

We investigated how the activation signal from the central nervous system controls the generation of muscle force and velocity of the knee extensors in the early phases of the contraction and how this response is influenced by the load placed on the limb. We showed that muscle velocity in the earliest phase of the contraction is highly dependent upon the rate of activation from the central nervous system, but that as the load imposed on the limb was increased, the joint acceleration became less dependent on the stimulation rate and more similar to static muscle strength. These data further our understanding of the determinants of contractile function during movement of isotonic loads.