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## ***A review of the humaneness of puntilla as a slaughter method***

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### **Abstract**

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*Puntilla is a traditional slaughter method in which a knife is plunged into the back of the neck to sever the spinal cord. The aim is to produce immediate collapse of the animal. Puntilla is not condoned as a stunning method by the World Animal Health Organisation (OIE) because there is concern that the animal could be conscious during and after the neck stab. Nonetheless, it is still used in some developing countries. The effectiveness and humaneness of puntilla followed by neck sticking was examined at two slaughterhouses in Bolivia. Twenty llamas (Lama glama) and 309 cattle were observed during routine puntilla without stunning. The number of neck stabs was recorded, and then brain and spinal functions (rhythmic breathing, palpebral reflex and eyeball rotation) were assessed. In addition, the presence of specific cognitive responses (such as responses to a threat stimulus and noise, as well as to flavours and odours), were also assessed in cattle. Breed, sex, live weight, body condition score and the slaughterman's experience were recorded. Repeat stabbing was needed to penetrate the foramen ovale in 45% of the llamas and two of them attempted to stand following collapse after the initial stab. All llamas showed rhythmic breathing movements at the flank following puntilla and before sticking, and 95% had a positive palpebral reflex at the same time. Twenty-four percent of the cattle needed repeat stabbing. Repeat stabbing was significantly less frequent with experienced slaughtermen, and more frequent in heavyweight animals (> 380 kg). Brain and spinal responses were present in 91% of the cattle following the stabs. When cattle attempted to stand after a neck stab they were more likely to have rhythmic breathing, positive palpebral response and responsiveness to threat, noise and brief air stimulus applied to the face. These findings indicate that it is difficult in practice to penetrate the spinal cord with a single puntilla stab. Some nerve pathways are often functional after the neck stab and therefore it is highly likely that the animals remain conscious in at least some modalities for the next part of the slaughter procedure. The challenge in developing countries, however, is to find a strategy that encourages use of a method which limits suffering whilst being accessible for routine slaughter practice.*

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**Keywords:** *animal welfare, Bolivia, cattle and llamas, degree of awareness, puntilla, slaughter*