ANIMAL SERVICE

Southpaws Specialty Surgery for Animals heals its feline and canine patients using 3D printing

"3D printing has not only facilitated the surgical process with simpler steps, it has also differentiated our business by offering value-added service to our clients."

—Dr. Charles Kuntz,
Southpaws Specialty Surgery for Animals

Veterinarian Charles Kuntz used a 3D printer to correct Snowball's elbow malformations, allowing Snowball to walk for the first time. Photograph courtesy of the Herald Sun, Australia.

Helping a puppy walk for the first time is all in a day's work for *Southpaws Specialty Surgery for Animals*. But the veterinary surgery hospital in Australia is taking an innovative approach to helping its small animal patients – 3D printing.

Southpaws specializes in orthopaedic and soft tissue surgery, neurosurgery, veterinary cancer care and chemotherapy for dogs and cats. Founded by Dr. Charles Kuntz, Southpaws is one of the few veterinary hospitals that owns a deep therapy radiation unit (using high-energy radiation to combat cancer cells' DNA) and other advanced treatment equipment in Australia.

To complement its X-ray and CT imaging capabilities, Southpaws sought a tool to create same-sized bone and skull models for surgeons to use as surgical guides, pinpointing accuracy and improving pre-surgical communication.

After rounds of research and test prints, Kuntz and pet health nutrition company Royal Canin Australia co-purchased a uPrint® 3D Printer in 2013. Incorporating the uPrint 3D Printer helped one patient, a bulldog puppy named Snowball, walk for the first time.

Born with dislocated front elbows, Snowball could only crawl around with his front legs. To rebuild his joints, Kuntz printed 3D models of his legs and drew marks for incision locations on the parts to plan for the surgery. To validate his methodology, Kuntz also 3D printed Snowball's post-surgery bones based on the anticipated treatment results. Southpaws used the models to conduct additional testing and fine-tuning prior to the operation. The successful surgery allowed Snowball to walk for the first time.

The 3D model of Snowball's elbow.

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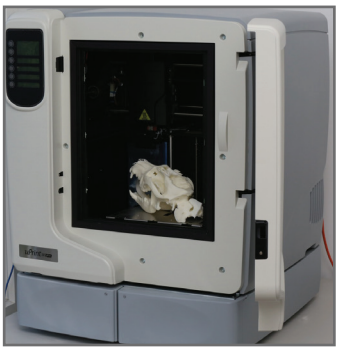
Enhanced Surgeries

Today, Southpaws uses the uPrint 3D Printer regularly to assess patients' medical conditions, plan surgical procedures, enhance accuracy and shorten the pre-surgical planning process. 3D printed models not only aid surgeons in deciding on the most accurate incision location; they also reduce the size of surgical wounds, lower medical costs, speed recovery and improve safety by reducing anaesthetic times.

Southpaws can now take an animal's CT scan, convert it to an STL file and 3D print the scanned anatomy. Vets can hold the 3D printed plastic part within hours to examine the pet's condition more thoroughly before deciding on the most appropriate surgical treatment. The models also serve as an effective communication tool during consultation with pet owners, facilitating a better understanding of the necessary treatment.



The uPrint creating a 3D model of a patient's skull.

Advanced Training

Apart from using the anatomical 3D models for pre-surgical planning and consultation with the pet owners, Southpaws also uses the 3D printed parts for training purposes. "By sending the 3D models with the cases to other medical practitioners, we provide a more accurate view of the diagnosis and treatments," Kuntz said.

Kuntz during surgery.

"3D printing has not only facilitated the surgical process with simpler steps, it has also differentiated our business by offering value-added service to our referring veterinarians." The 3D models also aid communications between pet owners and referring vets, increasing understanding of treatment.

The 3D printed models are now used extensively by the surgeons, medical partners and clients, resulting in faster surgeries, better communications and higher success rates. "3D printing technology takes us into an innovative digital world yet to be fully explored by veterinary professionals. We will continue to explore and make good use of this technology, serving our animal friends with the utmost care," concluded Kuntz.

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