

What Many Owners Don't Know About Their High Energy Dog

Is your active dog truly 'hyperactive' or is she displaying doggy behaviors normal for her breed and trying to get her needs met? This at-home test can tell you if your dog is truly hyperactive. Plus, know the two things unique to very active dogs: an amino acid deficiency and altered gut bacteria.

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STORY AT-A-GLANCE

- A 2016 study revealed that hyperactive/impulsive dogs have lower levels of tryptophan in their blood than normally behaved dogs
- The study also suggests there are differences in the gut bacteria of hyperactive dogs
- The incidence of clinically diagnosed hyperactivity in dogs is actually quite low; many dogs labeled hyperactive by their owners are displaying normal, if undesirable, canine behaviors
- There are many things owners of very active dogs can do to redirect their pet's energy; one of the most important is to ensure your dog is receiving adequate exercise

If your dog is "high energy" to the point of exhaustion (yours and his!), you might be interested to know that a study published in 2016 uncovered an intriguing distinction between hyperactive and impulsive/inattentive dogs, and "normal" dogs (dogs without those behaviors).

Hyperactivity, impulsiveness, sensitivity to noise, and general fearfulness are the most common behavioral problems in dogs, and can significantly affect the well-being of both the pets and their human family members.

Similar to humans with attention deficit/hyperactivity disorder (ADHD), the research team learned that hyperactive dogs have certain elements of their blood counts that differ from normally behaved dogs. Those differences are in the metabolites of phospholipids, in particular, **tryptophan**.¹

Similarities Between Humans With ADHD and Hyperactive Dogs

According to the study's lead researcher, Professor Hannes Lohi of the Department of Veterinary Biosciences and Research Programs Unit, Molecular Neurology, at the University of Helsinki:

"Behaviour and behavioral disorders often develop as a combination of hereditary and environmental factors, which makes studying them challenging. Metabolomics, or the study of the metabolism, provides us with new clues on the biological issues underpinning behavioral disorders while promoting genetic research."

"At the moment, metabolomics research in dogs is rare, and the purpose of this pilot study was to examine new approaches and attain information on any metabolic abnormalities associated with hyperactivity in dogs."²

Lohi and his team looked at the blood metabolites of 22 hyperactive and normally behaved German Shepherds and discovered the hyperactive dogs had lower blood phospholipid levels. They expected this result because several human studies have revealed lower blood lipid and fatty acid levels in people with ADHD.

Interestingly, the age, gender and fasting status of the dogs had little impact on the link between behavior and metabolites. All the dogs were fed the same diet for two weeks before their blood was tested.

Differences in the Gut Bacteria of Hyperactive Dogs

The researchers point out that perhaps the most interesting discovery from their study is the link between hyperactive behavior and low levels of tryptophan metabolites in the blood. This particular metabolite is produced only when **gut bacteria** process tryptophan in the diet.

This suggests the intestinal bacteria of hyperactive dogs is different from that of normally behaved dogs, which is significant in light of what we now know about the gut-brain connection.

"We know that the composition of the gut microbiota significantly influences the creation of neurotransmitters, for example, those which regulate mood and behavior," says study co-author Jenni Puurunen.

"The effect also works vice-versa, so that a stress reaction in the brain can have an adverse effect on the gut microbiota. Consequently, we cannot tell whether our discovery is the cause of canine hyperactivity or its consequence."³

Clearly, in order for these study results to be helpful, more research is needed into the blood differences and gut-brain connection of dogs with diagnosed hyperactivity. And I emphasize diagnosed hyperactivity for a reason.

First Things First: Is Your Dog Truly 'Hyperactive'?

The term hyperactive tends to be commonplace these days, and many pet parents use it to describe a very active dog. But despite the popularity of the term, the clinical syndrome of hyperactivity is actually quite rare in pets.

True hyperactivity involves over-activity, attention deficits, impulsivity, and high testing physiologic parameters, all of which are conventionally calmed by stimulant drugs (weird, but true).

Most dogs who appear hyperactive are probably better described as hyperkinetic. They react to normal everyday sights, sounds, and smells as if they're experiencing them for the first time. They often seem unable to rest even in a completely comfortable, quiet environment.

Hyperkinetic dogs are usually three years or older and typically have increased heart and respiratory rates, poor body condition scores, reactivity, and agitation. They are emotionally aroused by routine stimuli and often stay in a state of arousal long after the stimuli is removed.

To diagnose true clinical hyperkinesia in a dog, certain things must be ruled out first, including:

- Conditioning (the dog has been rewarded for undesirable behavior)

- Hyperthyroidism
- Lack of appropriate exercise and environmental stimuli
- Allergies or another medical condition
- Phobias and anxiety disorders
- **Cognitive decline** in older dogs
- Territorialism

After all root causes for hyperactive behavior are ruled out, the traditional method for diagnosing hyperkinesis is to observe the dog in a hospital setting, where she is put in a quiet location and her physical activity is recorded for an hour. Her heart and respiration rate are measured every 15 to 30 minutes.

If both her activity level and physiologic measures remain elevated, she moves onto the next test in which she's given a stimulant and put in an alternate quiet area.

A minimum of one hour later, she's returned to the testing area, and if she behaves in a calm manner, with reduced heart and respiration rates, she is diagnosed with hyperkinesis.

This test can also be conducted at home over several days under the guidance of a veterinarian, but often the results are less conclusive and unreliable.

Is Your Dog Just Trying to Get His Needs Met?

The truth is most symptoms of hyperactivity as perceived by dog parents are actually either **breed-specific behaviors**, conditioned behaviors, behaviors resulting from a lack of appropriate physical or mental stimulation, or a combination.

It's important to recognize the difference between canine behavior that is abnormal, and behavior that may be undesirable, but is actually normal given the dog's circumstances.

To sort it out, your veterinarian or an animal behavior specialist will need a detailed description of the unwanted behaviors, including:

- How often your dog performs them and to what degree
- How much exercise, social interaction, playtime and exploration your pet gets daily
- How you and other family members respond to your dog's undesirable behaviors

There are many things that can affect your dog's behavior, including whether she's alone or ignored much of the time, doesn't get adequate exercise, or hasn't received **obedience training**. It's also possible you've unintentionally conditioned her to use physical activity to get attention.

If you notice your canine family member is much easier to be around after she's been to the dog park or has run around the backyard with your kids for an hour, you can reasonably conclude that burning off physical and mental energy has a positive effect on her behavior.

Dogs who don't get their daily needs met for activity, social interaction, mental stimulation and environmental enrichment, may appear to be hyperactive as they attempt to fulfill those needs within the constraints of their environment.

9 Suggestions for Managing a High Energy Dog

Since very few dogs are clinically hyperactive, my recommendation is to evaluate your dog's lifestyle from every angle as a first step.

1. Make sure he's getting plenty of rigorous exercise (more about this shortly).
2. Provide mental stimulation with puzzles, treat-release toys, hikes, swims and other outdoor activities that appeal to your dog's natural instincts.
3. Focus on desired behaviors your dog performs rather than on what you don't want him to do. Dogs respond to positive reinforcement behavior modification, which does not include punishment.
4. Enroll your dog in an obedience class or an activity that helps her focus, such as **nose work**.
5. Feed a nutritionally balanced, fresh, meat-based diet to avoid **food intolerances**, amino acid deficiencies and allergies. Unbalanced, high fat (low amino acid) "prey model" diets are often tryptophan deficient (unless 90% lean meats are used), as well as micronutrient deficient. I think the veterinary community underestimates how much nutrient deficiencies and food sensitivities can contribute to restless, hyperkinetic behavior.
6. Consider testing your dog's microbiome to determine what flora imbalances are present and provide the specific foods, fibers or probiotic strains needed (including fecal microbiome transplants) to support a healthier gut bacteria balance.
7. Discuss supplements such as L-theanine, ashwagandha, GABA, melatonin, hops, chamomile, valerian root, flower essences and CBD oil with your integrative veterinarian. Even better, find a practitioner trained in applied zoopharmacognosy and let your animal choose his own calming agents.
8. Also talk to your vet about adding tryptophan to your dog's diet by offering grass fed, lean, amino acid rich meats. Increasing dietary tryptophan through food-based supplementation can increase the amount of serotonin in your dog's brain and reduce stress.
9. Avoid genetically modified foods. Research shows **GMO's wreak havoc on the gut** and disrupt microbiome and intestinal health.

Don't Undervalue Exercise for High Energy Dogs

Every dog needs regular physical activity to be healthy, and this is especially true if your dog is a high-energy breed. In my experience, lack of sufficient exercise and playtime is the biggest cause for restless behavior, erroneously categorized as hyperactivity or obsessive-compulsive disorder (OCD).

Dogs are workers by nature. Canines in the wild have very busy lives tending to the business of survival, raising their young, and socializing with other members of the pack. Unfortunately, many companion dogs today have somewhat isolated, sedentary lives.

They don't get enough physical or mental stimulation, and they often spend many hours alone at home every day, or watching their owners watch TV, work on the computer, or text. Dogs with very active temperaments can develop behavior problems if they aren't provided opportunities to work off all that energy.

If your dog is under-exercised or bored, he may show one or multiple behaviors that make it appear as though he has a clinical case of hyperactivity:

- Barking or whining for attention
- Destructive chewing, digging, or scratching
- Excessive mouthing and play biting
- Counter-surfing, garbage raiding, and other sneaky behaviors
- Predatory and **rough play**.
- Rowdiness, crashing into furniture, and jumping up on people

If you feel sure the lifestyle you're providing your dog gives him plenty of outlets for physical activity and mental stimulation, but your furry pal is still hyperactive more often than not, I recommend making an appointment with your veterinarian.

Sources and References

[Science Daily, October 4, 2016](#)

¹ [Behavioral and Brain Functions, September 29, 2016](#)

^{2,3} [Science Daily, October 4, 2016](#)
