

Greyhound Star Magazine
Performance Supplements

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Greyhound trainers often seek an 'edge' to help their greyhounds improve speed, stamina, and delay the onset of fatigue in the desire to give their animals a better chance of winning. Some nutritional compounds, such as nervous stimulants, including caffeine and tincture of opium, are strictly prohibited as they are not normal physiological compounds and directly improve performance or reduce pain. There are, however, a number of nutritional compounds which have a role in energy production pathways which are considered to have benefit in ensuring that a greyhound is able to perform to its full natural ability legally within the Rules of Racing.

Whilst many claims are made by manufacturers in relation to these types of nutritional supplements, in most cases, they generally provide little or no advantage in extra speed or stamina. If they did, they would be banned on race day for providing an unfair advantage over other non-supplemented greyhounds in a race. These nutritional compounds are often referred to as 'ergogenic aids'. Some of these energy releasing nutrients may be more suited to long term exhaustive exercise, such as racing sled dogs, but of little benefit to high speed, short term exercise as occurs in racing greyhounds. There are few scientifically controlled studies to support their claims in racing greyhounds. However, some greyhounds' seem to perform better when supplemented, perhaps because their normal diet is low or inadequate in these nutritional compounds.

Creatine

Creatine is regarded as the most popular energy enhancing compound because it is a natural compound in rapidly contracting muscles of animals. Skeletal muscles of animals naturally contain creatine, with the highest concentration in hare and rabbit meats of around 4g/100g meat. These animals are sprint escape animals in the wild and therefore the muscles contain higher amounts as compared to beef or chicken, which contain less than 0.5g/100g of meat. However, creatine in meat or a supplement is only absorbed effectively by carnivores, or meat eating animals, such as dogs and cats, and omnivores, including humans and pigs. The historic practice of feeding a racing greyhound rabbit meat for speed has some scientific basis, even if it only is beneficial during the first 5-7 seconds of a race.

Studies have shown that around 10% is absorbed as creatine during digestion in horses and herbivores. Therefore, giving creatine in the feed or as a paste to race or high performance horses has little or no benefit.

Creatine is a high energy phosphorous compound stored in the muscles as phosphocreatine. It is used as a short term energy source during acceleration out of the boxes to the first bend for the first 5-7 seconds of a race. This is the danger zone for many greyhounds and positioning themselves in front of the field at the first bend may have some direct advantage and reduce the risk of interference. Studies have shown that creatine improves heart muscle function, increases protein synthesis and acts to lower muscle lactate concentration during exercise. All these actions would be of benefit to a sprint racing greyhound if the compound could be supplemented in such a way to enable increased natural muscle

storage. Creatine does not metabolise efficiently without other metabolic compounds which assist its breakdown. These include amino acids, such as arginine, glycine and methionine, as well as the trace-mineral chromium.

Creatine as a nutritional compound is taken up rapidly by a greyhound from food and stored as phosphocreatine in the muscles. It is considered that 2-3grams creatine per day is required to increase muscle stores, but there have been no controlled studies in racing greyhounds to establish an effective supplementary rate. Anecdotal evidence, however, suggests some improvement in race speed and acceleration in racing greyhounds. In my own studies, carried out in the early 1990's, it was concluded that it may be of some benefit in individual greyhounds on a low meat, high dry food diet. It was found to be more beneficial when it was supplemented in small doses of 500-600mg over 4 small feeds per day, rather than as a single 2 gram supplement in the main meal before a race. However, controlled evaluations of muscle creatine levels were not carried out at this time.

Dimethylglycine (DMG)

A number of observations were carried out on both horses and greyhounds in the mid 1980's which claimed that racing greyhounds, when given DMG during training, were able to run for longer without developing fatigue. It was concluded that DMG helped conserve oxygen and increase stamina. However, these studies were not controlled to compare medicated animals with others in training and racing under the same conditions without DMG supplementation. It is possible that the animals gained fitness during training and were able to improve stamina and endurance as their muscles and cardiovascular system became more efficient and lactic acid production was reduced at the speed and distance raced. There is some evidence that DMG increases glycogen or muscle sugar, as well as creatine storage and may have antioxidant action. It is also considered that it requires adequate Vitamin C and amino acids to act most efficiently.

Theoretically, DMG is more likely to benefit coursing greyhounds or sled dogs, because it may improve longer distance stamina as compared to sprint speed or stamina in greyhounds racing over 500 metres. Controlled studies in horses have failed to demonstrate that DMG reduces blood lactate levels associated with fatigue in a standardised exercise workout. Animals medicated with DMG, in fact, had significantly higher blood lactate levels after exercise as compared to the control, non supplemented group.

Carnitine

Carnitine is an amino acid which is involved in the transport of long chain fatty acids into muscle cells to provide an aerobic energy source for long distance exercise. Although, it has been reported to increase stamina and distances able to be travelled by racing sled dogs, there have been no controlled studies to determine its benefit in racing greyhounds. It is claimed to increase energy production in working heart muscles during exercise, but no scientific studies have been carried out on greyhounds. In humans, carnitine is recommended to help reduce obesity and treat cardiac diseases, but these are not common problems in racing greyhounds which are lean and fit. As would be expected in a compound which assists in fat metabolism, antioxidant nutrients and B group vitamins are recommended to assist it in its action. Although widely promoted for use in greyhounds, again carnitine is more likely to benefit

coursing exercise rather than short term, high speed exercise in a lure racing greyhound. Dose rates of 20-50mg per kilogram body weight or 600-1500mg per day for a racing greyhound are suggested to complement a higher fat based diet. It may be possible that additional dietary carnitine has some benefit in early training as a greyhound loses fat and condition its metabolic system for faster exercise and racing.

In next month's article , we will review more ergogenic aids and other performance nutrients.