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## Preliminary investigations into the use of microwave energy for reversible stunning of sheep

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## Abstract

Stunning prior to slaughter is commonly used to render the animal insensible to pain. However, for certain markets, stunning is disallowed, unless the animal can fully recover if not slaughtered. There are very few available methods of inducing a fully recoverable stun. This preliminary study investigates the potential for microwave energy application to be used to induce a recoverable stun in sheep. Cadaver heads were used to demonstrate that brain temperature could be raised to a point at which insensibility would be expected to occur (44°C). Trials on four anaesthetised sheep confirmed this finding in a live animal model where brain temperatures between 43 and 48°C were achieved with 20 s of microwave energy application. Although the applicator and process variables require some further development, this technology seems eminently suitable for use as an alternative method of inducing a recoverable stun.

Keywords: animal welfare, electromagnetic, humane slaughter, insensibility stun, sheep, syncope