

# Corta-Flx New Leader In Joint Nutraceuticals

*While the glucosamine Grand Flex and the glucosamine-chondroitin Cosequin topped our last look at joint nutraceuticals, a new examination of a new batch yields another strong contender, Corta-Flx, which combines chondroitins with the amino acid precursor to glucosamine.*

Few horsemen need an introduction to joint nutraceuticals anymore (if you do, see our November 1997 article), and even fewer need proof that they work. They readily plunk down big bucks to help lubricate their horse's over-stressed joints. Some even wonder if it's worth the money just as a preventative. In this article, we field test formulas not included in our first article and compare them to our previous findings.

## Responsive Conditions

Joint nutraceuticals are effective for a wide range of problems, including OCD, early to advanced degenerative arthritis and some "back problems," which may involve changes in the joints that allow movement of the spine. Since joint nutraceuticals only directly address problems related to joint cartilage, incomplete responses or failures may be related to the exact pathology involved.

For example, a horse experiencing pain related to osteophyte formation around a joint or joint fractures/dislocations will continue to have this problem. Muscular spasm/pain, ligamentous pain or pain related to chips of bone/cartilage or cartilage flaps will also be unchanged. Accurate diagnosis of all components contributing to pain is essential to matching the treatment program to the horse.

Despite similarities in the nutritional requirements for the maintenance of healthy joint cartilage and tendons/ligaments, we found no strong evidence that joint nutraceuticals are of benefit in treating tendonitis/desmitis.

## What Works Best

With two exceptions (Corta-Flx and Cosequin), we again found the most reliable, rapid response was to glucosamine at our recommended dosage. Most horses show obvious improvement in seven to 10 days. With chondroitins or mixed glycosaminoglycans and perna, response is slower and usually not as dramatic.

Lameness/stiffness may quickly return after stopping glucosamine, but improvements from chondroitin products or perna are more long lasting (four to six weeks). You can also expect a longer remission of symptoms after stopping the supplements in horses that have been on treatment for several months rather than several weeks.

The battle rages on concerning whether glucosamine hydrochloride (HCl) or glucosamine sulfate is preferred. The sulfur is important to the formation of strong cross-bridges in connective tissue. Nevertheless, no studies definitely prove glucosamine sulfate has a better clinical effect than glucosamine hydrochloride. We

## Old Favorite Grand Flex Shows Long-Term Benefits

Grand Flex (Grand Meadows) was our winning glucosamine product in November 1997. At that time, we reported we had not seen any change in quality of joint fluid, although the degree of lameness was dramatically improved on the product. Since then, we followed the progress of an arthritic ankle and arthritic hocks while on continuous Grand Flex. The color, protein content and viscosity of the joint fluid improved at the one-year and the 18-month marks, despite



continued heavy racing.

Grand Flex's formula has also changed, now providing 5,000 mg/oz of glucosamine instead of 3,900 with no increase in price. Methionine and vitamin C have been increased slightly and a low dose of yucca added. The zinc level was dropped to make the formula more compatible with more diets.

We also compared two horses' response to Grand Flex and other joint nutraceuticals. An older, retired mare with multiple problems was tried on perna, chondroitins and Grand Flex, all with appropriate wash-out periods in between (four to six weeks with return of symptoms). Response to chondroitins was noticeable, response to perna somewhat better, but clearly the best response was to Grand Flex--more energy, bright attitude in addition to relief of arthritis symptoms.

A younger racing mare had been on Grand Flex with good results for over a year. After stopping supplementation, she regressed to old levels of lameness problems in eight weeks. Chondroitin was of minimal benefit after four weeks. She would not eat perna. A glucosamine sulfate was tried, but results were not as good (possibly because she often left some behind). When put back on the Grand Flex, improvement in lameness was evident by the seven days mark and dramatic again at 10 days.

didn't see a difference either.

Horses on low-protein diets (10% or less) or those not receiving high-quality protein sources may have borderline sulfur status. The horse's primary source of sulfur is believed to be sulfur-containing amino acids, such as methionine. Supplying higher-quality protein or an organic sulfur source, such as MSM, may be helpful if using glucosamine HCl.

Glucosamine HCl is much less expensive than glucosamine sulfate. Another plus the hydrochloride has over the sulfate is that the sulfate has a noticeable odor that caused some palatability problems.

Product And Manufacturer	Joint-Specific Ingredient (listed as mg/lb, unless indicated)	Other Ingredients (listed as mg/lb, unless indicated)	PalatabilityRating	Price
Corta-Flex Equine America	Mucopolysaccharide chondroitin sulfate 25,000	Manganese 500; glycine 1,452.8; proline 771.8	++++	2.5-lb powder \$44.23; quart \$44.95
Vetriflex EQ Vetriflex Labs	Chondroitin sulfate 30,000; mucopolysaccharide 48,000	Yucca 90,000	+++	2-lb/\$35.70 to 20-lb/\$317.80
Arthrisoothe Garmon Corp.	Chondroitin 85,200; perna 50,400	Yucca 67,800; boswellia 67,800; vitamin C 67,800; vitamin E 20,400	+++	8-oz/\$48.33 to 10-lb/\$591.67
Joint Renew II Peak Performance	Glucosamine sulfate 227,272.7	Ester C 227,272.7; bioflavonoids 22,727.2; devil's claw 22,272.2; manganese 2,227.2; zinc 2,227.2	+++/ ++++	1.32-lb/\$99; 5-lb/\$329
Glucosamine HCl Med-Vet/UnitedVet	Glucosamine HCl 444,992	—	++++	10-oz/\$35 to 36-oz/\$98
Glucosamine XL Med-Vet/UnitedVet	Glucosamine sulfate 444,992	—	++	4-oz/\$33.95 to 32-oz/\$210
XtraFlex Med-Vet/UnitedVet	Chondroitin sulfate 95% 431,300	—	+++	4-oz/\$40.95 to 32-oz/\$249
XtraFlex Plus Med-Vet/UnitedVet	Chondroitin sulfate 95% 28,000	Vitamin E 3,200	+++	4-lb/\$81 to 25-lb/\$320
Glucosamine XL Plus Med-Vet/UnitedVet	Glucosamine sulfate 128,000**	Vitamin E 1,600 IU; niacinamide 2,400; vitamin C 3,200; copper*800; zinc* 4,800; manganese* 4,800; sulfur 800; L-methionine 3,334; L-lysine 3,334; glycine 160; yucca 2,000	++	4-lb/\$64 to 15-lb/\$218
Gluco-Max Pro-Formula Laboratories	Glucosamine sulfate 64,000	Ascorbic acid 32,000; copper* 128; bioflavonoids 16,000; betaine HCl 16,000; DL-methionine 16,000	++	2.5-lb/\$70; 5-lb/\$132
Maxflex Glucosamine Farnam	Glucosamine HCl 80,000	Lysine 2,272; methionine 3,632; copper* 240; zinc* 720; manganese* 560; ascorbic acid 3,360; yucca 1,600; omega-free fatty acids from heat-stabilized flax-seed meal	++++	3.75-lb/\$72.75 to 20-lb/\$379.10
Maxflex Chondroitin Farnam	Chondroitin sulfate 28,000	—	+++	3.75-lb/\$79.55 to 20-lb/\$350
Maxflex Pure Chondroitin Farnam	Chondroitin sulfate 432,000	—	+++	4-oz/\$57.95 to 2-lb/\$355
SureFlex Sure Nutrition	Chondroitin sulfates 35,200; perna mussel 48,000	Kelp meal 160; flax seed meal 128; alfalfa powder 5; yeast culture 48,000	++	5-lb/\$92 to 20-lb/\$309
Bone And Joint Uckele Animal	Chondroitin sulfate 227,000	Calcium 46 g/lb; phosphorus 42 g/lb	+++	8-oz/\$21.95 to 5-lb/\$184.95
MultiFlex	Perna mussel 80,000;	—	++	5-lb/\$55 to

MultiVet/NuPro	glucosamine sulfate 80,000			20-lb/\$195
Nu-Flex With Ester C*** Select The Best	Chondroitin sulfate 16,000; hydrolyzed collagen 8,000	Yucca 42,480; vitamin C 8,000; vitamin E 936 IU/lb; beta carotene 56	+++	5-lb/\$47.95 to 40-lb/\$328.95
Nu-Flex Glucosamine HCl Pure Select The Best	Glucosamine HCl 99.5% 454,000	—	++++	6-oz/\$29.95 to 12-oz/\$54.95
Nu-Flex Maximizer With Ester C Select The Best	Glucosamine HCl 120,000	Yucca 88,288; vitamin E 1,872; beta carotene 48; Ester C 21,680	+++	5-lb/\$64.95 to 40-lb/\$471.85
Perflexion Paragon/Equilife	Chondroitin sulfate 66,000; perna mussel 66,000	D-calcium pantothenate 8,800	+++	2.5-lb/72.63 to 20-lb/\$433.70
Next Level*** Sure Nutrition	Perna 3,000 mg/oz; glucosamine sulfate 2,200 mg/oz; shark cartilage 1000 mg/oz	Bromelain 250 mg/oz; ester C 2000 mg/oz	++++	pt/\$32.95 to gal/\$159
Flex Formula CS Nu-Solutions	Chondroitin sulfate 28,000	Manganese 3,200; DL- methionine 2,400	+++	3.75lb/\$67 to 20-lb/\$280
Nu-Action Plus Nu-Solutions	Glucosamine HCl 64,000	Ester C 3,200; zinc* 1,000; manganese* 800; copper* 280	+++	3.75-lb/\$39.50 to 20-lb/\$188.50
Engage EquiHealth	Glucosamine 368,181.8	Boswellia, Ester C, manganese	++	1-lb/\$79.95; 3-lb/\$179.95
Arthroglycan Vetrepharm	Chondroitin 250 mg/ml	Distilled water base	+	Available only through vets

\*chelated; \*\*recent increase; \*\*\*product field tested for palatability only. Palatability code: ++ finicky eaters likely to refuse; +++ finicky eaters may refuse; ++++ highly palatable. Note: We have our own core of "Mikeys" who won't eat anything and are

## Dosages

An important point in the first article was that effective dosages do not necessarily correspond to the manufacturers' recommended dosages. Initial glucosamine dosage for a 1,100-pound horse should be nine to 10 grams/day; perna mussel, chondroitin sulfate or mixed GAGs 7,500 mg/day minimum. Lower dosages usually yield less obvious responses. It is more cost efficient to begin with these dosages and attempt tapering later than to feed the lower dose for four weeks, only to find you need to increase it to tell if the product helps.

On the other hand, exceeding these dosages does not appear to result in further improvement. We also again found that horses who improve on the dosages above may need to be maintained at that level. Attempting to drop down to suggested "maintenance" dosages results in partial or full return of symptoms in many horses, especially those in work.

## Which Type Is Best?

We had few failures with any joint nutraceutical, and in each case there was an explanation pertaining to the problem being addressed. On the whole, glucosamines provided more rapid relief of pain, more obvious improvements in general attitude and better palatability.

Chondroitins also obviously help, although response seems better in older or less-active horses. A typical description of the response to chondroitins is that the horse is moving more freely, although any individual joint that was particularly problematic before supplementation is still usually easy to pick out.

### Patent Challenge

The legal battle continues between Nutramax, which manufactures Cosequin, and Twin Labs over combining chondroitin sulfate and glucosamine in one jar. In September 1998, we reported that Twin Labs was legally challenging Nutramax's two patents that allegedly bar any other company from combining these ingredients in one jar.

Perna-based products are the most problematic in terms of palatability (fishy base) and take the longest to show a benefit, although the eventual effect is usually excellent, especially in older horses, and may be related to the naturally high levels of omega fatty acids (anti-inflammatory nutrient) and other trace nutrients as well as the glycosaminoglycans. The effects of pernas also last the longest if the supplement is discontinued.

### Quality Control Is A Major Issue

Quality in manufacturing is important, including purity of ingredients and details of manufacturing that ensure a clean product, uniformly mixed and consistent from batch to batch. However, these details are not readily available to consumers. A company with a large advertising budget can "manufacture" a reputation. With expensive products, the purity/strength of

## New Chondroitins

When we spot a product with a prominent guarantee, we're tough on it. For one thing, a money-back policy doesn't compensate

you for lost time. Manufacturers also know it is a great selling point, and most people won't bother to try to get their money back, even if it doesn't work. If a guarantee appears to make an outlandish claim, however, we get in gear.

**Corta-Flx** claims guaranteed "dramatic results five days." That's pretty brave, but after trying this product on a wide variety of horses/problems young and old, active and retired we are convinced. In fact, most horses responded at three days. "Dramatic" is also accurate. Not only are pain, stiffness and range of movement improved, but the horse's attitude improves as well. Horses that would shuffle off slowly with their heads down when turned out were observed to trot out freely, even buck and run, as it took effect.

The Corta-Flx formula is unique. In addition to the quantified ingredients listed, the product contains vitamin C, superoxide dismutase (SOD), manganese, zinc, sulfur and a full complement of amino acids. The chondroitin sulfate/mucopolysaccharide fraction is specially processed to make it water soluble, therefore more available for digestion. The manufacturer reports it was the water-soluble nature of the product combined with the correct amount of amino acid precursor for glucosamine that gave them the best results and culminated in this formula. Palatable in liquid or powder, we found the liquid worked faster.

the key active ingredients is critical. For mixed GAGs and perna, purity is largely freedom from contamination. The assayed amounts of specific components such as chondroitin A, glucosamine or galactosamine will naturally vary from batch to batch. It is likely that any one of these single nutrients is responsible for benefits from these products. It is just as likely that the combination of various joint cartilage components, plus trace minerals and other unidentified factors, is beneficial. Bottom line for these is that the product actually contains the claimed amount of GAGs and perna. With glucosamine or "purified" chondroitin, the validity of assays of raw materials is much more important. You will pay more for a product that claims to have 95% or 98% pure chondroitin than a mixed GAG or perna.

Manufacturers purchase glucosamine or chondroitin from suppliers. These raw materials will be accompanied by certificates of analysis giving the purity. Certificates of analysis that come from independent laboratories carry more weight. Supplement manufacturers with the greatest commitment to quality will be certain all the raw ingredients they use are backed up by assays from independent labs, paying for those assays themselves if need be and performing verifying independent assays routinely if using a new supplier.

We surveyed all manufacturers in this article with regard to quality control. A few responded promptly and with volumes of material on the methods used and copies of both assays from suppliers of raw materials and the results of independent assays they performed. Others gave few if any details and were doing the minimum required to remain compliant with FDA regulations.

Richdel/Select The Best, Vetritech, Med-Vet Pharmaceuticals (MVP), Peak Performance and Grand Meadows reported all their raw materials were backed by independent laboratory assays of purity. Uckele Health And Nutrition, Farnam, Equilife/Paragon Performance and Sure Nutrition do some independent confirmations of purity, particularly when dealing with new suppliers. Not surprisingly, the same close attention to manufacturing procedures, record keeping and analysis of finished product on a batch-to-batch basis was reported by the same companies. In addition, Vetritech reports their company is striving to achieve ISO-9000 certification, an internationally recognized standard of the highest attention to quality and precise control of all steps of the manufacturing procedure.

**Arthroglycan** (Vetrepharm Canada) is another liquid chondroitin product, in a distilled-water base. We had no response at the label-suggested dose of 10 cc (2,500 mg) per day in a retiree with longstanding arthritis. At 5,000 mg per day, equivocal response was seen in a 10-year-old racehorse with old arthritis problems; the horse was described as "freer" (typical description of a chondroitin response). At 7,500 mg/day, equivalent to effective dose for powders, there was more obvious satisfactory improvement noted after five days in a six-year-old racing mare with moderate arthritis in the hocks.

**Xtra Flex** and **Xtra Flex Plus** (Med-Vet/United Vet) are high-grade chondroitin sulfates, with purity independently tested by the manufacturer. Both performed well with clear improvement noted at both the 5,000 and 7,500 mg/day feeding levels, better at 7,500. The exemplary quality-control program helps make them an excellent choice.



Horses in heavy training can make good candidates for joint nutraceuticals due to the constant wear and tear on their joints.

**Nu-Flex With Ester C** (Select The Best) contains guaranteed 95% pure chondroitin, like their Nu-Flex CS, and is backed by the company's independent analyses of incoming raw material, an extremely important plus. Nu-Flex with Ester C has yucca and an antioxidant package that is not as generous as their glucosamine. But it is a new formula that incorporates hydrolyzed collagen, the material targeted in arthritic conditions that has an autoimmune component. We did not have this product long enough to do field trials beyond palatability.

**Maxflex Chondroitin** and **Maxflex Pure Chondroitin** (Farnam) both performed quite well at the 7,500 mg/day feeding level for all classes of horses with inactive/older horses showing more response at the 5,000 mg/day mark than horses in work.

**Bone And Joint** (Uckele Health and Nutrition) is a mixed chondroitin product (bovine trachea origin) with added calcium and phosphorus in 1:1 ratio, making it compatible with any hay. As is typical of the

chondroitins, obviously freer movement was seen at the 10- to 14-day mark at a dosage of 7,500 mg/day; less obvious results below this dosage.

**Flex Formula CS Pellets** (Nu-Solutions) is an alfalfa-based pellet that made for less waste and good palatability. We had no effect feeding this product at manufacturer's recommended dose (1,750 mg/day chondroitin sulfates) or when doubling the dose undoubtedly because of the low daily dose.



Arthroglucan and Corta-Flx are liquid chondroitins.

This product could be considered for maintenance, especially in horses not being actively worked who usually have lower dosage requirements. However, the high manganese level, not balanced by the addition of other important trace minerals, could give an unbalanced mineral picture to the diet. The methionine is a good idea but is probably too small to make much difference.

### New Glucosamines

**Joint Renew II** (Peak Performance Nutrients) contains no fillers, meaning you can feed much smaller amounts for equivalent effects, a real plus for finicky eaters. The recommended dosage is in line with our findings 10 grams (two servings) per day of glucosamine. The array and dosage of supporting nutrients is also excellent: Ester C, bioflavonoids, devil's claw, manganese and zinc. Response was excellent. Within five to seven days, we saw marked pain relief and improvement in gait and attitude, even in horses heavily worked.

**Gluco-Max** (Pro Formula) is a state-of-the-art glucosamine product that focuses on the common areas of deficiency in most diets, making it compatible with most feeding programs. Liberal levels of vitamin C and bioflavonoids provide antioxidant coverage. A full gram of the key sulfur-containing amino acid methionine is provided in each serving, with betaine added to enhance metabolism of methionine. Results were also excellent; the only problem was with some palatability.

### Chondroitins Fight Inflammation

A recently published article (J of Eq Vet Sci, Vol 18, No 10, 1998) showed chondroitin sulfate in distilled water (identical to Arthroglucan) at a dose of 2,500 mg/day to be effective in protecting cartilage and controlling inflammation in an experimentally induced model of noninfectious arthritis. A unique property of chondroitin is its ability to reduce the activity of destructive enzymes within an inflamed joint. Although the arthritis created in this study was quite severe and not typical of naturally occurring disease, the findings suggest that chondroitin would be an effective addition to the treatment plan of acute arthritis problems where heat, increased production of joint fluid and joint-fluid abnormalities, including significantly elevated protein levels and cell counts, are found.

**Maxflex Glucosamine** (Farnam) contains a full 10 grams of glucosamine in each two-ounce serving. Response was excellent; results were less obvious at the five grams/day level, especially in working horses. While the levels of vitamin C and yucca could be higher for maximal benefit, levels of key amino acids lysine and methionine, as well as the chelated key trace minerals copper, zinc and manganese, make it a good choice for horses receiving little/no grain and/or mineral supplementation, and are compatible with any hay.

**Engage** (EquiHealth) mixes high-grade glucosamine with vitamin C from Ester C and manganese as well as herbal support from boswellia. However, the company preferred to keep exact dosages of the latter three ingredients proprietary, so we can't comment on adequacy. Fussy eaters are likely to detect the herbal component, despite the small volume you need to feed. Response was very good with clear improvements noted within seven days when feeding at least 7,500 mg glucosamine/day.



Maxflex Glucosamine is safe and compatible with any hay.

**Glucosamine HCL and Glucosamine XL** (Med-Vet/United Vet Equine) offer a choice of the hydrochloride or sulfate forms of glucosamine. Both provide excellent results at the nine to 10 gram/day feeding level with dosage drop to five grams per day possible for some horses, others (usually hard-working animals) require the higher dose be maintained. The hydrochloride is less expensive and more palatable.

**Glucosamine XL Plus** (Med-Vet/United Vet Equine) is billed as "the comprehensive joint lubricant formula," and it did provide excellent results within seven days. Some finicky eaters took a little time to accept the taste but were not a problem. We would like a higher vitamin C and amino-acid level. Level of chelated minerals, however, is excellent and makes this a good choice for horses who receive no supplemented grain or trace mineral supplements. This company also ranks with the best for quality control.

**Nu-Flex Glucosamine Pure and Nu-Flex Maximizer With Ester C** (Select The Best) are glucosamine with purity of incoming materials verified by independent testing, putting Select The Best in the top category of companies for quality control. It was no surprise that both products produced reliable results in short order (about seven

### Joint Nutraceuticals And The Older Horse

days). The Nu-Flex Maximizer also has an excellent anti-oxidant package and a whopping dose of yucca. It was effective at a dosage somewhat lower than usually needed for peak effect, possibly because of the yucca. Palatability was excellent.

Nu-Action Plus Pellets (Nu-Solutions) are alfalfa-based tiny pellets that provide excellent palatability with less waste than powdered products. This is probably why we had good results even at slightly under the usual effective dose for glucosamine (8,000 mg).

Aging of joints is a combination of the effects of mechanical wear and tear, uneven stresses related to conformation or improper shoeing and a slowdown in the rate of repair. A combination of borderline nutrition and decreased efficiency of digestion in older horses may also be involved. It was no surprise that the older horses in our trial were among the most responsive to joint nutraceuticals. Since older horses are usually not as heavily worked, some people believe it is possible to maintain improvement on lower maintenance doses. While it may be true for some, we recommend you use higher doses for two to four weeks to get an idea of how much improvement can be expected (to gauge any decline on lower doses). **Arthroflex** (perna mussel) and Flexxion (chondroitin sulfate) from Paragon Performance were both included in our original article, tested on horses in heavy exercise. Both were the least expensive products per dose in that test; Arthroflex was our recommended perna. We used these products as part of this field test to help determine if response was different between high-performance horses and retirees or if we could use lower doses in retirees. Response was the same (excellent), but our findings suggest most older horses will not get away with lower doses.

We also liked the supplements package with conservative but sufficient amounts of chelated trace minerals zinc, copper and manganese. We feel the vitamin C level should be raised, however.

### "Mixed" Products And Perna

Multi Flex from Multivet USA (Nupro) combines an effective dose of glucosamine sulfate with a generous amount of perna, the latter a rich source of trace minerals, amino acids, fatty acids and GAGs. Results were obtained rapidly (same time frame as other glucosamine products) and the reasonable price makes this product an excellent choice.



MedVet/United Vet Equine products were high in quality control.

**Vetreflex E.Q.** (Vetritech Laboratories, Inc.) provides one of the highest dose of glycosaminoglycans (GAGs) per serving at 4,875 mg, with triple dosing recommended during a two-week loading period. There is also a good amount of yucca. The generous dosages and adequate feeding recommendations for horses undoubtedly contribute to this product's rapid onset of effect (seven to 10 days). Stabilized rice bran is used as a source of fatty acids (contributes to the anti-inflammatory effects).

**Arthrisoothe** (The Garmon Corp.) is another mixed GAG product and combines mixed chondroitins with perna. It contains correct amounts of antioxidant vitamins E and C to help protect working joints from free-radical damage and the herbal anti-inflammatories yucca and boswellia.



Arthrisoothe contains vitamins E and C.

Response to Arthrisoothe after two to three weeks in two older horses with assorted and quite obvious joint problems was good, although we found that dropping below loading levels (two servings per day) resulted in obvious deterioration again—this is most likely due to the somewhat low levels of chondroitin and perna per dose.

**Perflexxion** (Paragon Performance/Equilife) combines chondroitin and perna mussel with pantothenic acid and unspecified amounts of yucca, biotin, methionine, brewer's yeast and wheat germ. Positive response was seen at two ounces per day with benefits taking approximately two weeks to become apparent.

**Sure Flex** (Sure Nutrition) is a blend of GAGs and perna mussel. Although results took a while (about two weeks) to become obvious, response was good. We feel the perna component was probably largely responsible since the level of chondroitins is relatively low per dose, although a synergy between the two cannot be ruled out. The addition of linseed meal with high levels of beneficial fatty acids naturally in perna makes for good anti-inflammatory effect. As with all products containing perna, acceptability may be a problem with some finicky eaters.



SureFlex has ingredients that make for a good anti-inflammatory effect.

**Next Level** (Sure Nutrition), a liquid, is an innovative new formula. Palatability was unsurpassed, despite the ingredients that send many horses charging into the corner when in powder form (glucosamine sulfate, perna, shark cartilage). The three effective chondroprotective agents are combined with a large dose of Ester C and bromelain, a protein-digesting enzyme to aid in the assimilation of the chondroprotectives. We did not have this product long enough to do field trials beyond palatability.

### Bottom Line

Picking a clear winner in joint nutraceuticals is like trying to claim that Advil works better than Nuprin (both ibuprofen), or Tylenol (acetaminophen) is better than either. Different products work by somewhat different

mechanisms, and every horse has its individual biochemistry and variations in disease process that could influence response.

In November 1997, we stated that the combination of chondroitin and glucosamine (as in Cosequin or your own mixture of products) is theoretically the best approach. On the basis of what is known from research, this is still true, although our last article's winning glucosamine-only product (Grand Flex) did prove to give equivalent results, both symptomatically and in terms of joint fluid. We do not recommend readers who are successfully using Grand Flex or Cosequin change to another product.

After our current field study, however, we believe the new Corta-Flx offers advantages in terms of both degree of response and speed of response. It contains the amino acid precursor to glucosamine, and the chondroitin has been specially processed to make it more "digestible" (meaning easier to break down to glucosamine). So, it isn't clear if this is a result of mixed actions from chondroitin and glucosamine or predominantly a glucosamine effect.

#### Not A Preventative

There is no solid evidence that joint nutraceuticals can prevent arthritis. In over three years of field trials with joint nutraceuticals on active horses, we've seen new problems and flare-ups of old problems develop in horses on these supplements. On the flip side, however, many problems that might otherwise have been expected to worsen stabilized or improved while on nutraceuticals. The bottom line is that you can't expect a supplement to prevent damage caused by heavy exercise, imperfect conformation, accidental injury or improper shoeing. Whether regular use of joint nutraceuticals before obvious problems develop could have a positive effect on extent of damage and/or recovery times also remains unanswered.

We also looked at a variety of innovative combinations of herbs with glucosamine or chondroitins and products with added herbals or beneficial fatty acids which also gave us good results. We do want to repeat our caution to make sure any heavily supplemented product (minerals) is compatible with your current diet. Long-term overdosing any mineral is never good.

Contact Your Local Tack Store Or:

Arthroglycan  
Vetrepharm Canada Inc.  
383 Sovereign Rd.  
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519/453-3384  
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SureFlex  
Sure Nutrition  
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Nu-Flex Products, Glucosamine HCL Pure, Chondroitin Sulfate Pure  
Richdel/Select The Best  
PO Box 1968  
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www.selectthebest.com

Joint Renew II  
Peak Performance Nutrients, Inc.  
3395 North Dixie Highway #8  
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www.equine-power.com

Engage  
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6330 Gunpark Dr.  
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5905-A Hampton Oaks Parkway  
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Max Flex Products  
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PO Box 34820  
Phoenix, AZ 85067-4820  
800/234-2269  
www.farnam.com

Flexxion, Perflexxion, Arthroflex  
Equilife/Paragon Performance Products  
PO Box 5005  
Glendale, CA 91221  
800/356-5222  
www.grailhorse.com

Vetreflex EQ  
Vetritech Laboratories, Inc  
3768 Hanson Loop Road,  
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www.vetritech.com

Bone And Joint  
Uckele Animal Health & Nutrition  
PO Box 160  
Blissfield, MI 49228  
800/248-0330  
www.uckele.com

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