

Article reprint from
The International Review of Modern Surgery
February 2002

The MicroVas Vascular Treatment System

Jefferey Davis, D.O.

The **MicroVas** Vascular Treatment System is the result of several years of research and development. Thousands of patient case histories show the **MicroVas** Vascular Treatment System to be totally safe and effective in the treatment of a cross section of vascular deficiency cases. The following conditions have all responded decisively with excellent results;

Peripheral Vascular Disease
Ischemic Rest Pain
Diabetic Neuropathy
Pressure Ulcers
Slow Non-Healing Wounds
Chronic Low Back Pain
Occupational Medicine (Carpal Tunnel Syndrome)

Essentially, every tissue in the body has intrinsic electrical properties. Because of this, it has been found that they respond in some way to electrical stimulation. There have been many machines designed over the years to use electricity to affect the body in various ways to enhance the healing process. There are many forms of electricity such as polarity, voltage, amperage, frequency and waveform. Because of patent issues and proprietary information, the exact properties of **MicroVas** cannot be revealed; however, the general principles are as follows:

How MicroVas works

Underlying the above disease processes is the problem of impaired circulation in the capillary beds. Without blood flow to the tissues, oxygen and nutrients cannot get into the tissues and the waste products of metabolism cannot get out. This puts a severe stress on the tissues causing them to go into a survival mode. The cells use what limited resources they have to stay alive and higher functions, including healing and repair, as well as tissue mediated immunity, become essentially shut down. In most patients with severe disease, measured tissue oxygen levels have been found to be less than 15% of normal. Diabetics with impaired basement membrane function, Reynauds phenomena, Claudication states and other similar conditions all may have similar features due to this underlying process.



MicroVas has been optimized to promote healing. **MicroVas** works by causing muscle fasciculation and contraction relaxation cycles that effectively pump blood through the microcirculation, draining the venous beds and raising the tissue oxygen levels. This, in turn, supplies the oxygen and substrates necessary to greatly accelerate the healing process. Pressure gradients are actually increased across the capillary beds with **MicroVas**, in contrast to most of the other best technologies on the market today that only dilate the capillary beds. **MicroVas** has a potent effect on the microcirculation, which results in dramatic responses to treatment. Transcutaneous oxygen probes have demonstrated marked increases in tissue oxygen levels within minutes of initiating treatment. Tissue oxygen levels with successive treatments continue to improve.

MicroVas stimulates Angiogenesis

The **MicroVas** electrical form stimulates angiogenesis, which is, budding of new capillaries and generation of denser capillary networks in the tissues. This lays the groundwork for new tissue growth and repair in the healing process. The **MicroVas** electrical form also raises the metabolic rate in the treated tissues, which, it is theorized, helps the intimal lining of the arteries to metabolize the excess unused nutrients clogging them. This results in improved blood flow that has shown to be permanent.



MicroVas has been used on diabetics with severe ischemic ulcers in the feet that were destined for amputation. This condition is usually associated with underlying osteomyelitis, which does not respond well to standard therapy including systemic antibiotics and wound care. **MicroVas** greatly improves the management of this condition because the enhanced blood flow brings antibiotics and healing to the affected area. In greater than 95% of cases, the feet have been salvaged. Most of the benefits that were obtained with the treatment were still present at a two-year follow up evaluation.

MicroVas stimulates Fibroblast activity

In addition, the **MicroVas** electrical form directly stimulates the activity of fibroblasts in the healing process. In the healing of ischemic ulcers the fibroblasts act first to build the framework upon which further cell types including skin and capillaries grow. The electrical current of **MicroVas** is a deep penetrating current that affects all tissues from the skin to the bone. Technically, the **MicroVas** system generates an electromagnetic force field between the emitter pads. (This is in contrast to the electrical form of some machines that stay rather superficial in the tissues affecting primarily the top centimeter or two). **MicroVas** stimulates activity in bone cells as well, which can accelerate fracture healing.

MicroVas reverses Neuropathy

Most excitedly, the **MicroVas** team can report amazing success in reversing neuropathy in the feet of diabetics being treated. In follow up on this condition thus far, improvement has persisted out to 4 years. To our knowledge, there is no known current technology or treatment modality that can reverse diabetic neuropathy other than **MicroVas**. This appears to be a therapeutic benefit that is unique to **MicroVas** thus far. It is not known yet how this is occurring. It may be due to improvement in the circulation that nourishes the nerves or an unknown direct action on the nerves.

Other Technologies

A review of several of the alternate technologies on the market today may be in order to contrast with **MicroVas**. Hyperbaric oxygen therapy has been shown to be effective in healing ischemic ulcers. 100% oxygen at 2 atmospheres will give a partial pressure of oxygen 10 times normal. This greatly increases the rate of diffusion through the open face of the ulcer. Skin however, is not as permeable to oxygen diffusion and oxygen delivery depends upon intact circulation as well. Hyperbaric oxygen therapy is a passive process and does not alter the underlying disease in the microcirculation. This is in contrast to **MicroVas**, which appears to significantly remodel the microcirculation as part of its therapeutic effect. **MicroVas** results in a more permanent improvement.

There are several methods in practice using moist heat with occlusion dressings, infrared lamps, membranes with electrical currents and warm water whirlpool treatments. These have all shown merit and have been effective. They all work by stimulating the arterioles in the capillary beds to dilate in response to infrared energy. These again are passive methods and not as effective as **MicroVas**. **MicroVas** dilates the arterioles as these do but in addition, increases the pressure gradients across the capillary beds much as exercise does which greatly improves flow and oxygen levels.

Machines using high frequency interferential electrical currents are also effective. They stimulate the nerves in the skin and cause dilatation of the capillary beds through the reflex pathways. This form of electrical current tends to be more superficial in the tissues than the **MicroVas** form. In our comparisons of this technology, **MicroVas** caused more decisive and rapid healing than the interferential technique.



Another method being used today consists of a garment placed around the diseased limb. Intermittent compression is then administered via compressed air from the attached machine. This again has proven to be effective to promote circulation and healing by pumping the blood through the capillary beds. Pressure gradients are increased in the capillary beds but there is not necessarily the dilatation of the arterioles as the other methods promote. This method does not remodel the microcirculation either, as **MicroVas** appears to do.

In our experience, **MicroVas has shown remarkable efficacy in dealing with the above difficult disease states. In comparison with the current alternative technologies on the market today, **MicroVas** has proven to cause more rapid and decisive healing. In addition, the patients have enjoyed permanent, persistent improvements in the circulation of the affected limb. For more information on **MicroVas**, please contact **neuroVasix, inc.**, the worldwide exclusive marketers of **MicroVas** innovation.**

neuroVasix
3061 West Albany Street
Broken Arrow, OK 74012
(918) 249-3784 Fax (888) 258-0041
info@neurovasix.com www.neurovasix.com

