

The efficacy of a collagen

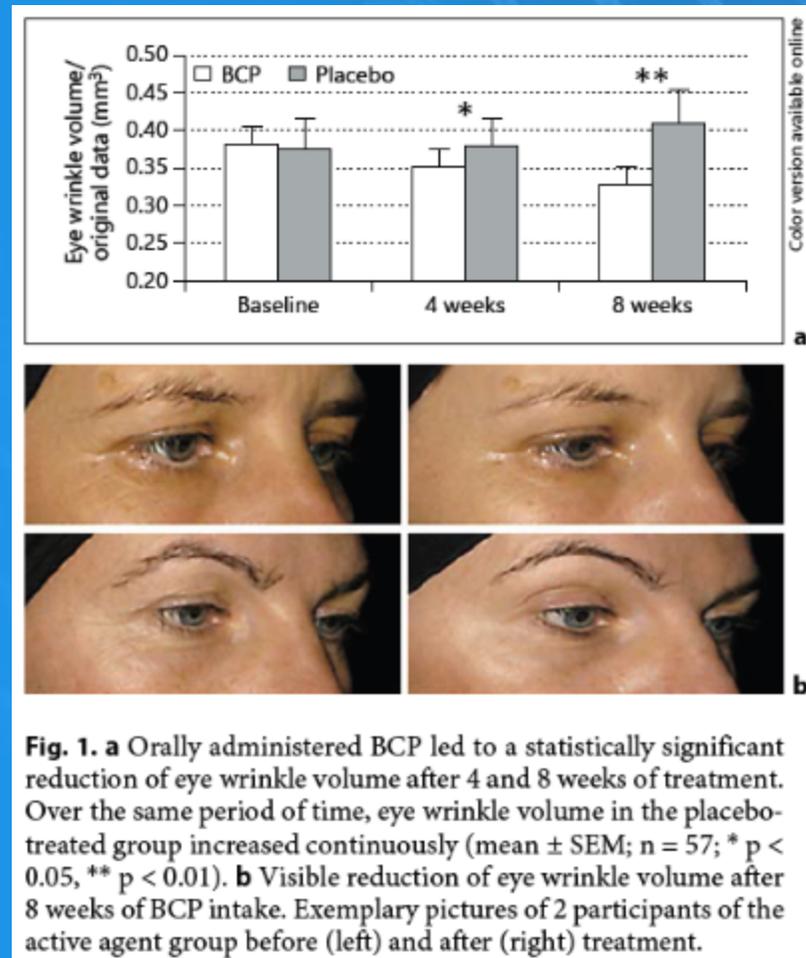
Collagen Efficacy

More and more people are looking for **collagen** as their health deteriorates due to various diseases such as skin aging, gum inflammation, cracked nails, hair loss, arthritis, etc.

Representative effects of collagen

- 1) Skin improvement effects such as wrinkles, moisture, and dehydration
- 2) Prevention of osteoarthritis
- 3) Prevents bone loss, protects bones, increases bone density
- 4) Prevention of arteriosclerosis
- 5) Prevents hair loss and strengthens nails

In particular, it is known for its excellent skin improvement effect



Source : Oral intake of specific bioactive collagen peptides reduces skin wrinkles and increases dermal matrix synthesis. Skin pharmacology and physiology, 2014, 27,3: 113-119)

As a result of taking Collagen Peptide for 8 weeks in women aged 45 to 65, the volume of eye wrinkles decreased by 20.1%, and especially, the volume of wrinkles around the eyes decreased by up to 49.9%



Article

Specific Collagen Peptides Improve Bone Mineral Density and Bone Markers in Postmenopausal Women—A Randomized Controlled Study

Daniel König ^{1,*}, Steffen Oesser ², Stephan Scharla ³, Denise Zdzieblik ¹ and Albert Gollhofer ¹

(Source : Specific Collagen Peptides Improve Bone Mineral Density and Bone Markers in Postmenopausal Women-A Randomized Controlled Study)

According to the study data, BMD increased by up to 7% in women who consumed 5 g of collagen daily for 12 months

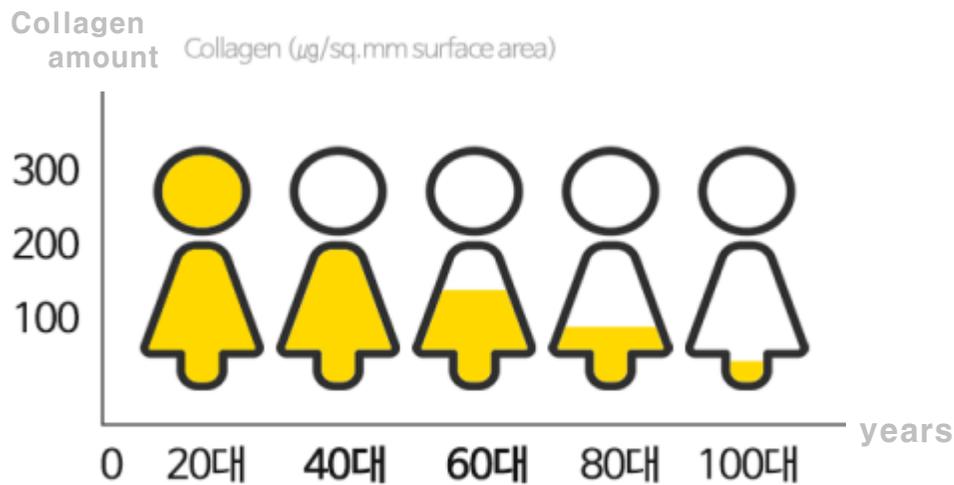
RESULTS: Bioactive collagen peptides treatment promoted an increase of 12% nail growth rate and a decrease of 42% in the frequency of broken nails. Additionally, 64% of participants achieved a global clinical improvement in brittle nails, and 88% of participants experienced an improvement 4 weeks post-treatment. The majority of participants (80%) agreed that the use of BCP improved their nails' appearance, and were completely satisfied with the performance of the treatment.

CONCLUSIONS: This study demonstrated that the daily ingestion of BCP increased nail growth and improved brittle nails in conjunction with a notable decrease in the frequency of broken nails.

(Source : Oral supplementation with specific bioactive collagen peptides improves nail growth and reduces symptoms of brittle nails)

In 25 subjects with brittle nails, collagen supplementation increased nail growth by 12% and reduced nail damage by 42%.

Collagen is not only effective in improving skin health, but it is also a major component of 35% of joints, 80% of muscles, 80% of sphincters, 80% of tendons, and a major component of internal organs and periodontal fascia, so sufficient collagen intake is necessary for health management



*출처: Br J Dermatol. 1975. (93):639-643

The amount of collagen in the body starts to decrease from the 20s and decreases rapidly as aging progresses. For women, it decreases by 1% per year from the mid-20s, reaching half the level of those in their 20s when they reach their 40s, and after that, the collagen synthesis decreases rapidly.

When collagen, which acts as a reinforcing bar that connects skin cells, decreases, elastin in the dermis is also decomposed and an empty space is created in the skin. It becomes impossible to hold the hyaluronic acid located in between, so the skin eventually becomes loose, loses moisture, and aging progresses

Collagen must be supplemented in advance from the age of 20, when the amount of collagen that the body can synthesize on its own decreases rapidly

콜라겐 Collagen

지질 성분 유지 작용을 한다. 진피는 섬유성분과 기질성분으로 구성되어 있는데 그 중 콜라겐은 입체구조 유지, 인장강도 부여 등의 피부를 보호하는 역할을 수행하며 진피층의 90%를 차지하고 있다. 엘라스틴은 탄력섬유로서 진피층의 3~4%정도를 차지하며 입체구조 사이를

(1) 콜라겐(collagen)

교원섬유라고도 불리며, 진피의 85~90%를 차지한다. 세포와 기질의 주요 구성 성분인 콜라겐은 섬유아세포의 작용에 의해 프로콜라겐의 형태로 생성되는 단백질이다. 새롭게 합성된 프로콜라겐은 효소반응을 거쳐 피부세포의 세포외 공간으로 분비되어 삼중나선구조의 microfibril을 형성하고, microfibril들은 leucine-rich small proteoglycans과 결합하여 피브릴을 형성하는데, 이러한 과정을 fibrillogenesis라고 한다. 결과적으로 이렇게 만들어진 피브릴들이 모여 콜라겐 섬유를 형성하게 되어 피부의 결합력과 탄력성을 갖게 한다. 피부 콜라겐 중 대부분을 차지하는 것은 type-1 콜라겐이다. 주된 기능으로는 피부의 기계적 견고성, 결합조직의 저항력과 조직의 결합력, 세포 정착의 지탱, 세포 분화와 분화 유도 등이다. 콜라겐은 피부, 골, 인대, 연골 및 치아 등에 높은 농도로 존재하고 트립신과 같은 단백질 분해효소의 작용을 받지 않으나 콜라게나아제에 의해 분해된다.

(Source: 2019.06 Ministry of Food and Drug Safety press release, Guide-0777-02)

According to the Ministry of Food and Drug Safety reports, collagen accounts for 90% of the dermal layer and maintains three-dimensional structure. It has been found to play a variety of roles in protecting the skin, including providing tensile strength (the ability to withstand force when pulling on an object)

Abstract

Dietary consumption of food supplements has been found to modulate skin functions and can therefore be useful in the treatment of skin aging. However, there is only a limited number of clinical studies supporting these claims. In this double-blind, placebo-controlled study, the effectiveness of the specific bioactive collagen peptide (BCP) VERISOL® on eye wrinkle formation and stimulation of procollagen I, elastin and fibrillin biosynthesis in the skin was assessed. A hundred and fourteen women aged 45-65 years were randomized to receive 2.5 g of BCP or placebo, once daily for 8 weeks, with 57 subjects being allocated to each treatment group. Skin wrinkles were objectively measured in all subjects, before starting the treatment, after 4 and 8 weeks as well as 4 weeks after the last intake (4-week regression phase). A subgroup was established for suction blister biopsies analyzing procollagen I, elastin and fibrillin at the beginning of the treatment and after 8 weeks of intake. The ingestion of the specific BCP used in this study promoted a statistically significant reduction of eye wrinkle volume ($p < 0.05$) in comparison to the placebo group after 4 and 8 weeks (20%) of intake. Moreover a positive long-lasting effect was observed 4 weeks after the last BCP administration ($p < 0.05$). Additionally, after 8 weeks of intake a statistically significantly higher content of procollagen type I (65%) and elastin (18%) in the BCP-treated volunteers compared to the placebo-treated patients was detected. For fibrillin, a 6% increase could be determined after BCP treatment compared to the placebo, but this effect failed to reach the level of statistical significance. In conclusion, our findings demonstrate that the oral intake of specific bioactive collagen peptides (Verisol®) reduced skin wrinkles and had positive effects on dermal matrix synthesis. © 2014 S. Karger AG, Basel.

(Source: Skin pharmacology and physiology 27(3):113-119)

According to the results of the above experiment, as a result of ingesting collagen peptides for women aged 45-65 for 8 weeks, collagen in the skin increased by 65% and elastin by 18%, which had a positive effect on skin matrix synthesis

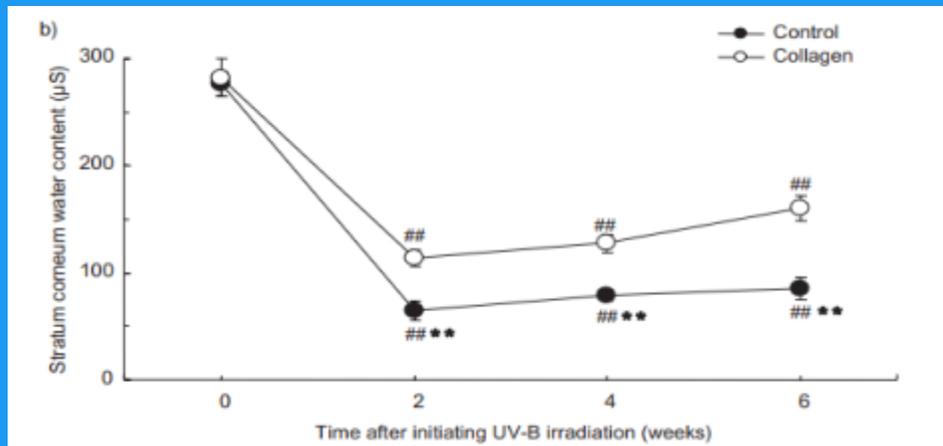
콜라겐 Collagen

(2) 광노화

태양광선의 자외선에 대한 자극에 의하여 활성산소종(ROS)이 발생되고, 전염증성 사이토카인의 생성이 촉진되어 여러 가지 신호전달 체계를 활성화시킨다. 또한 AP-1을 활성화시켜 TGF- β 및 TGF- α 를 억제함으로써 진피의 주된 성분인 collagen I 과 collagen III의 합성을 감소시키며, AP-1과 NF- κ B의 활성화는 MMPs, 특히 MMP-1, MMP-3, MMP-9을 활성화시켜 진피내 결합조직의 분해를 촉진시킨다.

장기간 UV 노출 시 피부조직에서는 표피 두께가 2~3배 증가하며, 표피층에서는 유극세포의 증가, 각질세포의 다형성 등이 관찰되는 것이 특징이다. 또한 무정형의 엘라스틴을 포함한 물질들이 표피와 진피 연결층 위에 침착되며 진피층에서는 콜라겐과 엘라스틴의 섬유구조가 변형되고 탄력섬유의 증가로 인한 일광탄력섬유증(elastosis)이 발생한다.

According to the announcement by the Ministry of Food and Drug Safety, photoaging was found to be the cause of wrinkle formation by increasing the activity of collagen-degrading enzymes and reducing collagen synthesis by generating free radicals from ultraviolet rays of the sun's rays. Therefore, if you consume fish collagen regularly, you can prevent damage to the skin caused by UV rays.



(출처: Photodermatol Photoimmunol Photomed 2013; 29: 204-211)

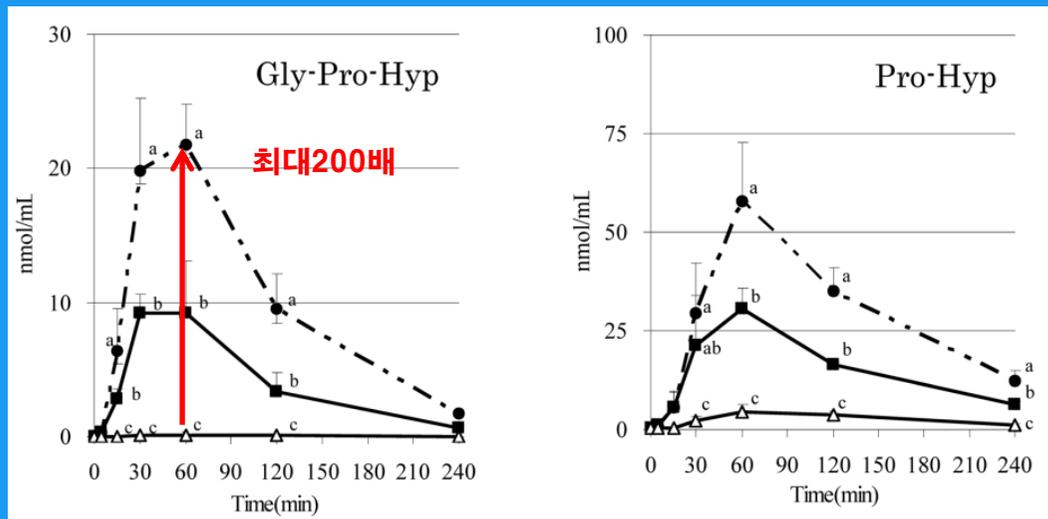
As a result of exposing the skin to UVB after oral administration of collagen to mice, the moisture retention capacity was about 2.25 times higher than that of the collagen-free group, and the hyaluronic acid content was also about 2.15 times higher

Low molecular weight collagen (WCS) with high absorption.

In collagen, molecular size is an important factor in determining the rate of absorption. The molecular size unit of collagen is expressed in Daltons (Da). Naturally, the smaller the molecular size, the higher the absorption rate. There are various products from 5000Da to 500Da on the market, but even if there is a difference of 100Da, there can be a difference of up to several hundred times in the absorption rate

Absorption and Urinary Excretion of Peptides after Collagen Tripeptide Ingestion in Humans

Shoko Yamamoto,^{*,a} Kisaburo Deguchi,^b Masamichi Onuma,^a Noriaki Numata,^a and Yasuo Sakaia

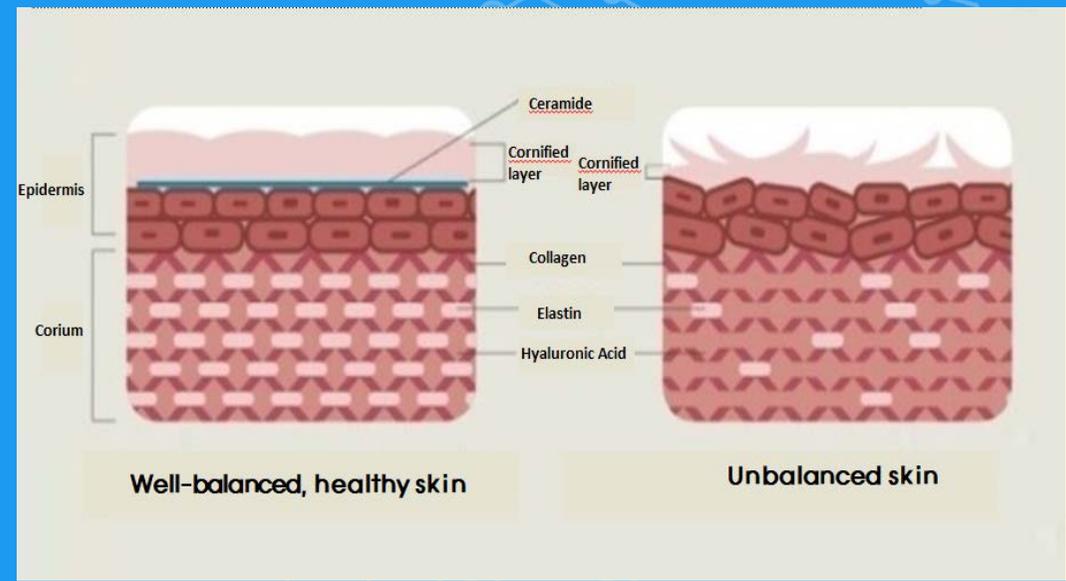
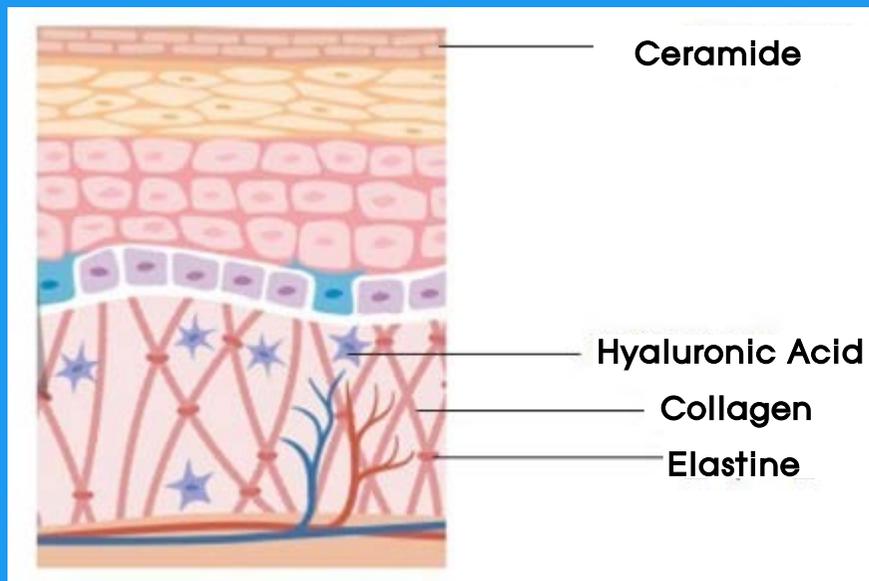


As a result of comparing the absorption rate of low molecular weight collagen of 300DA and high molecular weight collagen of 5,000DA, the absorption rate of the 300DA collagen intake group was up to 200 times higher than that of the 5,000DA collagen intake group

(Source: Absorption and urinary excretion of peptides after collagen tripeptide ingestion in humans. *Biological and Pharmaceutical Bulletin*, 2016, 39.3: 428-434)

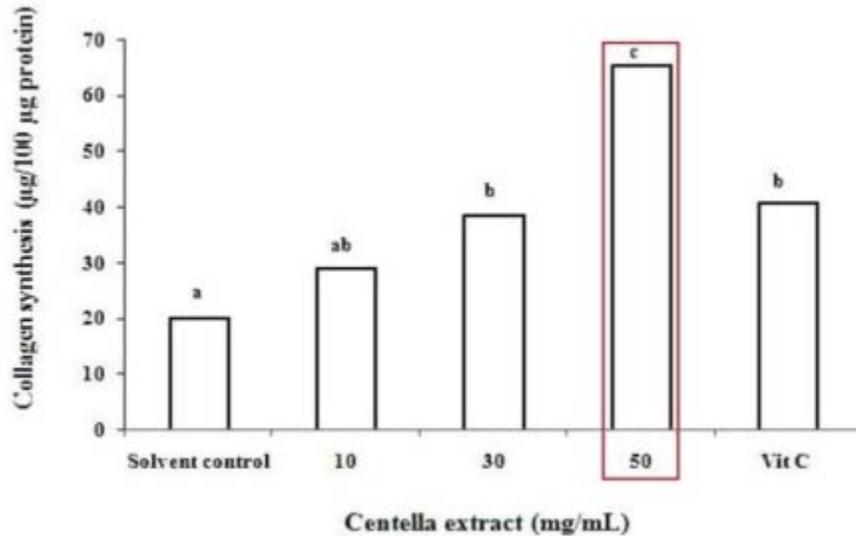
콜라겐 Collagen

The skin is divided into the epidermis and dermis. The dermis is composed of collagen, hyaluronic acid, and elastin, and the epidermis is composed of ceramide, etc. Each component is an essential component for healthy skin.



- 1) Collagen: It plays an important role in maintaining elasticity by tightly connecting skin cells so that they do not separate from each other.
- 2) Elastin: As a spring that supports collagen, if it is insufficient, the connection of collagen becomes loose.
- 3) Hyaluronic acid: It stores moisture in the skin and delivers it to the areas that need moisture, so it is essential for moisture maintenance.
- 4) Ceramide: As a component of the skin barrier, it prevents skin moisture from evaporating and blocks harmful substances coming from outside to prevent troubles.

콜라겐 Collagen



<Survey on pediatric drug compliance of new formulations- Including convenience of administration, improvement of taste, and convenience of transport and storage compared to existing formulations> published in the Journal of Korean Oriental Gastroenterology

Looking at the paper, a comparison of the absorption rates according to the formulation showed that the absorption rate of the liquid formulation was faster

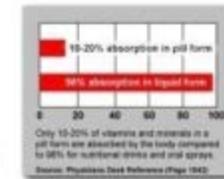
HIGHEST NUTRITIONAL ASSIMILATION BY THE BODY

Did you know that when you take **vitamins and minerals** in the traditional tablet or capsule form your body only assimilates 10 to 12% of the nutrients, and that figure drops to 3 to 5% after

35-40 years of age? With LiquiVive **liquid vitamins** you get what you pay for because it's liquid vitamin form provides the highest possible assimilation of nutrients into the body. **Colloidal minerals** and vitamin particles are over 7000 times smaller than a human cell. Approximately 98% of LiquiVive ingested can be used by the body within 15 to 30 minutes. This percentage is far superior to the 3 to 10% assimilation of traditional pill and capsule supplements and means that you would have to take 10 to 20 **multi-vitamin pills** every day to have comparable assimilation to LiquiVive. That would be like swallowing one or two handfuls of those rock hard pills every morning which is definitely a tall order, especially for older people, children and people who hate taking vitamin pills - well, that covers just about everybody. Not to mention how expensive it would be to buy all of those pills!

Recent research has shown that traditional vitamins in pill form largely go to waste, as our bodies have trouble digesting and absorbing the processed and compacted nutrients. The Physician's Desk Reference (a highly respected medical guide for doctors) contains research that proved that only about 10-20% of the nutrients in vitamins are absorbed into the human body. You know where the rest of that ends up... In the same section the Physician's Desk Reference also states that absorption of liquid vitamins amount to about 98%. This is a serious discrepancy between vitamin pills and liquid vitamins. According to this research, liquid vitamins can be up to 10 times more effective than nutritional supplements in pill form.

According to many doctors who have discovered liquid vitamins, their patients respond far better to the same supplements that they were originally prescribed in pill form. We think these studies are quite impressive, and after our own experience with liquid vitamins, are "true believers".



According to a paper published in the American Pharmacopoeia (PDR), the absorption rate of the tablet form and the liquid form was compared, and the absorption rate of the tablet form was 10-20%, 88% lower than the liquid form