

Research Disclosure

Introduction and VollagenTM project aim

VollagenTM was designed to offer a plant-source (Vegan) alternative to Collagen for use in foods and food supplements. Our research centred around the Amino Acid building blocks of Human Collagen.

Approach

We worked with Nottingham Trent University, University of Exeter, and several independent research groups in the development of VollagenTM. Our aim was to use a novel fermentation process to produce the Amino Acids in the correct ratios and deliver them in a soluble format.

Efficacy testing with stretching targets

The efficacy of Collagen when taken orally has been demonstrated by several companies, but with no universal correlation between intake levels and output benefits.

A key aim of the project was to conduct a consumer efficacy test to understand first-hand subjective benefits as identified by subjects. In essence, we wanted to avoid relying solely on laboratory results that are often difficult to correlate to perceived benefits to the consumer. We much prefer real results as identified by real people.

Whereas many Collagen studies have been performed on 3-5g per dose in combination with other ingredients, we purposely tested just 1g to really stretch VollagenTM and understand its efficacy. We did not include any other ingredient at all, simply hard vegetal capsules each containing 500mg VollagenTM Powder, dosed at 2 x capsules per day.

Collagen and VollagenTM

Collagen background

Collagen, obtained from animal sources including fish, is the main structural protein of the extracellular matrix. Collagen is composed of Amino Acids and provides structural support to skin, hair, nails, ligaments, and tendons.

As we age, Collagen production slows, and Collagen quality diminishes. Even by the age of 25, Collagen levels start to deplete. By the age of 50, Collagen levels are typically lost by around 50%.

A reduction in Collagen level and quality results in wrinkle formation as skin loses its firmness and tone. It also compromises the skin's barrier and causes dryness, breakouts, and blemishes.

In its native form, Collagen cannot be absorbed by the body and so Marine Collagen is popular because it is hydrolysed to free the amino acids.

Vollagen™

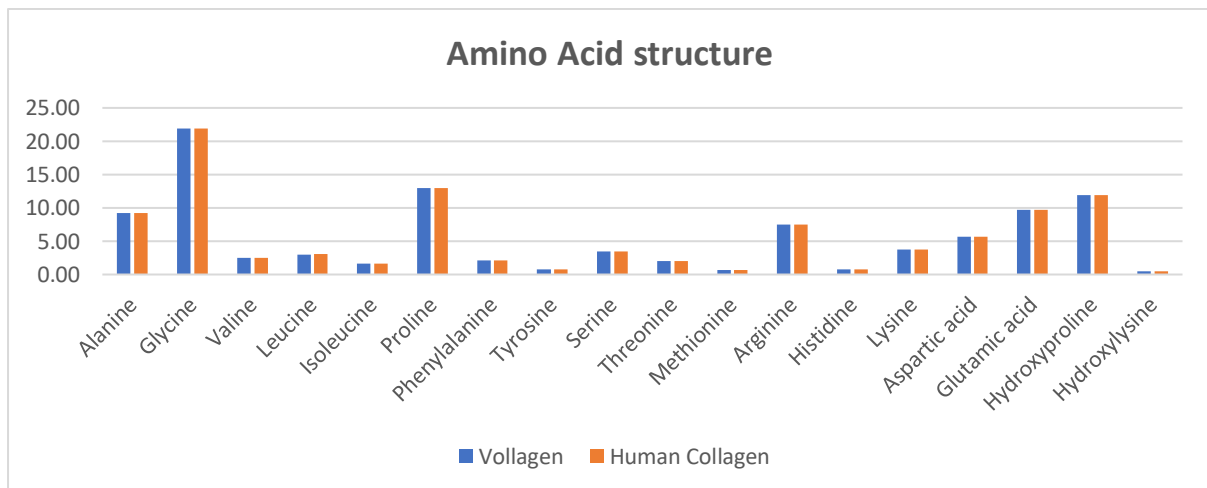
Vollagen™ is a complex of Amino Acids in the same proportions as those found within Human Collagen, but with three key advantages over Collagen:

1. The proprietary process uses only plant-source starting material and provides the Amino Acids in the exact desired ratio and in a water-dispersible format.
2. The Amino Acids are already isolated so ready for the body to easily absorb them.
3. Vollagen™ is suitable for Vegans and Vegetarians.

Composition

The following graph shows the composition of both Human Collagen and Vollagen™. We studied the Amino Acid composition of human collagen¹ and designed Vollagen™ to emulate it in its entirety.

The Blue Bars show the levels of Amino Acids in Human Collagen, the orange bars show the identical composition of Vollagen™.



¹ Source: *The Amino Acid Composition of Mammalian Collagen and Gelatin*. J.E. Eastoe, The British Gelatine and Glue Research Association.

Collagen types and Vollagen™

There are many (28) types of Collagen, differentiated by where in the body they are formed and utilised, but the building blocks are the same.

Vollagen™ provides the building blocks for all Human Collagen types. Upon ingestion, the body takes these building blocks and utilises them as it sees fit.

Vollagen™ origin proprietary production process

Unlike Collagen, which is from animal sources, Vollagen™ is 100% plant-origin. It is produced using a proprietary fermentation and microencapsulation process with a starting material of Corn Starch (non-GMO).

The fermentation process allows us to obtain the exact combination and ratio of acids that we desire. This, coupled with the microencapsulation steps, allows us to produce a cold water-dispersible powder. This is in stark contrast to simply combining the equivalent individual amino acids, which exhibit very low solubility.

Independent Efficacy Study

Overview

Laboratory and theoretical data are all very well, but from the outset we wanted to trial Vollagen™ on people to observe results in real world settings. In addition, we wanted to stretch Vollagen™ and so conducted a study using a low dose of just 1g per day, over a 60-day period.

Globally renowned testing partner

We worked with Ayton Global Research (AGR), a leading and award-winning independent global consumer testing organisation. AGR has over 600K volunteers worldwide and works under strict quality systems and protocols to delivery impartial efficacy studies that meet Advertising Standards requirements.

> For Europe: the study met the requirements of the Cosmetic Regulation (EC) No 1223/2009 and any amendments and was conducted under the Principle of Good Clinical Practises (International recommendations ICH E, Directive of the European Parliament and Council 2001/20/EC-OJ/EC).

> For USA: the study complied with the FDA Federal Food, Drug and Cosmetic Act (FD&C Act).

Study protocol

Duration: 60 days.

Dose: 2 x 500mg capsules per day.

Participants: 55 females aged 30-60.

Scoring: Questions scored 1-8 (strongly disagree to strong agree). Answers of 6.6 and above considered a 'pass mark'

Subjects were asked to take 2 x capsules with food (breakfast or lunchtime) and a glass of water. Each subject was given a questionnaire for completion initially (for first use feedback) and after 4 and 8 weeks. Before and after photographs were requested, with clear instructions on lighting etc., but these were just indicative.

The participant age split was: 30-39 years (32%), 40-49 years (54%), 50-59 (14%).

Exclusion criteria: individuals currently on medication, with allergies affecting the skin, or having had surgery of any type within the last year.

Results - Summary

The results were incredible. We were confident of good performance, but equally identified from the outset that the study was very stretching due to the low dosage of just 1g. We have considered the efficacy results to be after 60 days of use across the board, however many of the positive results were also reported after 30 days.

After 60 days of use:

- Firmer, more hydrated skin.
- Fine lines and wrinkles reduced.
- Skin tone is more even and radiance enhanced.
- Appearance of dark circles reduced and eyes look less tired.
- Supple, smoother skin.
- Breakouts and blemishes reduced.
- Skin appears healthier and complexion looks brighter.
- Nails feel stronger, look healthier, and condition improved.

Results – the product itself

General feedback on the product itself.

- Good appearance.
- Easy to swallow.
- Happy to take the supplement regularly.
- I would buy this product.
- I would recommend this product.

Selected subject comments:

“This is an easy way to take a Collagen supplement.”

“Easy to swallow capsules with no smell or taste.”

“I am amazed at the effects of this product and don’t ever want to be without it.”

Results – Hydration, firmness, suppleness

After 60 days of use, subjects reported that with regular use:

- Skin feels more hydrated.
- Skin feels softer.
- Skin feels smoother.
- Skin feels more supple.
- Skin feels firmer.

Selected subject comments:

“Brilliant supplement for dry skin.”

“Makes all over body dry skin disappear within a week.”

“My skin feels smoother and more supple.”

“My skin feels plumper and hydrated.”

Results – Fine lines, wrinkles and dark circles

After 60 days of use, subjects reported that with regular use:

- Fine lines and wrinkles appear reduced.
- The appearance of dark circles under the eyes is reduced.
- Eyes look less tired.

Selected subject comments:

“I have definitely noticed wrinkles on my forehead and around my eyes reduced. Extremely happy with the results.”

“I saw a reduction in fine lines and wrinkles.”

“Really impressed. I had some wrinkles on my forehead and they have dramatically reduced.

“Dark circles under my eyes are reduced.”

Results – Breakouts and blemishes

After 60 days of use, subjects reported that with regular use:

- The appearance of breakouts and blemishes is reduced.
- Noticed less breakouts.

Selected subject comments:

“Bad skin and blemishes have become a thing of the past.”

“I have noticed a significant reduction in blemishes and breakouts on my face.”

“My face feels smooth with a little less red patches.”

Results – Nails

After 60 days of use, subjects reported that with regular use:

- Nails feel stronger.
- Nails look healthier.
- The supplement has improved the overall condition of my nails.

Selected subject comments:

“My nails are stronger and less brittle.”

“My nails are the strongest they’ve been in years.”

“Improved the condition of my nails, which had previously been weak and brittle and peeled at the sides.”

“Hair, skin and nails all feel much healthier thanks to this product.”

Notes about efficacy and dosage

We were delighted with the efficacy reported by the subjects. What was particularly exciting was the fact so many benefits were reported despite the low dosage of 1g per day. Equally, such positive perceivable benefits in 30-60 days was also very encouraging, given often many skincare benefits take 90+ days to be perceived.

In terms of dosage, the efficacy data allows the rare opportunity for a skincare supplement to use 1g of Vollagen™, whereas the majority of Collagen supplements use 3-5g (often higher). For companies wishing to use higher doses of Vollagen™, it is absolutely fine to do so. We have every confidence of enhanced efficacy and performance as usage level increases.