) and Hair Thickness

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Introduction

Alopecia is a common condition affecting males and females alike, although more prevalent in males, which causes excessive hair fall and baldness to occur. There are multiple causes for the various types of hair loss such as androgenic, areata, totalis and cicatricial alopecia but an underlying thread points to inflammation to be a physiological cause. This is an immune response that causes swelling, redness and pain, thought to damage hair follicles and cause the hair to enter the telogen phase of the hair growth cycle at a faster rate.

Whilst a proportion of our hair is always in a state of telogen (death phase) causing natural amounts of hair fall, an excessive amount suggests some form of hair loss or inflammation in the scalp.

Taoist soap is a natural cosmetic that claims to alleviate inflammation and promote blood circulation when topically applied to the scalp. Through this action, it is said to reduce the symptoms of hair loss, namely androgenetic alopecia and increase the thickness of the hair due to an increase supply of nutrients and oxygen reaching the hair follicles.

Whilst other shampoos and hair treatment products claim hair thickening effects, Taoist soap is unique in the mechanism it claims to do it through, which is through an intrinsic increase in blood supply as opposed to an extrinsic addition of a fatty layer, which expands the hair shaft.

This study aims to measure the effect of the Taoist soap on alopecia and hair thickness.

Methodology

The experiment was carried out over 12 weeks and consisted of 90 randomly selected subjects between the ages of 18-55. The participants were split into 6 groups, 3 of which were controlled groups that used normal base, bar of soap.

This bar of soap was made so that it which didn't contain any SLS or parabens to avoid any extra inflammation to avoid effecting the results. If a regular, store-bought soap was used, it may have worsened the condition of the hair which wouldn't allow it to act as a control.

The first group lathered and applied the Taoist soap, once a week, on the scalp and left it on for three minutes before rinsing. The second group was the control and followed the same procedure but with the normal soap bar.

The third group lathered and applied the Taoist soap, once a week, on the scalp and left it on for only 3-5 seconds before rinsing. The fourth group was the control and followed the same procedure but with the normal soap bar.

The fifth group lathered and applied the Taoist soap, once a week, on the scalp and left it on for only 3-5 seconds before rinsing as well as doing scalp massage every day for 10-15 minutes. Participants weren't given any specific instructions in how to do this. The sixth and final group was a control and did the same as group 5 with the exception of using the normal soap bar.

During this time, participants were not allowed to use other hair products or shampoos or consume an excessive amount of calories outside of their regular routine.

To measure hair loss, the Hair Shedding Visual Scale was used which has shown to be effective in measuring female pattern hair loss. To measure hair thickness, laser diffraction was used to determine the change the thickness of the hair strand, in nanometers.

Measurements for shedding scores to determine hair loss, were taken once a week and for hair thickness, taken twice a week, once before using the treatment and once following it to take into account any temporary changes in hair thickness. It also provided us with the change thickness throughout the study. Hair thickness would be measured at the root for all groups. Various statistical tests were used including t-tests, confidence limits and p-values.

Hypothesis

The null hypothesis is that the Taoist soap has no effect on hair growth and thickness.

Hypothesis 1: Taoist soap will decrease the rate of hair loss (improve alopecia)

Hypothesis 2: Taoist soap will increase the thickness of the hair strand.

The p-value is $p=0.05$.

Results

The results (Fig.1) showed that between the start and end of the experiment, group 5, the one which used Taoist soap for 3-5 seconds combined with scalp massage, was by far the most effective with a decrease in shedding score of over 30%. This result was statistically significant with a positive t-test and 95% confidence limit, in that we can say with 95% certainty that the results were not due to chance.

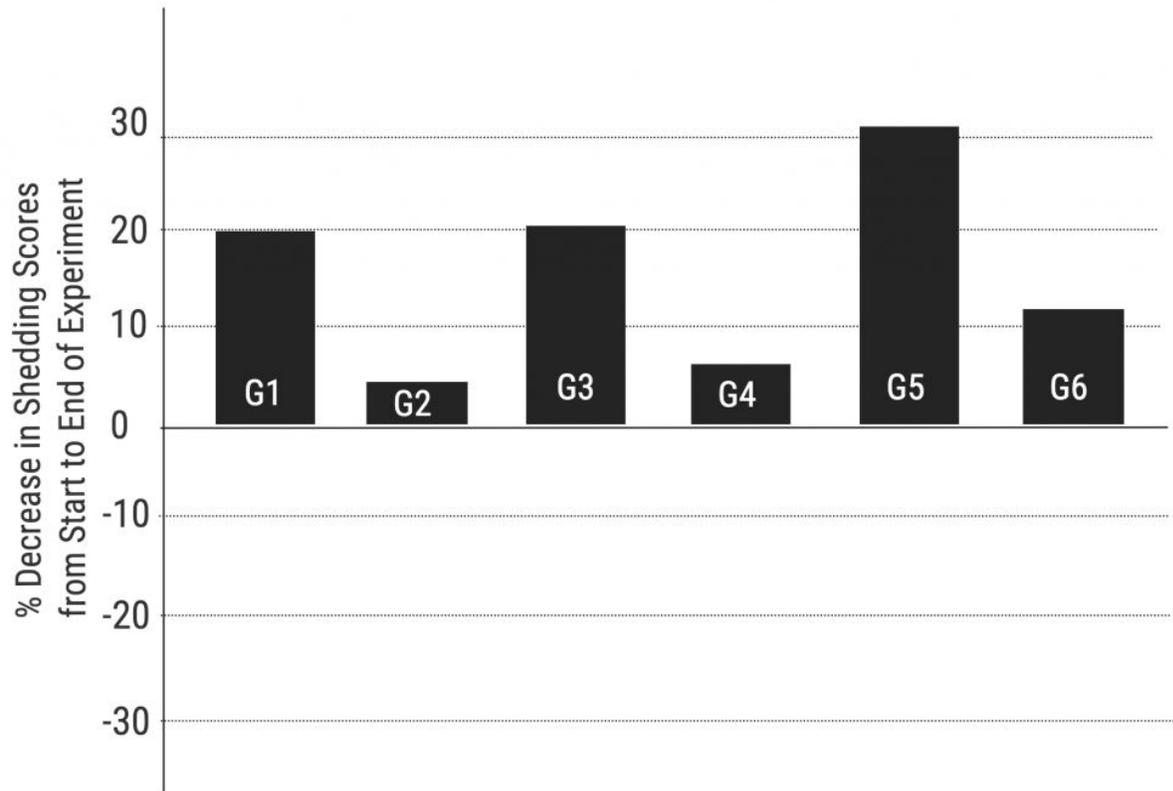


Figure 1

Group 1 and Group 3 were almost joint second with the next highest percentage decrease of 20% in the shedding score. These were the groups that used the Taoist soap but left it in the scalp for different times. There doesn't appear to be a statistically significant difference that leaving in the soap makes. This may be due to fast absorption of the ingredients into the scalp.

Control groups 2 and 6 also provided statistically significant results and showed a percentage decrease when just the regular soap was used and when combined with scalp massage.

In terms of hair thickness, the results proved to be interesting.

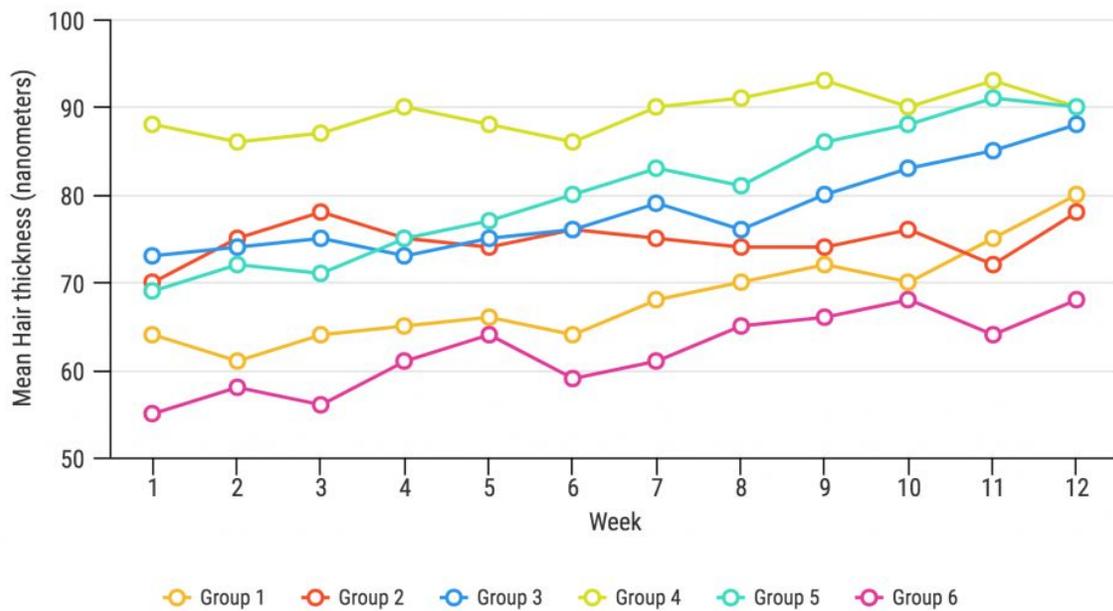


Figure 2

Figure 2 shows how overall thickness has changed from the start of the experiment till the end. Once again, the most effective treatment was for Group 5 that experienced a 30.4% average increase in hair thickness as displayed in Figure 3. This was then followed by Group 1, 6 then 3. Results for Group 1 and 2 were not statistically significant even though it showed an increase of 25% and 11.4% respectively.

Overall Mean Percentage Change in Thickness (%)					
Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
25	11.4	20.5	2	30.4	23.6

Figure 3

Since the starting average hair thickness varied for each group, using a percentage difference would highlight the change in thickness and take into account starting values (Figure 3).

The average change in hair thickness was measured from before application to after application across the whole 12 weeks to produce Figure 4. This highlights the short term changes in hair thickness. The three control groups so the most dramatic changes the instant the soap was applied whereas the 3 groups using Taoist soap showed the least. Although the overall

thickness was higher for Taoist soap from start to finish, the short term results were not and this will be discussed further in the next section.

Mean Change in Hair Thickness Before and After Application (um)

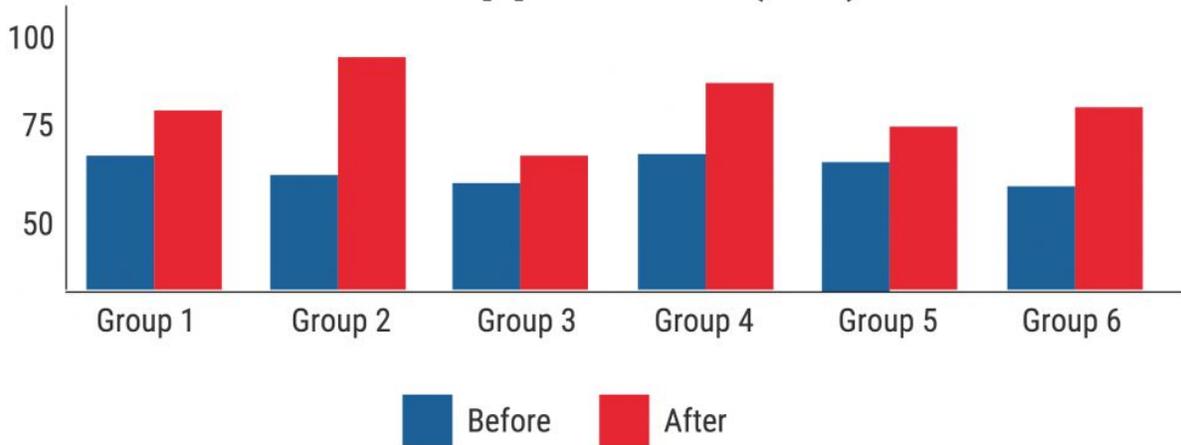


Figure 4

Discussion

The results do show that Taoist soap is effective for improving hair thickness and reducing alopecia, all of which were statistically significant, however there are few experimental points that should be highlighted. Furthermore, we also wish to discuss our reasoning on why we obtained these results.

The first hypothesis was satisfied since the hair shedding scale showed the largest percentage decrease for Taoist soap compared to the control groups, where the most effective group included scalp massage. This is counter-intuitive as daily scalp massage would remove more hair in telogen giving a higher shedding score. Potential reasons for this may be due to the accuracy of the shedding scale in measuring the amount of hair in the shedding phase regardless of whether they have fallen out. It also suggests the efficacy of scalp massage and Taoist soap in the treatment of alopecia.

Groups 2 and 6 also provided statistically significant results (see Fig 3), that is, the control groups showed positive results in reducing hair fall. This likely due to the type of shampoo or hair cleaning product participants were using beforehand. The control bar of soap made for this experiment, contained no sulfates, parabens or harsh cleaning agents as to minimise inflammation. If subjects were usually using a harsher product, then overall inflammation would have fallen over the 12 weeks of using the control bar of soap.

With regards to hair thickness, these control bar of soaps also contained glycerin, a common triglyceride (fat) used in cosmetic and pharmaceutical products. This helps us identify the reason for short term thickening of the hair strands in Figure 4. The fat simply enlarges the hair shaft, providing a temporary thickening effect which is why the overall change in thickness was not statistically significant. Once the fat had been washed off from the hair, the hair would return to its regular width.

On the other hand, the Taoist soap didn't see usage causing such a dramatic effect in thickness but it did improve overall thickness after 12 weeks. This suggests the hair thickening mechanism Taoist soap employs is different; by increasing blood circulation to the hair follicles, thicker growth has occurred.

Shampoo brands and hair products tend to make claims on being able to immediately thicken hair when in fact they add a glycerin or a similar fatty chain for temporary thickness. Our findings support this distinction of temporary hair thickness vs intrinsically thicker growth.

The second hypothesis was also satisfied with 95% confidence as groups 3 and 6 which used the Taoist soap saw one of the highest increases in overall hair thickness.

Conclusion

In conclusion, our findings support the claim that Taoist soap is beneficial for alopecia and hair thinning. A likely mechanism of action is through improving blood circulation to the hair follicles and/or acting as an anti-inflammatory soap. The most effective method of use proved to be the application of the Taoist soap for 3-5 seconds in tandem with daily scalp massage. Results showed the largest decrease in the shedding score and the greatest percentage increase in the diameter of hair after 12 weeks, when this method was used.