

## WHAT IS THE CONNECTION BETWEEN HAIR FOLLICLE AND COLLAGEN PEPTIDES?

Hair follicles are “bag”-shaped structures derived from the skin. The base of this structure is made up by a region called the hair bulb, which is composed of epithelial cells (keratinocytes) and melanocytes. Both cells are responsible for the hair cortex and medulla. The dermal papilla around the bulb is formed by mesenchymal cells.

During hair growth, the hair bulb dilates and the epithelial cells multiply while the mesenchymal cells stimulate the bulb cells.

In this study, collagen peptides were evaluated for their potential to stimulate the multiplication of keratinocytes and mesenchymal cells from the dermal papilla of humans.

GelcoPep collagen peptides were solubilized and applied in a cell culture composed of keratinocytes and mesenchymal from the dermal papilla (Nv.1088.02) and in a culture in low growth factor medium (control group - Ct). Both cultures were incubated at 37 °C and 5% CO<sub>2</sub> for 24 hours.

Figure 1 compares the growth rate of keratinocyte cells and the control group when GelcoPep collagen peptides were applied. As compared to the control group, keratinocyte cells increased 44.1% (±12.8) after 24 hours.

**Figure 1-** Keratinocyte cells versus the Control group

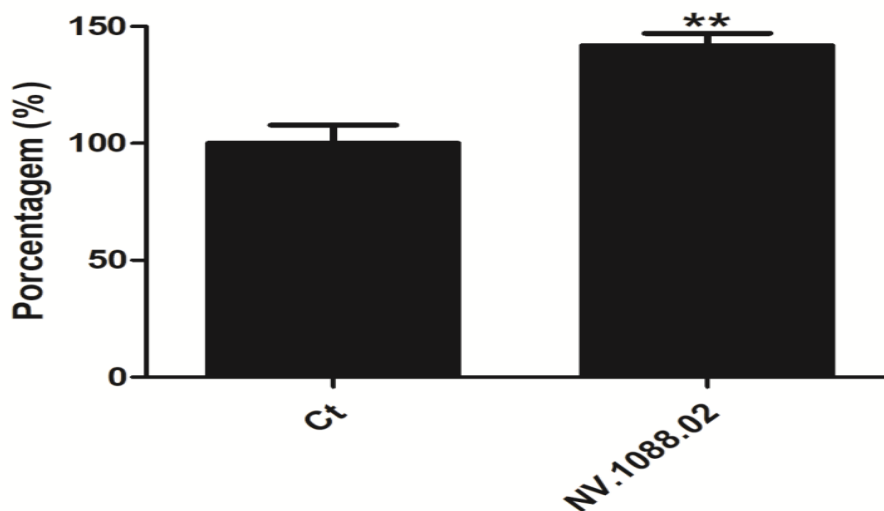
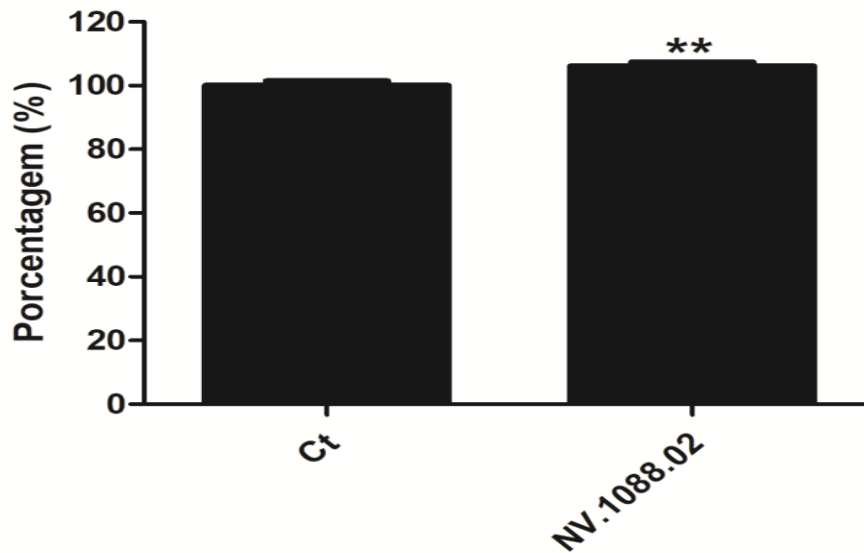


Figure 2 compares the growth rate between mesenchymal cells and cells using GelcoPep collagen peptides. Note that mesenchymal cells showed an increased in proliferation by 6.11% ( $\pm 3.05$ ) after 24 hours.

**Figure 2** - Mesenchymal Cells x Control Group



The study showed that hair follicle cells multiplication was stimulated with the use of collagen peptides, stimulating hair growth as a result.

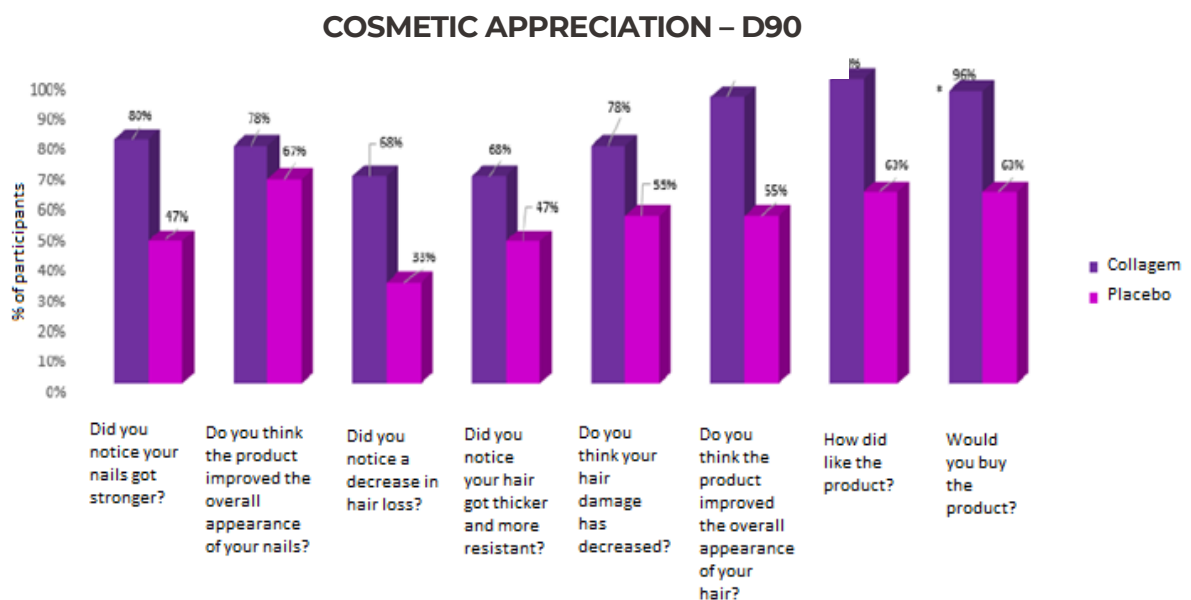
## BENEFITS OF DAILY USE OF COLLAGEN PEPTIDES FOR NAILS AND HAIR

Collagen peptides occur naturally in our joints, cartilage and tendons. It is often called a “glue”, as it holds the body together, preventing us from becoming flexible or rigid. Collagen peptides are also important allies in the growth and repair processes of nails, hair, bones, skin and teeth.

Due to intrinsic and extrinsic factors, this important natural protein is gradually lost over time, but the daily intake of collagen can help us make up for this loss.

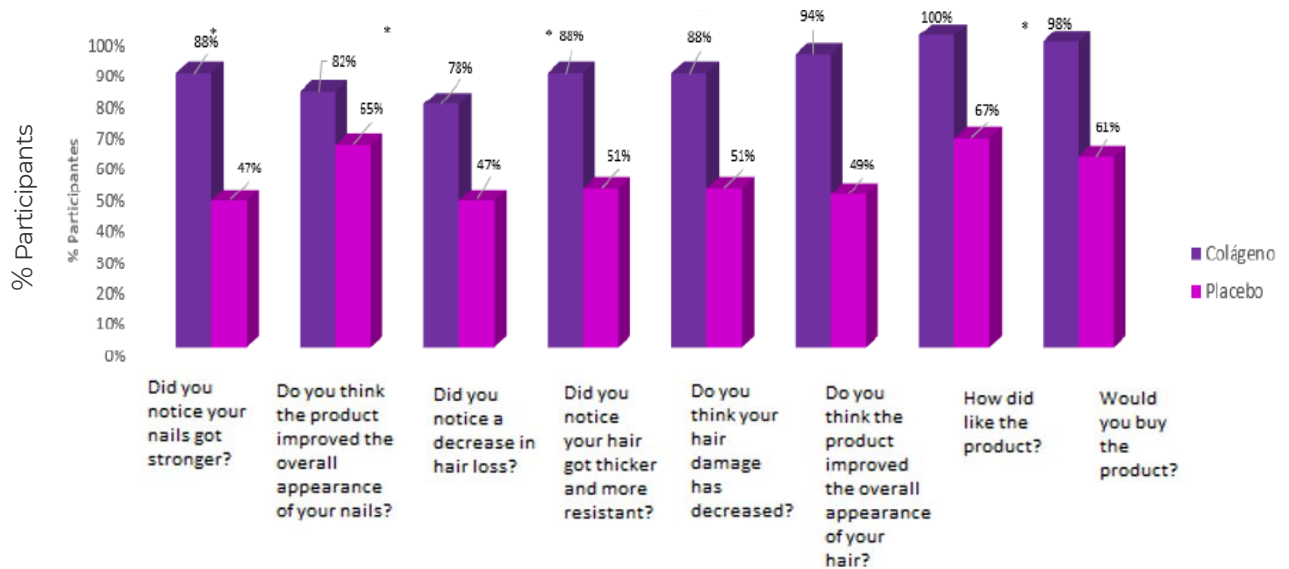
In total, 101 female participants aged between 40 and 65 years were enrolled. These participants had intact skin in the studied site (nails and hair). Of the 101 participants, 51 were in the daily placebo group and 50 in the GelcoPEP® collagen group (10g/day).

After 90 days of research, the participants were asked to answer eight questions about their nails and hair.



After 180 days, the participants returned to answer the same eight questions about nails and hair.

## COSMETIC APPRECIATION – D180



Researchers found that those who ingested collagen peptides daily reported greater improvement in nail and hair strength and appearance than those who did not. The number of participants who reported positive differences after collagen intake increased continuously over time.