any have wondered: How is it possible that the Torah — which has bestowed upon humanity the universal values of sensitivity and compassion toward others — commands that the only acceptable way to prepare meat for consumption is through Shechita, Jewish ritual slaughter?

This question is even more relevant, seeing that the Torah explicitly prohibits the infliction of needless pain on animals. This is evident, for example, in the commandment to relieve a beast struggling under its burden, even if it belongs to a personal enemy. The Talmud further states that in the case of a suffering animal, it is forbidden to offer help on condition of receiving payment; for the act must be done as quickly as possible. There are many similar laws on this topic.

Compassion being such an essential Jewish value, how can the Torah demand that people slaughter cattle with a knife, while prohibiting more commonly held practices, such as shooting the animal in the head with a bolt gun, which is said to ensure a quicker, less painful death? Indeed, the Torah forbids us from knocking the animal unconscious in any way before it is killed, such as by striking it with a heavy object or stunning it with electric current — standard practices throughout the world, which are claimed to lessen the animals' suffering.

It should be stressed the following discussion deals only with the preferable method of slaughtering cattle and fowl, and not with the broader question on the permissibility of eating meat.

In previous generations it was widely accepted that the laws of Shechita ensured the least pain and suffering for animals. For this reason, the Torah requires ritual slaughter to be performed with a completely smooth blade. Ritual slaughterers are required to inspect Shechita knives carefully for proper sharpness. The slightest nick — such as can be discerned by lightly running a fingernail across the blade — deems the knife unfit for Shechita, and prohibits the consumption of any animals slaughtered with

* Judaism teaches that the infinite details of creation exist in order to help human beings who are the pinnacle of creation — realize the divine purpose for which they were created, both physically and spiritually. The famous kabbalist, Rabbi Moshe Cordovero (1522-1570), highlighted this idea in the fourth chapter of his famous book *The Palm Tree of Devorah*. He writes that human beings are obligated "to have mercy on all creatures and not harm them, other then when he elevates them from level to level; from plant life to animal, and from animal to people. Only then is it permitted to uproot plants and kill animals, to cause a lack [of life] in order to bestow [a higher level of consciousness]." In other words, there is a deep sense of tikkun — repair and transformation — granted to plants and animals by virtue of their becoming an integral part of human beings — the central cog of creation. For this reason there is no inherent conflict between the human consumption of meat and strict admonition to preserve every living thing in creation. As explained in the amazing teachings of Rabbi Cordovero, “A person’s mercy should extend to every creature. He should neither degrade nor destroy them; for the Highest Wisdom encompasses all living things — animal, vegetable, mineral, and human. For this reason we are prohibited to waste food. This is only proper, for the Highest Wisdom does not belittle anything, and everything derives from It, as it states (Psalms 104:24): ‘You made them all in wisdom.’ Similarly, a person should not belittle anything in the world, for everything is [derived] from wisdom. Plants should not be uprooted without reason, nor should animals be needlessly killed.”
it. Furthermore, Jewish law demands that Shechita take place quickly, with one rapid movement of the knife. These requirements were created so that the animal would feel little or no pain in the process. Based upon the testimonies of individuals who have been inadvertently cut in a similar manner (such as a surgeon performing emergency medical treatment), a quick, sharp cut of a sharp knife is essentially painless. In fact, it is usually only after the blood starts flowing that they realize they have been cut. According to the Sages of Israel, however, it is the slaughtering methods of other cultures that cause the greatest levels of pain and suffering to animals.

This traditional Jewish perspective – convincing enough by itself – has been greatly substantiated in recent times by an astounding series of experiments concerning the structure of the blood vessels and arteries in mammalian brains. These experiments erase all doubts about Jewish ritual slaughter, adding the topic of Shechita to a long list of proofs of the Torah’s divine origin.

At the base of the brain of all mammals rests a ring of blood vessels and arteries creating a kind of “central station” for all of the blood flowing to the brain. This central station is known in humans as the Circle of Willis and in animals as the Rete Mirabile. Every beginning physician knows that the sudden loss of blood pressure in this central component of the brain immediately leads to unconsciousness.

At the time of Shechita the carotid arteries serving as the central route carrying blood through the neck to the brain is severed. The instant the knife passes through these arteries, blood flow to the brain ceases, blood pressure drops rapidly, and the animal loses consciousness within two seconds, if not sooner!

This means that the animal can feel no pain from this point forward.

To summarize, Shechita does not involve any pain for the animal, thanks to the sharpness of the knife, the quickness of the cut and the immediate loss of consciousness.

On the other hand, non-halachic forms of slaughter undoubtedly cause pain to animals. Even numbing the animal with an electric shock, which supposedly prevents any feelings of pain, actually only “fries” the beast’s brain, and certainly causes unnecessary suffering. And of course, death through a bolt to the head surely engenders suffering in the animal, especially if delivered inaccurately, whether due to poor aim or an unexpected movement of the animal’s head. In these cases, levels of pain are far from minimized, and in fact, greater and unnecessary suffering may take place.

Though it is true that the body of an animal “jumps” after loss of consciousness following Shechita, research has shown this to be a mere muscle reflex, much like the movement of a lizard’s tail that has been severed from its body. An unattached tail, despite its involuntary, reflexive movement, certainly does not feel pain.
of the spine, called the vertebral arteries. These arteries also link to the base of the brain, carrying blood to it. How, then, does Shechita performed only from the front of the neck prevent animal suffering? Doesn't blood continue to flow to the Rete Mirabile via the vertebral arteries? Yet Jewish law forbids cutting these arteries during Shechita, lest one cut the vertebra – a circumstance forbidden in kosher slaughter.

Here modern research has made an incredible discovery.

While it is true that all mammals have front and back arteries, all animals with cloven hooves that chew cud – meaning those kosher animals (being the only ones that the Torah allows Jews to eat) – have a different structure in the arteries at the back of their neck.

Whereas in non-kosher mammals, these arteries enter directly into the “central station” of the brain, in kosher mammals the rear arteries first connect to the front artery before entering the brain. Most of the blood that reaches the brain flows through these front arteries. Thus Shechita performed on kosher animals only from the front – almost instantly halts blood flow to the brain. For the blood that reaches the brain via the vertebral arteries immediately changes direction and flows away from the brain, towards the point of least resistance, and out from the cut. The result is an immediate drop in blood pressure and a loss of consciousness in the animal, providing total assurance that it feels no pain.

To conclude, thanks to recent research into the circulatory system of various animals, the very question which challenged the Torah’s Divine authorship now proves its transcendental source. For who other than God could have produced this amazing physiological distinction between various mammals, and forge such a unique connection between halachically defined kosher animals and their physiological structure, while at the same time teaching us how to slaughter these animals in a manner inflicting no pain or suffering?

"The main blood supply reaches the brain through the Rete Mirabile ... in mammals. The structure of the Rete Mirabile and the arteries that branch off of it are fairly homogenous. However, differences exist between various mammals regarding the arteries that supply blood to the Rete, and as to the direction that the blood flows through various arteries.


"The vertebral artery of the pig is similar to that of the horse... It connects to the Rete Mirabile in the brain."

(Sisson, Grossman and Getty, Sisson and Grossman's The Anatomy of the Domestic Animals, p. 1309)
In kosher animals (permitted by the Torah for consumption by Jews), the blood flowing in the vertebral artery joins with blood flowing in the front (carotid) artery. This results in absolutely no pain during Jewish ritual slaughter.

In animals that the Torah forbids Jews to eat, the blood flows from the vertebral artery directly to the brain.
There is yet another difference between kosher and non-kosher animals. A study conducted in 1961 demonstrated that horses, dogs, and other animals resist being brought into slaughterhouses because they sense their approaching death. They become agitated, and may even kick and fight until they are killed. In kosher slaughterhouses, this phenomenon is almost non-existent. For example, lambs present at the slaughter of other lambs do not show signs of fear. A calf allowed to roam freely during a period of Shechita did not attempt to run away.

\* Details of that study can be found in the book *Shechita and Animal Suffering.* It is also explained there that while a slaughtering knife can engender fear in a human being, who understands its use and function, animals do not understand the significance of a knife, and therefore do not fear it prior to slaughter. This logical conclusion was verified when a knife dipped in blood was shown to cattle. Not only did they fail to react to it, but one even licked the blood off the blade.
even though the door of the slaughterhouse remained wide open. In addition, cud-chewing animals will cease to ruminate when they are under stress. However, cows in a Jewish slaughterhouse may even sit and ruminate while members of their own species are being slaughtered around them.

All this indicates that not only do kosher animals not suffer during ritual slaughter, they do not even experience emotional discomfort before the act, and have absolutely no sense of their impending deaths.

Still, since there is always the possibility that one of such animals will be more sensitive than the others, Jewish law forbids killing an animal in the presence of another, in order to prevent even the slightest chance of suffering to the one remaining alive.

It is also worth noting the medical opinion of Dr. Temple Grandin, a worldwide expert on proper livestock handling, who has developed various techniques to decrease animal suffering both on ranches and in the slaughterhouse. Dr. Grandin claims that the major suffering incurred by animals in the slaughterhouse is not in the moment they are killed, but from their improper handling from the moment they arrive until their deaths. According to her findings, if cattle are handled properly, they reach the point of slaughter relaxed and well behaved. Because, in the case of Shechita, the actual slaughter is painless, it is clear that proper handling erases the only other chance for animal suffering to take place.

There is still more.

Meat slaughtered for consumption must be kept hygienic and safe throughout the duration of its storage, both for health reasons – to avoid food poisoning – and economic ones – so as not to needlessly waste food. In general, the higher quality the meat and the fresher it can be kept, the less needs to be discarded and the fewer animals need to be slaughtered. According to some researchers, Shechita ensures higher quality meat than other forms of slaughter. Shooting, for example, leaves an excess of blood in the carcass, due to the time lag between death and the bleeding of the carcass. This causes the meat to spoil faster. In other non-halachic methods of slaughter the situation is even worse. (With regard to this topic, we should note the halachic requirement to salt meat after slaughter in order to extract the remaining blood. This act is derived from the prohibition against consuming blood – primarily a spiritual commandment, which has obvious health benefits as well.)

Notes and Sources
1. For an excellent book on this topic, see David Sears. The Vision of Eden: animal welfare and vegetarianism in Jewish law and mysticism (Spring Valley, NY; Orot, 2003).
2. Exodus 23:5.
3. BT Baba Metziah 22a.
4. Shulchan Aruch, Yoreh De'ah, Hilchot Shechita, 6:1.
6. For an in depth comparison of Shechita and other methods of slaughter see Levinger, Chapter 16.
8. See the story of Rabbi Judah the Prince and the calf, BT Baba Metziah 85a.
11. This finding is based on the testing of 80 heads of cattle using a chemical technique developed by researchers Radan and Miroslav. See Levinger, ibid, chapter 15.
There have been attempts in various European countries to forbid Jewish ritual slaughter. Stunning animals before slaughter is the widely accepted practice throughout the world and it is thus claimed that Jewish practice results in cruelty to animals. In light of my work as a veterinarian I have surveyed medical research on the matter of Shechita and the prevention of suffering in animals. What follows is a summary of the basic findings proving that Shechita is the most humane system of slaughter available, causing no pain to the animal.

Sensation of Pain

Concerning external pain – as determined from my personal experience – a sharp cut is simply not felt. It takes the brain too much time to register, understand, and initiate a bodily response to pain – if such a message arrives to the brain at all. Many times, such incisions go unfelt and are only noticed as a result of the subsequent blood.

With regards to internal pain, I would like to respond to two incredible discoveries:

1. Immediate Loss of Consciousness

Three methods are available for measuring the circulation of blood and the response of the brain. The first is measurement of brain waves with an EEG; the second is the introduction of traceable chemical agents into the bloodstream (angiography); the third is through the use of a manometer. Loss of oxygen as a result of Shechita affects the brain immediately, causing it to cease functioning within a maximum of two seconds. (The next system to be affected from blood loss is the heart, which can function for a small period of time independent of the brain. This is because the nervous system controlled by the brain influences only the rhythm and strength of the heartbeat.) In addition, while the brain comprises only 2% of the overall weight of the body, it receives 20% of the body's blood, pumped by the heart. In general, most of the blood arrives via the carotid artery and only a small portion more via the vertebral arteries. Blood vessels are directed towards an area called the Rete Mirabile (in animals) and the Circle of Willis (in people), which serves as a kind of "central station" for the control of blood flow. From these areas the blood is distributed to the various part of the brain - primarily to the cortex, which is responsible for consciousness. In the process of Shechita, the brain loses its blood supply, which completely flows out, due to changes in internal pressure. Thus, even the blood flowing through the vertebral artery leaves the body via the carotid artery. Loss of consciousness occurs within two seconds due to a lack of oxygen. It is important to note that blood loss is so rapid that 33% of the total amount of blood in the body flows out within thirty seconds after the cut and 50% within sixty seconds.

In addition, the movement seen in animals after Shechita is an involuntary reflex of the muscles as a result of loss of oxygen and ATP, a source of cellular energy. Cells that lose their ability to function can no longer absorb calcium. The calcium remaining within them leads to an irreversible contraction of the muscles, due to the lack of energy within the cells.

2. Blood flow to the brain in kosher animals

In animals permitted for consumption by Jewish law – namely cloven-hoofed, cud chewing animals and permitted fowl – the vertebral arteries appear less developed and do not reach the Rete Mirabile. In other words, they drain into the carotid artery. This situation is most prevalent in sheep, whose vertebral arteries are completely vestigial, and play no role in assisting blood flow.

On the other hand, in animals forbidden to eat by Jewish law, the vertebral arteries provide blood flow to the brain in a very active manner. For example, the horse, the dog, the pig, and the human being are very similar in this arterial structure. In the horse and dog the Rete Mirabile are relatively underdeveloped, while the vertebral arteries provide substantial blood flow directly to the area of the brain. This means that loss of consciousness at the time of Shechita takes longer in these animals, and can possibly cause them suffering.

In conclusion: In kosher animals proper Shechita is not accompanied by pain and suffering.

Sources