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Reseach findings: what does vibration massage actually do.

Introduction

We often get asked what vibrtion massage actually does. There has been a lot of research done on the effects of vibration massage and massage in general. Such trials usually measure benefits such a decrease in pain or an increase in flexibility. It is extremely difficult to see what actually happens beneath the skin in a live person so the exact ways massage worked were largely speculated. A group of researchers have changed that.

The research

What they did

For reasons that will become obvious this research was done with rats and not humans. The researchers injured the bundle of nerves that control the front leg on one side in 144 rats, then divided them into three groups. The first group was allowed to heal normally. The second received injections of a hormone that stimulates nerve growth. The third group received massage with a mechanical vibration massager. Over time the injured limbs were compared with the normal limbs using a battery of tests.

- The diameter of the legs was measured to determine the amount of atrophy (wasting).
- Nerve conduction tests were done,
- Various chemicals were tested for at the injury site.
- Blood was tested for the level of various chemicals and hormones.
- Finally the rates were killed and the injured nerves examined using an electron microscope.

What they found

They found was that rats who received the hormone injections had healed better than those who healed naturally. However, they found that those treated with the vibration massager healed much better still with a host of truely remarkable changes. It has always been assumed that massage increases local blood flow therefore improving nutrition to the tissues. However, the researches found a number of other remarkable results. For example, the vibration massage caused changes that actually prevented and cured muscle atrophy, plus had actually stimulated the body to produce it's own growth hormones. Perhaps it is best here to actually reproduce the summary given by the researchers. There are a few technical terms, but overall it's pretty easy to understand.

> ***Effect of Mechanical Massage Treatment on Muscles of Limbs***
> *Mechanical vibration massage treatment has obvious effect on muscular atrophy induced by nerve root injury. It can dilate capillary, increase volume of blood flow, so as to greatly improve blood supply and nutrition in local tissue; It can make the wall of micrangium rhythmically flatten and restore, accelerating flow of blood; And it can promote contraction and extension of muscle fibers, strengthen muscular tension, elasticity and tolerance, so, it can prevent and cure muscular atrophy.*

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Effect of Mechanical Massage on Secretion of NGF

Benign stimulation of mechanical vibration massage can activate the response of nerve immune and neuroendocrine systems, and transmit the signals to the submandibular gland through complicated ways, promoting secretion and storage of NGF in the submandibular gland. Finally, NGF is transported to brachial plexus root injury area through digestive, circulative and nerve systems.

Effect of Mechanical Massage on Repair of Injured Nerves

Mechanical vibration massage can effectively promote the repair of myelin sheath and axes of injured brachial plexus in the rat. It can effectively improve blood circulation of the injured myelin sheath, promote proliferation of SC and survival of the cell body of injured neurons, so as to form a necessary regenerative micro-environment early for repair of nerve, and it induces stress responses of immune and neuroendocrine systems in the rat,promotes secretion of NGF in this gland, and it can improve peripheral nerve units and excite peripheral nerves, so as to accelerate their conductionreflection.

Effect of Mechanical Massage on Na+, K+-ATPase Activities

Na+, K+-ATPase activity on the surface of muscular cell membrane is an important limited factor for excitability and contractile strength of muscular cells. After skeletal muscles lose nervous innervation, generation of ATP is hindered, so Na+, K+-ATPase activity decreases. Under the mechanical massage stimulation, the muscular cells cultured in vitro show increases in stress-related gene expression and protein synthesis, leading to adaptability reconstruction of structures and contractile characters of the muscular cells, which are closely related with activation of Na+, K+-ATPase, and influences the distribution and functional activity of Na+, K+- ATPase on the surface of muscular cell membrane.

In brief, mechanical vibration massage can promote the regeneration and recovery of the brachial plexus, and effectively slow down the decrease of Na+, K+-ATPase activities induced by the nerve injury, preventing muscular atrophy, and it promotes the generation of submandibular gland NGF, providing a favorable environment for regeneration of nerve

Reference

Mei R Experimental Study on Mechanical Vibration Massage for Treatmentof Brachial Plexus Injury in Rats Journal of Traditional Chinese Medicine, September 2010, 190 Vol. 30, No.3

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