

UF 3D PRINTING

What is 3D printing?

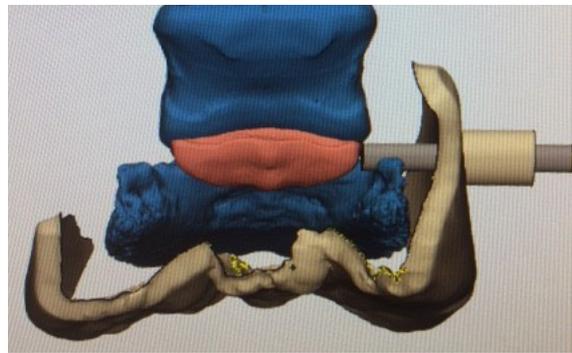
3D printing is a new technology that surgeons in veterinary and human medicine are using in conjunction with computed tomography (CT scans). 3D printed models are created to be used for surgical planning, to develop surgical procedures, and as a teaching tool. 3D printing improves surgical precision and reduces the amount of time a patient is in surgery and under anesthesia.

The UF Large Animal Hospital is currently focusing on 3D printed models to aid in surgeries within the horse's hoof involving the navicular bone and navicular bursa. Navicular fractures are difficult to treat because of the bone's location within the hoof. This technology allows us to create accurate guides and instruments to treat fractures more effectively.



How does it work?

A CT image of the area of interest is transferred to a 3D medical imaging processing software program called "Mimics" to map out the patient's anatomy (pictured right). This program allows surgeons to pin point drill holes, take measurements and create a custom made model or guide for surgical procedures. The image is then sent directly to the in-house 3D printer (pictured top) to create the final model.



What are the models made of?

The models are made from different types of plastic with various levels of density. Our machine prints Ultem 1010 (brown in color) which requires more layers of plastic and is heated at a much higher temperature than the PC ISO plastic (pictured right). The plastic can be heated up to as high as 500°C/932°F.



How long does it take to make a model?

Depending upon the size of the model and the level of complexity, it can take anywhere from a couple of hours to several days. The longest print job we have completed has been 105 hours (just over 4 days). The largest size that can be printed is 16" long by 16" wide by 24" tall.

