

# Cincinnati Orthopaedic Disability Index in canines

## Description

**General description:** The Cincinnati Orthopaedic Disability Index (CODI) is a case-specific questionnaire completed by owners of dogs with orthopaedic disease, to measure individual functional status of the dog (Gingerich and Strobel 2003). Owners are asked to describe activities which are restricted in their dog due to the orthopaedic condition and each activity is categorised for severity by the owner.

**Instructions and scoring:** After nomination of the restricted activities, owners are asked to prioritise five activities which they feel are most restricted in the dog. Each activity is rated and scored as either 'no problem' (0), 'a little' (1), 'quite a bit' (2), 'severe' (3 points), or 'impossible' (4) points. The scores are added for all 5 activities with a maximum possible total

score of 20 points. Higher scores indicate greater functional restrictions than lower scores. On subsequent assessments, owners are asked to score the previously nominated activities, so that changes in functional restrictions can be monitored over time.

**Reliability, validity and sensitivity to change:** The reliability and validity to change of this outcome measure has not been identified. However, the original paper which reported the CODI found it to be sensitive in detecting change when investigating the effects of a nutraceutical on orthopaedic functional restrictions in dogs (Gingerich and Strobel 2003).

## Commentary

To date, the use of standardised subjective and objective outcome measures in veterinary science and animal physiotherapy has been limited, although the need for the development of such measures to enhance evidence-based practice has been highlighted (Cook 2007). In order to overcome this deficit, outcome measures which have been shown to be reliable and valid in human physiotherapy are now being adapted for use in companion animal rehabilitation practice by veterinarians and physiotherapists to improve outcomes-based practice (Hesbach 2007). The CODI is an example of an outcome measure designed for use in animals after review of functional outcome measures used for the assessment of humans with arthritis. Specifically, the CODI was based around the McMaster-Toronto Arthritis scale (MACTAR) and the Western Ontario McMaster Universities Osteoarthritis Index (WOMAC) (Gingerich and Strobel 2003). The MACTAR and WOMAC measure functional status of patients with rheumatoid and osteoarthritis and have been shown to be valid and highly responsive in assessing change in function in patients with arthritis (Verhoeven et al 2000).

Examples of the most commonly reported functional restrictions in the original study using the CODI included inability of the dog to go on long walks, difficulty walking on slippery floors, getting in and out of the car, retrieving toys, playing with other animals, and jumping onto furniture (Gingerich and Strobel 2003). The CODI was reported to be sensitive in detecting changes in these functional restrictions. Unfortunately, no other studies were identified which used the CODI in dogs; however, a similar scale has been used to measure functional outcomes in orthopaedic disease in cats (Duncan et al 2007). Although this functional outcome measure was called the Client Specific Outcome Measure (CSOM), it is identical in categories and scoring to the CODI. Additionally, the CSOM

highlights the need for the chosen restricted activities to be time and place specific, thus indicating that there is a need for the activity to be quantifiable. Examples of time and place quantifiable restricted activities may include the cat having the ability to jump onto the sofa, or get up the stairs at the end of the day.

Both the CODI and the CSOM were reported as being useful tools in the assessment of functional outcomes in small animals, but further evidence is required to identify the validity, reliability, and sensitivity of these measures. The use of valid, reliable, and appropriate outcome measures to monitor physiotherapy intervention is a standard set by the Australian Physiotherapy Council (APC 2006) and identified in the Australian Physiotherapy Competency Standards 1994–2002 as an integral component of professional accountability (APA 2003). The development and use of standardised outcomes in animal physiotherapy will enhance animal physiotherapy best practice and raise the profile of the efficacy of animal physiotherapy.

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## References

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# Global Rating of Change scales

## Description

Global Rating of Change (GRC) scales provide a means of measuring self-perceived change in health status. The main purpose is to quantify the extent to which a patient has improved or deteriorated over time. GRC scales are commonly used in both clinical practice and research settings for the measurement of outcome. Several different names have been used for these scales, including; Global Perceived Effect Scale, Transition Ratings, and Patient Global Impression of Change, but all essentially measure the same thing.

GRC scales involve a single question that asks the patient to rate their change with respect to a particular condition over a specified time period. An example question might be: *With respect to your low back pain, how would you describe yourself now compared to when you first came in for treatment?* The patient then rates a scale to score the magnitude of this change. The smallest scale has just 3 points (better, the same, or worse), but such a simple scale risks losing information, as it does not discriminate between marginal improvement and complete recovery. Most commonly a numerical scale with 7, 11 or 15 points is used. While there is little compelling evidence to choose

one scale over another, there is some reason to believe an 11-point scale, ranging from -5 (very much worse), through 0 (unchanged) to +5 (completely recovered) is optimal (Kamper et al 2009).

There are some clinimetric data that demonstrate the reliability and validity of GRC scales. Test-retest reliability is high (ICC 0.9) (Costa et al 2008) and face validity is supported by strong association between GRC and patient ratings of the importance of change (Pearson's  $r = 0.90$ ) (Watson et al 2005), and patient satisfaction measures (Spearman's rho 0.56–0.70) (Fischer et al 1999). Significant correlations between GRC and change on various construct-specific measures indicate construct validity; examples include; disability (Roland Morris Disability Questionnaire  $r = 0.50$ , Shoulder Disability Questionnaire  $r = 0.74$ ) (Pengel et al 2004, van der Windt et al 1998), pain (Numerical Rating Scale  $r = 0.49$ ) (Stewart et al 2007), and quality of life (Asthma Quality of Life questionnaire  $r = 0.83$ ) (Guyatt et al 2002). Based on data from patients with low back pain and chronic whiplash associated disorder, a change of 2 units or more on the 11-point scale is likely to be clinically meaningful (Kamper et al 2009).

## Commentary

The question of whether a patient has improved or deteriorated is fundamental to clinical practice. Determination of patient-rated clinical progression is important in directing treatment and making decisions regarding prognosis. While it is likely that many clinicians routinely gather this information, there is value in formalising the process and considering the limitations of the method.

A notable criticism of GRC scales involves the question of whether patients are able to accurately recall previous health status, which is necessary to provide an anchor for their change over time. If patients are unable to estimate their previous condition accurately it may be that GRC ratings are unduly influenced by their current health status (Kamper in press). Practically, this means that a patient who is doing well at the time of asking will rate a large positive change on a GRC and vice versa. Further it is likely that this bias will increase as the time interval lengthens, meaning that ratings that span a long transition period (several months) are less likely to measure true change accurately. GRC scales also cannot direct a clinician towards a particular physical or functional deficit, in the way that specific multi-item measures such as the Patient-Specific Functional Scale can.

The key strengths of GRC scales are short administration time, applicability to nearly all patient groups, ease of

understanding, and strong clinical relevance. The nature of the question gives the patient the opportunity to weight whatever is important to them in their rating which ensures their score is uniquely relevant to the individual. The 'global' aspect of the scales sets it apart from single-construct outcome measures in that patients are encouraged to consider as many constructs as they see fit. It is noted, however, that a GRC scale should not be considered in isolation or seen as replacement for other measures, rather a GRC scale is a way to access patients' impressions of their global clinical change.

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