



3D Printed Planning Guides for Pets

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Advanced Surgical Precision: Using 3D Printed Guides for Your Pet

When your pet is facing a complex orthopedic surgery, you want the most precise and effective care possible. At MVUCS, serving the greater Philadelphia area, we harness the power of advanced imaging and 3D printing to create patient-specific surgical plans for even the most challenging cases, ensuring a higher likelihood of a speedy and quality recovery.

This guide explains how this cutting-edge technology works and the significant benefits it offers your beloved companion.

Why is Advanced Imaging Needed for Pet Surgery?

Canine and feline orthopedic anatomy is complex and not always as predictable as it is in humans. Certain conditions are particularly challenging due to anatomic abnormalities, small areas of interest, or structure superimposition on imaging.

Advanced imaging in the form of CT scans can be performed for a more thorough orthopedic anatomic evaluation. Historically, these scans are viewed as a series of image “slices” in different directions to create 3D images using specialized software.

The Benefits of 3D printed Surgical Guides

More recently with the advent of 3D printing, we have been able to harness the power of CT to recreate models of patient’s conditions along with patient-specific planning guides for particularly complex or atypical cases.

These guides are sterilized and applied intraoperatively in order to:

- Direct precise bone cuts
- Ensure accurate bone reduction
- Facilitate ideal orthopedic implant placement

3D printed patient specific guides have been shown to decrease surgical time and improve implant placement, leading to a reduction in infection risk and a higher likelihood of a speedy and quality recovery.

Conditions Commonly Treated with 3D Printed Guides

- High Grade Patella Luxation
- Front Limb Angular Deformities
- Hind Limb Angular Deformities
- Complex Joint Replacement

The Process: What to Expect Step-by-Step

- 1. Initial Examination:** With all surgical consultations, a thorough examination and review of the medical record is performed by Dr. Chase. In many orthopedic cases, sedated radiographs will be required to generate anatomic measurements, use for surgical planning, and provide comparison for follow-up examinations.
- 2. CT Scan:** The CT scans are performed at our main hospital, a short drive away, on an outpatient basis.
- 3. Imaging Review and Plan:** After the CT scan, Dr. Chase and one of our radiologists will review the images. Dr. Chase will then contact you to discuss the details, including whether patient-specific planning is recommended.
- 4. Production of Guides:** After the surgical plan is confirmed with our production partners, an expected delivery date will be generated, typically 4-6 weeks after the CT scan.
- 5. Pre-Surgical Preparation:** The patient specific guides will be delivered to MVUCS prior to surgery. Often, surgery will be scheduled only once the items are received and confirmed to be accurate. If indicated, a replica of your pet’s bone will be generated, and Dr. Chase will rehearse the surgery on the model.
- 6. Surgery:** The meticulously planned surgery is completed.

Learn if Advanced Surgical Planning is Right for Your Pet

If your pet is facing a challenging orthopedic surgery, this technology may provide a safer and more predictable path to recovery. Contact our team to learn more about how advanced imaging and 3D printed guides can help your pet. 🐾

