

Saturday, December 7th, 2024



Transforming Lives™

Small Animal Clinical Nutrition Symposium

AGING CATS & DOGS





AGENDA

Saturday
Dec. 7th
2024

7:30am — 8:30am	Registration
8:30am — 8:35am	Welcome
8:45am — 9:25am	Managing Common Senior Dog Health Conditions & Comorbidities with Nutrition Camille Torres-Henderson, DVM, DABVP, DACVIM (Nutrition)
9:35am — 10:25am	Managing Common Senior Cat Health Conditions & Comorbidities with Nutrition Camille Torres-Henderson, DVM, DABVP, DACVIM (Nutrition)
10:25am — 10:40am	Break
10:40am — 11:30am	Senior Pet Diets Camille Torres-Henderson, DVM, DABVP, DACVIM (Nutrition)
11:30am — 12:00pm	Morning Session Q&A Camille Torres-Henderson, DVM, DABVP, DACVIM (Nutrition)
12:00pm — 1:00pm	Lunch
1:00pm — 1:30pm	Weighty Matters: Tackling Canine & Feline Obesity In Senior Pets - Insights from the Healthy Weight Clinic & Pet Health Center Katherine Oakes, DVM
1:30pm — 2:20pm	Canine Cognitive Dysfunction Susan Nelson, DVM
2:20pm — 2:40pm	Break
2:40pm — 3:30pm	Nutrition Tips and Tricks for the Senior Patient: Diets and Esophageal Feeding Tubes Ally Sptiz, DVM, (Residency Trained in Small Animal Clinical Nutrition))
3:30pm — 4:00pm	Afternoon Session Q&A



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Canine Cognitive Dysfunction

SUSAN NELSON, DVM



CANINE AND FELINE COGNITIVE DYSFUNCTION SYNDROME (or are they just getting old?)



2024 KANSAS STATE UNIVERSITY
NUTRITION CONFERENCE

SUSAN NELSON, DVM



Canine and Feline Cognitive Dysfunction Syndrome (CDS) Learning Points

- Prevalence
- Causes
- Symptoms
- Diagnosing
- Treatments

What are Cognitive Functions?

- Cognitive functions include the mental processes of...
 - Perception
 - Awareness
 - Learning
 - Memory
- These allow an individual to
 - Acquire information about the environment
 - Decide how to act

Cognitive Dysfunction Syndrome (CDS)

- Is a neurobehavioral disorder
- It is characterized by an age-related decline in:
 1. Cognitive abilities to the point they affect functioning
 2. Behavior changes that are not attributable to other medical conditions

Prevalence of CDS in Dogs is Extremely High

- 28% in 11- to 12-year-old dogs
- 68% in 15- to 16-year-old dogs
- Nearly **100%** of dogs **>16 years** showed at least 1 sign

Salvin et al (2010)

- 2 year longitudinal study ≥ 8 years
 - 33% of dogs with normal cognitive status progressed to mild cognitive impairment
 - 22% of dogs with mild cognitive impairment progressed to CD

Schutt et al (2015)

Other Risk Factors for CDS in Dogs

- Studies have not found any sex or size correlation
- Recent literature does not suggest any breed predilections
- It can be influenced by Genetics, Diet and Lifestyle

Dewey et al (2019)

CCD is Likely Significantly Under-Reported in the General Canine Population

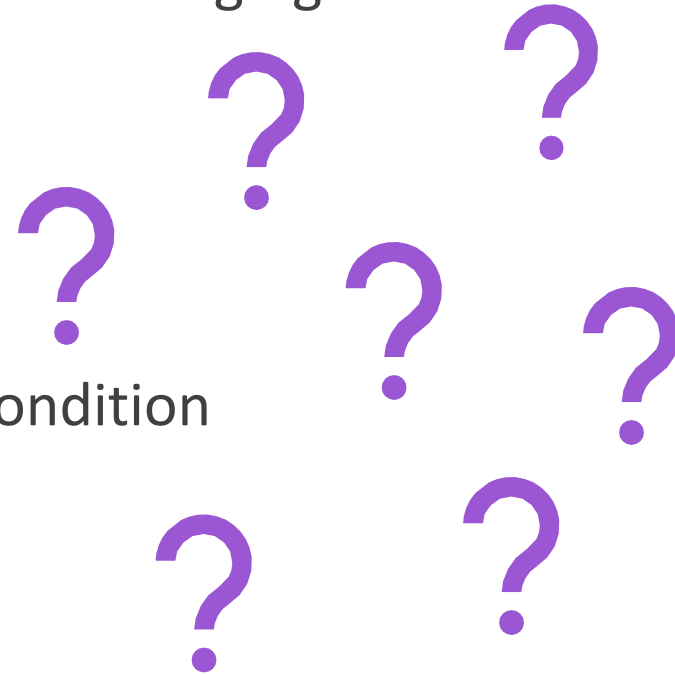
- Prevalence rate of CCD estimated to be 14.2%
- Only 1.9% of cases diagnosed by a veterinarian



Salvin et al (2010)

Why is CCD Under-Reported by Owners?

1. Mild cognitive impairment reflects normal canine aging
 2. CDS is not common
 3. There are no effective treatments for the condition
- Short appointment times



Better Education of Both Clients and Veterinarians is Needed

- Dogs are less likely to develop such severe impairment as occurs in people with Alzheimer's Disease (AD)
- Typically respond well to medical intervention
- Interventions typically applied have little to no adverse effects

Schutt et al (2016)

The Pathophysiology of CCD is Multifactorial and Complex

- ↓ Glucose uptake and metabolism in the brain
 - Mitochondrial dysfunction
- Oxidative damage
 - ↑ percentage of polyunsaturated fatty acids
 - ↓ levels of endogenous antioxidant activity
- ↑ Perivascular changes
- ↑ Amyloid plaques in the hippocampus and cerebral cortex
 - Mitochondrial dysfunction

A β is a Protein Produced by Degradation of Amyloid Precursor Protein

- **Deposition of AMYLOID PLAQUES** in the brain parenchyma and walls of the cerebral blood vessels
 - Prefrontal Cortex
 - Temporal Cortex
 - Hippocampus
 - Occipital Cortex
- Regardless of position, the amount and extent of A β deposits $\leftrightarrow$ severity of cognitive impairment

Cummings et al (1996)

Neurotransmitter Function Changes as Chemical Levels are Altered

- Depletion of catecholamine neurotransmitters
 - Monoamine oxidase
 - Serotonin
 - Dopamine
- ↑ Monoamine oxidase B (MAO-B) activity
- ↓ Endogenous antioxidants
- Decline in the **cholinergic system****
 - Acetylcholine

Dewey et al (2019)

Brains of Older Dogs Have **Neuropathological Lesions** Similar to Those Seen in People With Alzheimer's Disease (AD)

Structural brain abnormalities identified grossly and on MRI in both people with Alzheimer disease and dogs with canine cognitive dysfunction

- Cerebrovascular disease
- Infarcts
- Microhemorrhages, occ. macrohemorrhages
- Cerebral atrophy
- Meningeal thickening
- Ventricular dilatation
- Gliosis

Dewey et al (2019)

Canine CDS Symptoms

- Body systems undergo both **physiologic** and **metabolic** changes with age
- These changes → **Behavioral Issues**
 1. Separation anxiety
 2. Destruction
 3. House soiling

TOP 3 Reported Behavior Symptoms

Symptoms of CDS in Dogs

- ↓ Reaction to stimuli
- ↓ Exploratory behavior
- ↑ Confusion
- ↑ Disorientation
- ↓ interaction with owners and other dogs
- Irritability
- Anxiety
- Slowness in obeying commands
- Problems performing previously learned behaviors
- Altered sleep-wake cycles

Dewey et al (2019)

- Inattentiveness
- Inactivity
- Compulsive wandering and pacing, especially at night
- Demented behavior
- Urinary and/or fecal incontinence (posture normally, but void inappropriately)
- Difficulty navigating stairs
- Attempting to pass through inappropriately narrow spaces
- Unable to locate dropped food
- Getting lost in familiar environments
- Unable to recognize familiar people or animals
- Decreased interaction with family
- Apparent hearing loss
- Excessive vocalization especially at night
- Acting senile

Which Symptoms Associated with CDS do OWNERS Generally Report for Their Dogs?

- Altered sleep-wake cycle
- Confusion or disorientation
- Reduced interactions with owners
- Anxiety

Fast et al (2013)

WHAT ARE SOME PHYSICAL CHANGES THAT COULD BE MISTAKEN FOR CDS?

- Arthritis in joints
- Spinal spondylosis
- Decreased muscle mass (sarcopenia)
- Nuclear sclerosis
- Cataracts
- Deafness
- Decreased smelling ability
- Decreased taste senses
- Changes in digestion and respiration
- Urinary incontinence
- Forebrain tumor

A Thorough Physical Exam and Medical Workup are **ESSENTIAL**

- May have underlying, treatable metabolic issues
- These may be chronic and continue to contribute to the behavior issues, even if treated
- Treat behavior issues **AFTER** any medical issues have been addressed and treated

What do Veterinarians Need to do to Diagnosis CCD or Exclude It?

- **Thorough physical examination**
 - Neurologic examination
 - Orthopedic examination
 - Pain assessment
- **Appropriate diagnostic testing**
 - CBC
 - Biochemistry panel
 - Urinalysis
 - Systemic blood pressure

Additional Diagnostic Tests

- Radiography
- Ultrasonography
- Endocrine tests
 - Thyroid
 - Cushing's
- CSF assessment
- **Brain MRI**
 - Usually shows A SMALL INTERTHALAMIC ADHESION THICKNESS

Dewey et al (2019)

What Might You See in the Exam Room?

- Often related to forebrain dysfunction
 - Anxiety
 - Abnormal mentation
 - Compulsive circling
 - Absent or inappropriate response to visual/auditory stimuli
 - Excessively resistant to even mild restraint
 - Transient vestibular episodes*
 - Recent onset of possible seizure activity*

Dewey et al (2019)

A Complete History is also Important

- Medications currently taking
- Behavioral changes observed
 - **Origin, duration and progression**
 - **When** and **where** problem behavior occurs
 - **Concurrent** behavior issues
 - **Who is involved** when behavioral **problem occurs**
 - **Routine** interactions
 - **Changes** in routine
 - **Pet--owner** interactions
 - What happens in a **24 hour period**

COGNITIVE
DYSFUNCTION
SYNDROME
EVALUATION TOOL

Cognitive Dysfunction Syndrome (CDS) is an irreversible degeneration of the brain similar to Alzheimer's disease in humans, characterized by progressive cognitive impairment beyond that expected to occur with aging. CDS has a slow onset, can be difficult to manage and affects an estimated 14% of dogs 8 years and older.



D	DISORIENTATION	• Gets stuck, difficulty getting around objects, goes to hinge side of door • Stares blankly at walls, floor, or into space • Does not recognize familiar people/familiar pets • Gets lost in home or yard • Less reactive to visual (sights) or auditory (sounds) stimuli	
I	SOCIAL INTERACTIONS	• More irritable/fearful/aggressive with visitors, family or other animals • Decreased interest in approaching, greeting or affection/petting	
S	SLEEP/WAKE CYCLES	• Pacing/restless/sleeps less/waking at night • Vocalization at night	
H	HOUSESOILING, LEARNING AND MEMORY	• Less able to learn new tasks or respond to previously learned commands/name/work • Indoor soiling of urine or stool/decreased signaling to go out • Difficulty getting dog's attention/increased distraction/decreased focus	
A	ACTIVITY	• Decrease in exploration or play with toys, family members, other pets • Increased activity, including aimless pacing or wandering • Repetitive behaviors (e.g., circling/chewing/licking/stargazing)	
A	ANXIETY	• Increased anxiety when separated from owners • More reactive/fearful to visual (sights) or auditory (sounds) stimuli • Increased fear of places/locations (e.g., new environments/going outdoors)	
¹ Salvin, HE, McGreevy, PD, Sachdev, PS, & Valenzuela, MJ (2010). Underdiagnosis of canine cognitive dysfunction: a cross-sectional survey of older companion dogs. Veterinary Journal (London, England : 1997), 184(3), 277–81. doi:10.1016/j.tvjl.2009.11.007			

BEHAVIORAL SIGNS

Identify signs that have arisen or progressed since 8 years of age and older.

Score as 0=none, 1=mild, 2=moderate, 3=severe

Score

DISORIENTATION

Gets stuck, difficulty getting around objects, goes to hinge side of door

Stares blankly at walls, floor, or into space

Does not recognize familiar people/familiar pets

Gets lost in home or yard

Less reactive to visual (sights) or auditory (sounds) stimuli

SOCIAL INTERACTIONS

More irritable/fearful/aggressive with visitors, family or other animals

Decreased interest in approaching, greeting or affection/petting

SLEEP/WAKE CYCLES

Pacing/restless/sleeps less/waking at night

Vocalization at night

HOUSESOILING, LEARNING AND MEMORY

Less able to learn new tasks or respond to previously learned commands/name/work

Indoor soiling of urine ___ or stool ___ /decreased signaling to go out

Difficulty getting dog's attention/increased distraction/decreased focus

ACTIVITY

Decrease in exploration or play with toys, family members, other pets

Increased activity including aimless pacing or wandering

Repetitive behaviors, e.g., circling ___ chewing ___ licking ___ stargazing ___

ANXIETY

Increased anxiety when separated from owners

More reactive/fearful to visual (sights) or auditory (sounds) stimuli

Increased fear of places/locations (e.g., new environments/going outdoors)

TOTAL (BE SURE TO CARRY OVER THE SCORES FROM FRONT SIDE OF SHEET)

Once this form is completed, your veterinarian will determine the cause of these signs through a physical examination and recommended diagnostic tests. However, even if your senior pet is experiencing multiple health issues associated with aging, there may be some degree of CDS.

A score of 4-15 is consistent with mild, 16-33 is moderate, and >33 is severe CDS.



Goals For Treatment of CCD

- **Slow the progression** of the disease
- **Maintain the quality of life** for both the patient and family

Commercial Diets

- Hill's Prescription b/d diet*
- Purina One Vibrant Maturity 7+
- Purina Neurocare*
- Royal Canin Canine Mature Consult

MCT and Coconut Oil Supplementation

- Use pure MCT oil and top dress the food
- To get the highest dose of MCTs
 - Use nutraceutical MCT oils
 - **Coconut** and **Palm Kernel** oil (pure MCTs at 100% of the oil)
- Approximately 5% of the dry matter in the diet initially
 - Top dress a commercial food **OR**
 - Use primarily coconut oil as a fat source in a properly formulated home-prepared diet
 - Coconut oil 10% of calories in the diet
 - MCT oil addition provides 5% of the calories
- Treats
 - Can create imbalance in the diet regimen
 - Be conservative with addition of the oil!

Dewey et al
(2019)

MCT and Coconut Oil Supplementation

Calculated metabolizable energy for average elderly dog with potential amounts of coconut or medium-chain triglyceride oils that can be used to help with canine cognitive dysfunction

Dog Weight (kg)	ME (Kcal) ^a	10% ME Coconut Oil	5% ME MCT Oil	10% ME MCT Oil
5	335	1 tspn (35 kcal)	0.5 tspn (18 kcal)	1 tspn (35 kcal)
10	570	1.5 tspn (53 kcal)	0.75 tspn (27 kcal)	1.5 tspn (53 kcal)
20	950	3 tspn (105 kcal)	1.5 tspn (53 kcal)	3 tspn (105 kcal)
30	1280	3.5 tspn (123 kcal)	1.75 tspn (62 kcal)	3.5 tspn (123 kcal)
40	1590	4.5 tspn (158 kcal)	2.25 tspn (79 kcal)	4.5 tspn (158 kcal)
50	1880	5 tspn (175 kcal)	2.5 tspn (88 kcal)	5 tspn (175 kcal)

Abbreviations: ME, metabolizable energy; tspn, teaspoon.

^a ME calculated from average ME for low-activity elderly dog – 100 (kg).0.75

Dewey et al (2019)

Supplements recommended for people affected by Alzheimer Disease

- Vitamins B (B12), C, and E
- Mitochondrial cofactors (L-carnitine and DL- α -lipoic acid)
- Carotenoids (green leafy vegetables)

Nutraceuticals

- Apoaequorin (calcium buffering protein)
- Melatonin
- Valerian root
- Docosahexaenoic acid (Omega 3 fatty acid)
- Various antioxidants
 - Can act as mitochondrial cofactors
 - Increase cellular endogenous antioxidant upregulation
- Mitochondrial cofactors (e.g. L-carnitine, DL- α -lipoic acid)

- **SAMe (Denosyl®), Novifit®** (S-adenosyl-methionine) and milk thistle
 - Elimination the free radicals in both the brain and liver
- **Gingko biloba**
 - Increases blood flow to the brain
- **Senelife®**
 - Resveratrol (a polyphenol), **Vitamins E** and **B6**, phosphatidylserine, ginko biloba
- **Aktivaik®**
 - Phosphatidylserine (a phospholipid), omega-3 fatty acids, **vitamins E** and C, **L-carnitine**, **α-lipoic acid**, coenzyme Q, selenium
- **Proneurozone™**
 - **Acetyl-L-Carnitine**, Alpha Lipoic Acid, Spirulina, Soy Lecithin, Omega-3 Fatty Acids, Bioflavanol, **Cranberry**, Niacin, Cysteine, Bilberry, **Vitamin E**, **Thiamine**, **Riboflavin**, Rosemary, Sage, **Vitamin B6**, Folic Acid, **Vitamin B12**

Exercise

- 2 x 20 minute outdoor walks per day
- Cognitive enrichment

Interactive Play and Training (30 min. 5x per week)

- New toys
- Padded surfaces for sitting and traction for movement
- Painful pets
 - “Stand” or “look” commands may replace frequent “sit” or “down” cues
- Adjust behavior signals used in training if sensory dysfunction is significant
 - Tactile cues or hand signals
- More powerful motivators for learning may be needed
 - High-value food rewards

Maintain a Regular Routine

- Keep on a consistent schedule
 - Feeding
 - Walking
- Do not change up the environment

Food Puzzles

- Encourage mental facilitation
- Provide regular mental stimulation and enrichment

Pharmaceutical Intervention

- **Selegiline (Anipryl®)**
- MAO-B inhibitor
- Shown to increase cognitive function in dogs
 - Antioxidant
 - Enhances catecholamines
- Dose: 0.5-1 mg/kg PO once daily in the **morning**

Selegiline (Anipryl®)

- Helps ↓ changes in the sleep-wake cycle
- Improved cognitive function usually seen in **2-4 weeks**
 - **Up to 2 months** in some
- Changes may be **subtle**
 - Encourage keeping a journal/log of any noted behavioral changes

Important Contraindications/Precautions for Selegiline

- **Don't use in conjunction with...**
 - Ephedrine
 - Other MOAI's
 - Tricyclic antidepressants (TCA)
 - SSRI's
 - Meperidine
 - Opioids
 - Amitraz (Mitaban[®] dip)
- Allow at least **14 days** between stopping selegiline and starting a TCA
- Allow at least **5 weeks** between stopping SSRI's and starting selegiline

Memantine

- **N-Methyl-d-Aspartate Receptor Antagonists (NMBA)**
- Binds to N-methyl-d-aspartate receptors in the brain
- Blocks activity of glutamate
- Used in dogs to treat compulsive behaviors
 - 0.3 to 1.0 mg/kg PO q12h

Other Drugs That May be Useful

- Levetiracetam (Keppra®)
 - Decreases hyperexcitability
 - 20-30 mg/kg q 8 hr.
- GABAergic drugs to decrease anxiety
 - Gabapentin or Pregabalin
 - Gabapentin 10-20 mg/kg PO q 8-12 hr.
- Anti-inflammatory drugs (eg, carprofen)

(Dewey et al 2019)

Not available in North America

- **Propentofylline (Vivitonin® or Karsivan®)**
 - Xanthine derivative
 - Licensed to combat dullness and lethargy in older dogs
- **Nicergoline**
 - Contains adrenergic antagonists
 - Increases blood flow in the brain
 - Enhances neuronal transmission

Individual Chinese herbs and their relevant molecular mechanisms	
Latin and Chinese (in Parentheses) Herbal Name	Mechanism of Action
<i>Ginkgo biloba</i> (Bai Guo)	Antioxidant; antiapoptotic; antiinflammatory
<i>Huperzia serrata</i> (Qian Ceng Ta) 	Procholinergic; antiglutamate (NMDA antagonism)
<i>Curcuma longa</i> (Yu Jin)	Inhibits A β production; antioxidant; antiinflammatory
<i>Ginseng</i> (Ren Shen) 	Antioxidant; antiglutamate (NMDA antagonism); decrease A β
<i>Coptis chinensis</i> (Huang Lian)	Inhibits A β production; procholinergic; antioxidant; antiinflammatory 
<i>Polygala tenuifolia</i> (Yuan Zhi)	Inhibits A β production; antiapoptotic
<i>Salvia miltiorrhiza</i> (Dan Shen)	Inhibits A β aggregation; antioxidant; antiinflammatory
<i>Angelica sinensis</i> (Dang Gui)	Antioxidant; antiinflammatory
<i>Crocus sativus</i> (Zang Hong Hua) 	Antioxidant; antiapoptotic
<i>Gastrodia elata</i> (Tian Ma)	Procholinergic; antioxidant
<i>Rehmannia glutinosa</i> (Shu Di Huang)	Procholinergic; antioxidant
<i>Epimedium</i> (Yin Yang Huo)	Antioxidant; antiapoptotic
<i>Magnolia officinalis</i> (Xin Yi Hua)	Procholinergic; antioxidant
<i>Scutellaria baicalensis</i> (Huang Qin)	Inhibits A β aggregation; antioxidant; antiinflammatory; antiapoptotic
<i>Camellia sinensis</i> (Cha Hua)	Reduces A β levels; antioxidant; antiinflammatory; antiapoptotic

Dewey et al (2019)

Other Complimentary Therapies

- Compression garments
 - Thundershirt
 - Anxiety Wrap
- Dog Appeasing Pheromone
- Aromatherapy
- Massage
- Physical therapy
- Acupuncture (Electroacupuncture)
 - Enhance brain neuroplasticity

Mechanism of Action for Positive Effects Seen with Acupuncture

- Enhanced neuronal glucose use
- ↓ Accumulation of A β in the brain
- ↑ Production of neurotrophic factors
- Proliferation of neuronal stem cells
- Hippocampus
 - Protection or recovery from synaptic loss and dendritic atrophy in the hippocampus

Prevalence of CDS in Cats

- 36% in a population of 11- to 21-year-old cats
- The incidence of behavior changes increases with advancing age
 - 28% of cats aged 11 to 14 years.
 - 50% cats aged 15 years and older

Gunn-Moore et al (2007), Moffat et al (2003)

Causes of Feline CDS

- Compromised cerebral blood flow
- Presence of small hemorrhages around the blood vessels
- Chronic free radical damage
- Likely similar to dogs/humans in respect to **Genetics**, **Life Style** and **Diet**

Symptoms



- The **most common behaviors** seen in 11- to 14-year-old age group
 - Alterations in social interactions
- **Most common signs** in cats aged 15 years and ↑
 - Aimless activity
 - Excess vocalization
- **Disorientation**
 - It's estimated that disorientation occurs in at least 40% of cats aged 17 years and ↑
Gunn-Moore (2007)

VISHDAAL

- Vocalization
- Alterations in interactions
- Changes in sleep-wake cycle
- House soiling
- Disorientation
- Alterations in activity levels
- Anxiety
- Learning and memory

Sordo et al (2021)

Disorientation

- **Spatial disorientation** (confusion about where they are)
- **Temporal disorientation** (confusion about what time it is)

Feline CD Symptoms

- **Changes in sleep-wake cycles**
- **House soiling**
 - Eliminate in sleeping areas or by eating areas
 - Eliminate outside the litter box
- **Inappropriate vocalization**

Feline CD Symptoms

- Altered interaction/relationships
- Altered interest in food
- Decreased grooming
- Changes in general behavior

Feline CD symptoms

- **Changes in learning and memory**
 - Forgetting commands
 - Forgetting previous litter tray training
- **Changes in activity**
 - Reduced activity
 - Aimless wandering or pacing

Common Older Cat Diseases That Could Cause Similar Symptoms

- Chronic kidney disease
- Hyperthyroidism
- Diabetes Mellitus
- Systemic Hypertension
- Osteoarthritis
- Deafness
- Meningiomas

Table 1. Mobility/Cognitive Dysfunction Questionnaire*

My cat	Yes	No	Maybe
Is less willing to jump up or down	☐	☐	☐
Will only jump up or down from lower heights	☐	☐	☐
Shows signs of being stiff at times	☐	☐	☐
Is less agile than previously	☐	☐	☐
Shows signs of lameness or limping	☐	☐	☐
Has difficulty getting in or out of the pet door	☐	☐	☐
Has difficulty going up or down stairs	☐	☐	☐
Cries when picked up	☐	☐	☐
Has more accidents outside the litter box	☐	☐	☐
Spends less time grooming	☐	☐	☐
Is more reluctant to interact with me	☐	☐	☐
Plays less with other animals or toys	☐	☐	☐
Sleeps more and/or is less active	☐	☐	☐
Cries out loudly for no apparent reason	☐	☐	☐
Appears forgetful	☐	☐	☐

It can be difficult to differentiate between many of the changes caused by CDS and/or other behavioral/neurological diseases in old cats, and those caused by OA. In addition, it is not unusual for an individual cat to have multiple interacting conditions.

*Ensure there have been no environmental reasons for the change(s).

Gunn-Moore (2007)

Management of Cats with CDS

Environmental Enrichment

- Extra toys
- Increase the amount of time you spend with the cat
- Increase play interactions with the cat
- Provide hiding places
- Elevated sites
- Puzzle feeders

Introduce changes to your cat's
environment gradually, so as not to
confuse them!

Environmental Adjustments

- **Avoid placing food and water on high surfaces**
 - Difficult to access
 - Provide a ramp up to the surface
- **Raise food and water bowls up slightly from the floor**
 - Makes them easier to reach
 - Especially arthritic cats

Environmental Adjustments

- **Provide several comfortable beds**
 - Easily accessible areas
 - Heated beds for added comfort
- **Provide large, low-sided litter boxes**
 - Place them in easily accessible locations
 - Keep existing locations and add new ones

Environmental Adjustments

- **Provide soft litter**
 - Sandy-types are softer on the paws
- Let cats **out via a door** rather than a cat flap
- Area for **peace and quiet** away from other pets/people

Environmental Adjustments

- **Avoid introducing a new cat or dog**
- **Use pheromones to help reduce anxiety**
 - Feliway® Classic
 - Feliway® Multicat or Feliway® Optimum (If multiple cats)

Dietary Supplements

- **Aktivait Cat**
 - **DO NOT** use canine form due to alpha-lipoic acid content
 - **Toxic to cats**
- **SAM-e**
 - Novifit
 - Denosyl
- **Senilife**
- **Reservatrol**
 - A polyphenol that comes from the skin of red grapes and some other berries and peanuts
- **Proanthozone**

Dietary Management

- Switch to diets higher in antioxidants
 - Hill's Prescription Diet Kidney + Mobility, k/d j/d
 - Nestlé Purina Pro Plan Age 7

Prescription Medications

- **Selegiline**
 - 0.25-1.0 mg/kg PO q 24 hours
 - FelineVMA supports the use of this drug
 - **Beware of drug interactions!**
- Propentofylline (Not available in US)
 - 12.5 mg/cat PO q 24 hr.
- Buspirone 0.5-1mg/kg PO q 12 hr.
- Fluoxetine 0.5-1.3 mg/kg PO q 24 hr.

Other Complimentary Therapies

- Nutraceuticals
 - Zylkene
 - Composure
- Compression garments
- Aromatherapy
- Herbal supplements
- Acupuncture
- Acupressure
- Massage
- Physical therapy

Take Home Points

- One needs to
 - Recognize the symptoms of CDS
 - Start treatment EARLY in the disease
- Client education is essential
 - Start educating before cats and dogs reach their senior years
- Be sure to work-up and treat any co-existing diseases first

Goals are to...

- Slowwwww the progression of disease
- Maintain QOL for BOTH the patient AND the client

References Available Upon Request





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