

# Continuous Use of Cadavers for Teaching and Research is Risky

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## Abstract

The fact that the 2019 coronavirus disease (COVID-19) has impacted practically every aspect of life is no longer breaking news. Prior to the time when immunizations will be widely accessible and freely available worldwide, this virus may possibly have become a permanent fixture. Healthcare delivery and medical institutions are overwhelmed by the daily increase in COVID-19 cases and fatalities. Medical education is now under pressure as a result of the succession of lockdown measures used to stop the COVID-19 virus from spreading. Millions of youngsters were forced to stay at home while schools were closed. This has made it difficult for medical students to access, among other things, dissecting areas, cadavers, bones, and pathological specimens. The degree of exposure to the COVID-19 from ongoing use of cadavers is a significant concern for academia, students, morticians, and other stakeholders, especially given that immunizations are not yet widely accessible for everyone.

## Introduction

The use of dead bodies in teaching and learning processes, particularly for gross anatomy, is still common in medical education. However, most organizations switched to online learning environments, including virtual cadaver dissections, once the school closed. In reality, projections for a "cadaverless" anatomy exist. Despite this, many people still like the conventional wet cadaver dissection, particularly in regions where the high-tech virtual platforms that are in vogue are inaccessible or too expensive. Other continents like Africa, Asia, and Europe continue to use cadavers for teaching and research, with the exception of Australia, where it is not required [1]. The general consensus is that fixatives are effective at deactivating pathogenic microorganisms in cadavers when used for academic purposes. Demiryurek et al. did confirm that cadavers could still transmit disease to individuals handling them during embalming or dissection processes even though they were preserved. In order to ensure the safety of using cadavers during disease outbreaks like the COVID-19 pandemic, it is crucial to do so. It is abhorrent to admit corpses with contagious diseases for academic purposes in nations where body donation programmes are available [2].

As a result, this rule is still in effect throughout the COVID-19 pandemic, and any corpse suspected of being contagious must be rejected or omitted from such a plan and incinerated. Although it has frequently been advocated that initiatives for corpse donation should be increased during the COVID-19 epidemic, stopping such a plan or rejecting donated remains may lead to a shortage of cadavers for teaching in the following academic year. Accepting an infected corpse, meanwhile, seems to carry more hazards than rewards, particularly in the COVID-19 era [3].

Any corpse obtained from a licenced body donation programme should therefore be suitable for use in academic and scientific endeavours. Even yet, instances where the COVID-19 status of a deceased donor is unclear may provide serious problems. In areas like Africa and Asia, where unclaimed bodies are the primary supply of their cadavers, a similar problem could potentially occur. Additionally, the medical records on these unclaimed bodies typically do not contain information about the manner of death. Therefore, appropriate COVID-19 testing should be conducted in these circumstances. In the event that it is, the body should be discarded or burned [4].

Furthermore, it was found that formalin and glutaraldehyde, depending on temperature and duration, were efficient for deactivating the Severe Acute Respiratory Syndrome Coronavirus 1 (SARS-CoV-1). Additionally, these compounds performed better after 24 hours-48 hours of fixation or preservation at a temperature of 37°C [5]. Additionally, formalin and solutions with 70%-95% alcoholic concentrations are effective in deactivating COVID-19, according to recent investigations. Additionally, since there isn't any solid proof that COVID-19 is still contagious in a properly kept body, standard preservatives like formalin and alcohol should continue to work to inactivate it. Any preserved cadavers should also be stored for a while before use, as the COVID-19 virus is known to linger on cadavers for hours or days and on surfaces for up to 9 days. Therefore, a cadaver in such good condition would be suitable for dissection [6].

The World Health Organization (WHO) also stated that there is currently no evidence to support the theory that persons contracted the coronavirus from any COVID-19-related dead corpses and died as a result. However, it is impossible to ignore the possibility that those handling corpses could become infected. As the initial point of contact and those most at risk when handling and embalming fresh corpses, the role of the morticians or technicians embalming cadavers is very important and should not be disregarded during this COVID-19 outbreak [7]. End-users and the general public will be greatly protected if morticians are kept secure and protected during the embalming process. It is necessary to provide thorough orientation, specialised training, and up-to-date information about the COVID-19 method of transmission, mutation, and other important COVID-19-related information to technicians who are in charge of collecting and embalming fresh corpses. For usage during each embalming procedure, adequate personal protective equipment such as nitrile hand gloves, a fluid-resistant face mask, goggles, and a waterproof apron must be available [8].

All corpses received for embalment must be handled as infectious, as was previously said, and all COVID-19 safety precautions must be properly followed. In this day and age, maintaining proper hand hygiene and promptly disinfecting embalming surfaces are essential for safety. Additionally, since the COVID-19 epidemic is believed to be having some negative psychological effects on a global scale, body handlers must receive ongoing psychiatric examination and support in order to lessen psychological stress and restore their mental health. Additionally, their workload should be reduced, and technicians over 60 should not be required to work during this time. In conclusion, the study by Ravi highlighted that, in addition to all the concerns mentioned, a negative COVID-19 laboratory test result may not completely remove COVID-19 infection. Therefore, care must be exercised when handling any cadaver, regardless of whether it has a COVID-19 status record [8].

A significant portion of COVID-19 carriers have also been noted to be asymptomatic; as a result, the chain of human-to-human transmission should be interrupted, especially in the academic setting, to prevent catastrophe. To account for social distance, the existing student-to-cadaver ratio during dissection sessions needs to be reassessed. To prevent overcrowding in the laboratory during practical sessions, the practical timetable should also be adjusted.

All of these precautions will aid in containing risk and hazard. Last but not least, while we navigate through this COVID-19 pandemic, a virus with no known expiration date, priority should also be given to morticians, technicians, instructors, students, and researchers working with dead bodies [9].

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