

# The Use of Human Cadavers in Medical Education

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*“I have neither given nor received help on this work, nor am I aware of any infraction of the Honor Code.”*

## I. Introduction

The use of human cadavers in medical education has been ethically controversial for many years. Some experts within the field of the education of healthcare professionals claim that using corpses to teach medical students the principles of anatomy or other medical procedures is degrading to the person that was once alive, and denies the autonomy of the deceased. A strong Utilitarian case can be made for the use of human cadavers. Using human cadavers for medical education creates the most utility for their bodies and allows their corpses to be used to educate potential doctors and nurses on the anatomy of the human body. Being able to look at the actual anatomy rather than mere photos or simulations allows future medical professionals to gain a better understanding of the human body.

## II. Background of Cadaver Use

A cadaver is defined as a dead human body, esp. one used by medical students for study. Cadavers can be obtained in two ways: donation or through the use of unclaimed bodies. Cadavers that are “declared as ‘unclaimed body’ or through donated bodies that includes voluntary donation during life or thereafter by the relatives” (Shaikh, 1). Unclaimed bodies are those of people who were never identified or claimed by family members or friends, and instead of being buried, were first used as tools for medical education. The use of these unclaimed bodies has been viewed by many as unethical due to the fact they could not consent in their lifetime to donate their bodies and tissues for medical education.

The first medical school in America was founded in 1765 at the College of Philadelphia. As the first medical school, the College of Philadelphia created a standard of curriculum for medical programs. This included an intense anatomy course with a human cadaver dissection laboratory. “During this period, the introduction of anesthesia, sterile techniques, and the development of surgery all contributed notably to the change from descriptive anatomy to practical anatomy” (Elizondo-Omaña, 12). These dissections were used to teach people the anatomy of the human body. Using a human cadaver was the most accurate representation of all of the bones, organs, and muscle tissues during. The first dissections of human bodies were done by a philosopher names Herophilus and occured around 300 B.C.E. These early dissections were carried out publicly, as were the limited dissections carried out during the Middle Ages. Many of the citizens during the Middle Ages viewed dissection as a desecration of the corpse and believed that it would impede resurrection and deny the survival of identity after death (Hulkower, 2016).

Other than being used specifically in medical education, cadavers, throughout history, have had many other functions relating to the improvement of the medical field. The dead, over the years, “have helped the living work out human tolerance limits for skull slammings and chest skewerings, knee crammings, and gut smashing” (Roach, 87). Human cadavers have been used as crash test dummies to determine what can happen to a live human being during a car accident. This research has helped to develop safety features that are now required in cars everywhere, including the airbag and the design seat belts. These improvements based on cadaver research

have decreased the amount injuries caused in car accidents. Also, this research has helped to test the strength limits to which human bones can withstand.

Cadavers have also been used as shooting targets. Scientists have used human cadavers as targets when testing various guns, bullets, and weapons to see the impact that they have on the human body. This research has been used to help create ballistic armour that stops bullets from penetrating the skin and has helped to create medical procedures to repair the wounds created by bullets and other weapons. For example, the Army uses cadavers to test safety equipment for soldiers, including boots, vests, and armor. In 1999, “researchers suspended corpses in full battle uniform above simulated minefields to find out which footwear would be best for minesweepers” (Palmer, 2010). Another example involves an army doctor wrapping “corpses in new bulletproof vests and fired at them with an air cannon, which uses compressed air to fire bullets” (Palmer, 2010) This test allowed the scientist to see that although the vest did protect from the bullets, the impact from the bullets against the vest caused rib fractures from the sheer force of the bullet. In 2002, the Institute of Justice, a federal agency, “hired university researchers to test non lethal weapons like rubber bullets on cadavers” (Palmer, 2010).

Finally, one of the biggest uses of human cadavers involves forensic science. At the University of Tennessee, cadavers are used to study the “biological and physical phases” that occur when a body decays (Roach, 61). These experiments have allowed police to gauge how long a body has been decaying. “Professors and graduate students mimic the many ways a murderer might dispose of his victims—by burying them in a shallow grave, encasing them in

concrete, stuffing them into car trunks, or wrapping them in plastic bags” (Palmer, 2010).

They’ve discovered that the gas released during decomposition can help determine time of death by measuring the cadaver’s bloatedness. Using these cadavers helps to further the field of forensic science by letting investigators know about how long a body has been left to decompose. Ultimately, the use of these cadavers in forensic science could lead to solving cases with similar body decomposition situations.

Human cadavers have a variety of uses including, but not limited to, the automotive industry, the military, and forensic science. The use of human cadavers in any fashion has always been viewed as taboo because of the ways the bodies were acquired, whether that be through donation or collected as unclaimed bodies. Although all of these uses for cadavers are important, the most important use of cadavers today involves using them to teach anatomy to future medical professionals. This is the most important use of cadavers because they help to educate medical professionals, ultimately helping them care for patients in the future. Using cadavers allows a hands on experience to educate medical students.

Currently, in medical and nursing schools across the country, undergraduate and graduate students are using human cadavers to study the anatomy and learn procedures specific to their future profession. Human cadaver “dissection has been the mainstream of delivering an anatomy curriculum in medical schools” (Dissabandara, 2006). One downside of using cadavers is that they are quite expensive, which leads to multiple students having to share the body during their lessons. “The benefits include the gaining of practical skills such as appreciation of the human body, first-hand understanding of anatomical variability, learning teamwork and peer

interaction, as well as ultimately gaining a first-hand appreciation of human life through a first-hand understanding of death and dying” (Granger, 2004). Gaining the first hand knowledge and understanding of the human body, while being able to look at an actual corpse, rather than just a simulation, allows these student to gain a better understanding of the anatomy of the human body. In a survey of 112 different anatomy departments in medical and nursing schools across United States, 97% reported using dissection in addition to other tools including plastic models, bones, and computer laboratories (Elizondo-Omaña, 13). Although these new simulators and technologies have developed, medical schools across the country are still using the “old fashioned” way of dissecting the body to learn the anatomical structures.

### III. Cadaver Use in Medical Education

Using human cadavers to teach medical education creates the most utility by allowing the corpses to be used to educate potential medical professionals on the anatomy of the human body. Utilitarianism claims that actions and ideas should create the most utility. Using human cadavers for medical education creates the most utility for the cadavers by allowing the bodies to educate potential doctors and nurses on the anatomy of the human body. This creates the most utility because if these bodies were not being used for medical education purposes, they would not be educating anyone, instead these cadavers would be decaying into the ground. The principle of utility states that actions or behaviors are right in so far as they promote happiness or pleasure and wrong as they tend to produce unhappiness or pain. In the case of using human

cadavers, the corpses would create the most utility by teaching future medical professionals human anatomy and procedures that they will potentially use in their careers.

Utilitarianism is generally held to be the view that the morally right action is the action that produces the most good. According to John Mill, a utilitarian philosopher, maximizing utility means creating the most amount of pleasure and the least amount of pain for the greatest number of individuals. A utilitarian would always make a decision based on this concept of creating pleasure and pain. Mill argues that pleasure can differ in quality and quantity, meaning that different actions can provide a person with different types of pleasure or pain. Furthermore, Mill argues that people's achievement of virtues found in virtue ethics should be counted as part of their happiness.

Utilitarian approaches to ethics require that we always choose that action, which creates the best overall consequences. When compared with any other possible actions, we should choose the one that has the best consequences not only for ourselves, but for everyone involved. The general idea is that a morally good society would be one in which all of the decisions made by people consider how much pleasure and pain is being created as a consequence. Cadavers do not feel pleasure or pain. The students using these cadavers do, however. These students gain of knowledge and experience through the dissection of human cadavers in their medical classes. These cadavers are creating the most pleasure for the greatest number of students by helping them to gain knowledge. By increasing the learning potential of future medical professionals, cadavers create the most amount of pleasure that they can since they are no longer living.

One objection to the use of cadavers in medical education is that by using human cadavers, the person who once had inhabited the body loses their individual autonomy if they do not get to choose whether or not their corpse is used for medical education or research. This issue arises particularly when a corpse that has not been identified by family has been selected for cadaver use. As stated previously, unclaimed, unidentified human bodies can be used for cadavers in medical education because the person, when alive, did not express whether or not they wanted their corpse to be used for medical education purposes. The use of these unclaimed bodies has been viewed by many as unethical due to the fact they could not consent in their lifetime to donate their bodies. Among the 68 countries that use human cadavers in medical education worldwide, “22 (32%) exclusively use donated bodies, while 21 (31%) exclusively use unclaimed bodies” (Habicht, 1). “Most of the other countries procure a mixture of unclaimed and donated bodies, with the majority using more unclaimed than donated bodies. Overall, in 45 countries (66%), unclaimed bodies are procured for anatomy education” (Habicht, 1). Another objection raised is that these people could have potentially wanted to be buried or cremated rather than used for these educational purposes.

Individual autonomy refers to the capacity to be one's own person to live one's life. They live their life according to reasons and motives that are taken as one's own and not the product of manipulative or distorting external forces. A utilitarian would argue that regardless of the individual's preference in life, especially if they are not claimed either by a family member or they are not identifiable, the most utility that a corpse can provide is to be used for medical



education purposes as human cadavers. The individual can no longer exercise autonomy of their body after death because they are dead. If they did not specify their requests before death, the body should be used for medical education.

Young argues that the deceased should have autonomy over their body says that “granting the ability to make decisions about the treatment of one’s own corpse because living people care about what happens to their bodies after death and we want to give them confidence that their wishes will be respected after death” (Young, 200). In the case of people donating their body to science, with the intention of being used for research, they had complete autonomy over what was to be done with their body following their demise. One problem that arises involves the people who are unclaimed, unidentifiable, or did not designate what would happen to their body after death. These people did not get to exercise autonomy to decide what happens to their bodies.

To counter the argument against the the idea that the deceased should have autonomy of their dead bodies is the idea that “dead cannot marry, divorce, or vote” (Smolensky, 1). Thus, the living should not have autonomy over their bodies after death because they no longer can complete tasks that the living can. This specifically applies to bodies that are unidentified or unclaimed by their friends and family, as they did not choose whether or not they wanted to be cadavers. In addition “the right to medical privacy substantially erodes at death, giving family members the ability to obtain sensitive information about a descendant’s medical conditions” (Smolensky, 1). Following a person’s death, if they are unable to be identified and they have not

been claimed by their family, they no longer have the right to determine what happens to their body.

“On the other hand, various legal institutions have spent considerable time trying to protect the rights of the dead” (Smolensky, 1). Rights of the living include being able to decide how they are buried, whether or not their organs are donated to other people, and what happens to their possessions owned during their life. “As a result, most testamentary distributions, burial requests, and organ donation designations are held to be valid even if they contradict the preferences of the living” (Smolensky, 1). In the case of cadavers who are unclaimed or unidentifiable, their wishes cannot be honored without knowing who they are. Cadavers can’t “play water polo, or lace up their boots, or maximize market share” (Roach, 87). As the procedures are performed, the cadaver “will not feel a thing, nor will the injuries interfere with his day-to-day activities” (Roach, 87). Unlike their living counterparts, cadavers cannot complete activities or normal daily life and as such, cannot determine what would give their bodies the most utility.

Another argument against using human cadavers is that it is undignified to have a person’s body be used in this way. People think that the only way that their body can be returned to them is to be cremated which goes against some people's religious values, leading to further degradation. Another potential concern is that the body is traumatized in some way during testing and cadaver dissections.

An important aspect to consider is that, “in the case of the cadaver, numerous internal organs and even whole systems can be removed leaving the external appearance unaffected.

While the integrity of the body has clearly been compromised, it can appear to maintain its integrity, simply because a cadaver has no need of such parts” (Jones, 75). Pieces of a cadaver can be used in medical education, rather than the whole body. Also, the main external pieces of the body can be left intact, allowing the students to have access to study the internal pieces. The cadaver can then be sewn up and returned to family members to be buried or cremated as they wish.

Another argument against using cadavers is that using cadavers to teach anatomy is unnecessary because a student can learn anatomy and other procedures without the use of human cadavers. This defense contends that the most utility that can come from a corpse would be to allow it to decompose in the ground, or to allow friends and family members to bury the body in a casket to assist in their grief process. “The main reason for the burying of humans stems from the notion of respect for the dead, which is closely linked to Christianity’s central principle of the dignity of life” (Lander, 2017). Christians believe every human being is worthy of dignity, and respect, and as such, they bury their dead as a sign of respect. For some people, burying their loved ones provides a sense that their family member is moving on into the next life, and in the case of Christianity, that their family member is going to heaven. Burying the dead helps friends and family members move past the loss of their loved one.

A utilitarian would object to this argument as using the cadaver to teach the anatomy of a human being will provide the most utility as it provides education to many medical students. Although dead bodies do not feel pleasure, the students using these cadavers do. These students gain and improve their pleasure through the gaining of knowledge by dissecting and studying the

inner workings of human cadavers. Cadavers themselves no longer feel pleasure or pain because they are deceased, but their bodies can still affect the amount of pleasure and pain inflicted upon the living. By increasing the learning potential of medical or nursing students, cadavers create the most amount of pleasure that they can since they are dead bodies. The absence of cadavers could potentially be causing these future students pain as they would not be able to understand the human anatomy as well without them. Using human cadavers furthers the education of future medical professionals because it allows for hands on access to the human anatomy, thus creating the most amount of pleasure for the greatest number of people, and in this case, future medical professionals.

Using human cadavers to teach future medical professionals allows the students to gain “hands on experience” involving the human anatomy. John Dewey, an American philosopher, argues that “human beings learn through “hands-on” approaches” and that students will have less “anatomical knowledge without cadavers or student dissection” (Moxham and Pais, 2017) . Although burying the body would provide nutrients into the soil, it would not be the greatest use of the corpse’s utility. As a cadaver, the body could be used to teach an entire class of 20 medical students rather than decaying into the ground or in a coffin.

Using human cadavers to educate future medical professionals creates the most utility. Implementing the use of cadavers in colleges and universities across the nation would allow the greatest amount of utility. The use of cadavers would allow for hands on education for a greater number of future health professionals.

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