

# Equine Joint Supplements

*Nutritional supplements aimed at helping joints; seek products with research from reputable companies*

## Joint Supplements

Supplements designed for joint health are purported to decrease inflammation, increase mobility, provide the “building blocks” for articular cartilage synthesis, or otherwise contribute to the overall health of moveable joints.

In addition to dietary supplements that are administered orally, joint supplements are also available for intravenous, intramuscular, and intra-articular (i.e., directly into the joint) administration.

These supplements often are used for young, athletic horses to try and protect the healthy horse from injury, for treatment for a joint injury, and in older horses to try and counteract a lifetime of joint wear-and-tear.

## Oral Joint Health Supplements

Oral joint health supplements (OJHSs) are the most popular type of nutritional supplement administered to horses, particularly those products containing glucosamine, chondroitin sulfate, hyaluronic acid, and methylsulfonylmethane (MSM).<sup>2</sup> Other ingredients commonly included in oral joint health supplements are avocado/soybean unsaponifiable extracts (ASU), cetyl myristoleate, vitamins, minerals, and herbs such as devil's claw, grapeseed extract, yucca, and/or garlic.

Based on the available data, most of these ingredients function by providing precursor molecules needed to synthesize articular cartilage (e.g., sulfur, glucosamine), exerting anti-inflammatory effects, inhibiting enzymes that break down cartilage, and/or promoting the synthesis of various components of the articular cartilage matrix.

Owners can purchase oral joint health supplements from tack shops, online, or at feed/seed outlets without the approval



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or advice of a veterinarian, although that approach is not recommended.

## Efficacy of OJHS

Based on the available clinical studies, oral joint health supplements containing glucosamine and/or chondroitin sulfate (which are the most extensively studied products in live horses) are beneficial in horses with osteoarthritis and navicular syndrome and when used post-traumatically (i.e., following an acute injury or due to general wear and tear).<sup>3</sup>

In addition, some evidence in dogs suggests that glucosamine/chondroitin sulfate-containing oral joint health supplements might be useful prophylactically—prior to injury or trauma. While this has not been specifically evaluated in horses, many owners and trainers administer oral joint health supplements to young, healthy, athletic horses with the intention of “protecting” the joints from damage.<sup>3</sup>

## Use Caution with Oral Supplements

Like all animal dietary supplements, oral

joint health supplements are not manufactured like pharmaceutical drugs and are essentially void of any form of government regulation regarding quality assurance/quality control. As a result, poor-quality products are available. This includes supplements that do not contain the type or amount of product as listed on the label, have or recommend sub-therapeutic dosages, and are potentially contaminated with harmful chemicals (such as pesticides and heavy metals) or other nutritional supplements manufactured in the same facility due to inadequate cleaning of the equipment.

For example, one study analyzing 23 commercially available oral joint health supplements

found that nine (39.1%) contained less glucosamine than indicated on the manufacturer's label. This means that more than one-third of tested products were delivering sub-therapeutic dosages of glucosamine. Poor-quality products are unlikely to be effective, delay the use of potentially beneficial treatments, and are an economic drain on unsuspecting consumers.<sup>4</sup>

Potential safety issues associated with oral joint health supplements are contamination, hypersensitivities (allergic reactions), drug-supplement interactions (these have been reported for many commonly administered herbs such as yucca, ginseng, flaxseed, and Echinacea), and contribution to, or worsening of, insulin resistance/equine metabolic syndrome. This latter potential contraindication stems from a hypothesis generated in human medicine that glucosamine negatively impacts patients with type 2 diabetes mellitus. To date, there is no evidence that glucosamine has any impact on glucose or insulin levels in horses.

The “ACCLAIM” system is a seven-step

process that helps consumers evaluate oral joint health supplement product labels with the goal of identifying quality products more likely to benefit the horse.

The letters stand for:

**A:** A name you recognize;

**C:** Clinical experience (published studies on efficacy);

**C:** Contents;

**L:** Label claims;

**A:** Administration recommendations;

**I:** Identification of lot; and

**M:** Manufacturer information.

### Oral Products

As noted above, oral joint health supplements contain many types of ingredients. The two most common are:

**Glucosamine** This is a type of sugar found concentrated in joint cartilage. It acts as a precursor for the building block units found within articular cartilage.

**Chondroitin sulfate** This is the predominant glycosaminoglycan found in adult articular cartilage. *In vitro* (in the lab) studies have demonstrated it is effective in inhibiting the enzymes associated with inflammation and tissue destruction.


Absorption might be a problem.<sup>5</sup>

### Injectable Joint Products

Unlike oral joint health supplements, injectable joint products are pharmaceutical drugs approved by the FDA. These products must be administered by, or under the supervision of, a licensed veterinarian. At present, only two injectable products are currently licensed: polysulfated glycosaminoglycans (PSGAGs) and hyaluronic acid.

**PSGAGs** Injectable PSGAGs are intended for either intramuscular or intravenous administration. PSGAGs function as a potent inhibitor of degradative enzymes (proteases), stimulate activity of the synovial membrane to improve joint function, and increase the viscosity of synovial fluid in traumatized joints. The intra-articular formulation is indicated for treatment of joint dysfunction of the carpal (knee) joints, and the intra-muscular formulation is indicated for both carpal and hock joints (but these products are often used off-label for dysfunction in the other joints). No contraindications are associated with the intramuscular administration of

PSGAGs; however, the intra-articular product should not be used if a joint infection is suspected.

**Hyaluronic acid** This is a ubiquitous substance in mammals found in connective tissues, skin, and synovial fluid. Its mechanism of action remains unclear, but research has demonstrated hyaluronic acid possesses anti-inflammatory properties and decreases degeneration of the joint. No adverse events have been reported following either the intravenous or intra-articular administration of sodium hyaluronate. 

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