

# Standard Score Sheet for the assessment of wellbeing in rats

[Animal facility or facilities: \_\_\_\_\_]

Project title:			
Animal Ethics #		Name of contact person:	
Chief investigator:		Contact number:	
Research Group:		After hours number:	

Scoring of wellbeing will be performed relative to the following assessment criteria:

Criteria	Score			
	0	1 (mild)	2 (moderate)	3 (severe)
Activity and responsiveness	Normal	Mild/slight reduction in activity relative to normal or previous observations	Isolated from cage-mates or obvious reduction in activity and responsiveness relative to normal or previous observations; alternatively there is increased response to stimulus (e.g. appears agitated, twitching, easily started, or photophobic)	Stationary while awake for prolonged periods (>15min); when nudged, does not move, or makes poor attempts to move; collapsed and unable to right itself; persistent and prolonged fitting/trembling (>1min)
Facial grimace (see image 1)	Not present	Facial grimace is subtle or inconsistent (i.e. only 1 to 2 of the "indicators" demonstrated in image 1 are moderately present)	Facial grimace is moderate (i.e. at least 3 of the 4 "indicators" are "moderately present")	Facial grimace is obvious (i.e. at least 3 of the 4 "indicators" are "obviously present") however, there must also be indication of other generalised symptoms (e.g. hunching, reduced activity)
Coat condition (see image 2)	Normal	Coat does not appear entirely smooth, clean and silky (i.e. the coat appears slightly 'rough')	Some indication of piloerection is present (i.e. 'rough' coat), but it is not obvious over the mouse's entire surface area	Generalised piloerection, i.e. obvious, very rough coat over majority of the body's surface area (as demonstrated in image 2)
Body position/posture (see image 3)	Normal	Mild hunching (see image 3)	Moderate hunching	Severe hunching; or arching and writhing (despite analgesia having been provided)
Respiratory function	Normal	-	Increased respiratory effort (mild increases in respiratory rate, increased abdominal movement)	Increased respiratory effort compromising normal behaviours (i.e. the animal is lethargic, isolated and inappropriately responsive); or has slowed respiratory rate and gasping; or is open mouth breathing; or has blue mucous membranes or extremities; or noisy breathing (e.g. respiratory "clicking")
Body weight loss*	<5%	5-9% (relative to body weight recorded at the start of the experiment i.e. day 0)	10-14%	≥15%


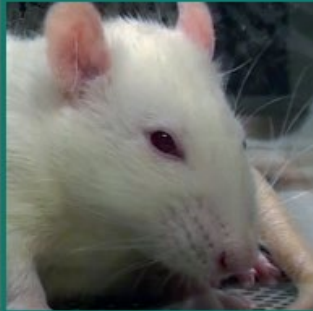

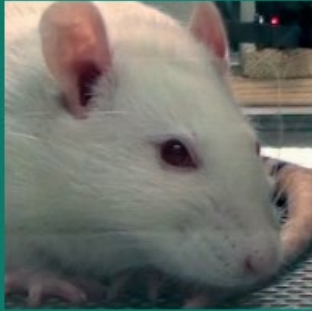

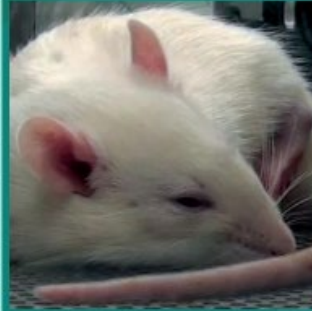
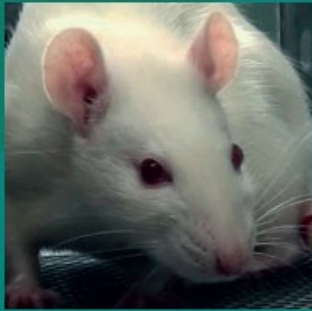

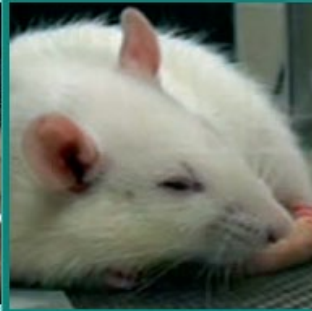
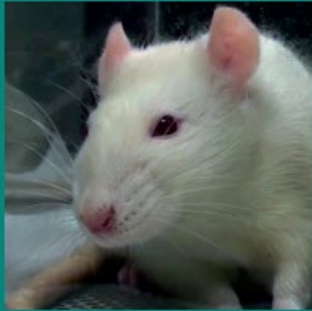
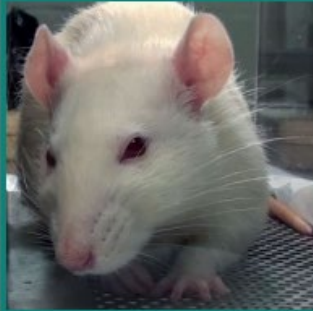
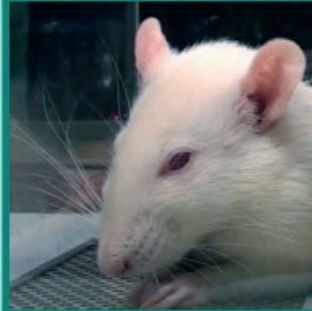
\*please note: body weight may not need to be measured at each monitoring point, particularly if monitoring is occurring frequently. A common-sense approach must be taken e.g. if the rat is gradually developing symptoms and is subsequently being monitored daily or twice daily, it may be appropriate to weigh the rat twice a week and at all other monitoring points record a body condition score instead (see image 4) – in this circumstance use the previously recorded body weight loss score to calculate the cumulative score. In experimental rats that are asymptomatic, there is rarely reason to measure body weight more frequently than once a week.

<b>Cumulative score:</b>	<b>Action, relative to cumulative score:</b>
0	= no action (in addition to routine care and monitoring)
1 to 4	= symptoms observed, monitor at least daily (including all animals of similar treatment groups), if symptoms are unexpected seek veterinary advice
5 to 11	= monitor at least twice daily, provide food/water supplementation (e.g. wet mash or gel pack on the cage floor), if symptoms are unexpected seek veterinary advice
> 11	= euthanasia is required (unless otherwise advised by a facility veterinarian)
<b>*** A score of 3 in any one category = euthanasia is required (unless otherwise advised by a facility veterinarian) ***</b>	

Comments:

**Image 1. The 4 “indicators” of facial grimace, as per Rat Grimace Scale:** <https://www.nc3rs.org.uk/grimacescales>

Please note: facial grimace can be subtle and requires experience to be able to assess accurately. If you are not comfortable assessing this parameter, you must seek training and support for this purpose – contact your Chief Investigator and the relevant animal facility staff.

	Not present “0”	Moderately present “1”	Obviously present “2”
<b>Orbital tightening</b> <ul style="list-style-type: none"> <li>▪ Closing of the eyelid (narrowing of orbital area)</li> <li>▪ A wrinkle may be visible around the eye</li> </ul>			
<b>Nose/cheek flattening</b> <ul style="list-style-type: none"> <li>▪ Flattening and elongation of the bridge of the nose</li> <li>▪ Flattening of the cheeks (potentially sunken look)</li> </ul>			
<b>Ear changes</b> <ul style="list-style-type: none"> <li>▪ Ears curl inwards and are angled forward to form a 'pointed' shape</li> <li>▪ Space between the ears increases</li> </ul>			
<b>Whisker change</b> <ul style="list-style-type: none"> <li>▪ Whiskers stiffen and angle along the face</li> <li>▪ Whiskers may 'clump' together</li> <li>▪ Whiskers lose their natural 'downward' curve</li> </ul>			

**Image 2. Coat condition (piloerection): score 0 = ‘normal’ rat (left); score 1 = ‘mild’ (middle); score 3 = ‘severe’ piloerection (left) - this rat also has obvious facial grimace, an abnormal posture, and reduced body condition score.**

Source: Silva, D & Castro, S *et al.* (2012). [107. 211-6. 10.1590/S0074-02762012000200010](https://doi.org/10.1590/S0074-02762012000200010)



**Image 3. Hunching, scored from normal (score 0) to severe (score 3). This image is of mice, however, the general principle (abnormal body posture) should be applied to rats as well;** modified from: [Sevcik MA, Jonas BM, Lindsay TH, et al. Endogenous opioids inhibit early-stage pancreatic pain in a mouse model of pancreatic cancer. \*Gastroenterology\*. 2006;131\(3\):900–910.](#) Please note: ear tag-identifiers (as displayed in this image) are generally not considered appropriate for use in rodents, as there are other, more refined methods for individual rodent identification.

A Degree of Hunching	B Hunching Profile	Normal (score 0)
C	D	Mild hunching (score 1)
E	F	Moderate hunching (score 2)
G	H	Severe hunching (score 3)
I	J	

#### Image 4: Rat, Body Condition Score reference.

In rats, assessment will require palpation in most cases. Fat deposition is better assessed by palpation of the dorsal pelvic protuberances in rats, as compared to the vertebral column in mice. Source: [Hickman DL & Swan M, Use of a Body Condition Score Technique to Assess Health Status in a Rat Model of Polycystic Kidney Disease J Am Assoc Lab Anim Sci. 2010;3; 49\(2\): 155–159](#)



- BC 1**  
**Rat is emaciated**
- Segmentation of vertebral column prominent if not visible.
  - Little or no flesh cover over dorsal pelvis. Pins prominent if not visible.
  - Segmentation of caudal vertebrae prominent.



- BC 2**  
**Rat is under conditioned**
- Segmentation of vertebral column prominent.
  - Thin flesh cover over dorsal pelvis, little subcutaneous fat. Pins easily palpable.
  - Thin flesh cover over caudal vertebrae, segmentation palpable with slight pressure.



- BC 3**  
**Rat is well-conditioned**
- Segmentation of vertebral column easily palpable.
  - Moderate subcutaneous fat store over pelvis. Pins easily palpable with slight pressure.
  - Moderate fat store around tail base, caudal vertebrae may be palpable but not segmented.



- BC 4**  
**Rat is overconditioned**
- Segmentation of vertebral column palpable with slight pressure.
  - Thick subcutaneous fat store over dorsal pelvis. Pins of pelvis palpable with firm pressure.
  - Thick fat store over tail base, caudal vertebrae not palpable.



- BC 5**  
**Rat is obese**
- Segmentation of vertebral column palpable with firm pressure; may be a continuous column.
  - Thick subcutaneous fat store over dorsal pelvis. Pins of pelvis not palpable with firm pressure.
  - Thick fat store over tail base, caudal vertebrae not palpable.

**Monitoring record for the assessment of wellbeing in rats**

(see "Score Sheet for the assessment of wellbeing in rats" for a description of the scores relative to the criteria below)

**Project title:****AEC approval #:****Chief Investigator:****Name of contact person:****Contact number:****After hours:****Experimental/ Treatment Group:****Rat ID#:** \_\_\_\_\_

Date

Day (of study)

**Criteria (scores 0 to 3):**

Activity &amp; responsiveness

Facial grimace

Coat condition

Body position/ posture

Respiratory function

Body weight loss\*

Body weight change (%)

Body weight (g)

Cumulative score (i.e. total)

Comments (*use a key*):

\*Please note: body weight may not need to be measured at each monitoring point. Refer to "Score Sheet for the assessment of wellbeing in rats" for details.

**Cumulative score:****Action, relative to cumulative score:**

0

= no action (in addition to routine care and monitoring)

1 to 4

= symptoms observed, monitor at least daily (including all animals of similar treatment groups), if symptoms are unexpected seek veterinary advice

5 to 11

= monitor at least twice daily, provide food/water supplementation (e.g. wet mash or gel pack on the cage floor), if symptoms are unexpected seek veterinary advice

&gt; 11

= euthanasia is required (unless otherwise advised by a facility veterinarian)

**\*\*\* A score of 3 in any one category = euthanasia is required (unless otherwise advised by a facility veterinarian) \*\*\***

Original rat weight (g)		150	175	200	225	250	275	300	325	350	375	400	425	450	475	500
Weight loss	5%	142.5	166.3	190.0	213.8	237.5	261.3	285.0	308.8	332.5	356.3	380.0	403.8	427.5	451.3	475.0
	10%	135.0	157.5	180.0	202.5	225.0	247.5	270.0	292.5	315.0	337.5	360.0	382.5	405.0	427.5	450.0
	15%	127.5	148.8	170.0	191.3	212.5	233.8	255.0	276.3	297.5	318.8	340.0	361.3	382.5	403.8	425.0

## Monitoring record for the assessment of wellbeing in rats

(see "Score Sheet for the assessment of wellbeing in rats" for a description of the scores relative to the criteria below)

**Project title:**

**Name of contact person:**

**Chief Investigator:**

**AEC approval #:**

**Contact number:**

**Date:** \_\_\_\_\_

**Day of study:** \_\_\_\_\_

**After hours:**

**Criteria (scores 0 to 3):**

Rat ID#	Treatment group	Criteria (scores 0 to 3):										Comments:	
		Activity & responsiveness	Facial grimace	Coat condition	Body position / posture	Respiratory function	Body weight loss*	Body weight change (%)	Body weight (g)	Cumulative score (i.e. total)			

\*Note: body weight may not need to be measured at each monitoring point. Refer to "Score Sheet for the assessment of wellbeing in rats" for details.

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