

## Conditioning & Feeding for Optimal Performance

This past June in St. Louis, Nestlé Purina hosted the Sporting Dog Summit, where top trainers and handlers from across North America shared their expertise and experiences. The list of 27 attendees read like a Who's Who of professionals at the top of their respective games and included Mike Lardy and Danny Farmer, nationally recognized retriever trainers; Gary Brown, a beagle field-trialer; Robin Gates, who runs all-age endurance stakes; Tim Whitaker, who competes with black-and-tan coonhounds; as well as George Tracey, Colvin Davis, Billy Wayne Morton, Delmar Smith and many more. Together the group had accounted for more than 70 National Championship sporting-dog titles and more than a 1,000 Field Champion titles. It was an honor for me to sit with this prestigious collection of trainers. Never before had a forum been conducted where the top pros representing various breeds converged to share information.

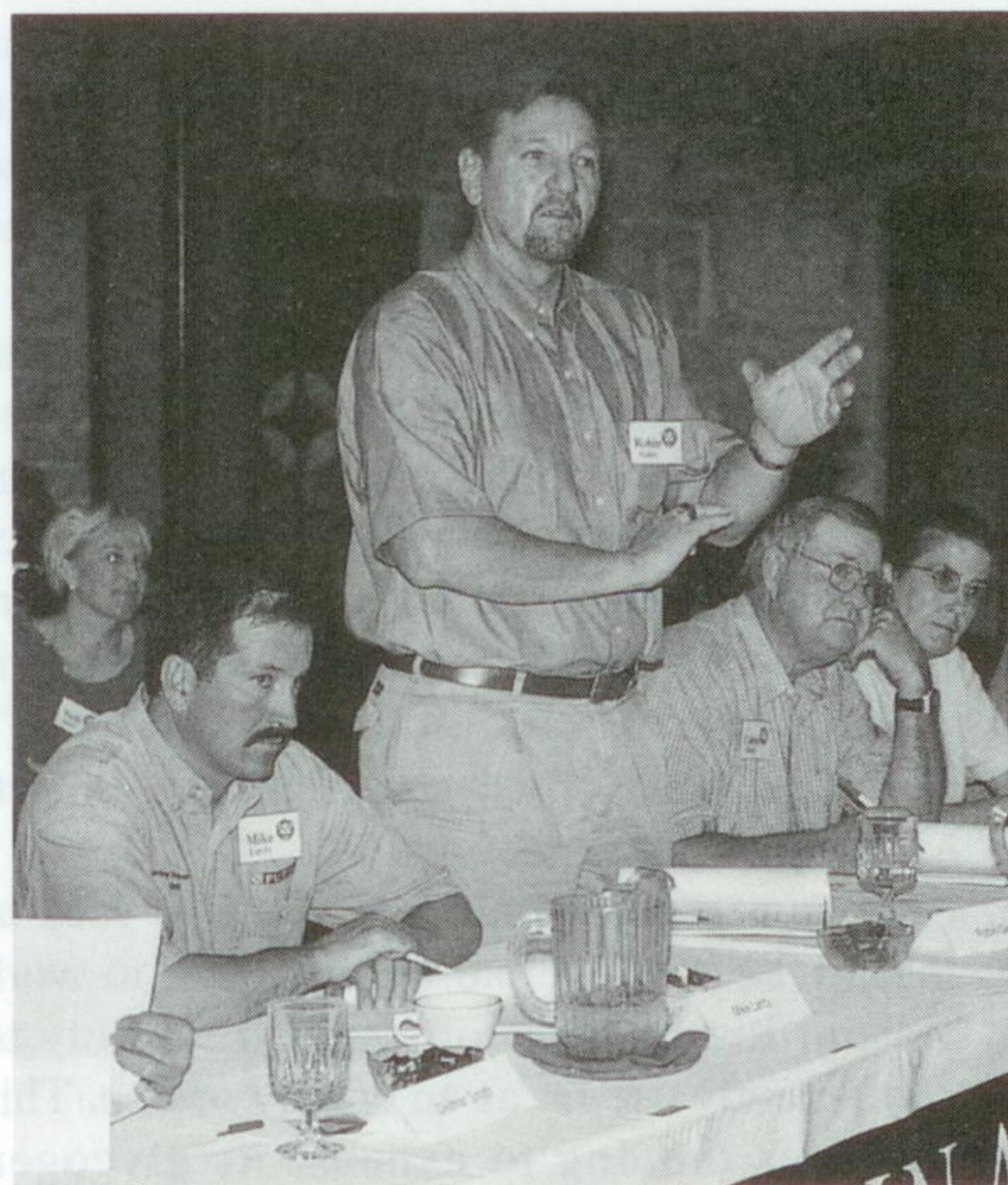
Dr. Arleigh Reynolds, DVM, PhD, a board-certified veterinary nutritionist and a Nestlé Purina nutrition scientist, was the keynote speaker. Reynolds specializes in canine nutrition and performance, training and conditioning sled dogs in Alaska. The focus of the Sporting Dog Summit was to give the attendees a competitive edge through knowledge about optimal conditioning and the impact nutrition has on performance.

But you say, "I only hunt on the weekends. What do I care about feeding dogs to win trials?"

I no longer compete in field trials, but I do hunt my dogs. My next guide season will start in August in Alaska for ptarmigan and end in February in Georgia for quail. Feeding for optimal performance not only keeps my team running, it allows me to have fewer dogs. I'd rather train and guide 15 dogs that stay in good condition than three times the number of dogs that don't run efficiently. If you have one or two dogs, you'll also be able to hunt more effectively by implementing some of what was discussed at the Summit.

"The physiological characteristics of many sporting dog breeds are virtually indistinguishable" Reynolds said. "Retrievers, bird dogs, coonhounds and beagles are capa-

ble of amazing feats, when properly trained and conditioned. When dogs with good genetic potential are well trained, well conditioned and well fed, they can perform to their potential. That's important! The goal is not to push dogs to their limits, but to condition them to perform to their potential and capabilities."



**Professional trainer and handler Robin Gates, who runs all-age endurance stakes, asks a question at the recent Purina Sporting Dog Summit, in St. Louis.**

Everyone in attendance agreed that genetics, training and nutrition form the proverbial "three-legged stool" that enables dogs to reach their potential. It all begins with genetics, but you also need proper nutrition and conditioning to help a dog achieve peak performance as well as to perform at its best later in life.

A wealth of information was shared at the Summit, and some old wives tales were debunked. The Summit addressed nutrition and its relation to conditioning (pre-race or pre-season preparation), health concerns and feeding for the competitive edge.

First, I should define what I mean by conditioning. Training is preparing the dog's mind to perform; conditioning is preparing the dog's body to perform. Conditioning lays the foundation for training and perfor-

mance goals to be achieved. Dogs that compete at top levels are conditioned with a mix of long, slow distance training, resistance training and cross training.

I accomplish my long, slow distance exercises by harnessing eight dogs at a time to a four-wheeler. I help them by controlling the throttle so they are not pulling the bulk of the weight of the ATV.

For resistance training, I attach a six- to eight-foot piece of welder's cable to each dog's harness (never to a collar!) and free-run the dogs alongside the four-wheeler or take them to the woods and let them run pulling the cables. Another way is to harness the dogs to the four-wheeler and slow down the rig periodically, allowing the dogs to pull some of the weight for short distances.

For cross-training exercises, I take the dogs swimming or free-run them for an hour or more with no attached cables. I incorporate a lot of stop-and-go in cross-training. Once the dogs are in peak condition, the next step is adding interval training, where I run them harnessed to the four-wheeler and vary their pace between trotting and all-out running. I give the dogs three to four days off between sessions.

Nutrition supports the conditioning regimen as well as supplies the energy needed for days of hard work and actually helps prevent injuries.

A study completed by Dr. Reynolds demonstrates that dogs fed a diet of 18-percent protein are much more prone to injuries than dogs fed 30-percent protein. But protein alone satisfies very little of a dog's energy needs. Only four calories of protein per gram can be converted to energy, whereas quality fat supplies nine calories per gram. Thus, dog food manufacturers cannot increase the energy density of food by only increasing protein. Still, protein must be fed on a daily basis to replace the essential amino acids a dog requires, as there are no safe protein reserves in a dog's makeup.

It makes sense that the more digestible a diet, the more fuel there is available for a dog's energy needs. Unfortunately, although the protein level is listed on a bag of dog

food, the digestibility is not. The protein digestibility of a top-shelf food will approach 90 percent. You should contact your dog-food company and ask what the protein digestibility of its food is based on live-animal feeding studies.

Current findings regarding protein do disperse one myth: Protein does not seem to affect the propensity to bone disorders, such as dysplasia, in puppies. The best advice is to feed the right amount of a great food, not more of a poor food. Also, don't let pups grow too fast; free-feeding is a poor choice for many pups.

According to Reynolds, a hard-working dog requires up to eight times more energy per pound of body weight than a human Tour de France competitor. The average person requires 1,800 to 2,000 calories per day, whereas a hard-working dog, such as a sled dog, may require six times that, or 12,000 calories a day! Fat is the most critical nutrient, as digestible fat is the only easy way to increase caloric energy. Performance dogs will store up to 50 percent of their energy requirements in fat. If more fat is put in the bloodstream, there is more available to use. Studies now show that even in the off-season a dog will benefit from a high-fat/high-protein balanced diet. It is a matter of a dog requiring fewer calories, not lower quality.

Dr. Reynolds performed a study where one control group of dogs got its calories from a 60-percent carbohydrate diet. The other group acquired its calories from a 60-percent fat diet. In both aerobic and anaerobic testing, it turned out that the high-fat diet enabled dogs to increase their maximum oxygen intake, for better performance. (Dogs have up to three times the oxygen-burning capacity of top human athletes.)

A high-carb diet makes dogs use glycogen (a stored form of sugar) at a higher rate. Dogs on a high-fat diet don't use up their stored carbs, enabling them to run farther and faster. If a dog can burn fat at a higher rate, it will burn the glycogen stored in the muscles at a lower rate—which is a good thing.

Additional studies show that hard work for multiple days in a row decreases a dog's glycogen stores, ultimately leading to significantly diminished performance and endurance. Feeding normal meals, it may take several days to refill the glucose tank, even if the dog is laid up. Thus, it may be advisable to complement (versus supplement) the dog's diet to replenish the glycogen stores quickly.

Supplementation means adding ingredients to try to make a poor diet into a good diet. If you need to supplement a diet, change foods. Complements are designed to serve specific purposes, such as quickly

refueling glycogen stores. Complements cannot be fed all the time in lieu of a quality food, as they will create an unbalanced diet. They are intended simply to help a dog recover after an unusually strenuous workout, enabling the dog to be ready to go the next time out.

After hard work there is a small window of 30 minutes in which the maximum amount of glycogen can be transferred back into a dog's muscles. I use a complement called Annamaet Glycocharge (215-453-0381), which was developed by Dr. Reynolds while he was at Cornell to rapidly top off the glucose tank. A diet complemented with Glycocharge will replenish 100 percent of a dog's glycogen stores within 24 hours—versus a normal feeding, which can replenish only up to 75 percent.

Hydration was discussed at length at the Purina Summit. The biggest losses of water in a dog's body are through respiration and urination. A dog inhales air, then exhales. Moisture is lost with every breath. In hot weather a dog also loses water by salivation. Urinating allows the dog to rid its body of metabolic waste created during exercise, and a dog hard at work may urinate up to three times more than when at rest.

A 3- to 4-percent decrease in body water is significant. The dog's blood becomes sticky, making it more difficult for the heart to pump. The cardiovascular workload is accordingly increased. With a decrease in circulation comes decreased delivery of nutrients to the muscles. Additionally, the dog's ability to cool is reduced. This may, in fact, precipitate hyperthermia.

As a general rule it is wiser to feed at least 12 hours before asking a dog to work hard. Insulin turns off the dog's ability to efficiently use fat as an energy source. This causes the dog to exhaust its glycogen stores more rapidly. As a result, it will get tired sooner.

Reynolds feeds his dogs 24 hours before race time. This allows the dogs to be emptied of wastes by the time they're called on to run, which makes things easier on their systems. In the field, if you notice your dog straining to defecate or showing blood in its stool, the dog may have been fed too close to hunt time.

When a dog is asked to work all day, snacking is good, if done correctly. Giving the dog a small amount of sausage or dry dog food (one to two ounces) will keep up the dog's blood sugar without having its insulin spike. The key is to feed a little every hour rather than a lot every three hours.

The key factors shared at the Summit that will help your dog not only perform better over time but live longer were:

- Proper feeding and conditioning can help minimize injuries.

- Proper rest between workouts is required and is paramount to success. Rest is the single most important part of recovering from an injury.

- Supplementation should not be necessary when feeding a complete and balanced, high-quality performance diet. Only dogs with special conditions may require supplementation.

- Adequate protein is crucial in a high-quality performance diet. Dietary protein should comprise approximately 24 to 40 percent of the kilocalories (energy) and should be highly digestible.

- Fat is the most important energy nutrient for work. Dogs fed a high-fat diet should run farther and faster than those fed a low-fat diet.

- Carbohydrates are important for maximum energy output, especially when a dog is performing events over several days.


- It is very important to monitor a dog's body temperature during exercise, especially in warm or humid weather. This can be accomplished by carrying a rectal thermometer in the field. Consider that immediately after hard work a dog's temperature may reach 107° F. The temperature should drop to 104° within five minutes. If it doesn't, immediate action should be taken to cool the dog.

- Monitor hydration often and try to anticipate situations that may put a dog at risk. Exercise in hot or cold extremes can predispose a dog to dehydration. Try to get plenty of water into a dog long before exercise begins. Carry a water bottle in the field for small drinks during exercise as needed. Dehydration is easier to prevent than to treat.

- Examine working dogs regularly by running your hands over their bodies. Look for minor injuries and treat them, to prevent them from becoming major injuries.

- Set up a progressive training and conditioning plan, preparing a dog for a variety of environmental situations, including weather and humidity. The plan should include resistance training, cross training and long, slow distance training to build a dog's cardiovascular base.

By applying common sense, incorporating the science of optimal nutrition and conditioning, and sharing information, Purina hopes to reach more dog owners and handlers and help sporting dogs safely perform to the maximum of their genetic potential.

Thank you, Purina. 

*Author's Note:* Nestlé Purina videotaped the 2002 Sporting Dog Summit and has distributed copies to national parent, local and regional breed clubs throughout the sporting dog community.