



**THE HIGHEST VALUE**
AT A LOWER COST

Colpropür D

THE MOST SUITABLE
PROTEIN FOR SPORTS
SUPPLEMENTS

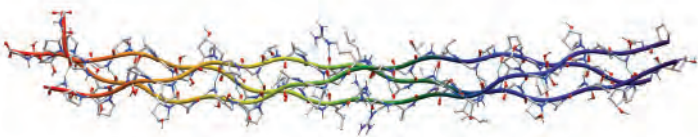
Colpropür D

AMONG THE BEST QUALITY PROTEINS IN SPORTS NUTRITION

Colpropür D is pure collagen hydrolysate (CH) in powder form, a highly digestible and easily assimilated collagen protein.



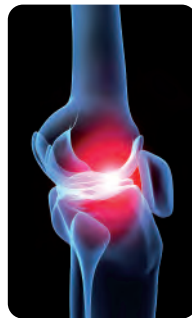
Collagen is the protein with the highest presence in our body, representing 30% of the total protein content.



Molecular structure of the Collagen

It makes up the internal structure of bones and all joint tissues (cartilage, tendons and ligaments), giving them resistance, elasticity and bulk.

It also forms the structure of the skin and connective tissue that surrounds and protects our muscles and organs.



With the overuse caused by practising sport or physical training, the cartilage collagen that protects the bones of the joints deteriorates. The result is joint pain, caused by friction between the bones of the joint (osteoarthritis). When collagen loss occurs in the connective tissue that surrounds and protects the muscle fibres and muscles, the connective tissue becomes more vulnerable to muscle injuries. Finally, pulls and injuries also contribute to the premature degradation of collagen in bones, tendons and ligaments, resulting in damage to these structures.

Bodybuilders, professionals or amateur sportsmen and everyone who regularly practises physical exercise experience wear of their collagen and tissues, resulting in premature osteoarthritis and a lack of resistance to injuries.

BENEFITS OF TAKING COLLAGEN HYDROLYSATE FOR SPORTSMEN

Supplementing the diet with Colpropür D offers natural protection against osteoarthritis and joint, bone or muscle injuries. It also facilitates and reduces the recovery time of a bone fracture, broken or torn ligament or tendon.

Other benefits:

- ♥ A pure product
- ♥ High protein content (> 90%)
- ♥ High bioavailability (> 82%)
- ♥ Good digestibility
- ♥ Neutral taste and flavour
- ♥ Non-allergenic and no adverse side effects
- ♥ Complete solubility
- ♥ Negative to anti-doping tests
- ♥ Compatible with other dietary supplements or medications

BENEFITS FOR MANUFACTURERS OF SPORTS NUTRITION SUPPLEMENTS

- ♥ This protein supplement offers natural protection against the joint and muscle problems frequently suffered by sportsmen and persons who regularly practise physical training.
- ♥ HIGHLY COMPETITIVE RATIO BETWEEN PRICE/PROTEIN CONTENT.

How to use:

Colpropür D may be used in protein supplement products mixed with whey protein or other proteins, vitamins, salts or supplements. It may also be sold alone as a natural supplement to protect the joints, muscles and bones of bodybuilders and sportsmen.

Although collagen has not been considered a limiting nutrient in the diet due to its low content in essential amino acids (AA), under the stressful conditions suffered by the osteoarticular tissues of bodybuilders or sportsmen, the intake of CH (**Colpropür D**) helps to regenerate and recover those tissues due to:

- ❖ **Its high content of arginine (Colpropür D = 7.5% vs. Whey protein = 2.3%) and glycine (Colpropür D = 22.4% vs. Whey protein = 2.0%).** The arginine stimulates the growth hormone from the pituitary gland; this AA together with the glycine helps the synthesis of creatine. As a result, there is an **increase in muscle mass and sports performance** (Appleton, I. 2002. *Arginine: clinical potential of a semi-essential amino acid. Alternative medicine review*, 7(6): 512-522).
- ❖ **Provides the characteristic AA of collagen**, saving the cells the energy and time required to transform other AA from the diet into the characteristic AA of collagen. As a result the turnover progresses to the synthesis, **producing quick regeneration of joint, bone and connective tissue.** (Oesser, S. and Seifert, J. "Stimulation of type II collagen biosynthesis and secretion in bovine chondrocytes cultured with degraded collagen." *Cell Tissue Research*. 2003; 311 (3): 393-399)."

Furthermore, supplementing the diet with CH (**Colpropür D**) not only helps to keep joints and bones in good condition, but it also increases the production of the connective tissue that forms the collagen membrane that covers and protects each muscle fibre (endomysium), groups of muscle fibres (perimysium) and the muscle itself (epimysium), which is **essential for the proper growth, performance and protection of the muscle.**



Colpropür D is a natural protection against osteoarthritis and joint, bone or muscle injuries

Colpropür D TECHNICAL DATA

DESCRIPTION

Collagen Hydrolysate Protein in powder form, obtained from pig bone and joint tissues, is healthy and traceable. The production process is natural (using no chemicals and avoiding the presence of undesirable residues in the product). It has all the food guarantees and the approval of the EFSA (European Food Safety Authority).

PRODUCT RANGE

There are different types of **Colpropür D** according to taste, odour or wettability.

COLPROPÜR D is the less refined type in the range, so it is less neutral in taste and odour. **PLUS** is more neutral than **D**; **D PLUS PREMIUM** has the highest quality as it is the most neutral.

The difference between **D PLUS PREMIUM** and **D PLUS PREMIUM QUICK** is that the latter has been granulated to give very quick wettability and high solubility.

FOOD SAFETY GUARANTEES

The product follows the requirements of Regulation (EC) 853/2004, specifically Annex III, Section XV concerning edible collagens and Regulation (EC) 2073/2005, specifically Annex I, Chapter 1, point 1.10.

The production plant of the manufacturer, Protein,S.A., has the corresponding Sanitary Register number NRG5 10-04347/GE and undergoes constant controls of the sanitary authorities.

The product does not contain preservatives, gluten, soy, milk, cholesterol, lactose, allergens or GMO and complies with European Food Safety legislation.

PRESENTATION, STORAGE AND SHELF LIFE

Powder product packed in a Kraft paper bag with a net weight of 20 kg, which contains an inner polythene bag. The product must be kept in a cool and dry place. Under such conditions, unopened bags have a minimum shelf life of 18 months.



ANALYTICAL SPECIFICATIONS Colpropür D

Physical & Chemical

Protein (Nx6.25) (%)
Protein (Nx5.85) (%)
Moisture (105°C) (%)
Salts (%)
Fat (%)
pH (10% sol.)
Mean Molecular weight (Daltons)
Energetic Value (Kcal/100g)
Appearance of solution
Solubility

Wettability

D & D PLUS

Typical	Guaranteed
98.0	min. 96.0
92.0	min. 90.0
5.0	max. 7.0
3.0	max. 3.5
0.1	max. 0.3
7.0 ± 1.0	
3000-5000	
368	
Transparent	
Total	

D PREMIUM & D PREMIUM QUICK

Typical	Guaranteed
99.4	min. 96.0
93.0	min. 90.0
5.5	max. 7.0
1.5	max. 2.5
0.1	max. 0.3
6.5 ± 1.0	
3000-5000	
372	
Transparent	
Total	

D, D PLUS & D PREMIUM: medium; PREMIUM QUICK: quick

Organoleptical

Taste Et Odour

Mild (D) or Neutral (D PLUS)

Very neutral

Colour

Ivory

Amino Acid Composition (100 g of protein content)

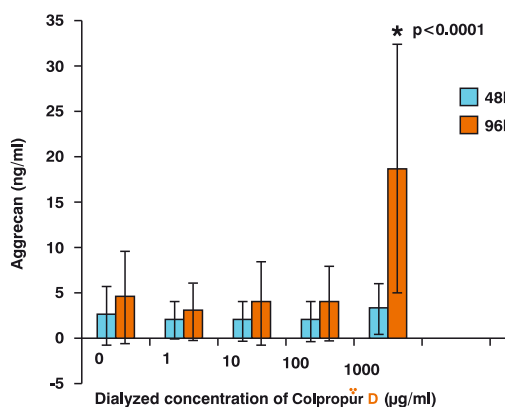
Glycine	22.4	Lysine	4.0	Hydroxyllysine	1.1
Proline	13.2	Serine	3.2	Methionine	0.8
Hydroxiprolin	11.9	Leucine	2.8	Histidine	0.5
Glutamic Acid	10.1	Valine	2.4	Tyrosine	0.4
Alanine	8.8	Phenylalanine	2.3	Tryptophan	0.1
Arginine	7.5	Threonine	1.7		
Aspartic Acid	5.5	Isoleucine	1.3	Total	100

Scientific evidence: studies with Colpropür D

“In vitro” study on human chondrocytes

The presence of **Colpropür D** in cultured human chondrocytes stimulates the synthesis of proteoglycans (fundamental components of the extracellular matrix of joint cartilage).

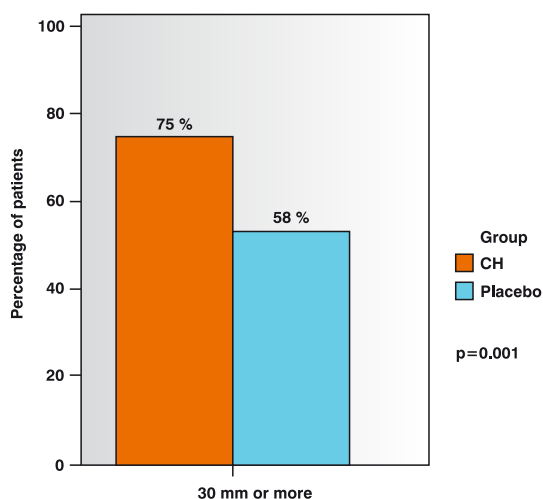
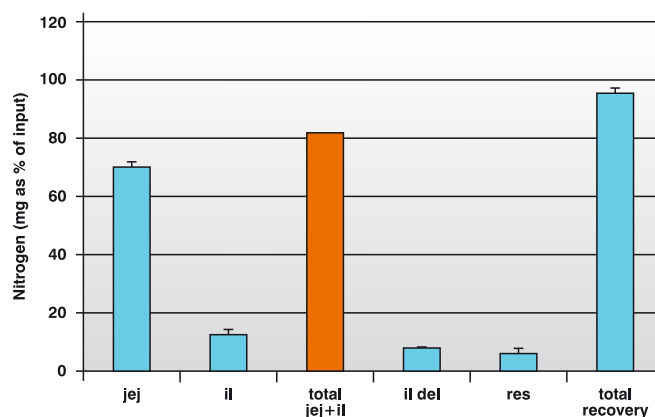
(Benito P., Monfort J., Nacher M. "Efecto de los hidrolizados de colágeno sobre cultivos de condrocitos humanos". September 2002).



Bioavailability study in a gastrointestinal dynamic simulator

After 6 hours of treatment in a simulator of the human digestive system, 82% of introduced **Colpropür D** has crossed the intestinal barrier.

(Zejdner, E.E. "Digestibility of collagen hydrolysate during passage through a dynamic gastric and small intestinal model TIM-1". TNO Nutrition and Food Research Report. 24 June 2002).



Clinical study on osteoarthritis

A A daily intake of 10 mg of **Colpropür D** over 6 months demonstrates a significant improvement in the % of patients who meet or exceed a 30 mm reduction in VAS (visual analogical scale) pain ($p = 0.001$) (main goal).

B The collagen group's decreased pain is superior to the placebo in the overall study population (13.86%), increasing in the subpopulation of patients in advance stages (19.25%) and those whose usual diet presents a mid/low dose of animal protein (34.89%), reaching a maximum value in the subgroup with advanced osteoarthritis and a medium/low animal protein diet (41.59%).

(Benito, P., et al. "A randomized controlled trial on the efficacy and safety of a food ingredient, collagen hydrolysate, for improving joint comfort". International Journal of Food Sciences and Nutrition 2009, Vol.60, Issue S2:99-113).



PROTEIN manufactures natural ingredients of animal origin, providing the food, health and beauty industries with premium and innovative solutions to enrich their products.

Colpropür D is a trademark of PROTEIN, S.A.

prōtein

Creus s/n. Polígon industrial
17460 Celrà (Gironès) • Catalonia • Spain
phone +34 972 492320
fax +34 972 492761
commercial@protein.es

www.proteinsa.com