Hník, P. - Beránek, R. - Vyklický, L. - Zelená, J., Prague;
Muscle Atrophy as a Source of Increased Sensory Activity.

Various sequelae of tendon section preventing the muscle from exerting effective tension have been described by a number of authors and different factors have been held responsible for the fast rate of muscle atrophy after tenotomy. A new aspect has been introduced recently by the finding that tenotomy also leads to a long lasting increase in sensory outflow from the atrophying muscle. This sensory activity apparently does not originate in proprioceptor nerve endings. In fact all experimental evidence indicates that this activity originates in non-proprioceptor sensory nerve endings in the muscle. This phenomenon is not restricted to atrophy after tenotomy, since it has also been found in muscles, atrophying after ventral root section.

This increased sensory outflow after section of the tendon is not without effect upon central nervous functions. An increased monosynaptic response and a shorter latent period have been observed in the ventral roots after stimulation of the nerve supplying the tenotomized muscle.

The increased sensory outflow apparently also affects the rate of atrophy itself, since a combination of tenotomy and deafferentation by dorsal root section significantly slows down the rate of atrophy.

It thus seems possible that a vicious circle mechanism is involved in atrophy after tenotomy and that the increased sensory outflow is an important link in this phenomenon.