



Module 27

Religion and Animal Welfare

Lecture Notes

Slide 1:

This lecture was first developed for World Animal Protection by Dr David Main (University of Bristol) in 2003. It was revised by World Animal Protection scientific advisors in 2012 using updates provided by Dr Caroline Hewson.

Slide 2:

This module provides an overview of what some of the world's religions teach about animals and how some scholars within each religion interpret these teachings.

It also looks at how science can shed light on the interaction between religious beliefs and animal welfare.

Specifically, we will look at social science data concerning the influence of religious beliefs on voting about animal welfare.

We will also look at data from veterinary studies about whether religious slaughter (without stunning) causes more suffering in animals than secular slaughter (with stunning) does.

Before we begin, we should clarify the context: in this lecture, as in other lectures and as in popular culture, we will speak of humans and animals. However, as veterinarians, we recognise that humans belong to the animal kingdom biologically: we and our patients share many of the same biochemical, physiological and behavioural characteristics needed for physical survival.

While acknowledging these similarities, we also recognise that humans have more advanced cognitive capacities than other animals, and that there is a significant difference between us and them. It is those capacities that enable humans to have religious beliefs, or not to have them, and that enable us to think about religion and animal welfare in a professional manner.

Religion is a sensitive topic, and it is not possible to conduct a comprehensive exploration of the teachings and interpretations of each religious tradition during this lecture. Our aim today is to review some of the pertinent teachings, so that you understand how religion may contribute to the attitudes and actions towards animals that you will encounter in your professional work.

Slide 3:

First, we need to clarify what we mean by 'religion'. There are many different definitions of religion. The one given here is very general and is adapted from one proposed by the Ontario Consultants on Religious Tolerance where religion is described as "a specific system of belief about a supreme being or deity".

Religion usually includes rituals, a holy book, a code of ethics, and a set of beliefs about a deity or several deities, humanity and the rest of the universe, including what happens after death. The ritual of animal sacrifice is dealt with briefly on the next slide.

There are 19 major world religions, with some 270 branches in total and many smaller sub-groups.

Today, we will consider the treatment of animals in five of the most common religions (Hinduism, Buddhism, Christianity, Islam and Judaism) which have informed both popular and scholarly thought about animal welfare. Please note that restricting ourselves to five is not intended to deny or diminish the scope of any other religion, especially any that has influenced the five that we are considering today.

Slide 4:

The sacrifice of sheep, goats, buffalo, oxen and birds has been traditional in many religions. Animal sacrifice is still carried out in some communities today, although there has been a change towards offerings of flowers, fruit and inanimate objects instead, in many places.

The goal of the sacrifice is to seek blessings, to mark festivals, to appease gods, to mark visits by important guests, and to make particular requests.

Examples of religions that use some form of animal sacrifice are listed below.

- Santeria, or La Regla Lucumi, originated in West Africa, and is practised in many countries but most commonly in Cuba, Haiti, Brazil, Trinidad, Puerto Rico and the USA. Sacrifices or offerings (*ebó*) of chickens, goats, doves and pigeons are used to mark significant events – the initiation of priests, births, deaths and marriages. Sacrifices are also carried out for health, cleansing and purification. The animals are killed by decapitation, or by severing the blood vessels in the neck. This method of killing is poorly controlled in comparison with the requirements for killing of farmed livestock.
- During the Eid-el-Kabir festival, Muslims kill sheep and goats by public neck-cutting. In countries where this is unlawful, local legislators have experienced difficulty in enforcement, facing claims that this enforcement interferes with religious rights.
- The picture shows a pig fattened for the 'Pigs of God' festival in Taiwan, at the end of which 'spirit pigs' are slaughtered. This is not religious sacrifice as such, and contravenes national legislation against force-feeding and the public killing of animals.

We shall now look at where the five religions we listed earlier (Hinduism, Buddhism, Christianity, Islam and Judaism) are concerned with animals.

Slide 5:

Now we will look at the world's major religions in turn, starting with Hinduism. Hinduism is one of the largest world religions. It has a supreme deity who manifests as other gods and goddesses. This type of religion is known as *henotheistic*.

Hinduism originated in India, and the majority of Hindus live there. Hinduism is also prevalent in Nepal, Sri Lanka and Bangladesh. A form of Hinduism is also practised in Bali, Indonesia.

There are many variations within the Hindu belief; for example, some Hindus believe that the Supreme Being is Shiva, whereas others believe it is Vishnu. However, all Hindus believe in both gods.

Animals feature highly in Hindu belief and some of the gods appear in animal forms.

For example:

- Vishnu is believed to manifest in many forms, known as *avatars*. Some of these are animals, including the snake, which is why there are many shrines to snakes in India. At the same time, snakes are hunted for their skin and as food.
- Another god is Ganesh, who takes the form of an elephant. In India, elephants are used for draught work and in ceremonies, but there also reserves for them.
- Hanuman is a monkey god and monkeys are sacred animals in India.
- The cow is associated with Aditi, who is the mother of all the gods, and in some Hindu texts the cow is known as Devi, which means goddess. The cow is also a sacred animal for Hindus.

Slide 6:

Hindus believe that humans are not more significant than other animals. This contrasts with Judaism, Islam and Christianity, which are human-centred religions.

The Hindu holy texts include:

- verses or *vedas*, where the cow is referred to as Devi
- epic poems such as the Bhagavad Gita, which includes advice to protect the cow and holds her sacred.

Hindus believe in reincarnation. This means that humans may have been animals in past lives and may be reborn as animals in future lives.

Therefore, for Hindus, animals are human souls in different bodily form. Not killing animals is important for personal purity and to prevent punishment in one's next incarnation.

Slide 7:

Hinduism used to involve animal sacrifices. However, Jainism and Buddhism, which share the concept of respect for all life, influenced Hinduism to adopt the concept of *ahimsa*, which means not harming any living creature.

Related to *ahimsa* is the concept of *aghnya*, which means not killing other beings. Because of these concepts, most Hindus are vegetarian – exemplified by Mahatma Gandhi, who promoted *ahimsa* as a philosophy of life.

Some Hindus eat dairy products, and some avoid red meat and killing animals themselves, but will eat chicken and fish killed by others.

As noted earlier, monkeys (rhesus monkeys in particular) and cows are sacred to Hindus. We shall now look at some of the practical implications of this for animals.

Slide 8:

Traditionally, monkeys were sacred in the Hindu temples because they were believed to be the embodiment of divine beings. There are thought to be at least half a million rhesus macaques in India, of whom about 60 per cent live among people.

For example, in Delhi there are thought to be about 7,000 of these monkeys. They move freely through and around public buildings, and can bring about several problems, including traffic accidents, the transmission of diseases, the pollution of buildings with excreta and food, and frightening, threatening and injuring humans. This causes a nuisance and can be a source of tension between Hindus and people of other faiths who do not revere monkeys.

A similar example is found in Bali. We mentioned that Hinduism is practised there, and monkeys are also sacred.

- In certain villages, hundreds of long-tailed macaques gather to be fed.
- As with the rhesus macaques in Delhi, these monkeys in Bali damage buildings and vehicles, and they steal and beg for food. At temples they are fed and are a tourist attraction. Wild monkeys from the forests join these groups.
- These animals are very adaptable, and it could be said that they are simply adapting to a new resource provided by humans. However, local feeding of macaques may lead to unsustainable populations whose long-term welfare is threatened by complete dependence on human food.

Slide 9:

Cows are also sacred to Hindus, as we have noted.

Many cows are free to wander where they please, and they are regarded with affection and respect. Cows' milk, curd, butter, urine and dung are used in rites of purification and penance. However:

- Historically, there has not been enough food for cattle in India, and in 2003 it was estimated that up to 120 million cattle may be chronically under-nourished or even starving. With developments in agriculture, that number is probably lower today. However, in rural areas which suffer arid conditions or droughts, lack of food remains a problem. Farmers in those areas may then be displaced to cities, leaving their cows behind.
- The combination of reverence for cows and lack of ownership means that many cows eat rubbish, which causes digestive problems and may even cause death. The cows are at high risk of injury from motor vehicles because they walk into the road.
- Slaughtering cows is illegal in many states, so when they are injured they cannot be euthanised. They would then need to be transported long distances for slaughter in another state, prolonging their suffering.

This means reverence for cows as sacred animals can be associated with unintentional physical suffering for many of them.

Slide 10:

Here we move on to Buddhism, which developed in India after Hinduism and spread to many countries in Asia. It is the primary religion in Thailand, Tibet and Burma.

Academics argue whether Buddhism is a religion or a philosophy, as Buddhists do not worship a deity or have a core sacred text, but work towards transcending the ego, as guided by the writings of great masters.

There are several denominations of Buddhism. The main ones are the Theravada and Mahayana branches. The Mahayana branch in turn has other branches such as Zen Buddhism and Tibetan Buddhism.

Like Hindus, and in contrast to Jews, Christians and Muslims, Buddhists believe that humans are not more significant than other animals. The central tenet of Buddhism is compassion for all of life: people are holy if they have pity on all living creatures. Ahimsa follows from this, and meat-eating is forbidden.

Like Hindus, Buddhists believe in reincarnation.

Slide 11:

Christianity, Judaism and Islam are systems of belief in the same god: Judaism existed first; Christianity developed from Judaism; and Islam developed from Christianity. None of them believes in reincarnation.

Emphasis is often placed on the differences between these religions rather than what they have in common, such as their common origin.

Each of the three religions has a holy book and each has several branches, as shown on the slide.

The Jews' holy book has three sections, and is popularly known by the name of the first section which is the Torah. Judaism includes numerous branches. There are many branches, including Orthodox and Conservative.

The Christians' holy book is the Bible, and branches of Christianity include Catholic, Orthodox and multiple Protestant traditions.

The Muslims' holy book is the Qur'an, and the main branches are Sunni, Shia and Ismaeli.

Slide 12:

Judaism is as much a code of practice for living as a religion and frequently brings animals into the moral arena. The Torah teaches that:

- working animals, like people, should be allowed rest on the Sabbath
- cruelty to animals is forbidden, as is hunting animals for sport
- Jews are forbidden to hunt, but meat-eating is left to the individual conscience.

Jewish religious scholars disagree on whether eating meat is permissible. Some argue that because humans are created in God's image we have a responsibility to be kind to animals and that this requires us not to kill them. Others argue that because humans are created in God's image, human life has more value than animal life. Therefore, any evidence that human activity harms animals must be weighed up against whether the alternatives would still meet human needs. In this view, slaughtering using the methods required under religious law is humane when it is performed correctly, and eating animals is acceptable.

Slide 13:

The Torah's instruction not to harm animals unnecessarily gave rise to strict rules about how to slaughter animals. The name for this method of slaughter is *shechita*.

It involves a single sharp cut across the trachea and oesophagus by a highly trained religious slaughterman known as a *shochet* who has been formally licensed. The *chalaf* (knife) must be sharpened regularly.

This slide and the next list the main requirements of shechita.

Slide 14:

The shochet also inspects the animal to ensure the killing was carried out correctly, e.g. the tissues were not torn and the animal was allowed to bleed to death.

Stunning before the cut is not permitted.

The shechita method of slaughter produces *kosher* meat, which means meat that is permitted.

Slide 15:

Whereas Jews are awaiting the arrival of the Messiah, Christians believe that the Messiah was Jesus Christ.

The Bible shares many texts with the Torah and so has several teachings about the humane treatment of animals.

The Bible also includes other texts that describe the life and teachings of Jesus and some of his followers from that period.

Jesus is not recorded to have given specific teachings about animals. Many of his followers were fisherman and he ate fish. They did not specify a ritual for slaughtering animals.

The subsequent theological view has been that because humans are made in God's image, human life has more value than animal life. Also, the influential Christian scholar Thomas Aquinas argued that, because humans are rational but animals are not, this entitles people to use animals. Note that neither he, nor other scholars, ever called for cruel treatment of animals. Rather, specific guidance on the treatment of animals was generally lacking in core Christian teaching through the centuries, although some notable Christian teachers called for compassion for animals.

In recent decades, the treatment of animals and the natural world has received more attention by scholars of the Christian denominations. For example, one view which overlaps with that of some Jewish scholars is that God's ultimate will is for peace but the world is not yet perfect. As part of that imperfection, killing animals has been permissible but is harder to justify today, in light of our increased knowledge of animals' capabilities.

There are many different Christian denominations. In some of them, abstaining from red meat or from all animal products is required on certain days of the year. Some communities of monks have a vegetarian diet.

In all cases, these dietary restrictions are primarily for spiritual purification.

Slide 16:

As with Judaism and Christianity, Islam teaches that human life has more value than animal life.

Muslims believe that we are superior to animals because we can make moral judgements. This means that we can use animals, but that we also have a duty to care for animals, and the Qur'an provides very clear guidance on animal treatment.

So, like Judaism but unlike Christianity, Islam has core teachings on the humane treatment of animals.

The Qur'an informs Islamic law (known as sharia law) and Islamic tradition (*hadith*). Those indicate that certain things are permitted to humans – they are *hala'* – whereas other things are harmful to humans and therefore not permitted (*haram*). For example:

- the Qur'an requires that followers of Islam should not eat 'carrion, blood, pigs, animals not killed in the name of Allah, animals that die from a violent blow, from a fall, from goring or by being savaged by a wild animal'; all those foods are haram
- the Qur'an requires humans to be 'kind, compassionate, merciful and charitable to all living beings'.

Some other examples of Islamic teaching about animals are:

- not killing animals for sport
- providing pack animals with sufficient rest and food
- not keeping certain species such as dogs, but not mistreating them either
- slaughtering animals humanely, according to strict guidelines.

Slide 17:

Muslim slaughter can be carried out by most adult Muslims (some rulings list the requirement as 'any sane' adult Muslim).

As with shechita, stunning is not stipulated.

This slide and the next one list the main requirements and as you can see, they are very specific:

- be a sane adult Muslim
- say the name of God before making the cut
- kill by cutting throat with single, continuous back-and-forth motion of sharp knife that will not tear the wound
- sever at least three of: trachea, oesophagus, each carotid artery + jugular vein
- not sharpen the knife in the animal's presence.

Slide 18:

Animals must:

- be well treated before being killed
- not see other animals being killed
- not be in an uncomfortable position
- be allowed to bleed out.

Meat from animals killed in this way is permitted (or halal) for Muslims.

Slide 19:

Before we consider what science tells us about halal and shechita slaughter, there are some important points to make.

- Both those methods and secular slaughter all cause death by exsanguination: in all three types of slaughter, animals die from loss of blood.
- The main difference between them is that, with secular slaughter, animals are stunned first and the intention is that they should not be conscious at any time during exsanguination.
- Shechita does not permit stunning. In halal slaughter, some Muslim authorities permit stunning at or just after the cut. Others do not, and captive-bolt stunning is generally viewed as contravening the requirement not to eat animals killed by 'violent blows'.
- The recommended methods of slaughter required in Judaism and Islam represented best practice at the time when they were developed.

Note that shechita requirements date back 2,500 years, and halal requirements were laid down about 1,500 years ago. In both cases, having a legal requirement for a skilled slaughterer, using a sharp knife, and a requirement for humane treatment of the animals prior to slaughter all help to maximise the chances of animals undergoing a rapid death with minimal distress. It set a very clear standard for animal care at a time when many other parts of the world had no explicit standards.

A related point of information concerning the prohibition on consuming pork for both Jews and Muslims is that pigs can transmit a zoonotic helminth parasite (*trichinella spiralis*) that causes muscle damage and pain in people. Pigs can also transmit tapeworm (*taenia suis*) to people. Both parasites complete their life cycle when pigs live in close contact with people and eat human faeces or poorly cooked human food waste. Under those conditions, it is important to avoid pigs and not to eat pork.

Slide 20:

You now have a very general overview of the approaches to animals in five main religions. You can see that they all require respect for animals: some have explicit teaching about animal care; others have traditionally been less specific. Also, some allow more use of animals than others, including allowing or prohibiting killing or eating of animals.

Next we shall look at how research can help us to understand how religious belief may affect animals' experience of their lives. We shall look at data in two areas:

- voting for public policy to protect animals
- religious slaughter methods.

Slide 21:

There has been very little research reported on how religious beliefs affect public policies for animal welfare.

However, one analysis of voting data in the state of Florida, the USA, used parallel census data to examine if religious denomination was related to how people voted on a proposal to ban gestation stalls for sows. Census data indicated that the main religious groups were Judaism and three Christian groups – Catholics, evangelical Protestants and non-evangelical Protestants.

The data suggested that religious affiliation played a small part overall in how people voted on the issue: religion only accounted for 8 per cent of the variability of the data, and other factors, such as political preferences and socioeconomic status, had a stronger influence.

Within the 8 per cent of religious influence, Catholics were more likely to support the ban than were the other groups, especially evangelical Christians. However, it was not clear how much that finding was compounded by factors such as political views (conservatism vs. liberalism) and socioeconomic factors such as the value of housing.

Slide 22:

We now move on to discuss religious slaughter.

We have seen that the strict requirements of religious slaughter were best practice when they were introduced. However, modern advances in understanding of animal suffering and welfare raise additional questions about best practice in slaughter and which methods can best minimise pain, fear and distress. With all methods of slaughter, at any slaughter plant, our concern is over what proportion of animals may suffer and how to prevent this.

In the case of religious slaughter, particular concerns include:

- if an animal is conscious when his/her throats are cut s/he may experience pain, fear, anxiety and distress due to the method of restraint, and due to the cut itself

- if it takes an animal a long time to lose consciousness s/he may feel further distress due to hypotension caused by blood loss
- cutting the throat may cause aspiration of blood into the upper and lower respiratory tracts, and alveolar haemorrhage during agonal breathing. If animals have not lost consciousness while these changes occur, this presence of blood may cause pain and distress.

Research is ongoing to investigate these concerns scientifically. As you will see, some of the issues are complex biologically and the answers are not yet clear.

Slide 23:

The first concern with religious slaughter is the method of restraint.

- The animal needs to be restrained in such a way that the slaughterer can cut his/her throat effectively with one cut. This is not very different from restraining for secular slaughter so that the stunning method can be applied effectively first time.
- In religious slaughter, restraining animals on their backs is very stressful and causes many or all of them to vocalise. Auditing the percentage of animals vocalising during restraint is a useful way to assess welfare pre-slaughter in secular and religious slaughter alike.
- The most comfortable way to restrain animals for religious or secular slaughter is upright. For religious slaughter, the restraint box may be slowly rotated to facilitate cutting. If the cut is made within seconds of rotation, animals do not vocalise any more than if they are kept upright.
- Thus the data confirm that the restraint methods used in religious slaughter raise a particular concern.

The second concern is that animals are distressed by pain when their neck is cut.

- Observational data suggest that when the religious guidelines are followed, i.e. using a sharp knife and a trained slaughterman, animals do not show any behavioural reactions to the cut. However, electroencephalogram (EEG) data in a study of calves indicated that the knife did cause pain. This is not surprising, from our knowledge of nociception: some pain from the cut is likely, as skin, muscle, nerves and other soft tissue are all cut. However, the lack of observable physical reaction in ~95 per cent of cases may indicate that the pain is not severe.
- The shechita and halal laws are explicit about the knife being sharp and smooth. However, logically, the neurobiology of nociception and the EEG data mentioned above suggests that the cut must cause some degree of pain in some animals. This makes the question of how long it takes for them to lose consciousness even more important. We will look at this next.

Slide 24:

Anecdotal data suggest that 94 per cent of cattle collapse and lose consciousness within 17 seconds of being slaughtered by knife. For sheep, it is quicker, typically within 2–14 seconds.

However, research into halal and shechita slaughter of cattle and water buffalo, from Bangladesh, Turkey, France and the UK, and into cattle who are stunned and then cut all indicate that some animals may undergo protracted perfusion of the brain, which delays the onset of unconsciousness.

The reason for this is that haemorrhage is impeded by the formation of false aneurysms at the cephalic ends of the severed carotid arteries.

A study of halal slaughter at a Belgian plant examined the time to final collapse in 174 cattle.

- Stunning was not performed and the median time to final collapse was 11 seconds.
- 23 cattle (14 per cent) collapsed, but then stood up again. They seemed therefore to be drifting in and out of consciousness before finally collapsing within 49 seconds. This probably reflected normal phasic changes in consciousness as hypotension progressed, and this may tend to occur at the same prevalence with all religious slaughter. The researchers suggested that it was apparent in their study only because the method of restraint gave the animals space to collapse and get up.
- Also, 14 cattle (8 per cent) took more than 60 seconds to finally lose consciousness, with one taking almost four minutes. A relatively high proportion of those cattle had false aneurysms in the cephalic ends of the severed carotid arteries, compared to the cattle who lost consciousness in less than 60 seconds. The researchers concluded that the effect of the aneurysms at the cephalic ends of the arteries was to allow a degree of blood pooling, and allow protracted perfusion of the brain. That was partly why it took some animals a long time to lose consciousness.
- The occurrence of false aneurysms in some cattle is a concern, because it means that they stay conscious for long enough to suffer during their death.

We need more research to find ways to minimise such delays to loss of consciousness.

Slide 25:

Note that these false aneurysms are also found in stunned animals, after sticking. It is the rapid formation of the aneurysms, early on, that is the welfare concern in animals who are not stunned, because prolonged consciousness can cause suffering.

Considering the Belgian research data with other data from Indonesia, China, France and the UK, published in 2012, confirms that:

- the cephalic aneurysms can form within seven seconds of the cut. When an animal is not stunned, the aneurysms may allow him/her to remain conscious for more than 60 seconds
- between 5–14 per cent of cattle who are killed without stunning may suffer prolonged consciousness due to early formation of false aneurysms

- false aneurysms seem much less likely to form early on if an animal is cut at the level of the first cervical vertebra, instead of the traditional position between the second, third, fourth or perhaps fifth cervical vertebra.

Slide 26:

We now move on to the fourth concern about slaughter without stunning; that the conscious animal aspirates blood into his/her trachea and lungs, which may cause pain.

This is being studied, as it is known that cutting the neck causes blood to flow onto the animal's glottis and to enter the windpipe and alveoli in some cases.

It was previously thought that animals cannot feel this if the cut is made at the level of the third to fifth cervical vertebrae, which severs the recurrent laryngeal nerve. It is important that animals do not feel it, because the cut also means that they would be unable to cough in response, owing to the vagus nerve being cut. More recently, however, there has been new evidence that some sensation could be retained, from afferent branches of the cranial laryngeal nerve which is anterior to the level of the cut.

Slide 27:

To investigate this, a study was conducted of shechita and halal slaughter, and secular slaughter with captive-bolt stunning and then sticking at commercial plants in the UK and Belgium.

- Again, the time to collapse after religious slaughter was relatively short (with captive-bolt stunning, it is instantaneous).
- Between 30–80 per cent of all animals had blood in the trachea and bronchi after the cut/sticking.
- Unlike the secular slaughter method, however, both methods of religious slaughter were also associated with blood-stained foam in the alveoli in 8–15 per cent of animals.

The presence of blood in the upper airways and the alveoli raises concerns about the experience of cattle who take more than a few seconds to lose consciousness (e.g. because of false aneurysms, discussed earlier). Those animals could suffer for two reasons.

- First, the cut does not sever the cranial laryngeal nerve, which is found at the level of the second cervical vertebra, anterior to the cut. That nerve could transmit sensations of irritation from the glottis to the spinal cord and brain. However, animals cannot cough to relieve those sensations because the vagus nerve has been cut. That combination of feeling irritation but being unable to relieve it could be very distressing.
- Second, the sensation of blood in the alveoli could be transmitted to the spinal cord by local nerves, and thence to the brain, as religious slaughter does not permit the spinal cord to be cut. Again, in this situation, animals could not cough to relieve those sensations because the vagus nerve has been cut.

The animals' position at slaughter did not prevent the alveolar condition, as the animals were slaughtered in the upright position, not on their back or side.

A study published by Gregory et al., (2012) examined the formation of false aneurysms. Those authors also concluded that making the cut at the level of the first cervical vertebra (in order to prevent the rapid formation of aneurysms) could also help to minimise the likelihood of the animal feeling blood in his/her airway while not being able to cough.

Slide 28:

Note that we need much more research to give a clearer indication of how many animals might be at risk of these problems. For example, we need data on the prevalence of animals who take a long time to lose consciousness and have bloody foam in the alveoli, or blood in the trachea and bronchi.

What we can say is that current scientific and anatomical data confirm that ensuring animals lose consciousness quickly is very important in religious slaughter.

- Stunning should cause instantaneous loss of consciousness, and we mentioned that some Muslim authorities permit stunning. Those authorities generally accept stunning at or just after the cut. However, the ruling that animals may not die from a violent blow to the head means that some authorities would only accept electrical stunning. That method of stunning also raises welfare concerns in secular slaughter just as much as in religious slaughter.
- Electrical stunning is questionable as a humane stunning technique due to the extrapolation of data from electroconvulsive (ECT) therapy for people with psychiatric disorders. It is not permitted in some countries because it is known to be painful, especially because of the pronounced muscle contraction it causes. Where electroconvulsive therapy is still allowed, it is carried out with sedation and general anaesthesia.
- Electrical stunning of animals is not unlike ECT therapy. The possibility of pain and distress due to electrical stunning at slaughter has been studied closely in terms of voltage and amperage, duration, location of electrodes, and provision of immediate insensibility. However, it is difficult to assess pain completely during the process, and it may be that the procedure causes suffering briefly in some animals.
- Module 16 examines slaughter in more detail. However, you can see that while scientific research on anatomical and clinical aspects of religious slaughter indicates that the procedure inevitably causes suffering for some animals, electrical stunning may not solve the problem completely either.

With all forms of slaughter, auditing is important, i.e. measuring relevant outcomes such as the percentage of animals who vocalise during restraint, and the time it takes for final loss of consciousness. By combining audits with scientific facts we can ensure that each method of slaughter, and the way it is executed, does not cause animals to suffer.

Slide 29:

To sum up, we have seen that many religions promote positive attitudes to animals. However, some religious practices can be negative for particular species or individual animals.

Scientific research into particular topics can help to clarify the animal's experience in areas of concern. As veterinarians, you are in a position to explain the science and to use objective measurements, such as auditing, to help ensure humane treatment.

