

**Percussive Massage Increases Capillary Density in Type I and II Skeletal Muscle Fibers**

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**ABSTRACT**

Capillaries play a critical role in delivering oxygen and nutrients to cells. Skeletal muscle adapts to increased demand by increasing capillary density through a process known as angiogenesis. The effects of alternative therapies such as massage on angiogenic adaptation in skeletal muscle are inconclusive, particularly for newer techniques such as percussive massage. **PURPOSE:** To investigate the effect of 6 weeks of percussive massage on skeletal muscle myofiber area and angiogenesis. **METHODS:** 11 healthy young (22±4 yr.) men (n=5) and women (n=6) received 18 sessions of 30-min-percussive massage on their right thigh over the course of 6 weeks. Muscle samples were collected one week before the start of massage sessions and 48 h after the last session from the participant's treated thigh. Sections from the biopsies were stained with CD31 for capillary analysis and type I myosin heavy chain for fiber type analysis. Capillary per fiber, capillary density, fiber area and fiber type were analyzed before and after massage treatment. **RESULTS:** The mean cross-sectional area of type I fibers did not change after massage treatment, but type II fiber area decreased by 7.5% (p=0.04). The number of capillaries per fiber increased only for type I fibers (p=0.01) and did not change in type II fibers. Massage increased overall capillary density (capillary per fiber/area) of both type I (p=0.04) and II muscle fibers (p=0.03). **CONCLUSION:** Although capillary density increased for both muscle fiber types; massage likely affected the two fiber types differently. Whereas increased capillary density of type I fibers was the likely result of angiogenesis, the increase in capillary density for type II fibers was driven largely by a reduction in type II fiber area.