McGill

STANDARD OPERATING PROCEDURE #632

ANIMAL WELFARE ASSESSMENT

1. PURPOSE

This Standard Operating Procedure (SOP) describes the evaluation of animal welfare.

2. RESPONSIBILITY

Facility Animal Care Committee (FACC), veterinarians, veterinary care staff, Principal Investigator, and their research staff.

3. INTRODUCTION

Animal welfare is the ability of an animal to cope physiologically, behaviorally, cognitively, and emotionally with its physiochemical and socio-life environment.

The term 'welfare assessment' applies not only to monitoring animals for signs of pain, suffering and distress associated with procedures, but also to the routine assessment of all animals to check for any health or welfare problems. Welfare assessment is a component of the scientific method, because physiological and psychological responses to suffering can significantly affect data quality.

Animal welfare assessment uses intrinsic study data to provide a clear visualization of the stresses involved during the animal's life history. It provides opportunity for researchers/veterinary services to identify and refine key events which impact on the welfare of an animal, and to explain the totality of any necessary harms when justifying the research.

The animal welfare assessment can be applied to all types of studies, even those not requiring invasive techniques. It provides great opportunities to identify areas where to implement 3Rs and to improve quality of research.

This may also be used as part of the establishment and monitoring of humane endpoints.

4. MATERIALS

4.1. Species-specific animal welfare assessment grid

5. PROCEDURES

5.1. Assessment should be performed on periodic intervals, i.e., monthly, quarterly, biannually, etc., or after any significant event or change in circumstances, e.g., a procedure, room move or fight injury.

5.2. The assessment is suitable for all animal species and can be performed on individual animals or groups, by room, experiment, or protocol.

5.3. A score of "1" indicates the best possible state (lowest possible impact on welfare for the factor whilst a score of "10" would be the worst possible state (highest possible impact on welfare).

5.4. The assessment consists of 4 distinct sections encompassing the overall animal welfare: physical, behavioral, environmental and procedural. Each section has several factors to consider when performing the assessment. Factors that are not relevant should be left empty.

5.5. Once all relevant scores have been made for a section, an average will be applied for each section. A graphic will be presented with a value of the area under the curve (AUC). This value will be the final score of the animal welfare assessment. The score will be associated to a welfare status as per the table below. The graph can be analyzed to determine areas for possible welfare improvement.

WELFARE STATUS	DESCIPTION AND ACTIONS REQUIRED
Acceptable	No mitigation required.
Mild to Moderate	Manageable welfare concerns have been identified. Pre-determined humane interventions or other mitigation strategies can be employed.

Severe	Welfare concerns have been identified that require extensive mitigation measures and close monitoring. Discussion with the animal care committee may be required to rectify the situation or terminate the protocol.
Unacceptable	Overwhelming welfare concerns have been identified, providing justification for immediate euthanasia. Discussion by the animal care committee is required to rectify the situation or terminate the protocol.

5.6. During an assessment, when the final score indicates that the welfare status of an animal is unacceptable, the veterinarian will be informed so that appropriate action is taken.

5.7. Animal welfare records can be compared to previous ones or can be projected for upcoming procedures, surgeries, etc. Records can be examined to assess if improvement in animal welfare is required and will target specific area(s) where improvement needs to be implemented.

6. REFERENCES

6.1. Canadian Council of Animal Care (CCAC). https://ccac.ca/en/three-rs/

6.2. *Guidelines to promote the wellbeing of animals used for scientific purposes.* National Health and Medical Research Council, Australian Government 2008.

6.3. Hawkins et al. *A guide to defining and implementing protocols for the welfare assessment of laboratory animals: eleventh report of the BVAAWF/FRAME/RSPCA/UFAW Joint Working Group on Refinement. Laboratory Animals* 2011; 45: 1–13.

6.4. *National Competent Authorities for the implementation of Directive 2010/63/EU on the protection of animals used for scientific purposes*. Brussels 2012.

6.5. NC3R. https://www.nc3rs.org.uk/

6.6. Sejian et al. *Assessment methods and indicators of animal welfare.* Asian Journal of Animal and Veterinary Advances.2011; 6 (4), p. 301—315.

6.7. Wolfensohn et al. *Refinement of welfare through development of a quantitative system for assessment of lifetime experience.* Universities Federation for Animal Welfare 2015. www.ufaw.org.uk

6.8. CCAC guidelines: Animal welfare assessment, 2021.

SOP REVISION HISTORY

DATE	NEW VERSION
2023.02.20	2. Responsibility **Veterinarians,** veterinary Care staff, **Principal Investigator and their research staff.**
2023.02.20	4.1. **Species-specific** animal welfare assessment grid ~~(Rodents: Annex 1, Large animals: Annex 2)~~
2023.03.13	5.5. Once all relevant scores have been made for a section, an average will be applied for each section. A graphic will be presented with a value of the area under the curve (AUC). This value will be the final score of the animal welfare assessment. ~~The higher the value, the more the animal welfare is negatively impacted.~~
2023.03.13	5.6. When the animal welfare status is found to be unacceptable during an assessment, the veterinarian will be informed so that appropriate action is taken.
2023.03.13	6.1. Canadian Council of Animal Care (CCAC). ~~http://3rs.ccac.ca/en/~~ **https://ccac.ca/en/three-rs/**
2023.03.16	2. RESPONSIBILITY **Facility Animal Care Committee (FACC)**, veterinarians, veterinary care staff, Principal Investigator, and their research staff.
2023.03.16	5.5. Once all relevant scores have been made for a section, an average will be applied for each section. A graphic will be presented with a value of the area under the curve (AUC). This value will be the final score of the animal welfare assessment. **The score will be associated to a welfare status as per the table below.** The graph can be analyzed to determine areas for possible welfare improvement. **WELFARE STATUS — DESCIPTION AND ACTIONS REQUIRED** **Acceptable — No mitigation required.** **Mild to Moderate — Manageable welfare concerns have been identified. Pre-determined humane interventions or other mitigation strategies can be employed.** **Severe — Welfare concerns have been identified that require extensive mitigation measures and close monitoring. Discussion with the animal care committee may be required to rectify the situation or terminate the protocol.** **Unacceptable — Overwhelming welfare concerns have been identified, providing justification for immediate euthanasia. Discussion by the animal care committee is required to rectify the situation or terminate the protocol.**

RODENT WELFARE ASSESSMENT RECORD

ROOM NUMBER:
SPECIES:

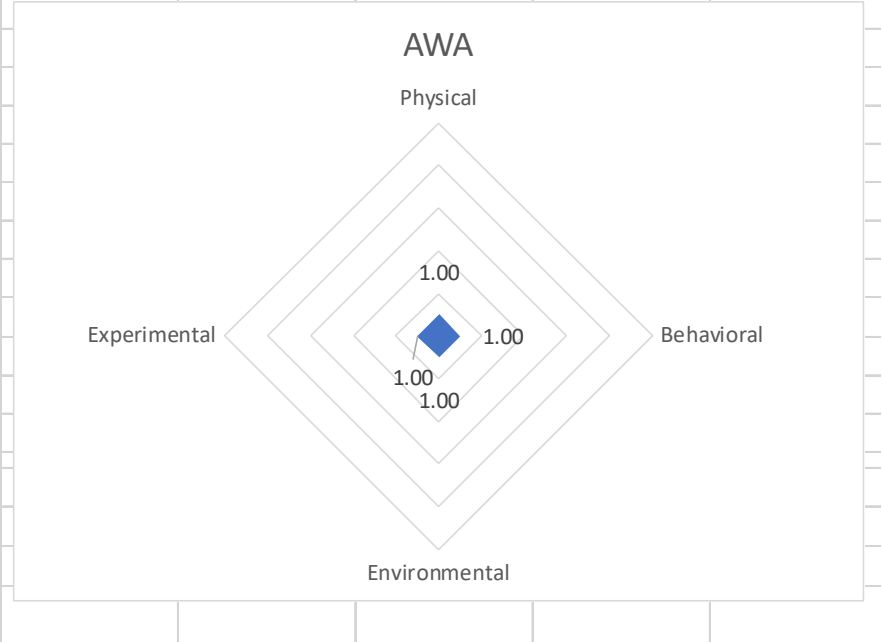
How to use this scoring grid:

- Assessment should be performed at intervals of one month or after any significant event or change in circumstances, e.g., a procedure, room move or fight injury.
- A score of “1” indicates the best possible state (lowest possible impact on welfare for the factor whilst a score of “10” would be the worst possible state (highest possible impact on welfare).
- Once all relevant scores have been made for a section, calculate the average score.
- Factors that are not relevant should not be scored and the factor should not be counted in the average calculation, e.g., in the Experimental/Clinical section, if there has been no surgical event then do not score and divide the total score by 5 rather than 6.

SCORE FROM PREVIOUS ASSESSMENT	**P:**	**B/P:**	**E:**	**EX/C:**
DATE OF LAST ASSESSMENT:				
REASON FOR CURRENT ASSESSMENT:				

NEW ASSESSMENT SCORE	**P:**	**B/P:**	**E:**	**EX/C:**
PERFROMED BY:				
DATE:				

Physical	Behavioral	Environmental	Experimental	Area
1.00	1.00	1.00	1.00	2



PHYSICAL

	SCORE	1	2	3	4	5	6	7	8	9	10
1	General condition (weight loss, body condition score)										
2	Activity level, mobility										
3	Presence of injury										
4	Not eating/drinking										
									Average score (average of scoring factors)		
COMMENTS:											

BEHAVIORAL/PSYCHOLOGICAL

	SCORE	1	2	3	4	5	6	7	8	9	10
1	Stereotypy, self-harming, unusual self-grooming										
2	Hierarchy upset/dispute, aggression/bullying										
3	Alopecia score										
4	Use of enrichment										
5	Aversion to normal events, e.g., staff interaction, cage cleaning, etc.										
									Average score (average of scoring factors)		
COMMENTS:											

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RODENT WELFARE ASSESSMENT RECORD

ENVIRONMENTAL

	SCORE	1	2	3	4	5	6	7	8	9	10
1	Housing (type of cage, litter, nesting material, etc.)										
2	Group size										
3	Provision of 3D enrichment										
4	Provision of manipulable enrichment (forage, food provision)										
5	Contingent event (room move, building works, etc.)										
6	Room environment (temperature, light, etc.)										
									Average score (average of scoring factors)		
COMMENTS:											

EXPERIMENTAL/CLINICAL

	SCORE	1	2	3	4	5	6	7	8	9	10
1	Sedation										
2	Restraint										
3	Surgical event										
4	Water deprivation										
5	Change in daily routine, withholding enrichment, food, restricted access to usual living area, etc.										
6	Effect of procedural intervention										
									Average score (average of scoring factors)		
COMMENTS:											

MACAQUE ANIMAL WELFARE ASSESSMENT RECORD

ROOM NUMBER:
SPECIES:

How to use this scoring grid:

- Assessment should be performed at intervals of one month or after any significant event or change in circumstances, e.g., a procedure, room move or fight injury.
- A score of “1” indicates the best possible state (lowest possible impact on welfare for the factor whilst a score of “10” would be the worst possible state (highest possible impact on welfare).
- Once all relevant scores have been made for a section, calculate the average score.
- Factors that are not relevant should not be scored and the factor should not be counted in the average calculation, e.g., in the Experimental/Clinical section, if there has been no surgical event then do not score and divide the total score by 5 rather than 6.

SCORE FROM PREVIOUS ASSESSMENT	**P:**	**B/P:**	**E:**	**EX/C:**
DATE OF LAST ASSESSMENT:				
REASON FOR CURRENT ASSESSMENT:				

NEW ASSESSMENT SCORE	**P:**	**B/P:**	**E:**	**EX/C:**
PERFROMED BY:				
DATE:				

Physical	Behavioral	Environmental	Experimental	Area
1.00	1.00	1.00	1.00	2

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MACAQUE ANIMAL WELFARE ASSESSMENT RECORD

PHYSICAL

	SCORE	1	2	3	4	5	6	7	8	9	10
1	General condition (weight loss, body condition score)										
2	Clinical assessment, e.g., cough, diarrhea, ascites										
3	Activity level, mobility										
4	Presence of injury										
5	Not eating/drinking										
									Average score (average of scoring factors)		

COMMENTS:

BEHAVIORAL/PSYCHOLOGICAL

	SCORE	1	2	3	4	5	6	7	8	9	10
1	Stereotypy, self-harming, unusual self-grooming										
2	Response to catching event										
3	Hierarchy upset/dispute, aggression/bullying										
4	Alopecia score										
5	Use of enrichment										
6	Aversion to normal events, e.g., staff interaction, cage cleaning, etc.										
									Average score (average of scoring factors)		

COMMENTS:

ENVIRONMENTAL

	SCORE	1	2	3	4	5	6	7	8	9	10
1	Housing (type of cage, litter, nesting material, etc.)										
2	Group size										
3	Provision of 3D enrichment										
4	Provision of manipulable enrichment (forage, food provision)										
5	Contingent event (room move, building works, etc.)										
6	Room environment (temperature, light, etc.)										
									Average score (average of scoring factors)		
COMMENTS:											

EXPERIMENTAL/CLINICAL

	SCORE	1	2	3	4	5	6	7	8	9	10
1	Sedation										
2	Restraint										
3	Surgical event										
4	Water deprivation										
5	Change in daily routine, withholding enrichment, food, restricted access to usual living area, etc.										
6	Effect of procedural intervention										
									Average score (average of scoring factors)		
COMMENTS:											

DATE:	
WELFARE ASSESSMENT PERFORMED BY:	

SPECIES:	*Callithrix jacchus*
IDENTIFICATION:	
DATE OF BIRTH/AGE:	
SEX:	

PRINCIPAL INVESTIGATOR:	
AUP:	
PREVIOUS ASSESSMENT DATE:	
PROCEDURES:	
WELFARE HISTORY:	

FACILITY/ROOM:	
ENCLOSURE TYPE:	
HOUSING SYSTEM STATUS:	
GROUP SIZE:	
ENCLOSURE IDENTIFICATION:	

ASSESSMENT SCORE:	#DIV/0!
WELFARE STATUS:	
VETERINARY RECOMMENDATIONS:	

How to use this scoring sheet

A score of 10 indicates the best possible state (most positive impact on welfare); a score of 1 would be the worst possible state (most negative impact on welfare).

Once all relevant scores have been entered, the average is calculated and is plotted on the adjoining chart.

Factors that are not relevant should not be scored so that the factor is not included in the average calculation, e.g., in the Experimental section, if there is no surgical/procedural event, do not enter a score and leave the scoring box blank.

1	2	3	4	5	6	7	8	9	10
WORST									BEST

PHYSICAL PARAMETERS	SCORE
General Condition Body weight, body condition score, hydration status, fur coat condition, posture, grimace scale, etc.	
Clinical Assessment Urine/feces, output, injuries, illness	
Activity Level Active, mobile, able to exhibit natural body movements, energy level	
Nutrition Food/water consumption, adequate/complete diet, supplemental: insects, fresh produce, low-nutrition treats	
Health Monitoring Program Frequency, complete physical exams	
Veterinary Care Program Clinical cases, medical rounds frequency	
	AVERAGE #DIV/0!

COMMENTS:

BEHAVIORAL/PSYCHOLOGICAL PARAMETERS	SCORE
General Behavior Calm locomotion, allogrooming, exploration, play, food sharing, excessive scent marking, scratching, gouging, agitated locomotion. Consider frequency and duration.	
Vocalizations Positive sounds: trills or chirps - Ambiguous sounds: bird-like sounds or soft whistles - Negative sounds: alarm calls, chatter, cackles or screeching. Consider frequency and duration.	
Group Dynamics Harmonious social group/huddling/resting & playing together - Hierarchy upset/dispute, aggression and/ or chasing. Consider frequency and duration.	
Enrichment Use of enrichment provided. Consider frequency and duration.	
Scent Marking Rubbing sternal (tummy) or anogenital area, allomarking (lifts tail and scent marks on other marmosets) observed occasionally = normal, excessive = negative indicator. Consider frequency and duration.	
	AVERAGE #DIV/0!

COMMENTS:

ENVIRONMENTAL PARAMETERS	SCORE
Housing Housing system status, species appropriate	
Social Housing Singly, pair, or group housed	
3 Dimensional Enrichment Presence of items that improve the use of the space: shelving, climbing structures, perches, hammocks	
Novel & Manipulable Enrichment Forage, food provision	
Positive Reinforcement Training PRT provided, opportunities for voluntary participation, rewarded after procedures	
Room environment Visual barriers between cages, not too many cages in room, natural light vs no natural light, inadequate visual barriers, overcrowding of cages	
Staff training program Observations, husbandry, feeding, capture, handling, veterinary care.	
	AVERAGE #DIV/0!

COMMENTS:

EXPERIMENTAL PARAMETERS	SCORE
Restraint Frequency and duration.	
Sedation Frequency and duration.	
Experimental Surgery/Procedure Effects Invasiveness, effects, frequency, duration of procedures, surgical events.	
Removal from home cage Temporarily removed from cagemate(s)/Isolation- frequency, duration.	
Restrictions daily standard requirements Frequency, duration of restriction from food, water, enrichment.	
Cumulative endpoints Breeding, previous and planned procedures, number of experiments, duration of captivity, etc.	
Personnel training program Observations, capture, handling, restraint, procedures.	
	AVERAGE #DIV/0!

COMMENTS:

Results

Physical	Behavioral	Environmental	Experimental
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Total Score
#DIV/0!
Acceptable
Mild/Moderate
Severe
Unacceptable

This graph shows a visual representation of the welfare indicators that affect the animal's wellness and is a tool that can be analyzed to determine areas for welfare improvement. For each of the four welfare categories, the higher the score, the larger the area on the chart and the greater the positive impact that indicator is having on the animal. The lower the score, the smaller the area on the chart, and the most opportunity for improvement.