



Cognitive Dysfunction in Dogs

Cognitive behavior includes difficulties with spatial orientation (a sense of direction while moving around), problems with memory, learning, house training and difficulty in recognizing human family members.

Some age-related behavioral changes that you may notice with pets can include: housetraining problems, apparent memory loss, disorientation, confusion, staring, wandering, getting stuck in corners, sleep disturbances (waking at the wrong time, sleeping unusually deeply, night pacing), restlessness, barking, separation anxiety, panting, drooling, obsessive licking, etc.

Progression of signs can be so gradual that it may be difficult to detect in its early stages and can be written off as normal aging changes. A study of 180 dogs aged 11-16 years showed that 28% of 11-12 year old dogs and 68% of 15-16 year old dogs showed at least one sign consistent with cognitive dysfunction. Although this is a high percentage of dogs that are affected, it does not make the behavioral normal.

Increasing age results in some of all of the following changes in the brain:

- 1) The number of nerve and brain cells decrease and cause reduced brain function.
- 2) There is an increase in beta-amyloid plaques. Beta-amyloid is a protein that accumulates in the brain and damages neurons. The greater the beta-amyloid accumulation, the greater the cognitive impairment. Errors in a dog's ability to learn are strongly associated with increased deposition of beta-amyloid.
- 3) Numerous micro-hemorrhages (bleeds) and infarcts (places where blood flow has stopped or been disrupted) occur. These likely compromise overall blood flow and result in hypoxia (a reduced availability of oxygen).
- 4) Neurotransmitter levels change: monoamine oxidase B (MAOB) has been found to increase in older dogs. MAOB metabolizes dopamine, a neurotransmitter, resulting in decreased dopamine levels. This leads to changes in ability to sleep, recognize familiar people and creates problems with memory.

Treatments that may help improve cognitive dysfunction:

- 1) Environmental enrichments (housing with another dog, playing with toys daily, teaching new commands through hand signals) and grooming/touch can help your dog cope with vision and hearing loss.

The combined effects of a balanced nutrition/supplement regime and enriched environment provide the greatest improvement in learning ability when compared to the dogs who did not have either dietary or environmental enrichment.

- 2) Supplements/dietary changes such as fish oil supplements which can help to provide brain health and improve memory and other supplements including vitamin E which may show a benefit to helping to control sleep alteration patterns.
- 3) Medications such as Anipryl which works to try to prolong dopamine activity (which helps to regulate sleep, mood, learning, etc).

This questionnaire is designed for you to see what point in the spectrum your pet may be experiencing signs of Canine Cognitive Dysfunction. Please review your answers with the veterinarian at your upcoming appointment.

	<u>Never</u>	<u>Sometimes</u>	<u>Often</u>
Disorientation			
Wanders aimlessly			
Appears lost or confused in house or yard			
Gets "stuck" in corners, or under/behind furniture			
Stares into space or at walls			
Has difficulty finding door; stands at hind side of door; stands at wrong door to go outside			
Does not recognize familiar people			
Does not respond to verbal cues or name			
Appears to forget reason for going outdoors			
Interaction with Family Members			
Solicits attention less often			
Is less likely to stand/lie for petting (walks away)			
Is less enthusiastic upon greeting			
No longer greets owners (once dog is aware that owners have arrived)			
Sleep and Activity			
Sleeps more (overall) in a 24-hour day			
Sleeps less during the night			
Show decrease in purposeful activity in a 24-hour day			
Shows increase in aimless activity (wanders, paces) in a 24-hour day			
Housetraining			
Urinate indoors (indicate # incidents per week)			
Defecates indoors (indicate # incidents per week)			
Urinate or defecates indoors in view of owners			
Urinate or defecates indoors soon after being outside			
Signals less often to go outside (for dogs that previously signaled to go outside)			

Notes: _____
