



BHN COLLAGEN POWDER SCALE

What are the benefits of collagen?

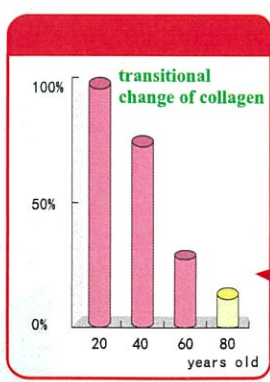
The section of the skin

Fibroblasts Collagen fibers Hyaluronic acid

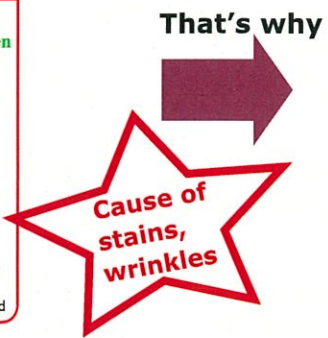
Fibroblasts :
Cells which generates substances in dermis (collagen, elastin, hyaluronic acid and etc.)

Collagen :
90% of dermisfibrous is made of collagen. It helps to keep elasticity of skin.

Hyaluronic acid :
1 g of hyaluronic acid can contain about 6L of water. It helps to keep moisture of skin.



But collagen decreases with age



- step 1** Take collagen
- step 2** Activation of fibroblasts
- step 3** Fibroblasts produce collagen and Hyaluronic acid in body

Process for wound healing

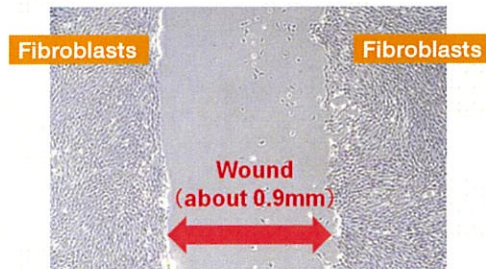


Methods

The insects create a wound field with a define gap of 0.9 mm for mesuring the migratory and proliferation rate of cells.

Cell proliferation and migration rates by collagen peptide treatment are evaluated using microscopic imaging

Wound Model



Control

30 hours after cultured

Stained (n=3)

Typical examples

Company A (Tri-peptide)

30 hours after cultured

Stained (n=3)

Typical examples

Company B (Ave M.W. 3,000)

30 hours after cultured

Stained (n=3)

Typical examples

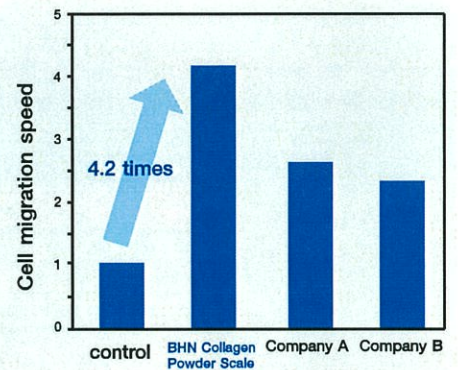
BHN Collagen Powder-Scale

30 hours after cultured

Stained (n=3)

Typical examples

Fibroblast's migration speed at the time of wound*



*Analyze images after cultured for 30 hours. Control migration speed set 1 and compared migration speed for each samples (Averages for n=3)

Gaps are narrower than others

- ✓ **4.2 times** faster migration speed than control
- BHN Collagen migration speed is the **fastest** among the three peptides

Expect to improvement of skin repair

(wounds, pressure sore, UV damage, etc.)

Characteristics of BHN collagen

Raw materials

Produced by enzymatic hydrolysis of freshwater fish scale

Characteristics

Fine grain powder, ready for tablet pressing

Odor and flavor

There is little typical collagen smell and taste

Protein content

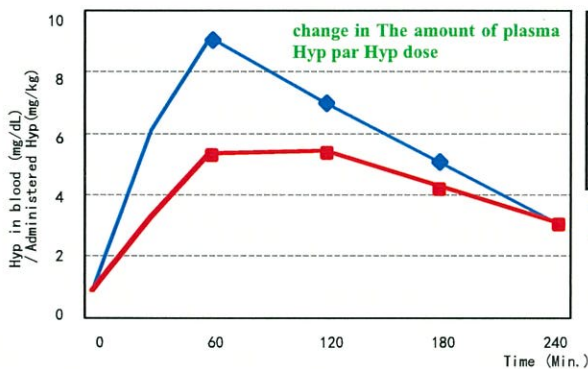
More than 90%

Molecule size (by percentage weight):

Average molecular weight of 1000 Da, and 18% is less than 500 Da

< 6,000	1%
3,000 - 6,000	10%
1,000 - 3,000	54%
500 - 1,000	20%
> 500	15%

Low molecular vs. High molecular comparison test of absorption



study group	AUC (Average±S.E.)
BHN collagen	12.0±2.2
high molecular Collagen	8.1±0.7

—◆— BHN collagen
—■— high molecular collagen

Generally, low-molecular collagen is said to have better absorption. In order to prove it, both low-molecular BHN collagen (A.M.W 1,000) and high-molecular collagen (A.M.W 10,000) were administered to rat and hydroxyproline (Hyp) content in blood plasma was measured.

Conclusion: As expected, BHN Collagen is significantly more absorbable than an equal dose of High molecular collagen.

Product information

BHN Collagen Powder Scale

Test	Specification
Appearance	white to pale yellow fine powders, with a mild characteristic collagen odor
Moisture	max. 8.0%
Protein content	min. 90%
Ash	max. 4.0%
pH(10%solution)	5.5 - 7.0
Heavy metals	max. 20 ppm
Arsenic	max. 2 ppm
Microbiology Test	max. 3,000 cfu/g
Total plate count	
E.coli	negative
Daily dosage	1.0 - 10.0 g/day

Product information

Allergy labeling : Recommended labeling " Gelatin"

GMO status : Non GMO

Animal origin raw materials : Raw materials include fish skin

Label indication : collagen peptide (gelatin degradation product)

※[Allergy labeling][Label indication] according to Japanese regulation

#Packing : 20kg

#Type of packing : Cardboard case

#Storage : Please keep it in the place where is cool and dry.

#Expiry date :

3 years after production (condition:unopened state)

#Quality control : Product inspection:Each Lot

An improvement of wrinkles and a horny cell layer state is evaluated by a human clinical test!

Methods

Ten Japanese women in their 20 to 50's were made to take in BHN collagen for eight weeks in 5,000mg /day, and the cosmetics action was evaluated (the skin state before ingestion and after eight weeks of ingestion) : The state of wrinkles (the maximum depth, a number, etc.), the amount of moisture, a horny cell layer against the index.

Results

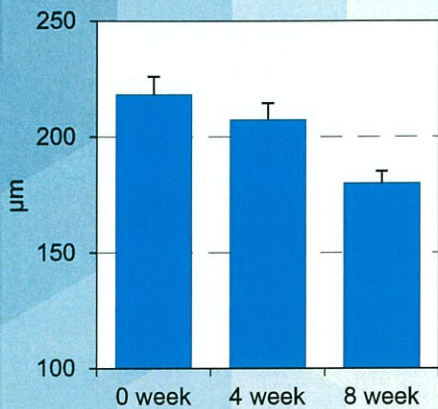


Fig.1 wrinkles (**:p<0.01)

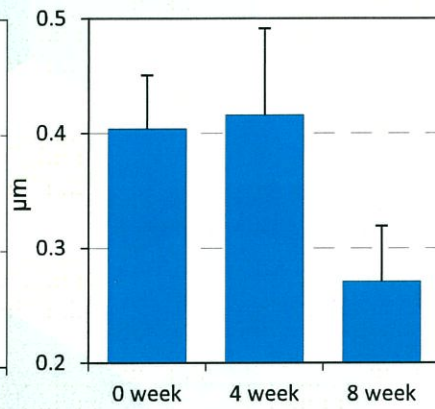
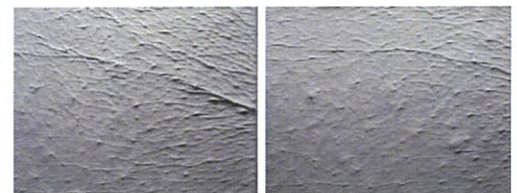


Fig.2 wrinkles numbers

State of wrinkles

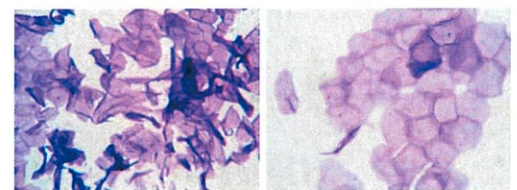
The depth of wrinkles, density, and the numbers were decreased



0 week 8 week

State of horny cell layer

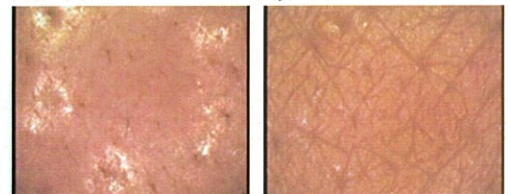
The form and size of a horny cell layer become uniform, and a barrier function improves



0 week 8 week

State of skin's texture

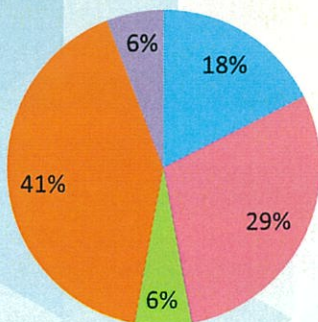
The skin's texture are improved



0 week

8 week

Questionnaire



- Shiny skin was achieved
- It makes make-up smooth with skin
- It makes skin less rough
- Dry skin was improved
- Nothing special

Conclusion

As a result, BHN collagen has improved wrinkles intentionally for all the subjects.

Moreover, almost all subjects' horny cell layer condition has been improved, and the barrier function and the turnover have been improved. Also, the increase of the skin moisture content was checked.

In the questionnaire, many subjects replied that they felt increase of skin moisture as

"Dry rough skin has been improved."



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