Arthroben™

Medical Food for the dietary management of osteoarthritis and musculoskeletal inflammation related to athletic or other physical activity

INGREDIENTS

<table>
<thead>
<tr>
<th>Arthroben™</th>
<th>Amount per serving</th>
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</thead>
<tbody>
<tr>
<td>Serving size</td>
<td>11 g</td>
</tr>
<tr>
<td>Flavocoxid</td>
<td>250 mg</td>
</tr>
<tr>
<td>FORTIGEL®</td>
<td>5 g</td>
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<tr>
<td>VERSIL®</td>
<td>2.5 g</td>
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ARTHROBEN™ is available in delicious tasting apple and lemon-lime flavored powders, as well as an unflavored/unsweetened powder.

RECOMMENDED USE

Mix 11 grams (approx. 1½ tablespoons) in 8 ounces of water per day, or as directed by a physician

VERSIL®, FORTIGEL® and Bioactive Collagen Peptides® are registered trademarks of GELITA AG.

REFERENCES:

11. Ballone SM. NSAIDs were associated with increased risk for mortality, regardless of time since first MI. Am Intern Med. 2013 Jan 17;158(1):17-10.

A safe, effective, non-NSAID anti-inflammatory for osteoarthritis patients

EFFECTIVE

- As effective as naproxen in managing knee osteoarthritis
- Provides increased mobility and function
- Stimulates connective tissue repair

SAFE

- Gentle on the GI tract
- Balanced inhibition of COX-1, COX-2, and 5-LOX pathways

For the dietary management of osteoarthritis and musculoskeletal inflammation related to athletic or other physical activity
**NSAIIDs**

Selective or unbalanced inhibition of an individual COX or LOX pathway is believed to result in most of the common side effects associated with chronic NSAID use.

**NSAID side effects:**
- GI complaints, i.e., nausea, heartburn, dyspepsia, abdominal pain — May occur in up to 40% patients with chronic NSAID use
- Bleeding ulcer
- Kidney damage, which in some cases may persist even after drug withdrawal
- Cardiovascular events (MI, stroke, etc.)
- Congestive heart failure
  - "NSAIDs were responsible for approximately 19% of hospital admissions with CHF"
  - "The burden of illness resulting from NSAID-related CHF may exceed that resulting from gastrointestinal tract damage."
- Hospitalization and death:
  - Approximately 107,000 patients are hospitalized annually for NSAID-related GI complications
  - At least 16,500 NSAID-related deaths occur each year among arthritis patients alone

**ACETAMINOPHEN SIDE EFFECTS:**
- The leading cause of acute liver failure
- Kidney toxicity

*Patients with high cardiovascular or gastrointestinal risk should avoid using NSAIDs.*

**ARTHROBEN™** produces relatively balanced inhibition of COX-1, COX-2 and 5-LOX pathways

**ARTHROBEN™** balances COX-1 & COX-2 metabolism by inhibiting both enzymes relatively equally, in addition to inhibiting 5-LOX. This helps to minimize systemic side effects while effectively managing the metabolic imbalances of OA.

The unique combination of actives in **ARTHROBEN™** inhibit inflammation and oxidation increase functional mobility, and stimulate connective tissue repair.

### Key Actives in Arthroben™

**Flavocoxid**
- **Flavocoxid** is a proprietary blend of the flavonoids baikalin and catechin that was shown to be as effective as naproxen in managing knee osteoarthritis and produced improvements in 87% of patients.
- **Dual Action of Flavocoxid:**
  1. Balanced inhibition of COX-1, COX-2 and 5-LOX pathways. This balanced down-regulation, though weaker than traditional NSAIDs and selective COX-2 inhibitor drugs, is not associated with the side effects commonly seen with selective COX inhibitors.
  2. Acts as a strong antioxidant to limit free radicals and oxidative damage to cartilage and other connective tissue of the joints.

**FORTIGEL® & VERISOL®**
- **FORTIGEL® & VERISOL®** are specific Bioactive Collagen Peptides derived from a patented process of hydrolysis of type I collagen. These ingredients boost anabolic processes in connective tissues and provide building blocks for all collagen in the body.

### Clinical Studies

**MANAGING KNEE OSTEOARTHRITIS**

<table>
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<tr>
<th>Flavocoxid 500 mg BID</th>
<th>Naproxen 500 mg BID</th>
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<tr>
<td>Decreasing trends indicated improvement (Ps0.001)</td>
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**Vertebral**

**VERISOL®**

VERISOL® (like FORTIGEL®) stimulates anabolic processes in connective tissue.

- Tested in two recent human clinical studies (pre-publication) for its effects on collagen metabolism of the skin

### Arthroben™

**ARTHROBEN™**'s four-pronged approach to the dietary management of osteoarthritis:

1. Reduces inflammation — balanced COX and LOX inhibition
2. Potent antioxidant protection to reduce joint degeneration
3. Reduces stiffness; increases joint mobility and function
4. Stimulates connective tissue repair

**Index**

**VAS (mm)**

**WOMAC**

Joint discomfort, stiffness and mobility

CLINICALLY SHOWN TO BE AS EFFECTIVE AS NAPROXEN IN MANAGING KNEE OSTEOARTHRITIS

**FLAVOCOXID**

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**FLAVOCOXID**

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**Flavocoxid 500 mg BID Naproxen 500 mg BID**

**WOMAC**

Joint discomfort, stiffness and mobility

**Physical Global Disease Assessment**

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