

Body Phantom for Heart Catherization Training

Cardiac catheterization is a procedure used by doctors to diagnose and treat heart conditions. A catheter is inserted into the groin, and an iodine dye is released into the catheter. The clinicians use a C-arm to radiograph the area of the heart in order to see the dye within the vascularity of the body. This allows them to view problems of the heart and diagnose or treat the heart in ways one normally couldn't.

Currently, there are body phantoms on the market which have skeletons, but not vascularity. There is a skull phantom on the market with vascularity, but not the rest of the body. There are also products on the market that simulate the process of heart catheterization without the x-ray attenuation. Although this can help students learn the process of heart catheterization, this is unhelpful when training proper x-ray technique.

Kerry Mohny contacted Grand Valley Engineering to design and build a body phantom that could be x-rayed using a C-arm for x-ray students. The body phantom was to mimic an average person in size and in density, as well as x-ray attenuation. Kerry requested the body phantom have a skeleton as well as vascularity in the correct anatomical location. The phantom included items for proper attenuation of bones and vascularity. However, the phantom prototype does not include items to mimic other organs or soft tissue attenuation. These will likely be included/explored in future projects.