

VMTH Implements Regenerative Medicine to Treat Injuries

Regenerative medicine, more commonly referred to as “stem cell research and treatment,” is making great strides in the veterinary field. This area of investigation focuses on using healthy regenerative cells to repair tissue or organs that have been damaged by injury or disease. To treat such cases, stem cells can be taken from other animals or, ideally, from that same animal. Autologous sources (from the same animal) are ideal since they essentially eliminate the risk of rejection from the host body. The most common tissue sources for obtaining autologous stem cells are from bone marrow and adipose tissue (fat cells). The retrieved adult stem cells are then injected into the injured or diseased area to help encourage the damaged tissue to repair itself.

At the VMTH, regenerative medicine is focused on adult stem cells (not to be confused with the controversial embryonic stem cell research) being utilized to treat tendon and ligament injuries in horses and dogs. That work is multidisciplinary and coordinated with several other UC Davis departments including the School of Medicine, the College of Biological Sciences and the Department of Biomedical Engineering. This synergistic approach allows our veterinary medicine researchers to collaborate with others focused on finding new cures for injuries and diseases, both in veterinary and human medicine.

“Perhaps the greatest asset to our regenerative medicine research is our ongoing collaboration with the Institute of Regenerative Cures (at the UC Davis School of Medicine),” states Dr. Larry Galuppo, Chief of Equine Surgery. “Experts in veterinary and human medicine are working together to solve many of the diseases and injuries that animals and people have in common.”

This team of researchers combines the talent, skill and knowledge of more than two dozen research and clinical faculty throughout the university. Together, the knowledge and experience of all these scientists provides leadership, creativity and optimism for developing stem cell therapies to treat animals and humans.



Dr. Larry Galuppo prepares to inject millions of stem cells into a horse suffering from joint damage.

Behind the Scenes with Client Services

An organization's first point of contact for its clients is often its most important, and can be the reason for a life-long client. At the VMTH, it's no different. Our client service representatives continually go above and beyond to make our clients feel welcome, and their duties go far beyond just being greeters.

Between the three main reception areas at the VMTH (Small Animal, Large Animal and CCAH), our client service representatives facilitate a staggering number of appointments for our clients and patients. In any given week, the three staffs may check in 1,100 appointments and field more than 1,400 phone calls. Thankfully for us, those staff members have an average of nearly eight years of experience and know just about every aspect of the VMTH. Many have worked in all three reception areas, as well as after-hours reception and other areas of the hospital.

Almost all reception staff take advanced training courses through the American Animal Hospital Association (AAHA). AAHA training enables staff to become Certified Veterinary Receptionists. This specialized training takes two years, and is done outside of work hours. The sessions not only include reception training, but teach basic veterinary technician skills, including terminology.

Beyond handling the incredible call and appointment volume, the reception staff create a myriad of other important functions including creating patient records, monitoring the hospital report, calling clients to remind them of appointments, reviewing charges on appointments, ordering supplies, and maintaining the ever-important task of referring veterinarian relations. Most of these tasks go on behind the scenes and go unnoticed.

Thank you for your hard work!

Dental & Oral Surgery Service Utilizes 3-D Printing Technology

Recently, the Dentistry & Oral Surgery Service (DOSS) at the VMTH partnered with the UC Davis Translating Engineering Advances to Medicine (TEAM) Prototyping Facility in the Department of Biomedical Engineering to create a cutting-edge teaching and clinical tool that will help make maxillofacial surgeries safer and easier for clients to understand. With the TEAM Prototyping Facility's assistance, DOSS is now able to print a 3-D model based upon a CT scan. The end result is an exact, to-scale replica of a patient's skull.

"It's one thing to study a CT image on screen – we learn a tremendous amount about a patient that way," states Dr. Frank Verstraete, Chief of DOSS. "But to be able to hold a replica of that same image in your hand and see exactly what your patient's skull looks like takes the experience to a completely different level. The advantages of that are tenfold compared to a screen image."

The replicas allow surgeons to accurately determine the extent and location of an injury or mass, see how close lesions are to vital structures such as the brain, and determine the potential consequences of making an incision into a particular area of the patient's skull. In the case of DOSS's groundbreaking jawbone regrowth trials, this new technology allows oral surgeons to accurately determine the size and shape of the plates that will be needed for the surgery, before the procedure begins. This ability to plan in advance greatly reduces the duration of surgeries, diminishes amount of time the patient is under anesthesia, and improves patient safety and outcome.

"One of the things I appreciate the most about the replicas is that it helps us to better explain the situation to our clients,"



Pictured is an exact replica of the skull of Kabang the Filipino Hero Dog, created utilizing 3-D printing.

states VMTH oral surgeon Dr. Boaz Arzi. "If I bring this skull replica to the waiting room and let the clients see the exact injury or disease affecting their pet, they gain a much better understanding, and acceptance, of the recommended procedure. I have received many positive responses from clients who are excited that this technology exists, and that they are better able to understand the treatment plan for their pet."

"The technology for this has existed since the 1980s," states Steven Lucero, mechanical engineer and TEAM Prototyping Facility manager. "But we've only seen it emerge into clinical practice in the last few years, as many of the patents on this technology are expiring and the marketplace is becoming more competitive as a result. Consequently, we're finally getting to see the great benefits that can come from this technology."

This collaborative effort between DOSS and the TEAM Prototyping Facility is a great example of the advances in patient care that can be achieved and the cutting-edge clinical programs that can be developed through a multi-disciplinary approach.

Did You Know?

... that the first veterinary college was founded in Lyon, France in 1761?

... that Client Services may receive up to 400 calls per day?

... that Americans spent \$53 billion on veterinary expenses in 2012?

Hello, VMTH?



**I'm not feeling very well.
Can I schedule an appointment?**

From The Director's Corner

Welcome to the March issue of *VMTH View*. As the winter weather finally transitions into spring, we are now well into another successful year at the VMTH.

In this issue, we bring you news about some exciting innovations in veterinary medicine, pioneered right here by our faculty. These innovations are paving the way for entirely new approaches to treating a spectrum of clinical cases, and may one day spawn changes in human healthcare, as we continue to explore and embrace the One Health initiative.

As we develop and launch new techniques, procedures and novel therapies, it is important to recognize that none of these advances could be delivered to our patients and clients without the talented and dedicated staff we are so fortunate to have at the VMTH. In this issue, we highlight the sterling work of our client services teams. I'd like to extend a personal thank you to Penny Farnham and Kim Ney and their respective Small and Large Animal Client Services staff members for all they do behind the scenes to make the VMTH "run" and to provide for a positive experience for patients, clients and referring veterinarians. It is our Client Services staff who often create the first and the last impression for our clients. Thanks to them, the impression is almost always a good one.

Spring is my favorite time of year, so I encourage all of you to get out and enjoy the great spring weather and scenery, even if it's just to grab a quick lunch break on the Valley Hall patio or take a stroll in the Arboretum. As the competition for parking spaces close to the VMTH intensifies, it occurs to me that I never have a problem finding a space in a bike rack to park my bike. I realize that many of you live a considerable distance from the VMTH or are forced to drive for other reasons. However, those of you who live close by may find that a bike ride to work is an invigorating way to start your morning, provides you with a time to organize your thoughts for the day, and helps you unwind on the way home in the evening. However you choose to make the most of the spring weather, be sure to enjoy it before the summer heat sets in.

Regards,



Dr. W. David Wilson, BVMS, MS
Director, William R. Pritchard VMTH



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Director, VMTH

VMTH Pioneers Interventional Radiology

As advances in veterinary medicine continue to improve the way we care for our patients, surgeons at the VMTH are playing an important role in leading that charge. Several minimally invasive and innovative techniques, collectively included under the specialty of Interventional Radiology (IR), were pioneered at UC Davis, and are now being utilized by other veterinary specialists around the world. The diseases that can be treated with the use of IR are constantly expanding, and—spearheaded by surgeons Dr. Bill Culp and Dr. Michele Steffey—the VMTH is leading the way in these therapies.

“Being one of the largest veterinary hospitals and research facilities in the world, it is important for us to be a leader in the field of Interventional Radiology,” states Dr. Culp. “We are extremely proud of our IR program and the advances that we have made over the last several years. We are continually striving to improve our program with the goal of advancing the level of care that we can provide to patients.”

IR techniques—which utilize specialized equipment such as guidewires, catheters, balloons, and stents to treat a myriad of

diseases—hold tremendous potential in the diagnosis and treatment of veterinary patients with cancer and a number of other life-threatening conditions. IR has several important advantages over conventional techniques, including the minimally invasive nature, quicker recovery times in many cases, and the complementary role that it can play with other treatments. As the IR specialty continues to develop in veterinary medicine, research supporting these treatments is emerging at a rapid pace. UC Davis is at the forefront of this research and several clinical trials are underway to thoroughly evaluate the effectiveness of an ever-expanding array of IR techniques.

One of the most important aspects of IR, though, is that it often offers an option for cases that previously have lacked options. “These new innovations have the potential to greatly improve the quality of life of our patients,” adds Dr. Culp. “Our goal is to continue to improve and refine these techniques to benefit both our patients and veterinary medicine as a whole.”

