BACKGROUND  Interest is growing in utilizing organs, stripping them of cellular tissue, and leaving behind the ECM (extracellular matrix). The scaffolding left becomes a framework for reintroducing healthy cells to create new organs that will purportedly be utilized soon in organ transplants. This also gives an opportunity in dissection lab to create a 3D model of the body via the fascia as an organ system, instead of what is pulled aside to see the muscular, nervous, circulatory, or digestive organs. In the past 200 years, the overwhelming mode for studying the body has been through using embalmed cadavers, often with mixes of formaldehyde, which fixes fascia into a dry sinewy substance that creates rigidity within the myofascial layers. However, more recently, fresh tissue (previously frozen) cadavers which can still be moved through a full range of motion, have made it easier to work with the body and the myofascial relationships.

METHODS  Dissection of eight fresh tissue adult cadavers were carried out during a four day intensive dissection lab at Todd Garcia’s Laboratories of Anatomical Enlightenment with Tom Myers as part of an Anatomy Trains® dissection. The author was a lab assistant for the course, with this experiment carried out on the last day of dissection. One cadaver (female) was chosen for her relatively healthy heart, which was removed and immediately frozen at the end of the third evening. As there was no need for surgical specifications, the author chose to use household substitutions for medical grade materials and developed a 15 step process to create the final model based on several current articles. Replacing sterile salt solution, the author created a saline solution with kitchen salt and water. Instead of trypsin, which is used to cleave peptide bonds, bromelain (from fruit like papayas) or meat tenderizer can be utilized, the latter of which was chosen. Instead of Triton X, which breaks up fats, any strong commercial detergent can be utilized with sodium lauryl sulfate or sodium lauryl ether sulfate (SLES), which is an anionic detergent. This has been done in several experiments. The author utilized a common shampoo with a high percentage of sodium laurel sulfate. Finally, an “OxiClean” type product, primarily sodium percarbonate (2Na₂CO₃•3H₂O₂) was utilized in the final steps, creating an interaction between oxygen and water, acting as a non-chlorine bleach.

RESULTS  Within the period of a 9 hour day, the heart changed dramatically and muscle fiber was stripped from the heart. The heart in places took on a translucent quality and the structure actually became firmer.

CONCLUSIONS  While the concept of the ghost heart has great implications for the surgical world, this ability to look at a representation of the body in fascial form is always a useful tool for dissection lab, which has traditionally separated the body into other systems. The new concentration on the myofascial connections, as well as looking at fascia in itself should yield more ways of seeing connections in the body, previously overlooked.

(A) Common household ingredients can be used in creating a “ghost heart” as a model of the fascial system. The author referenced the work of several current articles, including summaries of the work of cardiac researcher Doris Taylor, director of the University of Minnesota’s Center for Cardiovascular Repair, who utilized soap in 2005 in her landmark work to prep rodent hearts for reintroduction of stem cells. (B) The heart after 3 initial rinses. (C) The author between steps. The heart was kept on a clamp and suspended in each of the solutions. (D) Towards the end of the day. The heart gained a translucent quality and has lost nearly all of the muscle fiber, creating a scaffolding of the extracellular matrix.