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Arthroben® is a delicious tasting, highly absorbable powder designed to support healthy connective tissue and joint mobility.* This formula is recommended for those experiencing joint and connective tissue problems associated with aging, athletics, overuse or other physical activity. Arthroben® addresses the same issues as nonsteroidal anti-inflammatory drugs (NSAIDs) but uses a unique combination of nutrients that do not result in the negative effects often induced by these drugs.*

Arthroben® supplies the patented collagen peptides Fortigel® and Verisol®, as well as a proprietary blend of flavonoids to support a healthy and balanced inflammatory response and serve as powerful antioxidants to help protect connective tissue damage from oxidative free radicals.* This product contains no artificial sweeteners, mixes easily in water and is available in green apple and lemon-lime flavors, as well as an unflavored/unsweetened version.

Highlights

Collagen Peptides

Arthroben® features Fortigel® and Verisol®, two varieties of hydrolyzed collagen proteins derived from a patented process of hydrolysis of type I collagen, the main component of tendons, ligaments and cartilage in joints and intervertebral discs. Collagen peptides boost pathways that build and repair connective tissues, while simultaneously downregulating activity of enzymes that break down connective tissue. Additionally, they help maintain tissue hydration. These functions support adequate volume of cartilage and the elastic properties of connective tissues which helps maintain healthy joints, ligaments and skin.

Collagen accounts for as much as 30–40% of the body's total protein, especially connective tissue.¹ As a percentage of total protein content, collagen accounts for 75% ligament dry weight, 86% of tendon dry weight, 60% of the dry weight of cartilage, and 90% of the organic matrix of bone.²⁻⁵ The amino acid and peptide compositions of dietary collagens are very similar to those in human collagens, making dietary collagen peptides ideal for supporting body collagen turnover and renewal.

Compared to other proteins, collagen has a unique amino acid composition and a distinct role in human anatomy. Collagen proteins are rich in the modified amino acid hydroxyproline (which accounts for approximately 12% of the amino acids in collagen), and they have an unusually high content of glycine and proline (around 22% and 13%, respectively). Any complete protein can provide these building blocks for collagen, but ingesting collagen itself ensures a pool of these critical raw materials. Collagen is a more concentrated source of these, especially hydroxyproline, and as such, it may be a more effective choice when the goal is related to collagen as a structural protein, such as in supporting repair and maintenance of cartilage, tendons and ligaments. A review looking at collagen hydrolysate for the treatment of osteoarthritis (OA) and other joint disorders determined that collagen ingestion stimulates a significant increase in the synthesis of joint extracellular matrix macromolecules by chondrocytes, and results in improvements in pain and function in those with osteoarthritis.⁶

Many individuals—the elderly in particular, who may be at higher risk for joint deterioration—do not consume adequate protein.^{7,8} Even among those with a higher protein intake, unless nose-to-tail eating is emphasized, the richest sources of collagen—animal skins, bones, and tendons—are not typically part of the modern Western diet. Collagen powder can be incorporated into shakes, smoothies, and other foods and beverages, providing a convenient way to increase intake of these special amino acids for those who may benefit, such as athletes, aging individuals, and those recovering from injury. Among subjects with primary osteoarthritis of the knee, collagen supplementation for six months led to a significant improvement in knee joint comfort, and it's worth noting that those with the greatest joint deterioration and who had the lowest habitual meat protein intake benefited most.⁹

Benefits*

- Balanced, healthy inflammatory response
- Potent antioxidant protection to reduce joint degeneration
- Provides building blocks for connective tissue
- Supports joint mobility and function
- Encourages joint repair
- Not associated with the negative side effects of NSAIDs
- High safety and tolerability
- Safe for patients on blood thinners

Arthroben® provides a four-pronged approach for nutritional support of joints*:

1. Supports a normal inflammatory response via balanced COX and LOX inhibition.
2. Offers potent antioxidant protection to reduce joint deterioration
3. Increases joint mobility and function
4. Stimulates joint repair—provides nutritional building blocks for cartilage and ligaments

In a study of athletes (men and women age 18-30) experiencing functional knee pain during activity, 12 weeks of daily supplementation with 5g of bioactive collagen peptides resulted in statistically significant improvement of activity-related joint pain compared to placebo.¹⁰ The collagen group also had a greater reduction in need for physiotherapy, drugs and bandages than the placebo group after the 12 weeks. A different study came to similar conclusions about the beneficial effects of collagen supplementation on athletes with activity-related joint pain: compared to placebo, daily supplementation with collagen hydrolysate for 24 weeks showed improvements in several parameters, including joint pain at rest, while walking or standing, and joint pain while carrying objects or when lifting.¹¹ The improvements were more pronounced in a sub-group of subjects with knee arthralgia. A randomized, placebo-controlled RCT of collagen peptides showed that 12 weeks of collagen supplementation resulted in significant improvements in athletes with activity-related knee pain as well as significant improvements in pain while walking and at rest among a cohort of older individuals with functional knee or hip pain.¹²

Many athletic injuries occur at tendon sites, likely because the tendon is often the weakest link in the chain of transmitting mechanical force. Owing to the high collagen content of tendons, collagen peptide supplementation has potential to support improved strength and elasticity of these tissues. In a study of male and female athletes with chronic ankle instability, 6 months of daily supplementation with 5 g of collagen peptides improved ankle stability, and this improvement had lasting beneficial effects: at a 3-month follow-up, there was a significant reduction in ankle injuries in the collagen group compared to placebo.¹³

Clinical studies show that regular intake of collagen peptides helps to reduce and prevent joint pain, leading researchers to say that these compounds are “attractive for a long-term use in bone and joint degenerative diseases.”¹⁴

Flavonoids

Arthroben® features Univestin®, a specially formulated, patented compound clinically proven to help alleviate joint discomfort, reduce stiffness and improve mobility.^{15,16} It consists of a blend of extracts from the plants *Scutellaria baicalensis* (Chinese skullcap) and *Acacia catechu*, standardized for specific bioflavonoids which help support a healthy inflammatory process and have been shown to reduce pain and stiffness and increase range of motion in patients with osteoarthritis of the knee.¹⁵⁻¹⁷ These bioflavonoids provide comprehensive, balanced inhibition of three inflammatory pathways (COX-1, COX-2, and 5-LOX), unlike NSAIDs, which cause strong, selective inhibition of only one pathway. The activity of the bioflavonoids may decrease the metabolism of arachidonic acid to inflammatory prostaglandins, leukotrienes and thromboxanes.¹⁸

Univestin® is a potent antioxidant and has been shown to neutralize inflammatory reactive oxygen species, thereby potentially reducing the detrimental oxidative stress induced by wear and tear on joints. Oxidative stress and lipid peroxidation in chondrocytes are believed to be involved in the pathogenesis of OA.¹⁹⁻²³ Joint fluid from patients with OA has been shown to be lower in antioxidants compared to that from individuals with intact cartilage or subacute injury, and blood from patients with OA has lower total antioxidant status compared to that from healthy controls.^{24,25} The powerful flavonoid antioxidants in Arthroben® may help protect connective tissue from free radical damage and help maintain a balanced inflammatory response to reduce pain and swelling in the joints.

The combination of flavonoids in this product have been shown to be as effective as the NSAID celecoxib for reducing functional incapacity and pain in subjects with OA of the hip or knee.¹⁵ (Flavonoids were effective for significantly improving OA symptoms in general; significant differences were seen at 250 mg/day for incapacity and 500 mg/day for pain compared to 200 mg/day celecoxib).¹⁵ A separate study showed the flavonoids to be comparable in efficacy to naproxen for reducing pain and stiffness and increasing range of motion among subjects with knee OA.¹⁷

Supplement Facts

Serving Size 11 grams (approx. 1.5 Tablespoons)
Servings Per Container 30

Amount Per Serving	% Daily Value	
Calories	40	
Protein	7 g	14%*
Collagen Peptides (FORTIGEL® and VERISOL®)	7.5 g	†
Univestin® Proprietary Blend [standardized extract of baicalin and catechins from <i>Scutellaria baicalensis</i> (root) and <i>Acacia catechu</i> (heartwood)]	250 mg	†

*Percent Daily Values are based on a 2,000 calorie diet
†Daily Value not established.

Other Ingredients: Natural flavors, tapioca dextrin, citric acid, stevia leaf extract (*Stevia rebaudiana*), silicon dioxide.

Recommended Use:

- **Unflavored/Unsweetened:** Mix 8 grams (approx. 1 tablespoon) in 8 ounces of water per day, or as directed by your health care practitioner.
- **Green Apple; Lemon-Lime:** Mix 11 grams (approx. 1.5 tablespoons) in 8 ounces of water per day, or as directed by your health care practitioner.

For a list of references cited in this document, please visit:

http://catalog.designsforhealth.com/assets/itemresources/Arthroben_References.pdf

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Univestin® joint care ingredient is covered by US Patent number US#7674830 and multiple others, all owned by Unigen.



*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

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