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 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. FMPI) is that the activities being followed by each owner are unique. 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. To successfully use this instrument, it needs to be created carefully, then completed the same individual on subsequent occasions. 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 1 (normal) to 5 (impossible) for each question.

To create the activities to be followed, the investigator works with the owner to find suitable activities to evaluate. To start the thought process, the investigator discusses the cat’s activity with the owner, and discusses what mobility problems, or problems with activities the cat enjoys doing, that the owner is aware of. 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.
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 stopped doing.

Example activities:

- Walking
- Running
- Pouncing
- Crouching
- Rearing Up
- Jumping Up
- Lying down
- Getting up
- Grooming
- Jumping down
- Getting onto counters
- Going down stairs

Walking: Difficulty moving after long rest
Running: Difficulty 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 them 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 it was a 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 their environment by making use of furniture that is at different levels, starting lower and gradually getting up higher? 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 then previously?
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 activities impaired, 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 problematic each activity is, 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
   b. Going up and down stairs-one way is usually more difficult than the other
   c. Running and activity level

Make sure the wording is constructed properly. In the first example (a), we would not know whether to score for the getting up after resting or stretching part. 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 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, at bedtime, without stopping
   c. Running while playing string in the evening after work
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 pulling itself up by the forelimbs in the evening
Jumping from floor to seat of the living room couch without struggling, in the evening
Getting up normally after lying down at any time of the day
Groom entire body after breakfast
Socializing and interacting 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]):

<table>
<thead>
<tr>
<th>Activity</th>
<th>No Problem</th>
<th>Mild Difficulty</th>
<th>Moderate Difficulty</th>
<th>Severe Difficulty</th>
<th>Impossible</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As seen from the above, owners will then be asked to rate how much difficulty has your cat had over the last week performing the following activities, where difficulty is rated as “no problem, mild difficulty, moderate difficulty, severe difficulty, impossible”

An owner is not permitted to put ‘no difficulty’ in the initial evaluation as this shows there is not room for improvement and that there is not a problem with this activity. After listening to an owner describe the problems their cat has, it is the role of the study personnel help the owner choose the correct level of impairment.

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:
**No Problem = 1**  
Definition: Able to perform without difficulty as a normal cat would do  
Description: difficult activity is no longer difficult  
Synonyms: easy, non-existent, like a spring chicken

**Mild = 2**  
Definition: far from extreme  
Description: owner can detect impairment whereas others might not  
Synonyms: slight, insubstantial, minor, small, weak

**Moderate = 3**  
Definition: not excessive or extreme  
Description: impairment easily detected by owner, others can observe impairment  
Synonyms: midway, modest, medium, intermediate

**Severe = 4**  
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 = 5**  
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:

<table>
<thead>
<tr>
<th>Activity</th>
<th>No Problem</th>
<th>Mild Difficulty</th>
<th>Moderate Difficulty</th>
<th>Severe Difficulty</th>
<th>Impossible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jumping off of bed without shortening the distance to jump down in the morning</td>
<td></td>
<td></td>
<td></td>
<td><strong>X</strong></td>
<td></td>
</tr>
<tr>
<td>Descending the main stairs in the morning, without hesitating</td>
<td></td>
<td></td>
<td></td>
<td><strong>X</strong></td>
<td></td>
</tr>
<tr>
<td>Running while playing string in the evening after work</td>
<td></td>
<td></td>
<td></td>
<td><strong>X</strong></td>
<td></td>
</tr>
</tbody>
</table>

In this case, the score is $3 + 4 + 3 = 10$
6. Scoring the CSOM.
The CSOMf score is the addition of the scores for the 3 activities (see example above).

7. Review of the activities in the context of the clinical signs
The activities chosen will be reviewed in the context of the location of osteoarthritis (OA) or DJD, and either accepted, or the case may be rejected (in the case of a clinical study), or the owner re-questioned. 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:

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>IMPAIRMENT RELATED TO OA OF FORE, OR HIND OR EITHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Playing/interacting with owners</td>
<td>Either</td>
</tr>
<tr>
<td>Playing with toys</td>
<td>Either</td>
</tr>
<tr>
<td>Playing with other pets</td>
<td>Either</td>
</tr>
<tr>
<td>Playing a specific game</td>
<td>Either</td>
</tr>
<tr>
<td>Walking</td>
<td>Either</td>
</tr>
<tr>
<td>Running</td>
<td>Either</td>
</tr>
<tr>
<td>Jumping up</td>
<td>Hind</td>
</tr>
<tr>
<td>Jumping down</td>
<td>Fore</td>
</tr>
<tr>
<td>Laying down</td>
<td>Usually Hind</td>
</tr>
<tr>
<td>Getting up</td>
<td>Fore (for first part of getting up); Hind for second part [most commonly Hind limb OA affects getting up]</td>
</tr>
<tr>
<td>Ascending stairs</td>
<td>Hind</td>
</tr>
<tr>
<td>Descending stairs</td>
<td>Fore</td>
</tr>
<tr>
<td>Difficulty moving after rest</td>
<td>Either</td>
</tr>
<tr>
<td>Difficulty moving after major activity</td>
<td>Either</td>
</tr>
<tr>
<td>Pouncing/crouching</td>
<td>Hind</td>
</tr>
<tr>
<td>Rearing up</td>
<td>Hind</td>
</tr>
<tr>
<td>Use of litter box</td>
<td>Hind (squat) Fore (entering box)</td>
</tr>
<tr>
<td>Jumping onto furniture</td>
<td>Hind</td>
</tr>
<tr>
<td>Jumping onto the bed</td>
<td>Hind</td>
</tr>
<tr>
<td>Jumping off the bed</td>
<td>Fore</td>
</tr>
<tr>
<td>Jumping off furniture</td>
<td>Fore</td>
</tr>
<tr>
<td>Grooming</td>
<td>Hind</td>
</tr>
<tr>
<td>Sleeping restfully</td>
<td>Either</td>
</tr>
</tbody>
</table>
8. Review of the activities to ensure a variety of activities are captured
The activities chosen will also be reviewed to ensure they are not all very similar. For example, 3 activities that are all related to jumping onto furniture would be considered too similar, and not sufficiently different to capture any change in activity ability.

9. 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