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The first sign of a physical condition is often a change in behaviour which is noted by the client.

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Topics for Today

- Overview
- Review of common physical conditions with behavioural presentations
- Diagnosing physical vs behavioural problems



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Physical vs Behavioral

- Sometimes it is obvious
- Often the behavioural signs are non-specific



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Physical vs Behavioral

- Aggression
 - Orthopedic pain
 - Neuropathic pain
 - GI discomfort or disease
 - Dermatologic condition
 - Endocrine disease
 - Neoplasia
 - Seizures
 - And more!



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Physical vs Behavioral

- Other behaviour signs that may have a physical basis:

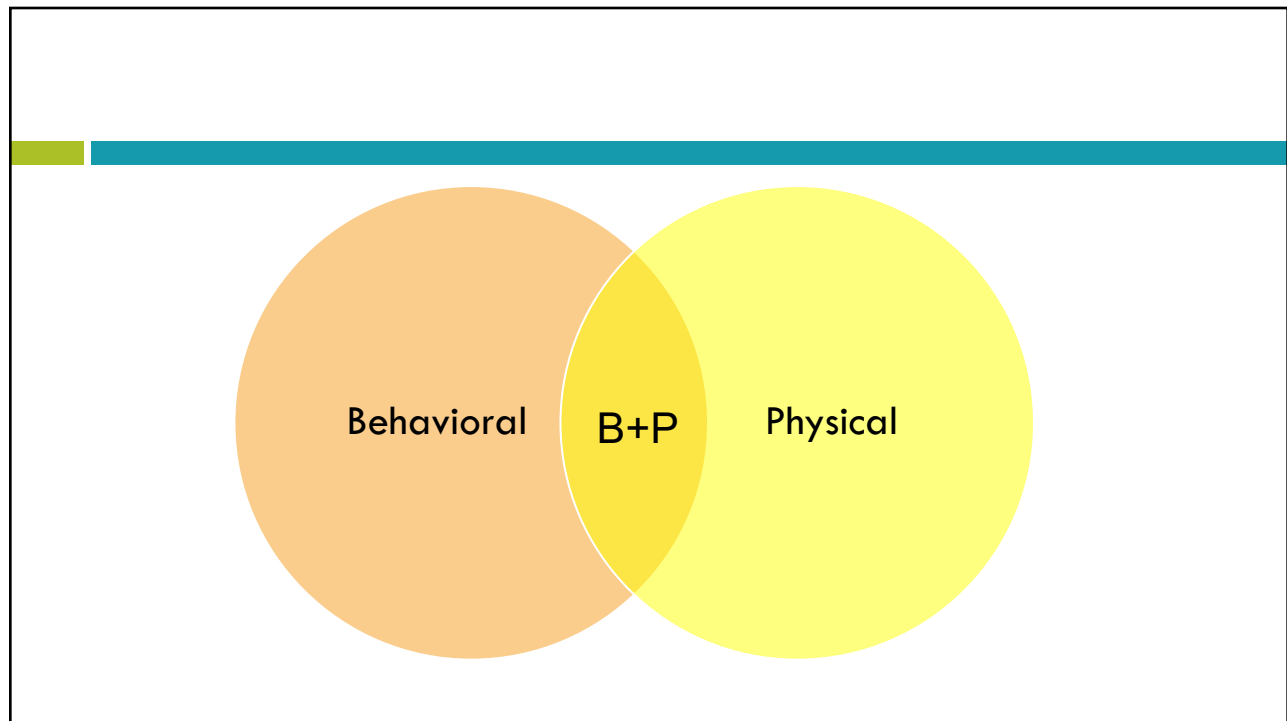
- ▣ Hiding
- ▣ Increased excitability
- ▣ Increased anxiety
- ▣ Noise phobia
- ▣ Assuming unusual postures
- ▣ Scratching or licking self
- ▣ Looking at or biting at self
- ▣ House soiling
- ▣ Destructiveness



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Anything that causes physical discomfort
can increase anxiety
→ exacerbate anxiety-related behaviours


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Breed Predispositions

- Breed predispositions for
 - ▣ Medical conditions
 - ▣ Behavioral patterns



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Future Influences

- If improved behaviour changes or relapses due to medical condition, warn client that they may recur in future
- Note in record in case client forgets in the future.



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Ortho/Neuro Pain

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Prevalence of Pain

- Review paper
- Prevalence of pain in pets with problem behaviour
 - ▣ Up to ~80% depending on source
- Treat pain early



Mills DS, Demontigny-Bédard I, Gruen M, Klinck MP, McPeake KJ, Barcelos AM, Hewison L, Van Haevermaet H, Denenberg S, Hauser H, et al. Pain and Problem Behavior in Cats and Dogs. *Animals*. 2020; 10(2):318. <https://doi.org/10.3390/ani10020318>

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Pain Assessment

- Can be challenging to assess
 - ▣ Hide pain
 - ▣ Override pain response
 - ▣ Clients may not recognize signs
 - ▣ Breed biases?



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Breed Effects on Pain?

- Online survey
 - ▣ Veterinarians
 - ▣ General public
- Asked to rank 28 breeds on pain sensitivity
 - 92% believe that there are breed differences
 - ▣ Small dogs higher pain sensitivity (both)
 - ▣ BSL breeds lower pain sensitivity (public)
- Directly impacts patient's pain recognition and treatment

PLOS ONE

OPEN ACCESS PEER-REVIEWED
RESEARCH ARTICLE

Do dog breeds differ in pain sensitivity? Veterinarians and the public believe they do

Margaret E. Gruen , Philip White, Brian Hare

Published: March 17, 2020 • <https://doi.org/10.1371/journal.pone.0230315>






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Breed Effects?

- Found variation across dog breeds of pain threshold
- These did not match veterinarians' perception of pain threshold
- Pain sensitivity ratings were higher when dog was more willing to approach
- More research needs to be done!

Front. Pain Res., 26 June 2023
Sec. Veterinary and Comparative Pain
Volume 4 - 2023 | <https://doi.org/10.3389/fpain.2023.1165340>

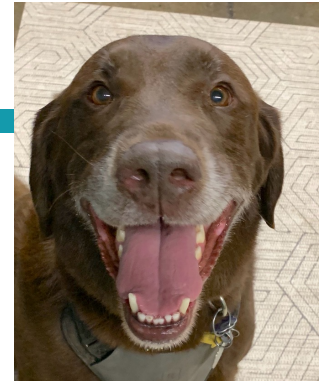
Pain sensitivity differs between dog breeds but not in the way veterinarians believe

 Rachel M. P. Caddie^{1,2},  Rachael M. Cunningham^{1,2},  Philip A. White³,
 B. Duncan X. Lascelles^{2,4,5,6,†} and  Margaret E. Gruen^{1,4†}

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OA and Noise Phobia

- Older onset noise phobia
- Avoidance of location
- Hiding vs seeking comfort



Front. Vet. Sci., 13 February 2018
Sec. Animal Behavior and Welfare
Volume 5 - 2018 | <https://doi.org/10.3389/fvets.2018.00017>

Noise Sensitivities in Dogs: An Exploration of Signs in Dogs with and without Musculoskeletal Pain Using Qualitative Content Analysis

Ana Luisa Lopes Fagundes¹, Lynn Hewison², Kevin J. McPeake^{2*}, Helen Zulch² and Daniel Simon Mills²

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Pain and Aggression

- Aggression Characteristics
 - ▣ Extremities
 - ▣ Severity variable
 - ▣ Quick and easy to interrupt
- General Characteristics of Dog
 - ▣ Approached when lying down
 - ▣ Reluctant to move



Clinical indicators of occult musculoskeletal pain in aggressive dogs

Barcelos, A-M; Mills, D S; Zulch, H. *The Veterinary Record*; London Vol. 176, Iss. 18, (May 2, 2015): 465.

18

Feline OA

- 92% had radiographic evidence of OA
- Youngest was 6mo
- 61% had OA in at least one joint
- 48% in more than one joint



The Veterinary Journal
Volume 187, Issue 3, March 2011, Pages 304-309



Cross-sectional study of the prevalence and clinical features of osteoarthritis in 100 cats

L.L. Slingerland^a, H.A.W. Hazewinkel^a, B.P. Meij^a, Ph. Picavet^b, G. Voorhout^c

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Feline OA

- 101 cats
- Majority had radiographic evidence of bony change
 - ▣ 74% OA in limbs
 - ▣ 40% Spondylosis deformans
- 98% OA was bilateral
 - ▣ May not favor leg



> Front Vet Sci. 2020 Mar 31;7:138. doi: 10.3389/fvets.2020.00138. eCollection 2020.

Retrospective Radiographic Study of Degenerative Joint Disease in Cats: Prevalence Based on Orthogonal Radiographs

Taro Kimura¹, Sayaka Kimura¹, Junichi Okada¹, Sayaka Suzuki¹, Taku Kitanaka²

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Feline Pandora Syndrome / Idiopathic Cystitis

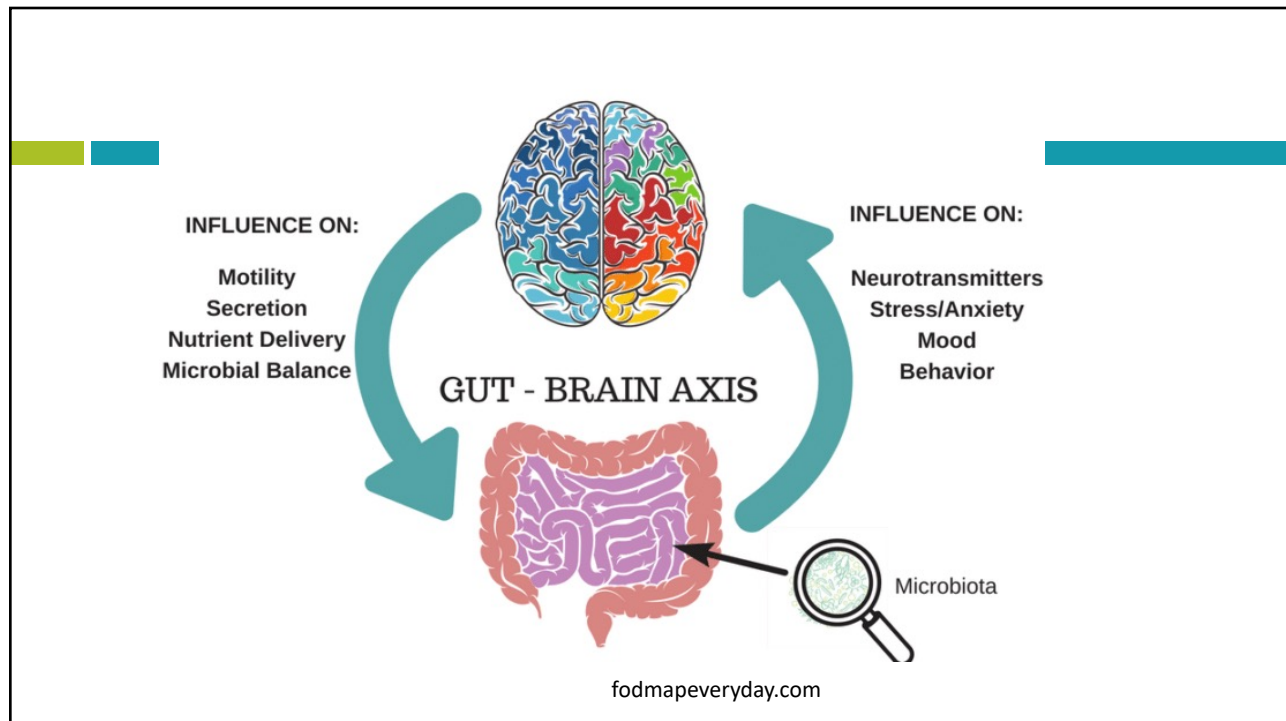
- Painful urination – neuropathic
- Behavioral signs
 - ▣ Altered litter box behaviour
- Impacted by environmental stressors, including other cats
- Stress reduction is part of standard treatment



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Gastrointestinal

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GI Discomfort

- Disorders:
 - ▣ IBD
 - ▣ Food allergies
 - ▣ Pancreatitis
 - ▣ Gastroesophageal reflux
 - ▣ Etc



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GI Discomfort

□ Behavior changes:

- ▣ Decreased appetite
- ▣ Licking paw/floors/items
- ▣ Eating grass
- ▣ Pica
- ▣ Downward dog position
- ▣ Abrupt fears
- ▣ Aggression
- ▣ Lethargy or restlessness
- ▣ Vocalization



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Excessive Licking of Surfaces

□ 19 dogs

- ▣ GI dz in 14 (74%)
 - Some conditions were: IBD, Delayed gastric emptying, Chronic pancreatitis
- ▣ After treatment
 - Significant improvement in 10/14
 - Resolution in 9/14 (53%)



Véronique Bécuwe-Bonnet, Marie-Claude Bélanger, Diane Frank, Joane Parent, Pierre Hélie, Gastrointestinal disorders in dogs with excessive licking of surfaces, Journal of Veterinary Behavior, Volume 7, Issue 4, 2012, Pages 194-204,

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Fly Biting

- 7 dog case study
- All diagnosed with medical conditions
 - ▣ 6 GI
 - ▣ 1 Chiari malformation
- All that were treated medically responded well/resolved



Frank D, Bélanger MC, Bécuwe-Bonnet V, Parent J. Prospective medical evaluation of 7 dogs presented with fly biting. Can Vet J. 2012 Dec;53(12):1279-84. PMID: 23729825; PMCID: PMC3500118.

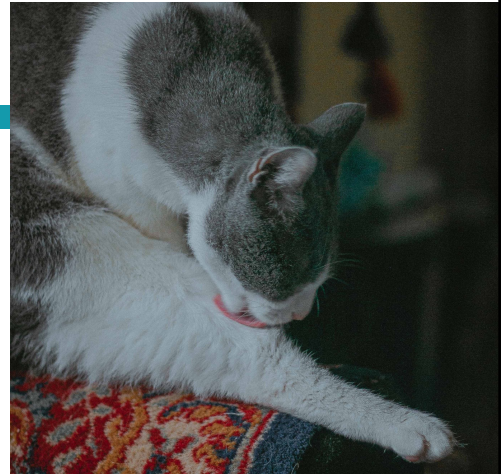
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Dermatologic

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Overgrooming (Cats)

- 21 cats with overgrooming – medical workup
- Results
 - ▣ 16 (76%) → Medical
 - ▣ 3 (14%) → Medical + psychogenic
 - ▣ 2 (10%) → Psychogenic only
 - ▣ 57% → Adverse food responses
 - ▣ Histo results
 - histo + → medical
 - Histo - → medical, mix or psychogenic
- Do thorough dermatology workup

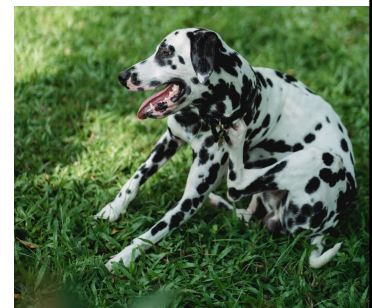


Waisglass SE, Landsberg GM, Yager JA, Hall JA. Underlying medical conditions in cats with presumptive psychogenic alopecia. J Am Vet Med Assoc. 2006 Jun 1;228(11):1705-9. doi: 10.2460/javma.228.11.1705. PMID: 16740071.

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Chronic Atopy + Behavior Problems (Dogs)

- 141 dogs with chronic atopy
- ↑ fear/anxiety-related behaviours + aggression compared to normal dogs
 - ▣ Wide range of aggression targets
- Multimodal dermatology and behavioural care indicated



Associations Between Atopic Dermatitis and Anxiety, Aggression, and Fear-Based Behaviors in Dogs 🐕

Lindsay R. McAlliff, DVM ; Colleen S. Koch, DVM; James Serpell, PhD; Karen L. Campbell, MS, DVM
J Am Anim Hosp Assoc (2022) 58 (4): 161–167.

<https://doi.org/10.5326/JAAHA-MS-7210> Article history

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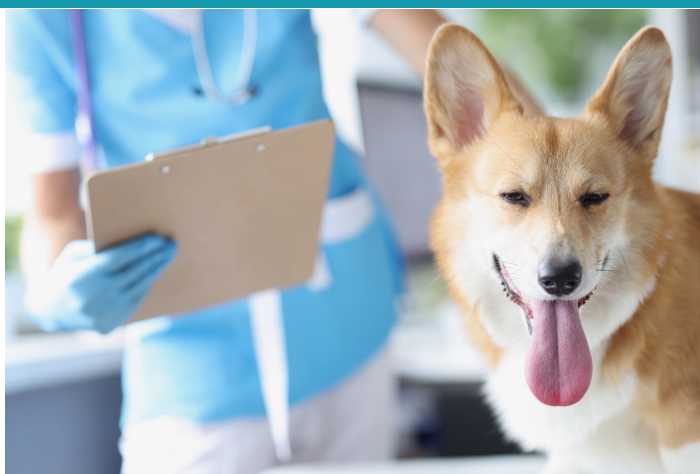
Endocrine

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Endocrine: Thyroid

□ Hypothyroid (Dogs)

- ▣ Lethargy
- ▣ Anxiety
- ▣ Heat-Seeking



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Endocrine: Thyroid

- Hyperthyroid (Cats)
 - ▣ Nighttime restlessness and vocalization
 - ▣ Irritability / Aggression
 - ▣ Hyperactivity
 - ▣ Decreased grooming
 - ▣ House soiling



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Endocrine: Adrenal (Dogs)

- Hyperadrenocorticism
 - ▣ Lethargy
 - ▣ Irritability / aggression
 - ▣ Poor sleep
- Hypoadrenocorticism
 - ▣ Lethargy
 - ▣ Irritability/aggression



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Iatrogenic Cortisol

- N=148 dogs
- Systemic corticosteroid
- 4% (6 dogs) → adverse behavioural effect
 - Aggression
- Rare but potentially severe



Judd, L.L.; Schettler, P.J.; Brown, E.S.; Wolkowitz, O.M.; Sternberg, E.M.; Bender, B.G.; Bulloch, K.; Cidlowski, J.; De Kloet, E.R.; Fardet, L.; et al. Adverse consequences of glucocorticoid medication: Psychological, cognitive, and behavioral effects. *Am. J. Psychiatry* **2014**, *171*, 1045–1051.

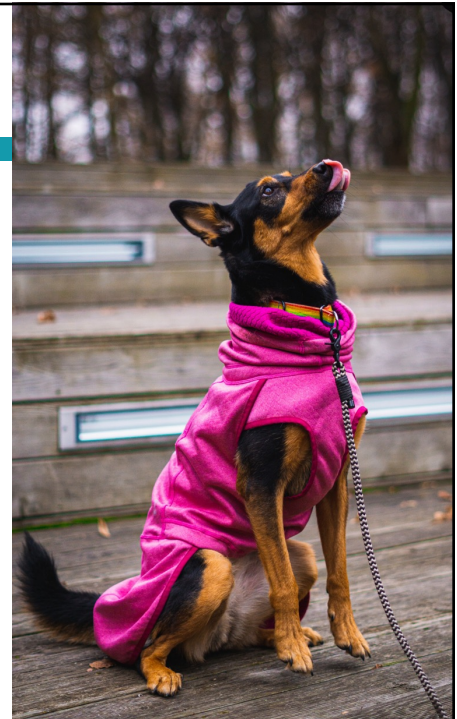
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Abnormal Repetitive Behaviors

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Abnormal Repetitive Behaviors

- Compulsive behaviour
- Welfare concern
- Examples
 - ▣ Tail chasing
 - ▣ Pica
 - ▣ Acral lick dermatitis
 - ▣ Excessive licking
 - ▣ Self mutilation
 - ▣ Feline Hyperesthesia?



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Abnormal Repetitive Behaviors

- VERY IMPORTANT to rule out physical causes
- Medical unless proven otherwise
- Published examples
 - ▣ Fly biting – 100% medical
 - ▣ Overgrooming - ~60% medical
 - ▣ Surface licking - ~70% medical



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Determining Physical vs Behavioral

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Thorough History

- If client is coming due to behaviour concern
 - ▣ Sudden onset or gradual behaviour change?
 - ▣ When? Any changes to environment or schedule?
 - ▣ Inquire about client observations of:
 - Movement
 - Derm discomfort
 - GI discomfort
 - Urination / Defecation



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Thorough History

- If client is coming due to behaviour concern
 - Inquire about client observations:
 - ▣ Movement
 - ▣ Derm discomfort
 - ▣ GI discomfort
 - ▣ Urination / Defecation
- Video to observe (esp cats)
 - ▣ Normal behaviour / interactions
 - ▣ Problem behaviour if safe to obtain



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What if...

- What If they are NOT Coming with a Behavior Concern?
 - Ask:
 - "Is your pet doing anything that you'd rather they didn't?"



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Diagnosing OA

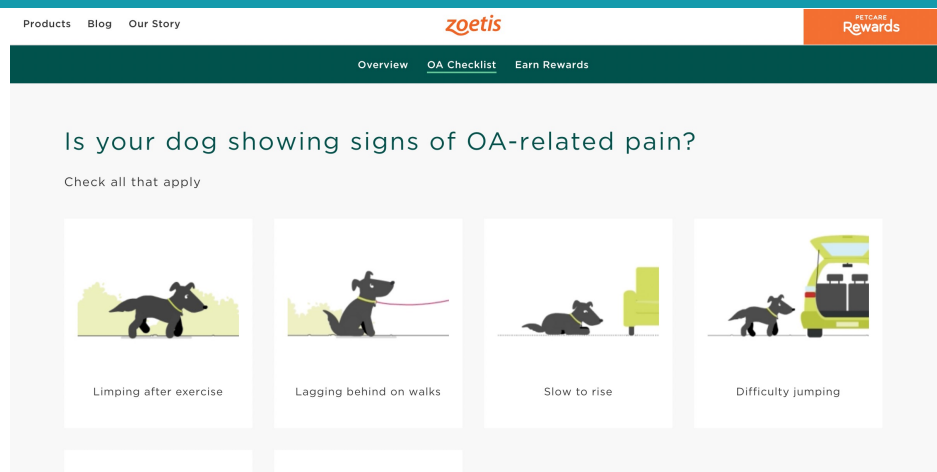
- ❑ Clients noted changes in mobility
 - ▣ Climbing stairs
 - ▣ Gait change
 - ▣ Jumping
- ❑ May not show on PE
- ❑ Client observations important



Klinck MP, Frank D, Guillot M, Troncy E. Owner-perceived signs and veterinary diagnosis in 50 cases of feline osteoarthritis. Can Vet J. 2012 Nov;53(11):1181-6.

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Client Education



<https://www.zoetispetcare.com/checklist/osteoarthritis-checklist>

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Client Education

The screenshot shows the Zoetis Petcare Rewards website. The navigation bar includes links for Products, Blog, Our Story, Overview, Vet Visit, and OA Checklist. The main heading is "Is your cat showing signs of OA-related pain?" with a superscript 1. Below this, it says "Check all that apply". There are four interactive cards, each with a "HEALTHY" and "JOINT DISEASE" option. The cards are: 1. Difficulty jumping up (illustrated with a cat jumping onto a table). 2. Difficulty jumping down (illustrated with a cat jumping down from a table, with text "Hesitates before jumping down from high spot"). 3. Difficulty climbing up stairs (illustrated with a cat walking up stairs). 4. Difficulty climbing down stairs (illustrated with a cat walking down stairs).

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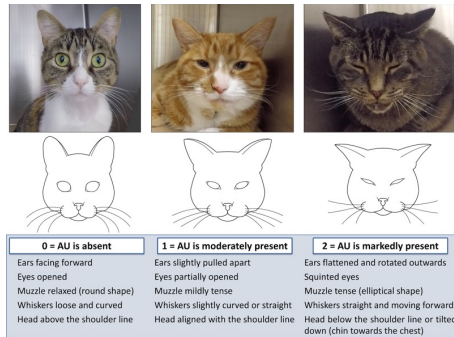
Physical Examination

- Start with pet where you can observe movement
 - ▣ Dogs on floor
 - ▣ Cats – encourage jump on / off elevated surfaces
 - Video if not moving around
- Thorough physical exam

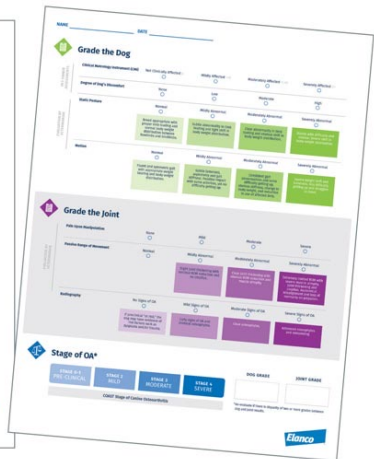
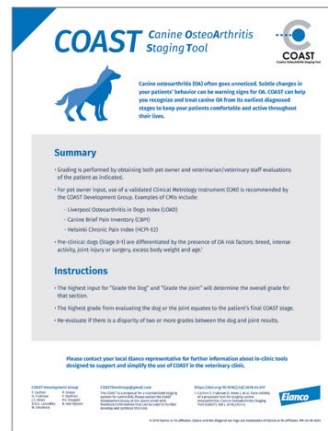


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Pain Scales



Facial expressions of pain in cats: the development and validation of a Feline Grimace Scale
 Evangelista, M.C., Watanabe, R., Leung, V.S.Y. et al.
Sci Rep 9, 19126 (2019).



Avma.org

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Diagnostics

- Depends on behaviours of concern and what is observed on PE

- Minimum Data Base

- ▣ CBC/Chemistry/T4/UA
 - ▣ +/- serum cortisol
 - ▣ +/- thyroid panel



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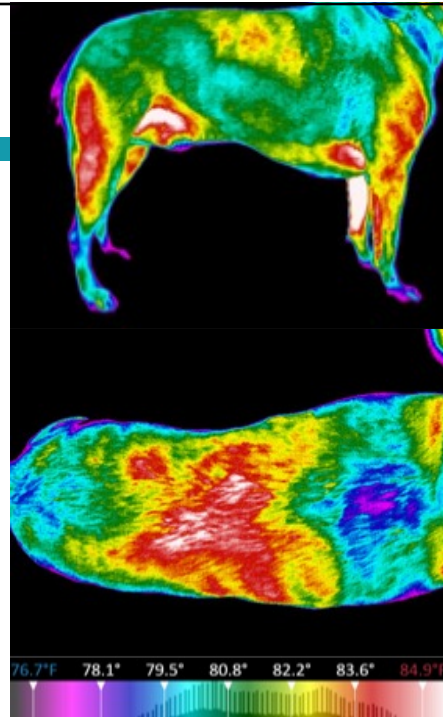
Diagnostics

□ Imaging

- ▣ Radiographs
- ▣ Ultrasound
- ▣ MRI

▣ Thermal imaging

- Screening test
- Areas that are warmer/cooler than expected
- Symmetry



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Treatment

- Address any medical conditions that are found
- Address behavioural concerns
 - ▣ Management
 - ▣ Behavior modification if needed
- Follow up to assess degree of resolution and adjust plan if needed



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Conclusions

- Behavior change is often first sign of physical problem
- Anything that increases physical discomfort can increase anxiety
- Keep an open mind about possible physical conditions
- Treat the physical **and** behaviour, reassess to make changes



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Questions?

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