

May 7, 2026

Originally Published in Japanese: February 4, 2026

Milbon Finds Use of “Rubbing Technique” During Hair Treatments at Hair Salons that Enhances Aesthetic Appearance
-Hair Professionals’ Technique Found to Induce Increased Flexibility in Hair Proteins-

Milbon Co., Ltd. (head office: Chuo-ku, Tokyo, President and CEO: Hidenori Sakashita), a manufacturer of salon-exclusive haircare products and cosmetics, in collaboration with Professor Emeritus Kyohei Joko of Sugiyama Jogakuen University, has scientifically investigated the effects on hair of the “rubbing technique”^{*1} when used during hair treatments at hair salons. As a result, it was confirmed that the “rubbing technique” induces a state within the hair in which the proteins become more flexible, thereby improving hair manageability. The results of this research were reported in the following papers.

[Papers]

- (1) Publication: Journal of the Society of Cosmetic Chemists of Japan, 2025, Vol. 59, No. 4, pp. 207-217
Title of paper: Mechanism of Action of Rubbing Hair Treatments into Hair
- (2) Publication: The Journal of Japan Hair Science Association, 2025, Vol. 57, No. 4, pp. 151-154
Title of paper: Scientific Evaluation of Rubbing Hair Treatments in Hair Salons

[Research Background]

Milbon advances efforts to scientifically elucidate the highly intuitive beauty techniques of hair professionals and apply them to product development. One of these beauty techniques is a hair treatment technique aimed at repairing hair damage and enhancing texture. The technique of gently grasping and rubbing hair after applying hair treatments is used empirically to enhance effectiveness.

However, the scientific action of this beauty technique on hair has not been fully elucidated until now. Clarifying the mechanism of action could enable the development of more effective beauty techniques and formulations that synergize with the technique. Therefore, we conducted this research to clarify the scientific action that the rubbing technique used after application of hair treatments has on hair.

[Study Findings]

1. Confirmation of hair manageability enhancement via the rubbing technique

We applied hair treatments to human-hair cutting mannequins and compared the aesthetic appearance of the hair with and without the use of the rubbing technique. The result was that hair treated with the rubbing technique was confirmed to be more manageable from root to tip than untreated hair (Figure 1).

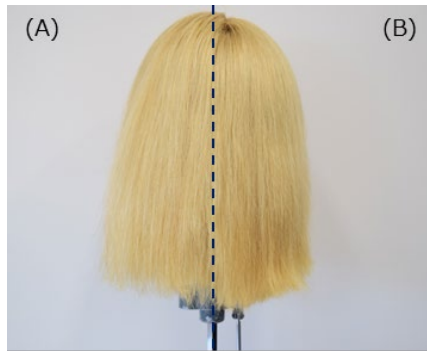


Figure 1. Difference in hair manageability according to whether or not the rubbing technique is used after hair treatment application

(A) Left half of head: No rubbing technique used, (B) Right half of head: Rubbing technique used

The right side of the head, where the rubbing technique was used, has manageable hair from root to tip.

[Source: The Journal of Japan Hair Science Association, 2025, Vol. 57, No. 4, pp. 151-154 (partially modified)]

2. The rubbing technique facilitates component penetration into hair, inducing a more flexible state of proteins

To elucidate the cause of improved manageability due to the rubbing technique, we focused on penetration of components into the hair and the state of the proteins which are the primary constituent of hair.

On comparing the penetration of hair treatments containing red pigment, it was confirmed that hair treated with the rubbing technique showed more penetration into the hair than hair not treated with the rubbing technique (Figure 2).

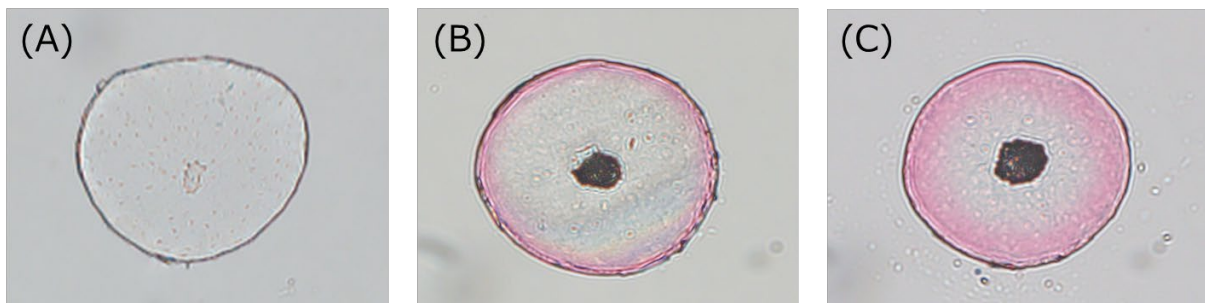


Figure 2. Effect of rubbing technique on component penetration

(A) Before applying hair treatment, (B) Hair treatment without rubbing technique, (C) Hair treatment with rubbing technique

[Source: The Journal of Japan Hair Science Association, 2025, Vol. 57, No. 4, pp. 151-154 (partially modified)]

Subsequently, we examined the state of the hair proteins. Proteins have a string-like, random structure and possess a certain degree of flexibility. We considered that the improved manageability achieved through the rubbing technique might be due to the technique making the proteins more flexible, thereby facilitating shaping of the hair. We then used differential scanning calorimetry measurement^{*2} to evaluate the flexibility of the proteins. The results confirmed that hair treated with the rubbing technique had proteins closer to a “flexible state” than hair that was not treated with the technique (Figure 3).

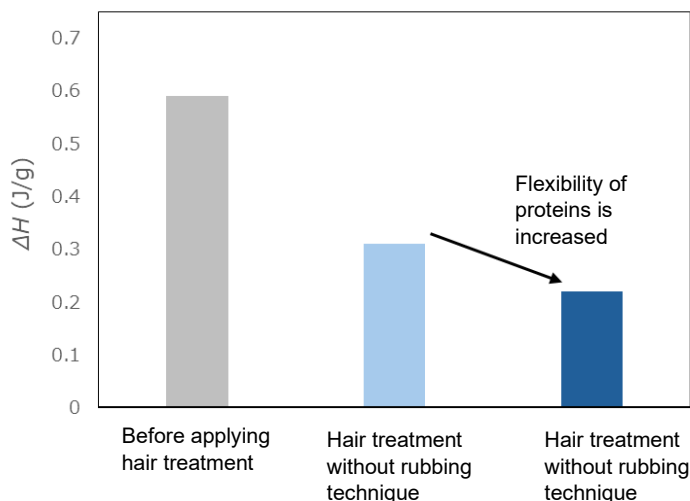


Figure 3. Protein flexibility

Hair protein “flexibility” is increased due to hair treatment rubbing technique.

[Future Vision]

We will continue conducting research to scientifically elucidate the effects on hair of beauty techniques of hair professionals, thereby striving to develop more effective products and enhance the value of the beauty techniques.

«Supplementary Information» Method of measuring the flexibility of hair proteins

Hair contains both “proteins that are easily affected by water” and “proteins that are less affected by water.” The ease of styling hair is mainly influenced by the flexibility of “proteins that are easily affected by water.”

To confirm the flexibility of “proteins that are easily affected by water,” differential scanning calorimetry measurement (Figure 4) was conducted to measure the enthalpy relaxation (ΔH)^{*3}. In hair, the amount of enthalpy relaxation represents the “structural strain” of “proteins that are easily affected by water.” Smaller strain indicates weaker protein-protein interactions and a more flexible state.

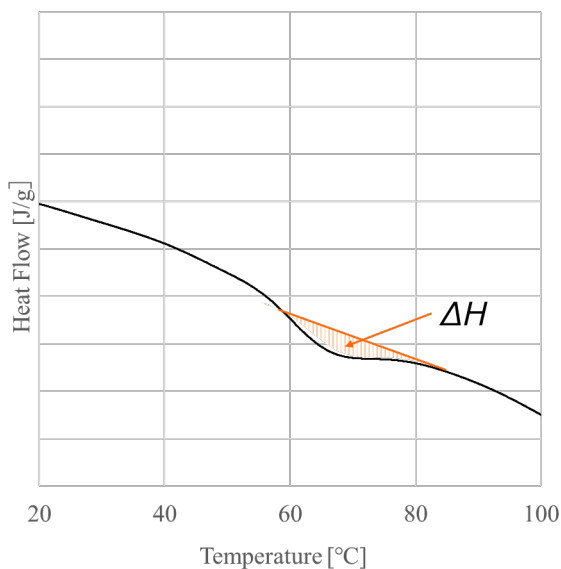


Figure 4. Example of differential scanning calorimetry measurement results

The amount of enthalpy relaxation (ΔH) is calculated as the area value of the endothermic peak.

<<Terminology>>

*1 Rubbing technique

A technique for blending hair treatment onto the hair through repeated squeezing and releasing hair by hand.

*2 Differential scanning calorimetry measurement

A technique that measures the temperatures of a reference material and a measurement sample while applying a constant heat to both, captures the sample's thermal properties and temperature difference, and measures endothermic and exothermic reactions caused by changes in the state of the sample.

*3 Enthalpy relaxation (ΔH)

The amount of energy required to relax the "strain" that occurs when molecules transition from a state of low mobility (glass state) to a state of highly active molecular motion (rubber state). Higher value indicates a greater amount of strain in the glass state.

■ For Inquiries relating to this news release:

MILBON Co.,Ltd.

Public Relations, Kyobashi Edogrand, 2-2-1 Kyobashi, Chuo-ku, Tokyo, Japan

Phone: +81-3-3517-3915

Fax: +81-3-3273-3211