

Customary Slaughtering Methods and their Comparison with Islamic Slaughtering (Zabiha) – The Review

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Abstract

This review investigates about most commonly adopted slaughtering techniques and their comparison with that of the technique, portrayed by Islam. The customary methods of animal slaughtering involve stunning. Ritual kosher which resembles with halal slaughtering method but do not include Tasmiyah, the other one is jhatka slaughtering method which obeys killing of animal by severing the head with single stroke of axe or sword. Whereas, the Islamic slaughtering manner, commonly known as Zabiha, obligates the cut of trachea, food pipe, carotid artery and jugular vein, while reciting the Holy name of Allah. The review framed the documentations of some researches, which clearly reveal that stunning, ritual kosher and jhatka slaughtering cause poor meat quality, highly prone to bacterial attacks, congestion of meat, reduction in shelf life, as well as more the suffering of animal which is clearly against the animal welfare as claimed by some antagonist lobbyists.

Keywords: Slaughtering, Stunning, Kosher, Jhatka, Zabiha, Meat Quality

A. Introduction

All around the world, billions of animals are subjected to food every year. In the way of being humane, these animals should be slaughtered by the method with no unnecessary pain or animal suffering, for that purpose various

systems have been introduced to accommodate humane slaughtering.¹ Couple of decades back, Slaughtering was believed to be a non-scientific technical process and was neither be studied critically nor understood sternly by the research institutes, industries, or universities. This expertise gains scientific importance only when its dealings were experienced, happened during farm to slaughter period, hence was critically observed to impart extreme influence on meat quality.²

Strict rules are regulated to slaughter the animals used as food regarding safety and food hygiene, animal welfare, and working conditions.³ Slaughter practices have components that affect the safety and quality of meat usually administered. Case in point, Muslims should be consumed *tayyib* (wholesome and acceptable) and halal meat.⁴ Evidence shows that Halal food consumers are becoming more demanding of food quality and compliance with Islamic dietary law.⁵ The industry of meat aims to achieve customer acceptance through the development and process control to produce healthy products with high quality and safety.⁶

¹ Awal Fuseini et al., “Halal Stunning and Slaughter: Criteria for the Assessment of Dead Animals,” *Meat Science* 119 (September 1, 2016): 132–37, <https://doi.org/10.1016/j.meatsci.2016.04.033>.

² Daniel Franco and José M. Lorenzo, “Effect of Muscle and Intensity of Finishing Diet on Meat Quality of Foals Slaughtered at 15months,” *Meat Science* 96, no. 1 (January 1, 2014): 327–34, <https://doi.org/10.1016/j.meatsci.2013.07.018>.

³ M. M. Farouk et al., “Halal and Kosher Slaughter Methods and Meat Quality: A Review,” *Meat Science, Meat Science, Sustainability & Innovation: ‘60th International Congress of Meat Science and Technology 17-22 August 2014, Punta del Este, Uruguay,’* 98, no. 3 (November 1, 2014): 505–19, <https://doi.org/10.1016/j.meatsci.2014.05.021>; Jan Hultgren et al., “Animal Welfare and Food Safety When Slaughtering Cattle Using the Gunshot Method,” *Animals* 12, no. 4 (January 2022): 492, <https://doi.org/10.3390/ani12040492>.

⁴ K. Nakysingh et al., “Bleeding Efficiency and Meat Oxidative Stability and Microbiological Quality of New Zealand White Rabbits Subjected to Halal Slaughter without Stunning and Gas Stunning,” *Asian-Australasian Journal of Animal Sciences* 27, no. 3 (March 2014): 406–13, <https://doi.org/10.5713/ajas.2013.13437>.

⁵ Abderahman Rejeb, Karim Rejeb, and Suhaiza Zailani, “Are Halal Food Supply Chains Sustainable: A Review and Bibliometric Analysis,” *Journal of Foodservice Business Research* 24, no. 5 (September 3, 2021): 554–95, <https://doi.org/10.1080/15378020.2021.1883214>; Abderahman Rejeb et al., “Halal Food Supply Chains: A Literature Review of Sustainable Measures and Future Research Directions,” *Foods and Raw Materials* 9, no. 1 (2021): 106–16, <https://doi.org/10.21603/2308-4057-2021-1-106-116>.

⁶ Marta Castro-Giráldez et al., “Development of a Dielectric Spectroscopy Technique for the Determination of Key Biochemical Markers of Meat Quality,” *Food Chemistry* 127, no. 1 (July 1, 2011): 228–33, <https://doi.org/10.1016/j.foodchem.2010.12.089>.

It is an ethical responsibility of man to care about the animals, respect them and subsequently avoid gratuitous torment of those who are meant to slaughter. A country should ascertain some rules and regulations for slaughtering, aiming to make sure the human defense of various species.⁷ The term “slaughtering” generally refers to the act applied for the killing of animals with the intention to obtain food or meat. Slaughtering should be safe, devoid of unnecessary torment to the animal and bleeding should be proficient.⁸

Controversial issue remains about the religious slaughter among the governments, general public, religious groups, welfare organizations, and scientists. It is necessary to consider the religious values of slaughtering which help to promote economic value as well as food safety according to the acknowledgment of science while, avoiding individual biased behavior and emotions. One of the controversies in the community of Muslims is whether pre-stunning is allowed before slaughter.⁹ Muslims, who objected to the stunning, say their approach is still the most humane, and note that a series of methods of stunning have been banned because they are inconsistent with the principles of animal welfare.¹⁰ They also noted that after stunning, the carcass had drained less blood.¹¹ Though, science does not have to admit this when practices are carried out carefully.¹²

⁷ J.E.G. Neves et al., “A Note Comparing the Welfare of Zebu Cattle Following Three Stunning-Slaughter Methods,” *Meat Science* 117 (July 2016): 41–43, <https://doi.org/10.1016/j.meatsci.2016.02.033>.

⁸ Rina Mazzette et al., “Hygiene and Welfare Evaluation of Pigs Slaughtered in Agritourisms,” *Italian Journal of Food Safety* 4, no. 2 (May 28, 2015), <https://doi.org/10.4081/ijfs.2015.4580>.

⁹ MH Anil et al., “Comparison of Halal Slaughter with Captive Bolt Stunning and Neck Cutting in Cattle: Exsanguination and Quality Parameters,” *Animal Welfare* 15, no. 4 (November 1, 2006): 325–30, <https://www.ingentaconnect.com/content/ufaw/aw/2006/00000015/00000004/art00002>.

¹⁰ K. Nakyinsige et al., “Stunning and Animal Welfare from Islamic and Scientific Perspectives,” *Meat Science* 95, no. 2 (October 2013): 352–61, <https://doi.org/10.1016/j.meatsci.2013.04.006>.

¹¹ Anil et al., “Comparison of Halal Slaughter with Captive Bolt Stunning and Neck Cutting in Cattle.”

¹² Rizvan Khalid, Toby G. Knowles, and Steve B. Wotton, “A Comparison of Blood Loss during the Halal Slaughter of Lambs Following Traditional Religious Slaughter without Stunning, Electric Head-Only Stunning and Post-Cut Electric Head-Only Stunning,” *Meat Science* 110 (December 1, 2015): 15–23, <https://doi.org/10.1016/j.meatsci.2015.06.008>.

B. Result and Discussion

1. Stunning

The principle of stunning follows the process by which an animal is to be stunned to remain unconscious to feel any pain, and the condition should end up with the absolute death of that animal. Electric stunning is also named “electronarcosis” developed in the late 1920s in Germany and France. Stunning animals before slaughter isn't always permissible in the general public of Muslim countries due to the apprehension of falling into doubtful practices.¹³ A number of beautiful strategies currently to be had have been prevalent by way of numerous Muslim international locations so long as the animal remains alive at the time of cutting. It is allowed in Malaysia, Indonesia, and some Muslim communities together with some of the ones in the United Kingdom, European (Sweden, Germany, Norway, Switzerland, and Denmark), America¹⁴, Australia, New Zealand, South Africa, and Brazil in which reversible types of percussive (non-penetrative) and electric beautiful (head only) may be used previously to halal slaughter.

However, numerous findings showed a few negative aspects of the aforementioned lovely strategies whilst carried out on animals. it's been reported that with the utility of head-best electric lovely, the length of the stun won't be lengthy sufficient to allow demise to occur due to blood loss prior to the stun wearing off.¹⁵ Moreover, a few damaging results after subjecting the animal to a post-reduce stun. In fowl, electric lovely is the maximum common technique of slaughter which kills the hen by using cardiac arrest and electrocution and prevents blood float to the brain.¹⁶ The technique

¹³ Nakyinsige et al., “Stunning and Animal Welfare from Islamic and Scientific Perspectives.”

¹⁴ W. A. R. Shadid, *Islam in Dutch Society: Current Developments and Future Prospects* (Kampen: Kok Pharos Publishing House, 1992).

¹⁵ A Small et al., “Electromagnetic Induction of Insensibility in Animals: A Review,” *Animal Welfare* 22, no. 2 (May 1, 2013): 287–90, <https://doi.org/10.7120/09627286.22.2.287>.

¹⁶ I. Zulkifli et al., “Changes in Blood Parameters and Electroencephalogram of Cattle as Affected by Different Stunning and Slaughter Methods in Cattle,” *Animal Production Science* 54, no. 2 (2014): 187, <https://doi.org/10.1071/AN12128>.

consequences in a better prevalence of hemorrhaging and broken bones¹⁷ due to the fact its severity may be painful and bring about muscle contractions.¹⁸ As a result of slaughtering cattle and small ruminants without stunning, several issues connected to poor animal welfare were found.¹⁹

Present slaughter methods are comprehensively categorized as traditional (techniques involving stunning) and spiritual (animals are killed by way of neck cutting with the aid of the use of a pointy knife in settlement with religious prescriptions) or a combination of traditional and non-secular like head-handi electric stunning followed with the aid of halal throat cut. conventional slaughter methods are awareness of secular laws and entail the beauty of animals before exsanguination. Consistent with the ECU Council Directive Ninety-Three/119 and Council Regulation (EC) (No. 1099/2009) (ECU FEE, 2009) on animal safety at some point of slaughter, it is required that animals should be taken aback with an aim to make them unconscious before slaughter. Conversely, beneath conventional religious slaughter without stunning, animals must be done by means of a throat cut that allows you to bring the animal to a short death without discomfort, through the severing of carotid arteries, jugular veins, trachea and esophagus permitting fast and entire bleeding.²⁰

The current, resistance and voltage-current relationship is shown in Table1, which differ from the different physical conditions of sheep, allowing a minimum current of 1amp in this example.

¹⁷ Alan R. Sams and Christine Z. Alvarado, “Chapter Introduction to Poultry Meat Processing,” in *Poultry Meat Processing*, 2nd ed. (London, UK: CRC Press, 2010), 1–5.

¹⁸ Ari Z. Zivotofsky and Rael D. Strous, “A Perspective on the Electrical Stunning of Animals: Are There Lessons to Be Learned from Human Electro-Convulsive Therapy (ECT)?,” *Meat Science* 90, no. 4 (April 2012): 956–61, <https://doi.org/10.1016/j.meatsci.2011.11.039>.

¹⁹ Fouad Ali Abdullah Abdullah, “The Technological Challenges Faced by Halal Slaughter Procedures,” *Maso-International: Journal of Food Science and Technology* 2 (2019): 123–28, <http://www.maso-international.cz/the-technological-challenges-faced-by-halal-slaughter-procedures/>.

²⁰ M. H. Anil, *Effects of Slaughter Method on Carcass and Meat Characteristics in the Meat of Cattle and Sheep* (Warwickshire, UK: EBLEX—a Division of the Agriculture and Horticulture Development Board, 2012); Mustafa M. Farouk, “Advances in the Industrial Production of Halal and Kosher Red Meat,” *Meat Science*, 59 th International Congress of Meat Science and Technology , 18-23 August 2013 Izmir/Turkey, 95, no. 4 (December 1, 2013): 805–20, <https://doi.org/10.1016/j.meatsci.2013.04.028>.

The electronarcosis results same as epileptic seizure exhibits in man, also named as grand mal epileptic fits, including body showing tonic action, the brain is sternly stimulated which follows absolute unconsciousness. Through the tonic phase, breathing stops as the animal collapses, with extended front legs and flexed hind legs into the body. In the second phase (clonic phase), the animal exhibits involuntary kicking. In the end, the animal moves to the exhaustion or recovery phase. In the first two phases, the animal is unconscious and feels no pain while in the third phase the animal recovers and might be able to feel the pain. The sign of recovery phase detection is the breathing of the animal, which is detected by up and down rhythmic movement of the chest portion.²¹

This stunning method involves a mechanical stunner from which a bolt hits the head of the animal and retracts, resulting in the unconsciousness of the animal. The unconscious animal is hung on its one leg and is slaughtered depending upon its size, usually for about 1 to 3 minutes. The timing of head-blowing and slaughtering must be adjusted to make sure that animals do not die before slaughter.²² The CO₂ stunning system commercially consists of a loading pen, animals usually in the group form are conveyed onto 'gondolas'. The gondola is transferred downwards into a pit containing about 80-100% CO₂ at its bottom, as CO₂ is denser than air so animals inhale this concentration of CO₂ as gondolas progressively go downward. Exposure of animals to above 80% concentration of CO₂ leads to an increase in intracellular acidity level, metabolic acidosis, and reduction of pH, consequently the animal loses its consciousness.²³

²¹ R. L. Barbosa et al., "Efficiency of Electrical Stunning by Electronarcosis: Current Situation and Perspective of Improvement in a Medium-Size Processing Plant," *Brazilian Journal of Poultry Science* 18 (June 2016): 331–36, <https://doi.org/10.1590/1806-9061-2015-0113>.

²² Mian N. Riaz and Munir M. Chaudry, *Halal Awareness and Education Schemes*, ed. M. N. Riaz and M. M. Chaudry, *Handbook of Halal Food Production* (Boca Raton: Crc Press-Taylor & Francis Group, 2019); Fuseini et al., "Halal Stunning and Slaughter."

²³ L. Martoft et al., "Effects of CO₂ Anaesthesia on Central Nervous System Activity in Swine," *Laboratory Animals* 36, no. 2 (April 1, 2002): 115–26, <https://doi.org/10.1258/0023677021912398>; M Zanotti, Patent No. 9,402,403 (Washington, DC, filed 2016, and issued 2016).

Moreover, the effect of CO₂ stunning varies with various factors, including gas concentration, time, and speed of exposure.²⁴ The major disadvantage of this stunning involves the fact that it does not impart sudden unconsciousness, while exposure to high concentration makes the animal unconscious but with some negative effects.²⁵

2. Kosher Ritual Slaughtering

The Jewish religion strictly follows food laws of their own religion, including material selection, slaughtering, food processing, and consumption along with certain rules for feeding like *Sabbath* or *Fasts*.²⁶ The dietary laws of kosher principally relate to three major issues, paying critical attention to animals include, permitted Animals, prevention of blood, prevention of meat and milk mixture. Jewish slaughtering method includes practices that animals should be slain by a specifically skilled religious person called “*shochet*” who uses particular cutting equipment specifically made for this intention known as “*chalef*” by obeying Jewish laws.²⁷

The knife should have a straight blade with extreme sharpness with a blade diameter of two times that of the animal neck that is to be slaughtered. It is the procedure, of obeying rules which make the foodstuff to be kosher. Moreover, offering a blessing or not doesn’t mean a lot over each animal to be slaughtered, generally, the shochet offers a blessing before slaughtering, and

²⁴ A B M Raj and N G Gregory, “Welfare Implications of the Gas Stunning of Pigs 2. Stress of Induction of Anaesthesia,” *Animal Welfare* 5, no. 1 (February 1, 1996): 71–78.

²⁵ Charlotte Berg and Mohan Raj, “A Review of Different Stunning Methods for Poultry—Animal Welfare Aspects (Stunning Methods for Poultry),” *Animals* 5, no. 4 (December 2015): 1207–19, <https://doi.org/10.3390/ani5040407>.

²⁶ Zushe Yosef Blech, “The Biotechnology Industry,” in *Kosher Food Production* (John Wiley & Sons, Ltd, 2009), 101–5, <https://doi.org/10.1002/9780813804750.ch8>; Marco Tieman and Faridah Hj Hassan, “Convergence of Food Systems: Kosher, Christian and Halal,” *British Food Journal* 117, no. 9 (2015): 2313–27, <https://doi.org/10.1108/BFJ-02-2015-0058>.

²⁷ N. S. Hayes et al., “The Relationship between Pre-Harvest Stress and the Carcass Characteristics of Beef Heifers That Qualified for Kosher Designation,” *Meat Science* 100 (February 1, 2015): 134–38, <https://doi.org/10.1016/j.meatsci.2014.09.145>.

the animal is to be asked by the shochet for the clemency to take a life.²⁸ The animal must not be stunned before slaughtering. The chalef is to be checked each time prior to slaughtering, if knife is not accurate then the animal would no longer called as kosher stuff, as it becomes “*treife*”, this term is commonly known for a defected animal which is believed to be unacceptable.²⁹ Shochet must check slaughtered animal neck after cut and make sure its appropriateness. Afterward, these slaughtered animals are inspected by a rabbinically skilled assessor for any noticeable interior organ defects.³⁰ Jewish religious laws do not permit trimming of any defective organ, but the defect could have religious attention if the animal is estimated to pass on in a year. These rules are cited by some rabbis in dealings with certain cases associated with veterinary practices, including injecting the neck of the chicken. U.S standards of kosher mainly focus on the inspection of lungs, because they are the chief spot of halachic defects other organs are examined on time when a potential problem is detected.³¹ Some issues are created related to the salting the kosher meat. It should be noted that only the surface of meat is salted and the salt penetrates the meat to about half a centimeter, generally salting is applied to the primal cuts of about 20 to 40 lb.³²

3. Process Involves in Kosher Slaughter

The *Kosher* slaughtering is also called as *schechita*, including animal command, use of hook for the purpose of head pulling and finally cut, devoid of any abrupt actions³³, subsequently the cutting of outer skin, muscles,

²⁸ Joel Silver, “Understanding the Freedom of Religion in a Religious Industry: Kosher Slaughter (Shechita) and Animal Welfare,” *Victoria University of Wellington Law Review* 42, no. 4 (October 3, 2011): 671–704, <https://doi.org/10.26686/vuwlr.v42i4.5113>.

²⁹ Silver.

³⁰ Zivotofsky and Strous, “A Perspective on the Electrical Stunning of Animals.”

³¹ Timothy Lytton, “Kosher Certification as a Model of Private Regulation: Third-Party Certification Has Benefits Over Both Government Regulation and Unregulated Markets,” *Regulation* 36, no. 3 (2013): 24–27, https://readingroom.law.gsu.edu/faculty_pub/1986.

³² Farouk et al., “Halal and Kosher Slaughter Methods and Meat Quality.”

³³ Paolo Pozzi et al., “Principles of Jewish and Islamic Slaughter with Respect to OIE (World Organization for Animal Health) Recommendations,” *Israel Journal of Veterinary Medicine* 70 (September 1, 2015): 3–16.

carotid arteries trachea and jugular veins is carried out³⁴, occasionally include the cervical vertebrae also. This process means to permit maximum removal of blood.

The “*Kosher*” is the word, used for the foodstuff prepared by following Jewish rules and regulations while the laws proposed by Jews for food being known with the name “*kosbrut*”.³⁵ These laws are obeyed by nearly 60 lac inhabitants of United State of America, who are Jews. Although dealing economically, *kosher* foodstuff stands regarding the marketing for about US\$35 billion per year, with exceeding 9,600 food industries holding nearly 38,000 food products licensed as *Kosher*.³⁶ There are certain foods in the category of kosher foods, which are beef, scaly fish, chicken, dairy products, bakery products, fruits as well as vegetables. Other than these, pork, meat and dairy mixture, lobster, and shrimp do not approach the category of kosher. Though, it is clear that the kosher ritual legislations are not promoted as health laws.³⁷

Kosher ritual follows the process of cutting jugular vein and carotid artery with a special knife *chalef*, with a specific saying referring to each phase named “*Beracha*”. While the blood of animals who are non-domestic is covered by sand or the earth.³⁸ For bleeding, the animal is shifted to a cabinet, the leg is held through a chain, the neck is extended, and with putting a hand on the neck by a shochet, a cut is applied with the *chalef* between the rings of trachea cutting the skin, jugular vein, food pipe, carotid artery and trachea

³⁴ J. M. Regenstein and C. E. Regenstein, “The Kosher Dietary Laws and Their Implementation in the Food Industry Many Technical and Practical Aspects Affect the Preparation of Foods for the Growing Kosher Market,” *Food Technology* 42, no. 6 (1988): 8688–94, <https://eurekamag.com/research/029/373/029373446.php>.

³⁵ Joe M. Regenstein and Carrie E. Regenstein, “An Introduction to the Kosher Dietary Laws for Food Scientists and Food Processors,” *Food Technology (USA)* 33, no. 1 (1979): 89–92, <https://agris.fao.org/agris-search/search.do?recordID=US7938847>; Tieman and Hassan, “Convergence of Food Systems.”

³⁶ K. Sojka, “Bundesverwaltungsgericht: Schächten Darf Nicht Erlaubt Werden,” *Tierärztliche Umschau* 50 (1995): 728–29.

³⁷ Regenstein and Regenstein, “An Introduction to the Kosher Dietary Laws for Food Scientists and Food Processors.”

³⁸ David Daube, “A Note on a Jewish Dietary Law,” *The Journal of Theological Studies* 37, no. 147 (1936): 289–91, <https://www.jstor.org/stable/23972052>; Diana Marie Spillman, “Some Practical Considerations of the Jewish Dietary Laws,” *Journal of Nutrition for the Elderly* 5, no. 1 (1985): 47–56, https://doi.org/10.1300/J052v05n01_08.

without touching the cervical vertebrae. The animal is hanged after the incision to conclude bleeding and then the skin is removed.³⁹ The restraining system in Jewish slaughtering considered being inefficient. Although, the injuries and congestions are very small as compared to stunning methods.⁴⁰

4. Jhatka Slaughtering

Tracing the basic foundation of jhatka, the Sikhism encyclopedia revealed that this commencement was of the most recent century when Sikh researchers amass their faith's Rehat Maryada or they also called that 'code of conduct'. According to their faith, it is clearly written in their code of conduct that the halal slaughtering is totally prohibited. Moreover, Maryada mentioned that the meat of an animal slaughtered by the halal method by the Muslims includes four major taboos in the 6th section of the 13th Chapter.⁴¹

Basically "Chatka" or "Jhatka" is referred to the animal which is to be slaughtered by severing the head with one stroke of ax or sword. According to Sikhism, the halal slaughtered animal is strictly prohibited, they show that jhatka slaughtering refers to very less or no pain sensation to the animal, as the head is blown by a single stroke. The key elements of jhatka slaughtering show it to be totally opposite to kosher and halal slaughtering of animals.⁴² It is also

³⁹ Antonio Picchi, *Collaborazione Nel Conflitto. Le Regioni e Il Ministero Dell'Agricoltura e Foreste (1972-1993)*, 1996; Isaac Franklin Pazuello and Laryssa Freitas Ribeiro, "Abate Kosher No Brasil: Uma Revisão De Literatura," *Revista GeTeC* 10, no. 28 (2021): 93–98, <https://revistas.fucamp.edu.br/index.php/getec/article/view/2393>.

⁴⁰ Alejandra Gómez Villaruel et al., "Evaluación de indicadores de bienestar de bovinos en rastros Tipo Inspección Federal de Sonora, México: desembarque y cajón de noqueo," *Nacameh* 12, no. 2 (2018): 42–52, <https://dialnet.unirioja.es/servlet/articulo?codigo=7006668>; Ibrahim H.A. Abd El-Rahim, "Recent Slaughter Methods and Their Impact on Authenticity and Hygiene Standards," in *The Halal Food Handbook* (John Wiley & Sons, Ltd, 2020), 81–91, <https://doi.org/10.1002/9781118823026.ch7>; Késsya Niero, Maria Gisele Ronconi De Souza, and Laryssa Freitas Ribeiro, "Condenações Por Parasitoses Em Carcaças E Visceras Bovinas Em Abatedouro Frigorífico," *Revista GeTeC* 10, no. 27 (2021): 51–87, <https://revistas.fucamp.edu.br/index.php/getec/article/view/2380>.

⁴¹ Kounteya Sinha, Amit Bhattacharya, and Anuradha Varma, "Science of Meat," *The Times of India*, March 27, 2012, <https://timesofindia.indiatimes.com/science-of-meat/articleshow/11672654.cms>.

⁴² Gb Piccoli et al., "Vegan-Vegetarian Diets in Pregnancy: Danger or Panacea? A Systematic Narrative Review," *BJOG: An International Journal of Obstetrics & Gynaecology* 122, no. 5 (April 2015): 623–33, <https://doi.org/10.1111/1471-0528.13280>.

documented that; some western methods also follow instant blowing of the head of the animal with a single strike which can also be interpreted as jhatka. Some Hindus and Sikhs also include bolt gun killing of animals to be the jhatka meat. They have the concept that instant blowing of the head suddenly takes the life away showing no time for sensing the pain, they called it a spiritualized method, which is widely sold in Hindu or Sikh areas. The meat sourced by jhatka is consumed by believing that the animal which is eaten has died without any pain.⁴³

5. Mongolian Slaughter

Mongolian slaughtering technique is a unique method for getting meat as it does not follow the slitting of the throat. In this method, a simple small cut is brought in the belly, and the person inserts his hand inside the animal's body and directly holds the heart tightly to stop beating or tears the aorta directly. The hand is ultimately full of arterial blood when it comes out. The animal does not move very much and dies within a minute. There is no blood so no need to be clean. In a meantime, skin is removed. Internal organs are removed and about 3 to 3.5 liters of blood is collected in a pan. The process takes about 20 to 30 minutes.⁴⁴

6. Islamic slaughtering – the zabiha

Zabiha or Dhabiha is a word used for halal slaughtered meat by Islamic legislations.⁴⁵ Halal is an Arabic word and a Quranic term with the meaning of allowed, approved, permitted or lawful. This expression is worn to illuminate the permitted produce. Haram is contradictory to the Halal which means

⁴³ Wimal Hewamanage, "A Critical Review of Dietary Laws in Judaism," *International Research Journal of Engineering, IT and Scientific Research (IRJEIS)* 2, no. 3 (March 2016): 91–104, <https://doi.org/10.21744/irjeis.v2i3.44>.

⁴⁴ Mark, "To Kill a Sheep- Warning May Have Some Content Unsuitable for Younger or More Sensitive Viewers," *Mongolianwood's Weblog* (blog), November 24, 2008, <https://mongoliawoods.com/2008/11/24/to-kill-a-sheep-warning-may-have-some-content-unsuitable-for-younger-or-more-sensitive-viewers/>.

⁴⁵ Riaz and Chaudry, *Halal Awareness and Education Schemes*.

prohibited having clear boundary, while doubtful things are named as “*Mashboob*”. Fundamental principles are explained by Allah Almighty and the practical applications are illustrated by the tradition of Prophet-the *Hadith*. Other than this, halal produce may become *Najis* due to any of the contamination while the thing which is not clearly haram or disliked by the Muslims is named as *Makroob*.

7. Status of halal according to Quran

Laws regarding food which are explained in Holy Quran are also given in the Holy Scriptures of *Ahlul-kitaab*. Muslims are following their divine commands while following these dietary laws.

“O ye who believe! Eat of the good things wherewith WE have provided you and render thanks to Allah if it is He whom you worship” (Quran 2: 172).

“Forbidden unto you (for food) are carrion and blood and swine flesh, and that which hath been dedicated unto any other than Allah, and the strangled, and the dead through beating, and the dead through falling from a height, and that which hath been killed by (the goring of) horns, and the devoured of wild beasts saving that which ye make lawful (by the deathstroke) and that which hath been immolated unto idols. And (forbidden is it) that ye swear by the divining arrows. This is an abomination. (Quran 5: 3)

Blood, dead animal meat, and pork or those who are killed without the naming of Allah Almighty are strongly forbidden.

“Eat of that over which the name of Allah hath been mentioned, if ye are believers in His revelations” (Quran 6: 118)

“And eat not of that whereon Allah’s name hath not been mentioned, for lo! It is abomination. Lo! The devils do inspire their minions to dispute with you. But if ye obey them, ye will be in truth idolaters” (Quran 6: 121).

“O mankind! Eat of that which is lawful and wholesome on earth.....” (Quran 2:168)

8. Status of Halal According to Hadith

“Verily Allah has prescribed proficiency in all things. Thus, if you kill, kill well; and if you perform dhabiba, perform it well. Let each one of you sharpen his blade and let him spare suffering to the animal he slays”.⁴⁶

⁴⁶ Ghulam Mustafa Khan, *Al-Dhabb, Slaing Animals for Food the Islamic Way* (Saudi Arabia: Abul-Qasim Bookstore, 1991); Nurdeng Deuraseh, “Lawful and Unlawful Foods in Islamic Law

9. Mechanism of halal slaughtering

The word “*Dhabb*” is employed only for the idea to make animal healthy for utilization. Meaning of the term *dhabb* is ‘to slaughter’. In Islam some provisions ought to be fulfilled for *dhabb* to make it Halal. Generally, the animal should be taken from the species which is considered as halal and should be slaughter by a Muslim with the name of Allah’s name, first cut the jugular vein with the help of the sharp knife and permit complete drainage of the blood which consequences in animal’s rapid death.⁴⁷ In Islam decants onward blood is not allowed whichever of haram or halal animal. Many products are made from the blood but they are not consumed and sold in market because it is haram for Muslims.⁴⁸

10. Scientific and Ritual Evidences of Halal is Better Among Others

The different methods of slaughtering enhance the product quality and protection to the animals. Previously, more work has been done on traditional slaughtering procedures according to religious slaughtering methods. In most developed countries, there is a limitation in slaughtering techniques i.e. stunning due to lawful and wellbeing conditions account of religion. A study on animals when given low level of anesthesia and have been accepted as a human model to study harmful activator in relation to neck cut slaughter in cattle and sheep.⁴⁹ When animal was slaughtered with sharp cut of knife the flow of blood is very quick and unconscious condition meet abruptly.

The Prophet (PBUH) in a hadith stated that:

Focus on Islamic Medical and Ethical Aspects,” *International Food Research Journal* 16, no. 4 (2009): 469–78, [http://www.ifrj.upm.edu.my/16%20\(4\)%202009/02%20IFRJ-2009-109%20Nurdeng%20Malaysia%20Rev%20Article%202nd%20proof.pdf](http://www.ifrj.upm.edu.my/16%20(4)%202009/02%20IFRJ-2009-109%20Nurdeng%20Malaysia%20Rev%20Article%202nd%20proof.pdf).

⁴⁷ Jabar Zaman Khan Khattak et al., “Concept of Halal Food and Biotechnology,” *Advance Journal of Food Science and Technology* 3, no. 5 (2011): 385–89, <https://maxwellsci.com/print/ajfst/v3-384-388.pdf>.

⁴⁸ Khattak et al.

⁴⁹ CB Johnson et al., “A Scientific Comment on the Welfare of Domesticated Ruminants Slaughtered without Stunning,” *New Zealand Veterinary Journal* 63, no. 1 (January 2, 2015): 58–65, <https://doi.org/10.1080/00480169.2014.964345>.

'Certainly, Allah has decreed proficiency in all things. Thus, ...if you perform slaughter (zabih), perform it well (painlessly). Let each one of you sharpen his knife/ blade and let him minimize suffering his slaughters (zabiha die painlessly/peacefully).'

To avoid the severe reaction of animals to cut, knife style and cutting method are critical to investigate that the length of the knife would be according to the animal neck wideness.⁵⁰ This type of knife can be used easily to cut across the neck without having the tips at both corners enter the open wound causing unnecessary pain. A study across various abattoirs investigated the blade of the knife length 22.2 ± 1.82 were used in conventional halal techniques for sheep, 29 ± 1.79 cm in cattle and 13 cm in poultry, respectively.⁵¹ In Islam, the use of nails, claws, bones, teeth are inhibited. In a hadith, the Prophet (PBUH) also states that: *'Use everything to slaughter which allows blood to flow, with the exception of teeth and nails, all else is permissible'* (Sahih Bukhari; Sunan Abu Dawood).

In halal techniques, the animal is bleeding while the heart is beating that will enhances the shelf life or improves the quality of the meat.⁵² Although some studies on different slaughtering procedures of bleeding competence and meat quality suggested that, they have traditional slaughtering methods with limited comparison to specifically halal slaughter method.⁵³ Another study conducted on the effectiveness on bleeding efficiency of goat and to find its meat quality when halal slaughter is conscious and minute amount of anesthesia was given to the animal. They found that there is no significant difference ($p > 0.05$) between low level of anesthesia animal and without

⁵⁰ Nakyinsige et al., "Stunning and Animal Welfare from Islamic and Scientific Perspectives."

⁵¹ Cécile Bourguet et al., "Behavioural and Physiological Reactions of Cattle in a Commercial Abattoir: Relationships with Organisational Aspects of the Abattoir and Animal Characteristics," *Meat Science* 88, no. 1 (May 1, 2011): 158–68, <https://doi.org/10.1016/j.meatsci.2010.12.017>.

⁵² A. Addeen et al., "Effect of Islamic Slaughtering on Chemical Compositions and Post-Mortem Quality Changes of Broiler Chicken Meat," *International Food Research Journal* 21, no. 3 (2014): 897–907,

[http://www.ifrj.upm.edu.my/21%20\(03\)%202014/8%20IFRJ%2021%20\(03\)%202014%20Soottawat%20060.pdf](http://www.ifrj.upm.edu.my/21%20(03)%202014/8%20IFRJ%2021%20(03)%202014%20Soottawat%20060.pdf); Sajid Maqsood and Soottawat Benjakul, "Effect of Bleeding on Lipid Oxidation and Quality Changes of Asian Seabass (Lates Calcarifer) Muscle during Iced Storage," *Food Chemistry* 124, no. 2 (January 15, 2011): 459–67, <https://doi.org/10.1016/j.foodchem.2010.06.055>; Farouk et al., "Halal and Kosher Slaughter Methods and Meat Quality."

⁵³ Nakyinsige et al., "Stunning and Animal Welfare from Islamic and Scientific Perspectives."

stunning halal slaughter. After 24 hours of storage and 4 °C temperature lactic acid bacteria were significantly elevated in minute amount of anesthesia group.

While under low concentration of anesthesia fully conscious or slaughtering goats shows no effect on bleeding efficiency and meat quality of meat.⁵⁴

Another study compared the quality attributes of chicken meat when slaughtered according to the halal Islamic and non-halal Islamic method that was used in burgers preparation. The halal meat burger has less concentration of microbes as compared to that which was slaughtered according to non-halal method. The overall change in non-halal meat sausage (NHMB) and halal meat burger (HMB) was 5.6×10^4 c.f.u./g and 41.0×10^4 c.f.u./g, respectively. However, microbial load in the yeast and mold HMB and NHMB was 51.0×10^3 (c.f.u./g) and 7.0×10^3 (c.f.u./g), respectively. Halal meat burger samples were not contaminated with either Coliforms, *E. coli* or *Salmonella*, while the non-halal meat burger samples contained 21.0×10^4 c.f.u./g of Coliforms. On the other hand, all burger samples prepared from halal poultry meat were highly accepted by subjects. Following the Islamic rule in slaughtering animals increased the meat quality and also decreases the risk of cross-contamination with foodborne disease-causing microbes in poultry farms.⁵⁵

11. Comparison of Kosher with Halal Slaughter

According to the Islamic Law the meat is not considered halal for Muslims until the animal is not slaughter according to the Shariah. The animal should be slaughtered by saying Taqbeer. If these rules are not fulfilled the

⁵⁴ A.B. Sabow et al., “A Comparison of Bleeding Efficiency, Microbiological Quality and Lipid Oxidation in Goats Subjected to Conscious Halal Slaughter and Slaughter Following Minimal Anesthesia,” *Meat Science* 104 (June 2015): 78–84, <https://doi.org/10.1016/j.meatsci.2015.02.004>.

⁵⁵ Safa Mustafa Ibrahim, Mutaman Ali Abdelgadir, and Abdel Moneim Elhadi Sulieman, “Impact of *Halal* and Non-Halal Slaughtering on the Microbiological Characteristics of Broiler Chicken Meat and Sausages,” *Food and Public Health* 4, no. 5 (2014): 223–28, <http://article.sapub.org/10.5923/j.fph.20140405.03.html>; Safa Mustafa Ibrahim et al., “Influence of *Halal* and Non-Halal Slaughtering on the Quality Characteristics of Broiler Chicken Burger,” *International Journal of Food Science and Nutrition Engineering* 4, no. 5 (2014): 113–17, <http://article.sapub.org/10.5923/j.food.20140405.01.html>.

meat of the animal is considered haram. The main purpose of our study was to inspect the histological difference between slaughtering methods include the method which is done by the name (Bismillah-Allahu Akber) and another method which is done without the name of Allah.

In an experiment, chickens were divided into two groups. The first group was slaughtered according to the Islamic method with the name of Allah. The second group was slaughtered without the name of Allah. Livers and a fragment of the pectoral muscle were evaluated for the histological difference between the two groups.⁵⁶ Without the Allah's name, slaughtering broilers chicken observed histological changes were having focal edema or obstructed blood vessels in pectoral muscles and liver. Whereas there are no observed congestions in pectoral muscles and liver of broilers that is slaughtered according to Islamic method.⁵⁷

In another study, laboratory tests of broilers which were slaughtered without the naming of Allah revealed their tissues engorged with blood and while the others who were slaughtered with *Tasmiyah* their meat was free from germs with no congestion.⁵⁸ The animal slaughtered without the naming of Allah, shows high number of inflammatory leukocytes and red blood cells in the muscles. Congestion, due to the intracellular leukocyte enzymes shows rapid autolysis of muscles.⁵⁹

12. Comparison of Jhatka and Halal Slaughter

Recent scientific research shows that the animal which is slaughtered according to the halal process provides the meat which stays fresh for a long

⁵⁶ O. Bennoune, "The Effect of Bursa of Fabricius on the Bacterial Activity of Heterophils in Broiler Chicken" (Ph.D. Thesis, Algeria, University of Batna, 2011).

⁵⁷ Khenenou Tarek et al., "Histological Changes in Liver and Pectoral Muscles of Broiler Chickens Slaughtered with and Without Naming of Allah," *International Journal of Poultry Science* 12, no. 9 (2013): 550–52, <https://doi.org/10.3923/ijps.2013.550.552>.

⁵⁸ Islamweb.net English, "Mentioning the Name of Allah During Slaughter Keeps Meat Completely Free from Germs," Highlights, October 26, 2011, <https://www.islamweb.net/en/hajj/article/172713/mentioning-the-name-of-allah-during-slaughter-keeps-meat-completely-free-from-germs>.

⁵⁹ Tarek et al., "Histological Changes in Liver and Pectoral Muscles of Broiler Chickens Slaughtered with and Without Naming of Allah."

time, is more tender, and is least painful to the animal than the process known as “jhatka” which includes severing animal’s head with a single powerful strike. If the meat is required to be soft and good, then there should be maximum drainage of blood from the animal’s body during slaughtering, in which the halal method is most effective, while in jhatka practices the probability to coagulate the blood is elevated. Jhatka method could decrease the shelf life of meat and would be spoiled within a few days if remained uncooked, which also results in tougher meat hard to chew. Moreover, the animals which are slaughtered under jhatka method suffer additional trauma as compared with that of the halal method. The least pain is given to an animal; consequently, there will be better meat. When trauma is faced by animals the glycogen is work activities that cause the hardening of muscles.

The pH of the meat should be slightly acidic if you required a juicy and tender texture of the meat if the meat. The Delhi-based nutritionist suggested that the struggle is less than 20 % in the Halal process. The slaughtering done by the halal process seemed to be healthy because the maximum drainage of blood has been accomplished from the animal’s body. While in the process named as jhatka, in which all the blood has not been drained from the body of the animal, leaving the meat harder and drier”.⁶⁰ In the halal process, the windpipe and the carotid artery are cut, and then the blood flow to the nerve present in the brain roots the impression of pain to be ceased and as a result the pain is reduced. The halal method is a virtually standard operating method. In India, many slaughterhouses adopt the halal slaughtering process. In North and West Indian areas, they respect people’s cultural and native rituals, so they make their products by using halal meat because it makes sense and is healthy for the consumers.⁶¹

⁶⁰ Sinha, Bhattacharya, and Varma, “Science of Meat.”

⁶¹ Sinha, Bhattacharya, and Varma.

C. Conclusions

Since prehistoric times, by the beginning of animal domestication, the slaughtering of animals has been practiced through various methods most prominently including the stunning method, kosher ritual, jhatka slaughtering, and the Islamic method “*Zabiba*”. With progressively more prevailing ethical issues of society and their altitude of recognition towards good quality food, it has become mandatory to reduce animal suffering with each stage of slaughtering following the product of meat with the best quality. Scientific studies reflecting anesthetic effects, quality, and property of slaughtering methods show quite an uncertainty with respect to animal welfare. Moreover, the hemorrhage causing brain death is more obvious within the framework of Islamic slaughtering causing less pain sensation to the animal. The demand of the day is to strive for the improvement of scientifically and artistically as for the sake of animal welfare and for achieving humane slaughter we must engage the animal to least/minimal pain and suffering and for that purpose Islamic slaughtering method “*Zabiba*” is ideal by all aspects. The present study reflects comprehensive knowledge of all the most practiced slaughtering methods in the world and their scientific studies with documentation clearly regard Islamic slaughtering as a superlative method through all the aspects including sensory attributed quality factors, physical and chemical characteristics, shelf life, and overall acceptability of pinnacle class meat. Numerous studies showed “*Zabiba*” as a humane method against all other brutal slaughtering methods practice in the world. The study concluded that according to quality coordination and socio-technical construction the research recommends “Halal meat”.

Moreover, the increase in the number of consumer interest groups is the major reason for the requirement of research and assistance regarding the slaughtering industry for its efforts to serve humanity. Therefore, we should direct our efforts more beneficially towards the improvement and development of slaughter restraining techniques and the structure of slaughterhouses. Several studies regarded Islamic slaughtering as the least

traumatic method. *Zabiba* should remarkably be allowed to be practically free all over the world without relying on the exemption, to deliver good quality meat with extended shelf life and additionally compiles the welfare of the animal as well.

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