

The Right Path to Health

Health Education through Religion

Islamic Ruling on Animal Slaughter

Report of a Seminar
and Committees organized
by the
Muslim World League
and the
World Health Organization



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In the name of God, the Compassionate, the Merciful

Foreword

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Regional Director for the
Eastern Mediterranean Region of
the World Health Organization

On behalf of the World Health Organization (WHO), it gives me great pleasure to introduce this important booklet, which contains the outcome of a series of meetings attended by a panel of prominent scholars learned in Islamic law, as well as other experts. The subject under discussion is important to the health of Muslims everywhere.

Perhaps one of the most crucial aspects of health care is that relating to food and drink. Therefore, one of the major principles of primary health care (WHO's approach towards securing health for all), is to bring about good health for people by providing them with the basic needs of life, such as proper nutrition and clean water. At the same time people must behave moderately with regards to nutrition, avoid excess and harm.

The world nowadays suffers from two contradictory types of disease, the diseases of affluence and the diseases of starvation.

On the one hand, coronary heart diseases, today's leading killers, can be traced to gluttony and overeating of rich foods that help precipitation of fatty substances called atheromas on the walls of the arteries, causing arteriosclerosis, blocking the blood stream and leading eventually to death.

On the other hand, more than half of the deaths of children in developing countries are directly associated with malnutrition. Malnutrition and iron deficiency greatly reduce work potential. It is also well known that such nutritional deficiencies increase the neonatal risks for both the mother and the child. They increase the maternal mortality rate, as well as the rate of low birth-weight infants, who are at high risk of disease or early death.

We have also become familiar with trends in which people, for a variety of reasons, undergo a voluntary reduction of nutrition by avoiding eating certain

types of food, especially meat. It is therefore our duty to find out the answer as to why people choose not to eat meat, and to come up with a proper solution to overcome such a problem.

One of the main reasons for refraining from eating meat is religious belief, as many people do not eat the meat of animals whose slaughter does not conform to the teachings of their religion. Among those are Muslims living or travelling in non-Muslim countries, where facilities for slaughter according to Islamic Law are not available. In fact, the matter goes even further to include many Muslim countries that depend heavily for food on meat imported from places where slaughter according to Islamic teachings cannot always be guaranteed.

This became a real problem in many countries, and resulted in the abstention by Muslims from eating meat, which, in turn, led to various types of nutritional imbalances. Therefore, Dr Muhammad Abdussalam, Director of International Scientific Cooperation at the Veterinary Institute of the Department of Health in Berlin (which works in close cooperation with the World Health Organization and the Food and Agriculture Organization of the United Nations) started to seek ways and means of dealing with this problem. His Institute invited a prominent Islamic scholar, namely Dr Abdulaziz Al-Khayyat, to observe, at first hand, the slaughter and processing methods adopted at abattoirs and slaughterhouses in Berlin. Dr Al-Khayyat summed up the findings of his visit in an extremely valuable monograph on the subject.

The Institute then decided to invite the participation of a wider group of scholars and experts. The idea was welcomed by WHO and the Muslim World League and WHO and together they convened a seminar on the topic in Jeddah, Saudi Arabia. A number of international experts working in the Institute provided the seminar with films and slides showing different stages of animal slaughter and their effect on the animals. A number of important recommendations were adopted and a committee was set up to follow up and study certain aspects of the subject. Subsequently, a number of concerned centres in the United Kingdom were visited to investigate certain points related to the issue.

This report includes the outcome and findings of various activities in connection with this subject. We felt that accumulating and publishing these findings could be of significant benefit, as they provide Muslims with religious and health rulings on animal slaughter, and allow them to enjoy wholesome food and avoid what is foul. They also help them not to prohibit what is permissible merely as a result of misconception.

The World Health Organization sincerely hopes that this work will serve the purpose for which it has been carried out. Meanwhile, we are deeply thankful to the Muslim World League and the Berlin Veterinary Institute, as well as to all scholars, scientists and experts who participated in the seminar and made this commendable work possible.

(There are rewards for all, commensurate with their deeds, 6:132)

A handwritten signature in Arabic script, likely belonging to a high-ranking official of the Muslim World League, written in black ink.

Alexandria, Zul Hijja 1408
August 1988

Terms used in the Health Education through Religion series

The following notes are intended for readers who do not know Arabic and who do not have an Islamic background.

<i>fatwa</i>	A formal religious legal opinion.
<i>fiqh</i>	Islamic jurisprudence (literally: understanding and acquisition of knowledge).
<i>hadith</i>	Saying(s) or action(s) ascribed to the Prophet ﷺ or act(s) approved by the Prophet ﷺ.
<i>haram</i>	Prohibited, banned, illegal, impermissible, from a religious standpoint. Epithet applied, in general, to actions or things considered sinful to Muslims.
<i>hijra</i>	The emigration of the Prophet Muhammad ﷺ, from Mecca to Medina in AD 622. The event is used as the starting point for the Islamic Calendar.
<i>Prophet</i>	The Prophet Muhammad ﷺ, the Messenger of God. Any reference to the Prophet is usually followed by the symbol ﷺ, meaning “Peace be upon him”.
<i>Quran</i>	The Holy Book of Islam; the highest and most authentic authority in Islam. Quotations from the Quran are normally followed by a reference to the number of the chapter (<i>sura</i>) and the number of the quoted verse (<i>aya</i>). All Quranic texts in this publication are printed in italic.
<i>schools of fiqh</i>	The schools of Islamic thought or jurisprudence, the four most important of which were founded by Malik, Abu Hanifa, Al-Shafie and Ahmad ibn Hanbal.
<i>sharia</i>	The body of Islamic law based on the Quran and the <i>sunna</i> (see below).
<i>sunna</i>	Practices undertaken or approved by the Prophet ﷺ and established as legally binding precedents.

1

General principles

1. *Tazkiya* is the Arabic term for the correct method of slaughter of animals according to the requirements of the Islamic religion. This method is an act of faith, and it is necessary for the slaughter of all animals, and birds, the meat of which has been made permissible¹ for human consumption. It is achieved in one of the following three ways:
 - a) *zabh*²: slitting the animal's throat, oesophagus and jugular veins. It is mostly used on sheep, cows and birds, but could also be used on other animals.
 - b) *nahr*: stabbing the animal in the throat (*al-manhar*) and cutting downward to the top of the chest. This is mainly used in the case of camels and other such large animals, but could also be used for cows.
 - c) *aqr*³: causing a physical wound to an unwieldy animal, whether a domestic but untamed animal or a wild one that is permissible for hunting.
2. Before and during the slaughter, it is recommended that the animal is treated with kindness⁴. It should never be skinned or maimed before it is

¹ Animals whose meat is permitted for human consumption are discussed in section 3.

² Abu Hurayra reported that the Prophet ﷺ had dispatched Budayl ibn Warqaa, to publicly announce to the pilgrims at Mina that, "the correct way to kill an animal is by cutting its throat or stabbing it in the neck". (Reported by al-Daraqutni.)

³ Rafee ibn Khadeej, has been quoted as saying: "We were once with the Prophet ﷺ when a camel suddenly bolted. As the few horsemen present were not able to subdue it, someone threw an arrow at it and had it incapacitated. The Prophet ﷺ then said to us: "These beasts have fits of wild temper; so whenever they behave in this way, do what the archer has done"". (Agreed upon by Al-Bukhari and Muslim.)

⁴ The Prophet ﷺ said: "God has prescribed the pursuit of perfection in every action. When you kill or slaughter (an animal for food), do it well. Sharpen your tools and let the animal die in peace". (Reported by Muslim.)

slaughtered; nor should it ever be tortured, slaughtered with a blunt instrument, have the knife sharpened before its eyes or be slaughtered within sight of other animals¹. However, if any of these considerations are neglected, the meat would still be permissible for consumption, though the culprit may well have committed a sin.

3. Slaughter should be carried out using a sharp instrument. It may not be effected with teeth, nails, bones² or a bladeless tool.
4. The person to carry the slaughter must be a sane, discriminate Muslim, Jew or Christian.
5. Muslim scholars are agreed that the name of God should be invoked over the animal that is intended for slaughter³. This is done by reciting the following Arabic phrase: *bismillah allahu akbar*, which means “In the name of God; God is Greatest”, or words to that effect.
6. If the invocation of God’s name over the slaughter is overlooked or forgotten, the meat is still permissible for consumption⁴.
7. A Muslim shall not invoke the name of an idol, a personage, a king or a saint when slaughtering an animal⁵.
8. The animal must be healthy, free of infectious diseases and anything that could affect the quality of its meat and make it harmful for the consumer⁶.

¹ Ibn Abbas related that the Prophet ﷺ passed by a man pinning a sheep onto the ground with his foot on its head and honing his knife while the sheep was looking; the Prophet ﷺ, said: “Should you not have done this earlier, or do you have to kill the sheep twice?”. (Reported by Al-Tabarani.)

² The Prophet ﷺ said: “Once the blood (of the animal) is spilt and the name of Allah was invoked, the meat is fit for consumption, unless the instrument used is a tooth or a nail”. (Agreed upon by all *hadith* authorities.)

³ God says in the Quran: *Eat of that (meat) over which the name of God has been invoked* (6:118) and, *Do not eat of that (meat) over which the name of God has not been invoked* (6:121)

⁴ Abu Hurayra reported that a man came to the Prophet ﷺ and said: “What would you say to a man who had forgotten to invoke God’s name when slaughtering an animal?” The Prophet replied: “God’s name is (always) present with every Muslim”. (Reported by Al-Daraqutni.)

⁵ God says in the Quran *...or an abomination over which a name other than God’s has been invoked* (6:145).

⁶ God says in the *Quran ...and he [Muhammad] would forbid them [his followers] all that is foul* (7:156). The Prophet ﷺ was reported as saying: “There shall be no infliction of harm on oneself or others”. (Reported by Imam Ahmad and Ibn Majah.)

2

Methods of slaughter

1. Basically, the Islamic method of slaughter, which Muslims believe is the ideal one, does not involve stunning. It is carried out with utmost mercy on the part of the slaughterer, and minimum pain and suffering on the part of the animal. Official slaughterhouses should therefore develop their techniques with respect to large animals in order to ensure that these basic requirements are adequately met.
2. Pre-slaughter stunning of animals¹, using electric shock, is admissible if the following provisions are met:
 - a) the electrodes are applied to either both temples or in a frontal-occipital position
 - b) the voltage range is between 100 and 400 volts.
 - c) the electric current ranges between 0.75 and 1.0 ampere for sheep, and between 2.0 and 2.5 amperes for cattle.
 - d) the electric current is applied for a period of 3 to 6 seconds.
3. Since the effect and outcome of electrical stunning are closely related to the type of machine and electrodes used, standard specifications for such

¹ The joint Muslim World League/World Health Organization meeting held at Jeddah during Rabie al-Awwal 1406 AH/December 1985, recommended that "if it could be shown that stunning with electric shock enabled the animal to die peacefully, then it would be Islamically lawful". The meeting also set up a committee comprised of scholars of Islamic law (*fuqaha*) and experts to study the effects of electrical stunning and to verify whether it: a) mitigates the slaughter process and does not constitute a form of torture; b) does not in fact lead to death; and c) does not have any adverse effect on the animal nor cause harm to the consumer. The committee found that stunning: a) most probably mitigated the slaughter and eliminated pain; b) did not lead to death, provided that the conditions set out by the committee were met; and had no adverse effects on the (meat of the) animal nor would it cause any harm to the consumer. Section 4 gives the studies carried out by the committee and its findings.

machines should be set in order to avoid the death of the animal before it is slaughtered.

4. It is essential to provide adequate technical training in the use of these machines and instruments, so as to ensure the safety of the operator and prevent misuse that might lead to pre-slaughter death or to undesirable subsequent effects on the meat.
5. Stunning by bolt-shot pistol is unacceptable, especially in the case of sheep. Instead, the animal may be constrained by putting it in a cage and then slaughtering it in the normal way prescribed in Islam. Nevertheless, should this method be applied, and the animal classified as *mawquza* (“beaten to death”), yet it is then slaughtered while still alive consumption of the meat would then be permissible.
6. Pre-slaughter stunning using carbon dioxide gas is not acceptable since it would be classified as *munkhaniqa*, (death by suffocation) which is forbidden.
7. The Islamic requirements in the slaughter of poultry and birds are only met by cutting the throat, oesophagus and jugular veins with a sharp instrument. All necessary precautions should be taken to ensure that death is not brought about by any other means. Electrical stunning in this case would not be permissible, unless ways are found to guarantee the passage of electric current through the head only. Consumption of the meat of birds decapitated by machine is permissible.
8. Meat exporters and importers should be required to ensure that conditions of Islamic slaughter methods have been observed with respect to meat imported into Muslim countries. Slaughterers should be Muslims, as far as possible, and the slaughter should be carried out under the supervision of an Islamic body recognized by the importing country.
9. Authorities in non-Muslim countries are requested to allow their Muslim population the facilities to slaughter animals and birds in accordance with Islamic methods outlined above.
10. Muslims living in non-Muslim countries are urged to seek permission, within the laws of their respective countries, to conduct the slaughtering of animals according to their religion. If this is not available, they may eat the meat of animals slaughtered by Jews or Christians, which is permitted in Islam, having ensured that it is free of other forbidden meat and food.
11. Muslim visitors to non-Muslim countries, unable to obtain meat of animals slaughtered in accordance with Islamic law, may eat the meat of animals slaughtered by Jews or Christians, having ensured that it is free of other forbidden meat and food.

3

Islamic ruling on the consumption of meat¹

Forbidden meat

Meat which is indisputably forbidden

1. Pigs meat^{2,3}.
2. Meat of dead animals (*mayta*)^{2,3}, i.e. that have died a natural death and were not slaughtered using the Islamic method. This category includes parts cut off prior to proper slaughter or after slaughter but before complete death⁴.

¹ This section is from report number WHO-EM/FOS/1-A, of the joint Muslim World League World Health Organization meeting on Islamic Requirements for Animal based Foods, held in Jeddah Rabie al-Awwal 1406 AH/December 1985.

² God says in the Quran: *Say [you, Muhammad]: I find nothing in what has been revealed to me that forbids men to eat of any food except carrion, spilt blood, swine flesh, for these are unclean, or an abomination over which a name other than that of God had been invoked (6:145), and he also says: He [God] has forbidden you carrion, blood, swine flesh and that [meat] over which a name other than that of God has been invoked. (6:173)*

³ God says in the Quran: *You are forbidden [the consumption] of carrion, blood, swine flesh, that [meat] over which a name other than that of God has been invoked, [the meat of] strangled animals, those that have fallen, been beaten or rammed [or gorged by other animals] to death, those mangled [or devoured] by beasts of prey, save those which you slaughter in time; and those sacrificed to idols. (5:3)*

⁴ God says in the Quran: *and once they [slaughtered camels] have fallen dead on their sides, eat their meat. (22:36)* The Prophet ﷺ said “Whatever part of an animal is severed while it is still alive is carrion [and therefore not permissible]”. (Reported by Abu Dawood and al-Tirmizi.)

3. Spilt blood (*damm*)^{1,2} which is shed from the animal as a result of slaughter or injury.
4. Animals over whose slaughter another name, other than God's was invoked (*lam yuzakar ismul-Lahi alayh*)^{1,2}, such as names of idols or other deities.
5. Strangled or suffocated animals (*munkhaniqa*)², whether the strangulation is self-inflicted or caused by an external agent.
6. Animals killed as a result of beating (*mawquza*)² or being struck with a heavy object, such as a piece of iron, lead or stone (with the exception of game animals and birds which are hunted using arrows, bullets and the like).
7. Animals killed due to falling from a height (*mutaraddiya*)² or into a pit or ditch or the like.
8. Animals killed as a result of being butted (*natiha*)² or rammed (by other animals).
9. Animals (other than game animals or birds) killed, and partly devoured, by beasts or birds of prey (*ma akala assabuu*)².
10. Animals sacrificed to idols or dedicated to someone or something other than God (*ma zubiha 'ala annusub*)².
11. Animals slaughtered by polytheists, agnostics, atheists, Magians, apostates or other non-believers. Excepted are those slaughtered by Jews and Christians³.
12. All harmful meat⁴.

¹ God says in the Quran: *Say [you, Muhammad]: I find nothing in what has been revealed to me that forbids men to eat of any food except carrion, spilt blood, swine flesh, for these are unclean, or an abomination over which a name other than that of God had been invoked* (6:145), and he also says: *He [God] has forbidden you carrion, blood, swine flesh and that [meat] over which a name other than that of God has been invoked.* (6:173)

² God says in the Quran: *You are forbidden [the consumption] of carrion, blood swine flesh, that (meat) over which a name other than that of God has been invoked, [the meat of] strangled animals, those that have fallen, been beaten or rammed [or gorged by other animals] to death, those mangled [or devoured] by beasts of prey, save those which you slaughter in time, and those sacrificed to idols.* (5:3)

³ The Prophet ﷺ told some of his followers that: "Once you reach the lands of Nabat in Persia, eat the meat sold by Jews or Christians, but not if the animal has been slaughtered by a Magian". (Reported by Imam Ahmad.)

⁴ God says in the Quran: *And do not kill yourselves* (4:29). The Prophet ﷺ said: "There shall be no infliction of harm on oneself or others". (Reported by Imam Ahmad and Ibn Majah.)

In all of the above cases, prohibition applies to all parts and derivatives of the animal, such as fat, suet and bone.

Meat held to be forbidden by the majority of Muslim jurists

1. Mules and domestic donkeys¹.
2. Predatory animals including canines², such as lions, tigers, wolves, foxes, leopards cheetahs, bears, dogs and cats. The imam Malik, however, is of the opinion that eating the flesh of these animals is censurable (*makrouh*) rather than forbidden³.
3. Birds of prey², such as hawks, falcons, vultures, eagles, sparrowhawks, peregrines and the like. The imam Malik takes the opposite view and allows eating the meat of these birds³.
4. Pests such as mice, scorpions and beetles⁴. The Imams Malik and al-Awzaie, however, are of the opinion that eating the meat of these animals is merely censurable³.
5. Elephants, though some jurists consider eating elephant meat permissible.

Animals whose meat is permissible for consumption

Animals on which there is unanimity

1. Sheep, goats, camels, buffaloes⁵ and all non-predatory terrestrial animals, whether domesticated, such as deer and bison, or non-domesticated, such as hedgehogs and moles, as well as domesticated fowl, such as pigeons, hens,

¹ Anas ibn Malik was reported as saying that the Prophet ﷺ one day ordered someone to announce publicly that: "God and His Messenger have forbidden you the consumption of the flesh of tame donkeys, as it is unclean". On hearing this, people overturned their pots with the meat still cooking in them. (Reported by Al-Bukhari.). There is also the report of Jaber saying: "On the day of [the battle of] Khaybar, we slaughtered horses, mules and donkeys, but the Messenger of God forbade us [the meat of] mules and donkeys but not [that of] horses". (Related by Muslim.)

² The Prophet ﷺ said: "[The meat of] all canine animals is forbidden [for human consumption]". (Reported by Muslim.). He was also said to have forbidden eating the meat of canines and clawed birds [or birds of prey]. (Reported by Muslim.)

³ This is because they have not been specifically mentioned among those forbidden animals given in the Quran (6:145)

⁴ God says in the Quran: *And he [Muhammad] forbids them all that is foul.* (7:156)

⁵ God says in the Quran: *[The meat] of [all] beasts, except for those mentioned herein, has been made lawful for you [to eat].* (5:1)

turkeys, ducks and all non-predatory birds, such as sparrows, provided they are hunted or slaughtered using an approved method, as outlined earlier.

2. Fish and locusts¹.
3. Animals killed following strangulation (or suffocation), beating, falling, butting (or ramming) or devouring by predatory beasts, and that have been slaughtered, using an approved method, while still alive².
4. All types of meat a Muslim is compelled to eat in order to survive, provided that the amount consumed is the minimum needed to sustain life³.
5. All the insides of a slaughtered animal, including a foetus that has developed flesh⁴. If the foetus is found to be still alive, then it should itself be slaughtered using one of the approved methods.
6. Meat of animals slaughtered by Jews or Christians⁵, except for those categorically forbidden *per se*, such as pigs, or by virtue of their state, such as carrion, or due to a defect in the slaughter method that would render the animal's meat as carrion.

Meat permitted by the majority of jurists

1. All aquatic animals⁶. Hanafi scholars however, prohibit everything other than fish and floating fish, while Hanbali scholars prohibit sharks and porpoises.

¹ The Prophet ﷺ said: "Two types of dead meat and two types of blood have been made lawful for your consumption: fish and locust, liver and spleen". (Reported by Ahmad and Ibn Majah.)

² God says in the Quran: *Except that which you slaughter while still alive.* (5:3)

³ God says in the Quran: *Whosoever is forced by hunger, not intending to commit sin, [to eat of what is forbidden], will find God forgiving and merciful.* (5:3) *God has set out for you in full detail what has been forbidden to you, unless you are compelled thereto.* (6:119) *Whoever is compelled [to eat forbidden meat] through necessity, neither craving nor transgressing, shall incur no offence.* (2:173)

⁴ The Prophet ﷺ said: "The slaughter of a foetus is achieved through slaughtering its mother". (Reported by Al-Hakim.)

⁵ God says in the Quran: *The food of the People of the Book [Jews and Christians] has been made lawful for you to eat.* (5:5)

⁶ God says in the Quran: *What you catch from the sea and the food it provides have been made lawful unto you.* (5:6) When asked about the sea, the Prophet ﷺ said: "Its water is pure [clean] and its [dead] creatures are lawful [for consumption]". He was also reported as saying: "Two types of dead meat and two types of blood have been made lawful for your consumption: fish and locust..."

2. Lizard¹.
3. Horses. The imam Abu Hanifa and some Maliki scholars considered them merely censurable².
4. Rabbits and hares. Hanafi scholars considered them merely censurable³.
5. Hyenas⁴.
6. Amphibians, such as crocodiles, frogs, turtles, seals, crabs, beavers and the like, which some scholars considered permissible, but not others.

Muslims are, therefore, given the choice of following any of those schools, especially when they can support their choice with the required argument.

¹ This is supported by the fact that Khalid ibn al-Walid ate in the presence of the Prophet ﷺ, as reported by all the authoritative reporters of *hadith*, except Al-Tirmizi.

² Jaber reported that: On the day of [the battle of] Khaybar, we slaughtered horses, mules and donkeys, but the Prophet ﷺ forbade [the meat of] mules and donkeys, but not [that of] horses". (Reported by Muslim.)

³ Anas ibn Malik was said to have reported that he caught a hare (rabbit) and took it to Abu Talhah who slaughtered it and sent him with a couple of pieces of it to the Prophet ﷺ who accepted them. (Reported by Muslim.)

⁴ When Jaber was asked about eating the meat of the hyena, he said: "Yes, it is lawful". When asked if it was considered game and whether he had heard it from the Prophet ﷺ he said: "Yes".

4

Electrical stunning of animals: research and conclusions of the study committee¹

Studies undertaken

1. Experiments were carried out using two sheep: an adult weighing 35 kg and a lamb weighing 18 kg. They were given electrical stunning treatment under identical conditions applying a 300 volt/1.25 ampere electric current for 3 seconds. The electrodes were applied bitemporally.

Both animals displayed tonic and clonic characteristics of epilepsy before making a full recovery.

The experiment demonstrated the reversible nature of electrical stunning, under given conditions, in which the stunned animal returns to the normal pre-stun state. No other effects relating to age or size were observed.

2. A video film showing the use of electrical stunning on calves, not exceeding 450 kg in weight, prepared by the Meat Industry Research Institute in New Zealand, was screened.
3. Colour slides, showing the effect of electrical stunning on the electroencephalogram of sheep, prepared by the Food Research Institute, Bristol, United Kingdom, was also screened.

¹ This section is from to report number WHO-EM/FOS/10-A of the Muslim World League and the World Health Organization committee on electrical stunning of animals. The committee was formed of Dr Muhammad Abdussalam (Chairman), Dr Muhammad al-Habib bin al-Khojah, Dr Muhammad Abdulmunim Abul Fadl, Dr Muhammad Hawari (Secretary) and Dr Muhammad Abdelmomene. It held a meeting at the Berlin Institute of Veterinary Medicine during 23–26 Shawwal 1406 AH/30 June–3 July 1986. The committee commissioned one of its members, Dr Muhammad Abdulmunim Abul Fadl, to visit the Animal Physiology Department of the Faculty of Medicine at Edinburgh University, where advanced research was being undertaken on pain and its centres in the animal body. His brief was to verify that neither electrical stunning nor subsequent slaughter caused the animal any pain or distress. Section 5 gives a summary of Dr Abul Fadl's report.

4. A number of research studies carried out at the Institute of Veterinary Medicine (Robert Von Ostertag Institute) were presented and discussed.
5. Participants were taken on a morning tour of the Berlin-Spandau abattoir to observe commercial slaughter procedures, as applied to cattle, using both the Islamic and the usual bolt-shot pistol method.

A general discussion of the subject as a whole then followed, the conclusions made are as given below.

Discussion

The discussion focused on the following points:

First: Does electrical stunning mitigate the slaughter or does it constitute a form of torture for the animal?

At present, we do not have conclusive proof that electrical stunning is totally comfortable from the animal's point of view. However, the following findings enhance the probability that it does eliminate pain, provided the conditions given under item 3 below, are met.

1. Effective electrical stunning is dependent on inducing an epileptic seizure in the animal, which is believed to lead to loss of consciousness and subsequent loss of pain sensation due to the following reasons.
 - a) The activity of the brain during epilepsy is, according to the electroencephalogram, shown to be grossly abnormal in comparison with its activity during the normal state of consciousness. It also indicates an absence of sensation under induced epilepsy. [1,2,3,4]
 - b) Recorded electrical activity of the brain reveals a gross shortage, or even a total loss, of ability by the cortex to respond to external stimuli during epilepsy. [5]
 - c) Various studies confirm that, during a seizure, people suffering from voluntary grand mal epilepsy, or those receiving electro-convulsive therapy, lose consciousness as well as pain sensation. [6,7,8]
 - d) Attempts to produce conditional disturbance in animals subjected to electrical stunning have not been successful. [8,9,10]
2. Electrical stunning applied anywhere on the animal other than on the head does not induce epilepsy and cause pain.

Second: Does electrical stunning of animals lead to death?

Comprehensive studies in developed countries, especially New Zealand, have shown that, when applied to the head only, electrical stunning of animals does not cause death, since it is a reversible and recoverable state. If not slaughtered, the animal so stunned would make a full recovery. Heart failure would not, under normal conditions, occur, provided the following specific requirements are met.

1. The electrodes are applied in a temporal position only, so as to avoid the flow of electric current through the body and the heart. In the case of calves, the frontal-occipital position also was found to be possible.
2. The electric current should not exceed the limits required to induce epilepsy. It is recommended that stunning devices with amperage rather than voltage limitation capabilities be used, in order to prevent excess amperage when cases of low impedance are encountered. Recommended current levels are 0.75 ampere for sheep and 2.0 amperes for cattle.
3. The duration of current flow should not exceed the period necessary to produce epilepsy, which is between 3 and 6 seconds.

When the above requirements are met, heart failure is highly improbable, although exceptions cannot be entirely ruled out. Any animals that suffer heart failure for any unforeseeable reason should be clearly identified during slaughter and rejected as not suitable for consumption by Muslims. For, when the heart function stops, blood from the carotid arteries is no longer pulsatile and bleeding is slower than in animals that are slaughtered while still alive. These symptoms are clearly and easily recognizable at the time of slaughter.

It is worth noting, however, that when these recommendations are observed, the age and size of the animal become irrelevant in achieving death, as demonstrated by the experiment conducted in the presence of the Committee members.

Third: Effects of electrical stunning on the quality of the meat

Available evidence indicates that the following aspects of meat quality are unaffected by electrical stunning.

1. Residual blood in the muscles of sheep and goats is not affected by electrical stunning. However, no comparable studies have been carried out on cattle. [11,12,13]
2. pH levels are not affected in animals slaughtered after electrical stunning. [14]

3. Petechial haemorrhage in muscles occurs following both electrical stunning and traditional Islamic slaughter methods. Available evidence suggests that pre-slaughter stress is the major factor in determining the severity of such haemorrhage.

Electrical stunning and pain¹

Studies undertaken

The WHO consultant undertook the following activities:

1. A visit to the Faculty of Veterinary Medicine, Edinburgh University, Scotland, to acquaint himself with research and studies conducted there on experiments involving animals and birds. Special interest was given to pain sensation and mercy slaughter carried out with the use of various types of electrical stunning.
2. A visit to the official abattoir run by the local council authorities, to observe first hand application of various electrical stunning methods, including cerebral shock administered to sheep and calves. On-site experts took him through slaughter processes and gave him a run-down of the procedures being applied.
3. A visit to the Poultry Research Centre of the Agriculture and Food Research Council, about forty miles out of Edinburgh, to witness experiments being conducted on animal nervous systems and the effects of wet electrical stunning, which often causes the death of animals before slaughter, as well as gas treatment and strangulation.
4. A visit to the Bristol Food Research Institute (formerly the Meat Research Institute) of the Agriculture and Food Research Council, to conduct electrical stunning tests on three sheep. Prior to each test, the sheep underwent an operation in the head under general anaesthesia, using

¹ This section is from report number WHO-EM/FOS/11-A on the visit by Dr Muhammad Abdulmunim Abul Fadl, made between 15 and 25 November 1987, to the University of Edinburgh Faculty of Medicine, the Edinburgh abattoir, the Roslyn Poultry Research Centre and the Bristol Nutrition Research Institute, to verify that neither electrical stunning nor subsequent slaughter caused the animal any pain or distress. Most significant of such evidence is the fact that humans who are given electrical shock treatment sustain no pain as a result.

halothane gas. This involved the insertion, using electrical needles, of four electrodes into the skull until they touched the cerebral tissues. They were then sealed and stitched up. About 90 minutes later, the animal regained consciousness and was observed to show a good appetite for food shortly afterwards. It also resumed its normal activity while the electrodes were still inside its skull.

The following day, a study was undertaken to assess the effect of electrical stunning on the animal's electroencephalogram and the stages the animal passes through from the first epilepsy seizure it undergoes for the initial 5 to 15 seconds, immediately following the electric shock. This would usually be followed by spasmodic muscular convulsions which could last for 50 to 60 seconds, followed by a state of relaxation and unconsciousness lasting for a further 65 to 128 seconds. The animal begins to come to after 129 to 192 seconds and then starts to regain normal consciousness after 193 to 320 seconds. These figures hold true when using a standardized electric shock device and an electric current with certain specifications.

Conclusion

The references listed at the end of the report provide supporting evidence that electrical stunning, administered under the afore-mentioned terms and specifications with respect to the devices used and the current intensity and with adherence to proper procedures, would not cause pain to the animal. This is due to the fact that, as a result of the electric shock, the side cortex of the cerebral lobe goes into a state of unconscious torpor. This conclusion, however, still lacks empirical evidence, as the recording instruments available fail to function at the precise moment of electrical stunning. Furthermore pain locations have yet to be precisely identified. The question will, therefore, remain open until instruments that can record the effects of stunning at the moment it occurs are developed.

The fact remains, however, that electroencephalography has shown that animals do not experience a sensation of the ordeal of the slaughter while unconscious due to total absence of feeling during both the clonic and aclonic convulsion states.

It is evident that slaughter, following electrical stunning, is free of pain and, as such, is commensurate with the recommendation of the Prophet ﷺ "when you slaughter (an animal) do it with perfection".

As to whether the animal actually experiences pain as a result of the stunning shock itself, which takes place over a fraction of a second, this has yet

to be satisfactorily ascertained, as present instruments are not equipped to measure that pain. There are sufficient indications, however, to show that pain does not in fact occur at the moment of electrical stunning¹.

Accordingly, the permissibility of animal slaughter, from the Islamic point of view, following electrical stunning is unquestionable, since the animal would still, if not slaughtered, be alive and capable of resuming its normal life functions within minutes of being stunned.

¹ The most important of which is that a human being treated with electric shock does not feel pain due to the shock.

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