

Table 3: Muscle Atrophy Scoring System (MASS) for idle horses.

Adapted from Herbst et al. (2021).

Score		1 no atrophy	2 mild atrophy	3 moderate atrophy	4 severe atrophy
Neck	Lean	<ul style="list-style-type: none"> Neck muscles are mainly convex and firm, without or with some softer areas. One smooth line where neck meets shoulder (no visible 'shelf'). 	<ul style="list-style-type: none"> Neck muscles are mainly flat and firm, without or with some softer areas. Slight 'shelf' where neck meets shoulder. 	<ul style="list-style-type: none"> Neck muscles are mainly flat or slightly concave and rigid (not firm and elastic) or soft. Moderate, but not prominent, 'shelf' where neck meets shoulder; angle between hand resting on front of shoulder blade and neck is considerably > 90°. 	<ul style="list-style-type: none"> Neck muscles are mainly concave and rigid (not firm and elastic) or very soft. Prominent 'shelf' where neck meets shoulder; angle between hand resting on front of shoulder blade and neck is near 90° or is 90°.
	Adipose	<ul style="list-style-type: none"> Neck muscles are mainly convex and firm, without or with some softer areas. One smooth line where neck meets shoulder (no visible or palpable 'shelf'). 	<ul style="list-style-type: none"> Neck muscles are mainly flat and firm, without or with some softer areas. Slight 'shelf' where neck meets shoulder. 	<ul style="list-style-type: none"> Neck muscles are mainly flat or slightly concave and rigid (not firm and elastic) or soft (but not spongy). Moderate, but not prominent, 'shelf' where neck meets shoulder; angle between hand resting on front of shoulder blade and neck is considerably > 90°. 	<ul style="list-style-type: none"> Neck muscles are mainly concave and rigid (not firm and elastic) or very soft (but not spongy). Prominent 'shelf' where neck meets shoulder; angle between hand resting on front of shoulder blade and neck is near 90° or is 90°.
Abdomen		<ul style="list-style-type: none"> Muscles in abdominal region are firm. Muscles on either side of the abdominal midline near the front legs are firm and not easily movable. 	<ul style="list-style-type: none"> Muscles in abdominal region are mainly firm with some softer areas. Muscles on either side of the abdominal midline near the front legs are mainly firm, with some softer parts, and are not easily movable. 	<ul style="list-style-type: none"> Muscles in abdominal region are mainly soft but not flaccid. Muscles on either side of the abdominal midline near the front legs are soft, but not flaccid, and easily movable. 	<ul style="list-style-type: none"> Muscles in abdominal region are very soft and flaccid or barely palpable. Muscles on either side of the abdominal midline near the front legs are very soft, flaccid and easily movable; or barely palpable, rigid (not firm and elastic) and barely movable.
Back	Lean	<ul style="list-style-type: none"> Back muscles are convex or flat and firm throughout the entire back. Top, but not sides, of spinous processes visible, if at all; sides of spinous processes only palpable near the top, if at all. 	<ul style="list-style-type: none"> Back muscles are slightly concave and mainly firm with some softer areas. Top and sides of spinous processes visible; sides of spinous processes palpable near the top throughout the back; sides of spinous processes palpable in regions more distant from the top in some parts of the back. 	<ul style="list-style-type: none"> Back muscles are moderately concave and rigid (not firm and elastic) or soft. Top and sides of spinous processes visible; sides of spinous processes palpable in regions more distant from the top in most parts of the back. 	<ul style="list-style-type: none"> Back muscles are deeply concave and rigid (not firm and elastic) or soft. Top and sides of spinous processes visible; sides of spinous processes palpable in regions more distant from the top throughout the back.
	Adipose	<ul style="list-style-type: none"> Back muscles are convex and firm throughout the entire back. Top, but not sides, of spinous processes visible, if at all; sides of spinous processes not palpable. 	<ul style="list-style-type: none"> Back muscles are flat or slightly convex and mainly firm with some softer areas. Top, but not sides, of spinous processes visible; sides of spinous processes only palpable near the top. 	<ul style="list-style-type: none"> Back muscles are slightly concave and rigid (not firm and elastic) or soft. Top and sides of spinous processes visible; sides of spinous processes palpable near the top throughout the back; sides of spinous processes palpable in regions more distant from the top in some parts of the back. 	<ul style="list-style-type: none"> Back muscles are concave and rigid (not firm and elastic) or soft. Top and sides of spinous processes visible; sides of spinous processes palpable in regions more distant from the top in most parts of the back, or throughout the back.
Hind	Lean	<ul style="list-style-type: none"> Muscles convex at top and convex or flat at side (back view); muscles convex or flat in region below point of hip (side view). Bone at point of croup only slightly visible, if at all (side view), but may be palpable; bone at point of buttock not visible (side view) or palpable. 	<ul style="list-style-type: none"> Muscles flat at top and side (back view); muscles slightly concave in region below point of hip (side view). Bone at point of croup visible, but not protruding (side view) and easily palpable; bone at point of buttock not visible (side view), but palpable, although not easily. 	<ul style="list-style-type: none"> Muscles slightly concave at top and side (back view); muscles moderately concave in region below point of hip (side view). Bone at point of croup protruding (side view) and easily palpable; bone at point of buttock visible, but not prominent (side view), and easily palpable. 	<ul style="list-style-type: none"> Muscles concave at top and side (back view); muscles deeply concave in region below point of hip (side view). Bone at point of croup protruding (side view) and easily palpable; bone at point of buttock prominent (side view) and easily palpable.
	Adipose	<ul style="list-style-type: none"> Muscles convex or flat at side (back view); muscles convex or flat in region below point of hip (side view). Bone at point of croup not visible (side view), but may be palpable, although not easily; bone at point of buttock not visible (side view) or palpable. 	<ul style="list-style-type: none"> Muscles flat at side (back view); muscles slightly concave in region below point of hip (side view). Bone at point of croup not visible, or slightly visible, but not protruding (side view), and easily palpable; bone at point of buttock not visible (side view) or palpable. 	<ul style="list-style-type: none"> Muscles slightly concave at side (back view); muscles moderately concave in region below point of hip (side view). Bone at point of croup slightly visible, but not protruding (side view), and easily palpable; bone at point of buttock not visible (side view), but palpable, although not easily. 	<ul style="list-style-type: none"> Muscles concave at side (back view); muscles deeply concave in region below point of hip (side view). Bone at point of croup protruding (side view) and easily palpable; bone at point of buttock visible (side view) and easily palpable.

Score using the appropriate row: Neck: _____ Abdomen: _____ Back: _____ Hind: _____

For more information and evaluation instructions:

