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Electromagnetic induction of insensibility in animals: a review

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Abstract

The prevention of unnecessary suffering at slaughter is considered to be an imperative and, as such, the majority of animals slaughtered under industrial conditions are stunned prior to slaughter by mechanical, electrical or gas inhalation means. However, many Orthodox Jewish and Muslim communities do not accept pre-slaughter stunning. Those Jewish and Muslim communities that do accept pre-slaughter stunning require that any such stun is fully reversible in order to meet the requirements of their religious laws. Head-only electrical stunning is widely used in sheep, as it is a reversible method of stunning, but in cattle, the stun duration can be so short that the animal may regain consciousness during exsanguination. The concept of using electromagnetic radiation to induce insensibility has been proposed. Early attempts to induce insensibility and death in laboratory species were successful, but the technology to apply the technique to larger animals was not available at that time. More recently, however, technological advances have led to new work in the areas of transcranial magnetic stimulation and microwave irradiation, both of which are potential methods of inducing a recoverable stun in larger species.

Keywords: animal welfare, cattle, humane slaughter, livestock, recoverable stun, stunning