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## **Could low atmospheric pressure stunning (LAPS) be suitable for pig slaughter? A review of available information**

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### **Abstract**

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Low atmospheric pressure stunning (LAPS) is a slaughter technique which may be less stressful for pigs (*Sus scrofa domestica*) than current commercial stunning and slaughter methods. The main methods used currently for slaughtering pigs are electric and carbon dioxide stunning, both of which are widely recognised as stressful for pigs. There is currently no published research on the use of LAPS for stunning adult pigs, however there is a significant body of relevant experience from investigations into the effects of low pressure and hypoxia on humans, hypoxia for killing pigs and the use of LAPS for killing poultry, rats and piglets. In this paper, the basic physics and biology of LAPS is briefly reviewed and relevant experience from research with humans, poultry, rats and piglets is presented. On the basis of this information, some initial parameters for LAPS trials with pigs are proposed, potential welfare issues identified and an approach to achieving LAPS at a commercially viable speed is outlined. While the effects of LAPS on pigs is, at present, uncertain, the evidence from research with humans and other animals suggests that healthy, fasted pigs undergoing LAPS are unlikely to suffer from air hunger or from pain. Any pigs suffering from upper respiratory tract disease, tooth decay or excess gas in the alimentary canal may, however, experience pain. A total killing cycle is likely to require 9 to 14 min. To implement LAPS in a commercial, high throughput processing plant will require the use of multiple decompression cylinders. The evidence available suggests that LAPS could be commercially viable for pig slaughter and that for most pigs it will be less stressful than current commercial slaughter methods.

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