

**Translational Research in Pain (TRiP) Program, &
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(CPREC)**

Client Specific Outcome Measures (CSOMf) - feline

**Guide to setting up a 3-question CSOM for the evaluation of mobility
impairment associated with Feline Degenerative Joint Disease (DJD)**

Through the use of this Clinical Metrology Instrument, the severity of mobility and activity impairment caused by osteoarthritis/DJD is measured by the owner's evaluation of very specific activities over time. The difference between this system and other clinical metrology instruments (e.g. Feline Musculoskeletal Pain Index) is that the activities being followed by each owner are unique to each cat. The system is a modification of a previously published system (Gingerich and Strobel 2003), which has been used successfully in the assessment of known analgesics (Cozzi and Spensley 2013) and putative analgesics (Lascelles et al. 2008) in dogs, and also used in cats to assess putative analgesics (Gruen et al. 2014; Lascelles et al. 2010; Lascelles et al. 2007; Gruen et al. 2015).

The CSOM is NOT an 'off the shelf' questionnaire – it needs to be created, and each instrument is unique to an individual cat & owner. A higher score indicates more impairment (the owner is asked 'how much difficulty has your cat had performing the following activities). The currently recommended scoring is based on 0 (no problem) to 4 (impossible) for each question.

To create the activities to be followed, the veterinary team works with the owner to find suitable activities to evaluate. To start the thought process, a team member will discuss the cat's activity with the owner, and discusses what problems the owner has noticed with regard to mobility or activities the cat enjoys. These discussions eventually lead to a highly defined and specific problem being identified, and the time and place that the problem seen is identified. Three such activities need to be defined.

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1. Identifying the problematic activities

Owners are interviewed *by a trained individual* to identify at least **three activities that his/her cat does not do as well anymore OR has recently stopped doing.**

Example activities:

Walking	Moving smoothly after long rest
Running	Finding comfortable position
Pouncing	Use of litter box
Crouching	Getting onto the bed
Rearing Up	Playing with toys
Jumping Up	Climbing stairs
Lying down	Defecation
Getting up	Interaction with human family members
Grooming	Sleeping restfully
Jumping down	Playing with other animals
Getting onto counters	Getting up onto a high resting spot
Going down stairs	Jumping down

Owners may either choose an activity from the list above or may modify or create one to better describe an activity that is adversely affected in their cat.

If the owner offers more than the prescribed number (3), then allow the owner to describe them all, record them, then ask again for owner to rank their importance as you start to determine the 3 activities to follow.

The owner should be encouraged to select the activities which are impaired AND most important to them and to the cat, and encouraged to select activities that have potential for improving with analgesic therapy. Other considerations include using:

- Everyday activities so the cat can be observed during these activities
- Activities that are difficult enough for the cat that the owners have to help them may be good activities. The owner must be willing to encourage the cat to perform these activities without help
- Activities that the cat has stopped doing all together (however, be careful not to include activities that the cat would never be able to do now, regardless of pain control)

To help the process of defining activities, the investigator can explore the cat's activity by asking questions such as: How does it look when your cat jumps up onto the bed now compared to when he or she was younger? Does he/she need to use front claws to help get up on things, when this was not the case before? Does he/she move around in the environment using smaller jumps up rather than one large jump?

When he/she jumps down, does he/she hesitate or make a harsh landing? When he/she goes down the stairs, does he/she hesitate or does it take longer than previously?

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It is best to try to identify a range of different activities – e.g. not all activities should be ‘jumping up.....’

2. Constructing the description of the activity to be followed

Owners will then be asked *to be very specific and to indicate both places and times when they see these impaired activities at their worst*, e.g., “climbing house stairs last thing at night”, or “getting in and out of the litterbox.” The question needs to be constructed so that when asked to rate how much difficulty their cat has had with each activity, the question can be answered.

Avoid describing the *difficulty*.

e.g. **Poor** construction: ‘difficulty running’

Good construction: ‘running easily across the kitchen first thing in the morning’

When constructing the CSOM activity, simple and understandable language must be used - not ‘vet-speak’.

Do not mix two different activities into one, as in these following examples of **Poor** construction.

Poor construction:

- a. Getting up normally after resting and stretching (combines both getting up and stretching)
- b. Going up and down stairs (one way is usually more difficult than the other)
- c. Running and activity level (too general and combines two activities)

Make sure the wording is constructed properly. In the first example (a), we would not know whether to score for ‘getting up after rest’ or ‘stretching’. In the second example (b), going upstairs and going downstairs should be considered two different activities. The last example (c), is asking about two activities and would be difficult to score using this scoring system.

Better construction would be:

- a. Getting up normally after resting
- b. Ascending stairs without stopping
- c. Running while playing with string

3. Specifying the time and place of the activity

However, note that *in the above examples, there is no indication of the time and place that the activity takes place.* If possible, the time and place the activity is/was observed should be incorporated into the question.

The examples above *could read*:

- a. Getting up normally after resting in the morning
- b. Ascending stairs last thing at night without stopping
- c. Running while playing string in the evening after work

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If the owner notices an activity occurring at two defined times of the day, then these can be incorporated into the same question. The owner must then score as an aggregate of the two time points.

4. Examples of good CSOM activities

- Jumping off of bed without shortening the distance to jump down in the morning
- Jumping onto bed without hitting her back paws in the evening
- Jumping from floor to seat of the living room couch without hesitation, in the evening
- Getting up without stiffness after lying down at any time of the day
- Socializing with family in the evening

5. Rating the degree of impairment

An example CSOM form to be completed is shown below (and is available on this website [CSOMf form]):

How much difficulty has your cat had over the last week performing the following activities:

Activity	No Problem	Mild Difficulty	Moderate Difficulty	Severe Difficulty	Impossible

As shown, owners are asked to rate how much difficulty their cat had over the last week performing the selected activities, where difficulty is rated as “no problem, mild difficulty, moderate difficulty, severe difficulty, impossible.”

An owner should not select ‘no difficulty’ for any activity when first setting up a CSOM; the CSOM activities should all be ones that the cat has some degree of difficulty performing.

To help owners appropriately categorize their cat’s activity impairment as either no problem, mild, moderate, severe, or impossible the owners are provided definitions and general descriptions of each term as well as other similar words that might be used to describe that level of impairment:

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No Problem = 0

Definition: Able to perform without difficulty as a normal cat would do

Description: difficult activity is no longer difficult

Synonyms: easy, like a spring chicken

Mild = 1

Definition: far from extreme

Description: owner can detect impairment whereas others might not

Synonyms: slight, insubstantial, minor, small, weak

Moderate = 2

Definition: not excessive or extreme

Description: impairment easily detected by owner, others can observe impairment

Synonyms: midway, modest, medium, intermediate

Severe = 3

Definition: intensely or extremely bad or unpleasant in degree or quality

Description: very obvious to any observer, condition requires evaluation or treatment

Synonyms: extreme, serious, highly, great, large

Impossible = 4

Definition: This activity cannot be done. If the cat always hesitates before jumping onto chair, it needs to be marked 'impossible' if the activity was worded "Jumping onto dining room chair without hesitating"

Description: Not seen

Synonyms: futile, hopeless, unattainable, no-way

An example of a completed CSOM:

Activity	No Problem	Mild Difficulty	Moderate Difficulty	Severe Difficulty	Impossible
Jumping off of bed without shortening the distance to jump down in the morning			X		
Descending the main stairs in the morning, without hesitating				X	
Running while playing string in the evening after work			X		

In this case, the score is 2 + 3 + 2 = 7

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6. Scoring the CSOM.

The CSOMf score is the addition of the scores for the 3 activities (see example above).

NOTE: in publications and studies, the scoring of the CSOM has been performed in slightly different ways, (e.g. 1 to 5; 5 to 1; 4 to 0; 0 to 4). Those decisions were based on aligning the scoring system of the CSOM with other scoring systems used in the study, and avoiding ‘0’s for statistical analysis. *The recommended scoring system in this guide is based on the idea that ‘0’ means ‘no problem with performing the activity. The questions should be framed as ‘how problematic is it to perform activity X?’*

7. Review of the activities in the context of the veterinary exam

The activities chosen should be reviewed in the context of the location of osteoarthritis (OA) or DJD. If for example the chosen activities are all related to jumping down, which emphasizes forelimb function, and the OA/DJD is in the hind limbs only, the chosen activities for the CSOM should be considered questionable.

The following reviews our ‘example activities’, and think about whether impairment of these activities relates more to fore, or hind limb OA, or could relate to either or both:

ACTIVITY	IMPAIRMENT RELATED TO OA OF FORE, OR HIND OR EITHER
Playing/interacting with owners	Either
Playing with toys	Either
Playing with other pets	Either
Playing a specific game	Either
Walking	Either
Running	Either
Jumping up	Hind
Jumping down	Fore
Laying down	Usually Hind
Getting up	Either
Ascending stairs	Primarily Hind
Descending stairs	Primarily Fore
Difficulty moving after rest	Either
Difficulty moving after major activity	Either
Pouncing/crouching	Hind
Rearing up	Hind
Use of litter box	Hind (squat) Fore (entering box)
Jumping onto furniture	Hind

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Jumping onto the bed	Hind
Jumping off the bed	Fore
Jumping off furniture	Fore
Grooming	Hind
Sleeping restfully	Either

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Special notes for clinical trial use of the CSOMf

1. Review of the activities to ensure a variety of activities are captured

The activities chosen will also be reviewed to ensure they are not too similar. For example, 3 activities that are all related to jumping onto furniture would be considered too similar, and not sufficiently different to capture a range of potential improvements.

2. Environment in which the instrument is constructed and completed

The environment in which the instrument is constructed will affect the results, as will the way the personnel interact with the owner completing the instrument.

Although not studied in detail, we recommend:

- that the pet not be present if it is playful or grabs the attention of the owner
- the environment be calm and neutral, such as a consultation/exam room, or quiet room
- the approach of the personnel be calm, and portray the sense of detail and seriousness

3. Completion of the CSOMf

To successfully use this instrument, it needs to be created carefully. As with other clinical metrology instruments, the CSOM must be completed the same individual on subsequent occasions.