

An Examination into the Innervation and Condition of Mature Boar Tusks at Slaughter

Bovey, K.¹Lawlis P.², DeLay, J.³Widowski, T.¹¹ Department of Animal and Poultry Science, University of Guelph, Guelph, Ontario, Canada N1G 2W1² Ontario Ministry of Agriculture, Food and Rural Affairs, London, Ontario, Canada N6E 1L3³ Animal Health Laboratory, University of Guelph, Guelph, Ontario, Canada N1G 2W1

NEW research shows that boar tusks contain nerves and therefore, tusk trimming should be avoided or reduced where possible. If trimming is necessary, tusks should be trimmed so that at least 2 cm of tusk remains above the gumline. [Read on to learn why...](#)



photo courtesy Carol Eiswald

Boars have continually growing tusks that pose a safety hazard to human handlers and other pigs. To remove the danger, tusks are sometimes trimmed – usually 1-2 times per year. Additionally, current transport regulations in Canada require tusks to be trimmed prior to shipping, unless boars are shipped individually.

Tusks are usually removed using hoof nippers or bolt cutters, and less frequently with orthopedic wire that is used as a 'saw' (the recommended method). The tusk is generally trimmed within millimeters of the gums. As with most routine management procedures performed on-farm painkillers are not used. Likewise, sedation is rarely used unless the boar is highly aggressive or agitated.

There is some concern that the removal of tusks can result in acute and long-term pain and/or increased sensitivity, which has welfare implications. The issue is whether or not these tusks contain well developed nerve structures that allow the boar to feel pain.

Some argue that, from a fitness standpoint, it is not advantageous for tusks to contain nerves since, in the wild, tusks are used for purposes that often result in trauma and injury – such as fighting or foraging. However, the structure of boar tusks and how boars react to the procedure of tusk trimming have never been studied.

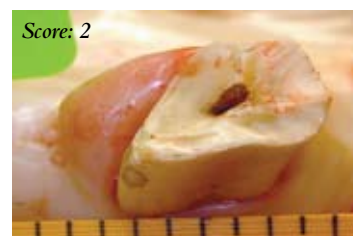
A study was conducted in Ontario to investigate the structure of boar tusks and to determine if nerves are present in the pulp (soft tissue) of the tusk.

51 cull boar mandibles (102 tusks) were collected from a commercial slaughter plant. Tusk length, pulp exposure and gum condition were assessed using scoring system shown in figures 1 and 2.

Figure 1. Tusk length scoring system



Score: 1
Length:
either entire or slightly shortened,
no fragments or jagged edges
extending below the gumline
Pulp Chamber:
no access to pulp chamber



Score: 2
Length:
shortened WITHOUT cracks
and/or fragments extending below
the gumline
Pulp Chamber:
pulp chamber exposed
(either gross exposure or
penetrable with 20G wire)



Score: 3
Length:
shortened WITH cracks and/or
fragments extending below the
gumline
Pulp Chamber:
pulp chamber exposed
(either gross exposure or
penetrable with 20G wire)

Of the 102 tusks examined, 51% were assigned scores of 2 or 3, which are associated with pulp chamber exposure. Of these 102 tusks, 44% also had scores associated with moderate to severe gum inflammation, indicating that tissue irritation/inflammation may be associated with trimmed tusks.

Analyses were performed on 7 intact tusks following decalcification.

Figure 2. Gum condition scoring system



The results of the analysis showed that the tusk pulp chamber, on average, extended to the level of the gum line. In 4 of the 7 tusks, the pulp chamber extended above the gum line. Figure 3 shows where the gum line begins in relation to the tusk.

Sections of 5 tusks were examined for the presence of nerves using a specific laboratory procedure employed in the study of tusks of other species. **All 5 tusks submitted for analysis contained nervous tissue.** In general, nerves were most numerous at the tusk base. The structure of one of the boar tusks samples is shown in figure 4.

In 2 of these 5 tusks nerve fibers were present above the gum line. Further research should focus on differentiating between autonomic nerves (which control the blood vessels) and sensory nerves (which detect pain or pressure) within boar tusk pulp tissue.



Boar tusk after dissection, showing where gumline begins in relation to tusk.

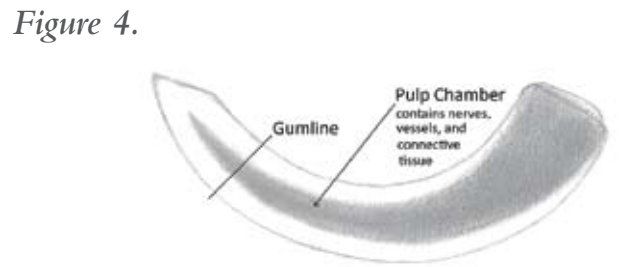


Diagram showing one of the tusks examined. Note that pulp extends beyond the gumline.

Conclusion: Boar tusks contain nerves and tusk trimming can expose the pulp that contains these nerves. In addition, tusk trimming may contribute to the development of gum inflammation.

Recommendations: Avoid or reduce tusk trimming where possible. Consider housing and transporting boars individually so that tusks do not need to be trimmed prior to shipping.

If tusk trimming must be done, try to cut the tusk leaving at least 2 cm of tusk above the gumline. Doing so will avoid cutting into the pulp chamber. Using a dehorning wire to saw through the tusks will reduce chances of splintering, which can occur if bolt cutters or other chopping devices are used.

The Campbell Centre for the Study of Animal Welfare

To learn about how you can support the centre or to join our e-mail list, go to: www.uoguelph.ca/ccsaw or write to:

The Campbell Centre for the Study of Animal Welfare
Animal Science and Nutrition Building
University of Guelph, Guelph, ON N1G 2W1
e-mail: ccsaw@uoguelph.ca

This Fact Sheet has been sponsored by the Ontario Farm Animal Council

