


**VETERINARY VOICE:**  
Tips of the Trade

**Surgery – Negative Pressure Wound Therapy (NPWT)**

<p><b>Definition</b></p>	<p>Negative Pressure Wound Therapy (NPWT) has become a popular method of treating a variety of acute and chronic wound types over the past decade in both human and veterinary patients. This therapy employs a specialized foam bandage connected to a sealed vacuum system applied either to wounds or over closed incisions to decrease infection and promote early wound healing.</p>
<p><b>Benefits</b></p> 	<p>Studies have shown that NPWT decreases wound exudates and periwound or incisional edema, improves blood flow and encourages capillary ingrowth (angiogenesis) and migration of fibroblasts thereby enhancing formation of granulation tissue and lowering bacterial counts. Because the dressings are sealed, nosocomial infection risk is also lowered. The continuous low level suction prevents wound edge retraction and decreases overall wound volume thereby decreasing the overall wound management time to achieve wound closure. Studies have shown that the needs for free tissue grafts are decreased when it comes time for delayed primary closure as well. When applied over an incision or skin graft/flap, dehiscence rates are also decreased. Bandages are typically done every 48-72 hours with typical results after 3 days of NPWT similar to what requires 7-10 days of wet-to-dry bandaging. The decreased number of sedations and bandage changes required lessens the impact on the patient and this along with the overall quicker time to wound closure helps to offset the costs of hospitalization. NPWT can be applied to almost any wound, but is especially helpful for very large wounds, degloving/shear wounds, bite wounds or wounds in areas where bandaging is difficult such as the inguinal, axillary or cervical areas. Pets can remain mobile with the lightweight bandage and comfort levels are very high while on the continuous suction device.</p>
<p><b>Disadvantages</b></p>	<p>Best results are achieved with continuous suction (minimum of 22 out of every 24 hours), thus requiring hospitalization in a 24 hour facility while the patient is undergoing NPWT. Equipment rental costs and monitoring required prohibit home use. Initial costs of equipment and dressings along with a learning curve on proper application of the bandages make this a system that is typically limited to use by larger referral hospitals where higher wound case loads allow for more frequent use of the system. Prolonged use of NPWT (greater than ~7 days) may result in development of overgrowth of granulation tissue into the dressings, inhibition of wound contraction and re-epithelialization, so this is a system that is best used for the initial wound management, and in most wounds surgical closure is still required.</p>
<p><b>Types of Cases that could Benefit from NPWT</b></p>	<ul style="list-style-type: none"> <li>--Large truncal wounds secondary to trauma or burns</li> <li>--Limb shear or degloving wounds</li> <li>--Extensive bite wounds</li> <li>--Wounds in areas that are difficult to bandage such as the axillary, inguinal, dorsum, cervical areas (**surrounding skin is required to achieve a closed suction seal for the bandage so mucocutaneous junction wounds cannot have NPWT dressings applied)</li> <li>--Incisional closures that have a higher risk of dehiscence due to tension, dead space, high motion areas</li> <li>--Post skin flap or free graft closures to help prevent seroma formation, enhance graft adherence and promote early capillary ingrowth</li> </ul>
<p><b>Questions? Surgical Experts: Jim Boulay, DVM, DACVS, MS Barb Gores, DVM, DACVS Sharon Shields, DVM, DACVS</b></p>	<p>The Veterinary specialty Center of Tucson has board-certified surgeons available for questions and consultations on surgical conditions during the weekdays. A member of the surgery team is on-call 24/7 to provide consultations to VSCT emergency doctors and to perform emergency surgery for patients seen by the VSCT emergency service. Board-certified surgeons have four additional years of training and are certified by the American College of Veterinary Surgeons to assure competency in advanced veterinary surgery.</p>