

Determining Rodent Body Condition Score

Body condition scoring (BCS) is a useful tool for evaluating overall condition of a rat or mouse. Techniques such as obtaining body weights regularly may be impractical for some studies or for large numbers of animals. When one is studying genetically altered animals, or using any research animal in danger of deteriorating over a long period, or overseeing large colonies with a broad spectrum of ages, BCS offers a useful, rapid, practical, and objective alternative for health assessment. BCS is particularly helpful in cases where pregnancy, organomegaly, or tumor growth (particularly intra-abdominal growth) may interfere with body weight assessment.

Use of this method does not preclude other criteria for premature euthanasia (such as hunched posture, ruffled hair coat, reluctance to move, and/or tumor diameter measurements) but should be **used in conjunction** with these standards. At any time, DLAM veterinarian should be consulted if there are any questions.

As an end-point for premature euthanasia, the highest score that will yield useful data must be used – for example, if mice can be euthanized when they reach BCS 2 (approx. 10% weight loss) without compromising data, that point should be chosen, rather than the mandatory BCS 1, which can be 25% weight loss or more. If the animal must progress to BCS 1, this **will need to be scientifically justified in your animal use protocol**.

BCS is simple to perform: restrain the rat or mouse by the base of its tail using your thumb and middle finger, note its body condition by passing the index finger of the same hand over the sacroiliac bones (back and pubic bones – if this is awkward for you, a two-handed approach can be used instead). This may be done while the animal is on the floor of the cage, or on the wire cage top. This may take some practice, but, once mastered, is quick and easy. This scale is a continuum, and determining where in the spectrum a particular animal falls is accomplished most consistently if it is the same person from the lab who evaluates the animals on a regular basis.

	<p>BC 1 Mouse is emaciated. • Skeletal structure extremely prominent; little or no flesh cover. • Vertebrae distinctly segmented.</p>
	<p>BC 2 Mouse is underconditioned. • Segmentation of vertebral column evident. • Dorsal pelvic bones are readily palpable.</p>
	<p>BC 3 Mouse is well-conditioned. • Vertebrae and dorsal pelvis not prominent; palpable with slight pressure.</p>
	<p>BC 4 Mouse is overconditioned. • Spine is a continuous column. • Vertebrae palpable only with firm pressure.</p>
	<p>BC 5 Mouse is obese. • Mouse is smooth and bulky. • Bone structure disappears under flesh and subcutaneous fat.</p>

A "+" or a "-" can be added to the body condition score if additional increments are necessary (i.e. ...2+, 2, 2-...)

The body condition can be scored on a scale of 1 through 5:

BCS1: If a rat or mouse is found in this condition, **euthanasia must be performed**.

BCS2: At this stage, as the animal progresses from BCS3 to BCS2, more careful observation is warranted.

Supportive care: (moistened food on the cage floor, plus a water source, plus other calorie sources – such as sunflower seeds or cereal) should be initiated, if it would not interfere with the outcome of the experiment. If data can be obtained once the mouse has reached this point, euthanasia is required.

BCS3: This is optimal rodent body condition.

BCS4: The animal is beginning to gain weight.

BCS5: The animal is obese. The feeding of a lower-fat, lower-protein chow may be considered at this point for optimal health.

Adapted from:

Guidelines for Assessing the Health and Condition of Mice. Charmaine J. Foltz and Mollie Ullman-Cullere. Lab Animal. April 1999. Vol 28, No. 4, pps. 28-32.

Use of body condition scoring as an endpoint for tumor growth studies. Debra L. Hickman. Report to the Department of Veterans Affairs, January 31, 2006.