



Christopher Pachel,
DVM, DACVB, CABC
Animal Behavior Clinic
Portland, Oregon

Importance of recognizing behavior changes associated with aging:

- ▶ Awareness of underlying and pathology
- ▶ Accurate diagnosis treatment
- ▶ Quality patient care
- ▶ Client assistance



- ▶ 8-year-old M/N Golden retriever
- ▶ 4 aggression incidents within past year
- ▶ Approached by child while lying down
 - ▶ On floor, in chair, in back of SUV
- ▶ Growl, head threat, snap
- ▶ What should we consider?



- ▶ Timid when adopted, now exuberantly (and comfortably) social
- ▶ No history of resource guarding over food, objects, resting locations or owner attention
- ▶ Allowed supervised interactions with neighborhood kids and family friends
- ▶ History of intermittent lameness rear leg
- ▶ Stiff when rising from "down" position



- ▶ Aggression associated with:
 - ▶ Rising, movement, anticipation of movement
 - ▶ Physical or social interactions
 - ▶ Decreased tolerance of manipulation
- ▶ Pain related aggression



- ▶ Treatment options
 - ▶ Exam, diagnostics, pain medication trial
 - ▶ Limit interactions while lying down or resting
 - ▶ Awareness of body language
 - ▶ "Lookaway", lack of response
 - ▶ Associate handling with +R
 - ▶ Progression is possible
 - ▶ Proactive use of basket muzzle



- ▶ 10-year-old Border collie
- ▶ Recent onset of separation anxiety signs
- ▶ Increased startle responses
- ▶ Lack of recognition of family members
- ▶ What should we consider?



- ▶ No evidence of cognitive decline
- ▶ Normal activity, energy, movement
- ▶ Decreased appetite, interest in sniffing on walks
- ▶ Isn't reacting to sound of garage door or doorbell



- ▶ Anxiety secondary to loss of maintenance cues
- ▶ Decreased visual tracking, lack of response to environmental stimulation (noises)
- ▶ Reduced sense of smell and appetite
- ▶ Sensory decline



- ▶ May also present as social disengagement, aggression, anxiety, hyperactivity or restlessness
- ▶ Limited options for treatment – focus on management
 - ▶ Safety during interactions
 - ▶ Treatment of anxiety
 - ▶ Vibrating collar
 - ▶ Adequate lighting
 - ▶ Awareness without startle
 - ▶ Drag line leash
 - ▶ Enhanced flavor diet



- ▶ 11-year-old M/N Newfoundland
- ▶ Four month history of indoor elimination
- ▶ What should we consider?



- ▶ Previous refusal to enter clinic (smooth floors)
- ▶ Stopped going to 2nd/3rd levels of home months prior to onset of elimination issues
- ▶ Unable to support own weight for more than 30-45 seconds
- ▶ Fell down steps of deck



"Blitzen"

- ▶ Trainer forced out of house during "training session"
- ▶ No indications of incontinence
- ▶ Progressive history of weakness and/or physical problems

- ▶ Primary musculoskeletal issues
- ▶ Conditioned fear/aversion leading to Breakdown in house training



- ▶ Fear/aversion (flooding, post injury, weather)
- ▶ Lack of access to elimination location
- ▶ Screen for incontinence, urgency, GI or urinary tract problems
- ▶ Difficulty maintaining posture or pain while posturing to eliminate

- ▶ Treatment options:
 - ▶ Treat underlying physical issues
 - ▶ Increase access, environmental management strategies
 - ▶ Behavior modification to address aversion



- ▶ 12-year-old F/S Standard Poodle
- ▶ Taking items out of trash and off counters
- ▶ Barking at owner
- ▶ Jumping on visitors
- ▶ Progressive frequency and intensity

- ▶ What should we consider?



- ▶ Strong social bond with owner
- ▶ Independent temperament
- ▶ Well trained, therapy dog
- ▶ Change in care relationship with owner correlating with advanced age and primary medical issues



- ▶ Pattern of exuberant behaviors in a variety of contexts (impulse control issues)
- ▶ History of redirection/reinforcement of unwanted behaviors
- ▶ No evidence of cognitive decline
- ▶ Intelligent, operant learner

- ▶ Loss of behavioral inhibition
 - ▶ (Reinforced behaviors)



- ▶ May appear as:
 - ▶ Increased attention seeking behavior
 - ▶ Pushy or opportunistic behaviors
 - ▶ Loss of manners or training
 - ▶ "90-year-old grandmother" effect

- ▶ Treatment options:
 - ▶ Awareness of reward patterns
 - ▶ Increased management
 - ▶ Attention to basic training



- ▶ 12-year-old F/S Greyhound
- ▶ Eight week history of barking during evening hours and periodically overnight
- ▶ What should we consider?



- ▶ Minimum database/radiographs – no significant abnormal findings
- ▶ No response to NSAID, gabapentin, tramadol
- ▶ No response to DAP, Xanax, melatonin, acepromazine
- ▶ Disrupted sleep/wake cycle



- ▶ May be due to:
 - ▶ Changes in exercise schedule or needs
 - ▶ Changes in elimination schedule or needs
 - ▶ Anxiety (situational or generalized)
 - ▶ Pain or discomfort
 - ▶ Hypertension
 - ▶ Owner reinforcement
 - ▶ Cognitive impairment



- ▶ Treatment options:
 - ▶ Treatment specific to underlying diagnosis
 - ▶ Reinforce sleep/wake cycle
 - ▶ Afternoon/evening exercise
 - ▶ Bedtime routine, lighting changes
 - ▶ Body wrap options
 - ▶ Consider melatonin and/or trazodone trial
 - ▶ Complementary therapies



- ▶ Varying perspectives on aging and death
- ▶ Past experience with family or pets
- ▶ Lack of support within social circle
- ▶ Role of pet in household
- ▶ Increased demands on time and energy
- ▶ Unavoidable outcome



- ▶ UC Davis study: Nielson 2001
- ▶ 180 dogs aged 11-16 years
- ▶ No primary medical diagnoses to account for behavioral changes
 - ▶ Decreased social interaction with owners
 - ▶ Sleep-wake cycle changes
 - ▶ Activity level changes
 - ▶ Housesoiling
 - ▶ Disorientation



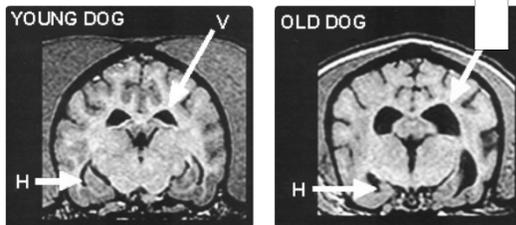
- ▶ 11-12 yr old dogs
 - ▶ 28% positive for at least one category
 - ▶ 10% positive for at least 2 categories
- ▶ 15-16 yr old dogs
 - ▶ 68% positive for at least one category
 - ▶ 36% positive for at least 2 categories
- ▶ >50% of dogs 11+ yrs old – at least one sign
- ▶ Only 7% of owners spontaneously reported problems to vet

- ▶ Assumed to be part of "growing older" and aging process
- ▶ Owners may not be aware that treatment is available
- ▶ Concerns may not be raised unless asked about specifically



- ▶ Disorientation in familiar environments
- ▶ Interactions with human or other animals decline
- ▶ Sleep/wake cycle disturbance
- ▶ House training (and other previously learned behaviors) might deteriorate
- ▶ Activity changes
 - ▶ Lack of interest in exploration, eating, grooming
 - ▶ Increase in non-directive behaviors (pacing, vocalizing, and compulsive behaviors)

- ▶ Neurodegenerative condition
- ▶ Subset of aging patients
- ▶ Changes in performance on memory tasks in dogs as young as 6-8 years
- ▶ Progressive cognitive decline
- ▶ Not only "ancient" dogs
- ▶ Diagnosis of exclusion



Degenerative brain changes

J. Vet. Intern. Med. 2013;27:822-828

An Observational Study with Long-Term Follow-Up of Canine Cognitive Dysfunction: Clinical Characteristics, Survival, and Risk Factors

R. Fast, T. Schütt, N. Toft, A. Møller, and M. Berendt

- ▶ 94 dogs >8 years old
- ▶ 4 key signs:
 - ▶ Sleep during day, restless at night
 - ▶ Decreased interactions
 - ▶ Disorientation at home
 - ▶ Anxiety
- ▶ Presence of CDS did not negatively influence survival
- ▶ No significant difference based on size or sex

CDS
Treatment
Fundamentals

- ▶ Convenient and frequent outdoor access for elimination
- ▶ Mental and physical enrichment
 - ▶ Exercise, play, training, food dispensing toys
- ▶ Environmental management
 - ▶ Light for orientation, soft bedding, awareness of mobility issues, maintenance cues
- ▶ Treatment for primary medical and behavioral issues

Hills Prescription Diet® b/d®

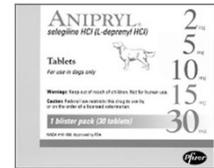


- ▶ Supplemented with:
 - ▶ Vitamin E and C
 - ▶ Selenium, beta carotene
 - ▶ Flavenoids, caratenoids
 - ▶ Omega 3, EPA & DHA
 - ▶ L-carnitine, lipoic acid
- ▶ Dry formula only

- ▶ 125 dogs > 7yrs with 2 or more CDS signs
- ▶ Fed b/d or other commercial food for 60 days
- ▶ Dogs in treatment group improved in 13/15 behaviors
- ▶ Control dogs improved in 4/15

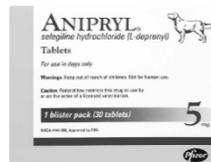


- ▶ FDA approved for dogs
- ▶ MAO-B inhibitor
 - ▶ Neuroprotective
 - ▶ Decreased free radicals
 - ▶ Improved dopamine transmission
- ▶ Side effects:
 - ▶ Restlessness, GI upset
 - ▶ Repetitive behavior at higher dosages
- ▶ Contradictions (do not use with):
 - ▶ Other MAOI drugs (e.g. amitraz, Preventic®)
 - ▶ SSRIs/TCAs (after appropriate washout)



Seligilene (Anipryl®)

- ▶ Improvement in 69-75% of patients during placebo controlled drug trials
- ▶ 77% overall improvement at day 60 in field trial of 641 dogs
- ▶ Dosage: Dogs 0.5-1mg/kg PO q24hr in the morning
- ▶ Re-evaluate in 1-2 months and adjust dosage as needed



- ▶ Contains
 - ▶ Phosphatidylserine: Improves nerve cell communication
 - ▶ Pyridoxine: Essential for normal brain development, function, and neuron health
 - ▶ Ginkgo Biloba: Improves cerebral blood flow, increases glucose metabolism, strong antioxidant effect
 - ▶ Resveratrol: Antioxidant which protects neurons from toxic substances that can cause cell death
 - ▶ Vitamin E: Antioxidant with neuroprotective potential, slows functional deterioration
- ▶ Clinical trial on 8 dogs, 60 day test period, not placebo controlled



- ▶ SAME production decreases with age, correlates with folate levels in CSF
- ▶ Precursor molecule to transulfuration pathway leading to synthesis of glutathione
- ▶ Responsible for methylation of molecules and neurotransmitters
- ▶ Studied as primary or adjunct antidepressant therapy in humans
- ▶ Clinical trial – placebo controlled



Table 2. Study results: Improvement in total mental score and geriatric disability index as measured on Day 60

	Novifit	Placebo
Total mental score	44.1%	24.7%
Geriatric disability index	49.0%	23.9%

- ▶ Jellyfish protein 'apocaequorin'
- ▶ Protect cells through calcium regulation
- ▶ 32 day blinded trials, comparison between placebo and selegiline
- ▶ Improved performance on discrimination task against placebo
- ▶ Greater performance accuracy compared to selegiline subjects



- ▶ Early detection, diagnosis and treatment is key
- ▶ Treatment doesn't cure, slows the progression
- ▶ Prognosis decreases with severity and length of clinical illness
- ▶ Realistic expectations!



- ▶ Awareness of underlying problems and pathology
- ▶ Accurate diagnosis and treatment
- ▶ Quality patient care
- ▶ Client support and assistance where needed



Christopher Pachel, DVM, DACVB



O: 503.236.7833 F: 503.252.6481 www.animalbehaviorclinic.net
809 SE Powell Boulevard, Portland, OR 97202

