

Weightlessness or unloading, as observed during space flights or prolonged bed rest in patients, affects skeletal muscle function and structure (e.g. muscle atrophy). By delivering blood to the cells, capillaries (our smallest blood vessels) are key determinant of muscle function. Recent studies have reported a loss of capillaries in unloaded muscle. The molecular factors involved in this process of capillary regression remain however largely unknown. We have examined in a rodent model of hind limb unloading how muscle mass, capillarization, and expression of molecular factors (known to stimulate or inhibit vessel growth) were altered. Two different muscles, soleus and plantaris, were analysed. Despite similar atrophy, vessels were lost only in the soleus, a load-bearing muscle. They were preserved in the plantaris. Expression of molecular factors was also affected differently by unloading between these two muscles. Our results therefore suggest that the vascular alterations in response to unloading are muscle-type specific.

Reference: Roudier E, Gineste C, Wazna A, Dehghan K, Desplanches D, **Birot O**. [Angio-adaptation in unloaded skeletal muscle: new insights into an early and muscle type-specific dynamic process](#). J Physiol. 2010 Nov 15;588(Pt 22):4579-91.

[View this article \[PDF\]](#).