

Calves feel the pain of religious slaughter

BRAIN signals have shown that calves do appear to feel pain when slaughtered according to Jewish and Muslim religious law, strengthening the case for adapting the practices to make them more humane. "I think our work is the best evidence yet that it's painful," says Craig Johnson, who led the study at Massey University in Palmerston North, New Zealand.

Johnson summarised his results last week in London when receiving an award from the UK Humane Slaughter Association. His team also showed that if the animal is concussed through stunning, signals corresponding to pain disappear (*New Zealand Veterinary Journal*, vol 57, p 77).

The findings increase pressure on religious groups that practice slaughter without stunning to reconsider. "It provides further evidence, if it was needed, that slaughtering an animal without stunning it first is painful," says Christopher Wathes of the UK Farm Animal Welfare Council, which has long argued for the practice to end.

In most western countries, animals must be stunned before they are slaughtered, but there is an exemption for religious practice, most prominently Jewish

shechita and Muslim dhabiha. Animal welfare groups have long argued that on welfare grounds, the exemptions should be lifted, as they have been in Norway.

Johnson's work, funded by the UK and New Zealand agriculture ministries, builds on findings in human volunteers of specific patterns of brain electrical activity when they feel pain. Recorded with electroencephalograms, the patterns were reproducible in at least eight other mammal species

known to be experiencing pain.

Johnson developed a way of lightly anaesthetising animals so that although they experienced no pain, the same electrical pain signals could be reliably detected, showing they would have suffered pain if awake.

The team first cut calves' throats in a procedure matching that of Jewish and Muslim slaughter methods. They detected a pain signal lasting for up to 2 minutes after the incision. When their throats are cut, calves generally lose consciousness after 10 to 30 seconds, sometimes longer.

The researchers then showed that the pain originates from

cutting throat nerves, not from the loss of blood, suggesting the severed nerves send pain signals until the time of death. Finally, they stunned animals 5 seconds after incision and showed that this makes the pain signal disappear instantly.

"It wasn't a surprise to me,

"The religious community is adamant that animals don't experience any pain when their throats are cut"

but in terms of the religious community, they are adamant animals don't experience any pain, so the results might be a surprise to them," says Johnson. He praised Muslim dhabiha practitioners in New Zealand and elsewhere who have already adopted stunning prior to slaughter. They use a form of electrical stunning which animals quickly recover from if not slaughtered, proving that the stunned animal is "healthy", thereby qualifying as halal.

Spokesmen for both faiths responded by claiming that stunning itself hurts animals. Shechita UK says that the throat cut is so rapid that it serves as its own "stun". Ahmed Ghanem, a halal slaughterman based in New Zealand, says that blood doesn't drain properly from stunned animals, although this has been countered by recent research at the University of Bristol in the UK. Andy Coghlan ■



Halal can be humane

Macaques are creeped out by cyber-selves

IT TURNS out monkeys are as creeped out by their CGI counterparts as we are. Show them a monkey face that's uncannily life-like and they look away. This might mean that there is an evolutionary explanation for our disgust of non-humans who seem too real.

In the 1970s, Japanese roboticist

Masahiro Mori noticed that, although we like robots that have some human features, we start to find them eerie when they look too real. He called this dip in humanoid popularity the "uncanny valley". Since then, the response has been blamed for the unpopularity of some CGI films with realistic characters, and it is touted as the reason Pixar stuck to characters with cartoonish features.

Several hypotheses have been put forward to explain the uncanny valley. One idea is that it is an evolved response to something that's not

healthy and normal. Another suggestion is that it's got more to do with social taboos about death because human-like, non-humans look like corpses and remind us of our own mortality.

Asif Ghazanfar and Shawn Steckenfinger of Princeton University wondered how five macaques would respond to monkey avatars. They found that the monkeys spent less time looking at the most realistic avatars - which they say suggests they dislike them (*Proceedings of the National Academy of Sciences*, DOI:

10.1073/pnas.0910063106).

"These primates don't participate in human culture, which suggests the uncanny valley has a biological basis," says Karl MacDorman of Indiana University in Indianapolis.

Ultimately, Ghazanfar and Steckenfinger hope to get their monkeys to "climb out" of the uncanny valley and use the avatars as substitutes for real monkeys in social interaction experiments. They hope the experiments could shed light on human communication disorders like autism. Jessica Hamzelou ■