Standard Score Sheet for the assessment of wellbeing in rats: *surgical wounds*

THE UNIVERSITY OF QUEENSLAND
AUSTRALIA
CREATE CHANGE

[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%
Surgical wound	Unremarkable wound healing	Minimal red discolouration (i.e. minor localised inflammation), some clear/serous discharge, no wound separation	Localised red discolouration, seepage of some bloody discharge, or recoverable wound separation (e.g. <5mm defect)	Purple or black discolouration, or discharge of puss or other overt signs of post operative infection, or non-recoverable wound separation (e.g. >5mm defect)

*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. body weight should be measured on the day of surgery, and then again on each day thereafter for 3 days. Following this if otherwise "stable" in condition (with no other symptoms), body weight may not need to be measured more frequently than once a week, even though the animals may be under monitored that is more frequently than once a week.

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
> 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) *****

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.

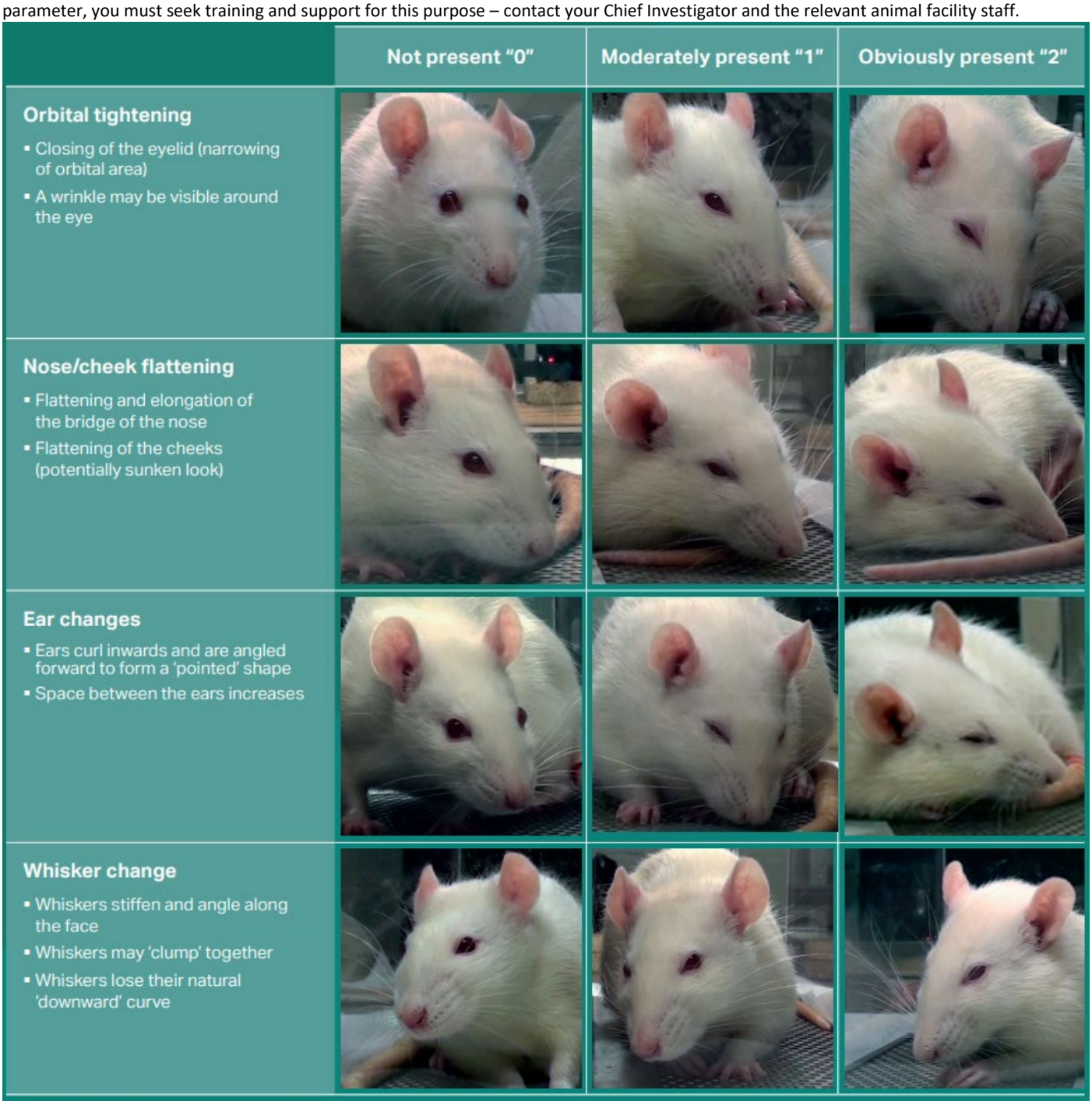

Image 2. Coat condition (piloerection): score 0 = 'normal' rat (left); score 1 = 'mild' (middle); score 3 = 'severe' piloerection (left) - this rat also has obvious facial grimace, an abnormal posture, and reduced body condition score.

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

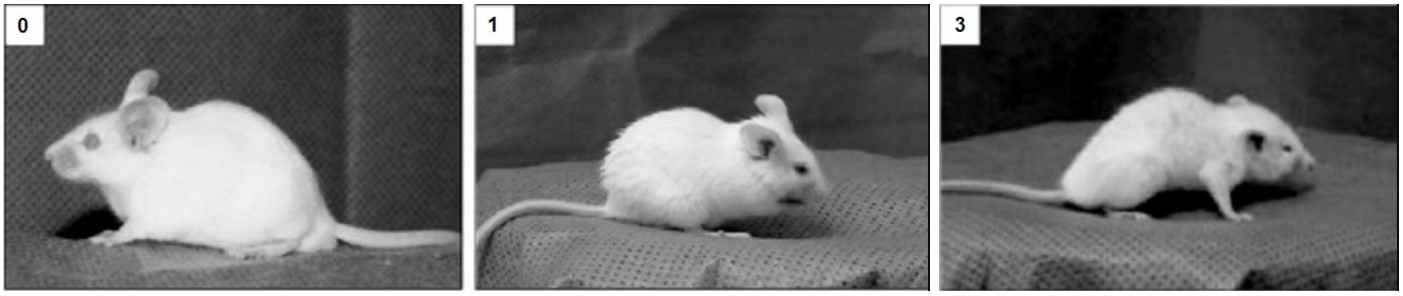

Image 3. Hunching, scored from normal (score 0) to severe (score 3). This image is of mice, however, the general principle (abnormal body posture) should be applied to rats as well; modified from: Sevcik MA, Jonas BM, Lindsay TH, et al. Endogenous opioids inhibit early-stage pancreatic pain in a mouse 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.

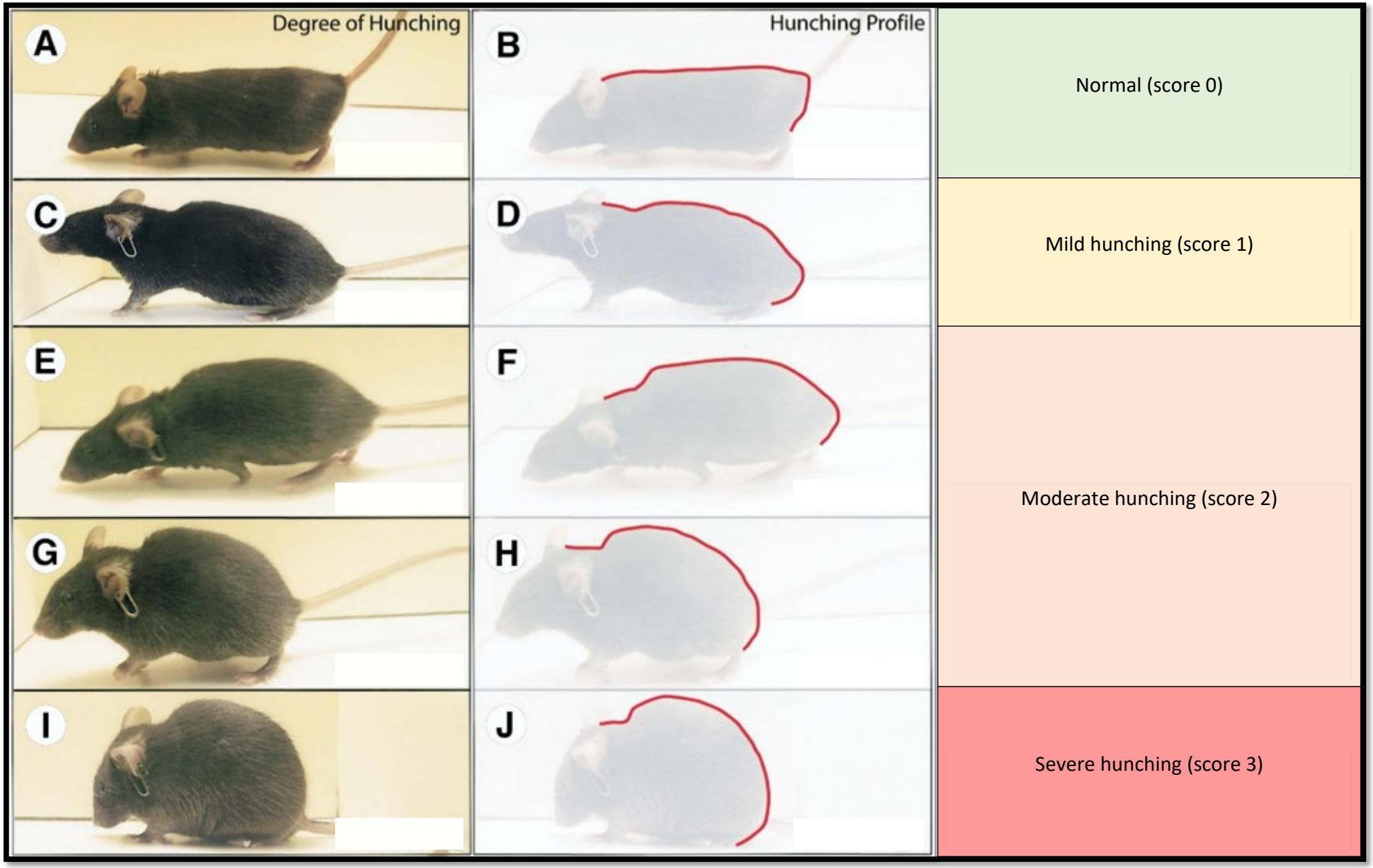

Image 4: Rat, Body Condition Score reference.

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 … rats: surgical wounds" 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 & responsiveness																										
Facial grimace																										
Coat condition																										
Body position/ posture																										
Respiratory function																										
Body weight loss*																										
Body weight change (%)																										
Body weight (g)																										
Surgical wound																										
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 … rats: surgical wounds" for details.

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***** 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

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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	Activity & responsiveness	Facial grimace	Coat condition	Body position / posture	Respiratory function	Body weight loss*	Body weight change (%)	Body weight (g)	Surgical wound	Cumulative score (i.e. total)	Comments:

*Note: body weight may not need to be measured at each monitoring point. Refer to "Score Sheet … rats: surgical wounds" for details.

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