

The Mouse Grimace Scale

Research has demonstrated that changes in facial expression provide a means of assessing pain in mice.

The specific facial action units shown below have been used to generate the Mouse Grimace Scale. These action units increase in intensity in response to post-procedural pain and can be used as part of a clinical assessment.

The action units should only be used in awake animals. Each animal should be observed for a short period of time to avoid scoring brief changes in facial expression that are unrelated to the animal's welfare.

	Not present "0"	Moderately present "1"	Obviously present "2"
<p>Orbital tightening</p> <ul style="list-style-type: none"> ▪ Closing of the eyelid (narrowing of orbital area) ▪ A wrinkle may be visible around the eye 			
<p>Nose bulge</p> <ul style="list-style-type: none"> ▪ Bulging on the bridge of the nose ▪ Vertical wrinkles on the side of the nose 			
<p>Cheek bulge</p> <ul style="list-style-type: none"> ▪ Bulging of the cheeks 			
<p>Ear position</p> <ul style="list-style-type: none"> ▪ Ears rotate outwards and/or backwards, away from the face ▪ Ears may fold to form a 'pointed' shape ▪ Space between the ears increases 			
<p>Whisker change</p> <ul style="list-style-type: none"> ▪ Whiskers are either pulled back against the cheek, or pulled forward to 'stand on end' ▪ Whiskers may clump together ▪ Whiskers lose their natural 'downward' curve 			

Read the original paper:

Langford DJ, Bailey AL, Chanda ML, Clarke SE, Drummond TE, Echols S, Glick S, Ingrao J, Klassen-Ross T, LaCroix-Fralish ML, Matsumiya L, Sorge RE, Sotocinal SG, Tabaka JM, Wong D, van den Maagdenberg AMJM, Ferrari MD, Craig KD, Mogil JS. 2010. Coding of facial expressions of pain in the laboratory mouse. *Nature Methods* 7(6): 447-449. doi:10.1038/nmeth.1455

For guidance on using the Mouse Grimace Scale, research papers that underpin this technique, and for grimace scales in other species, visit: www.nc3rs.org.uk/grimacescales
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