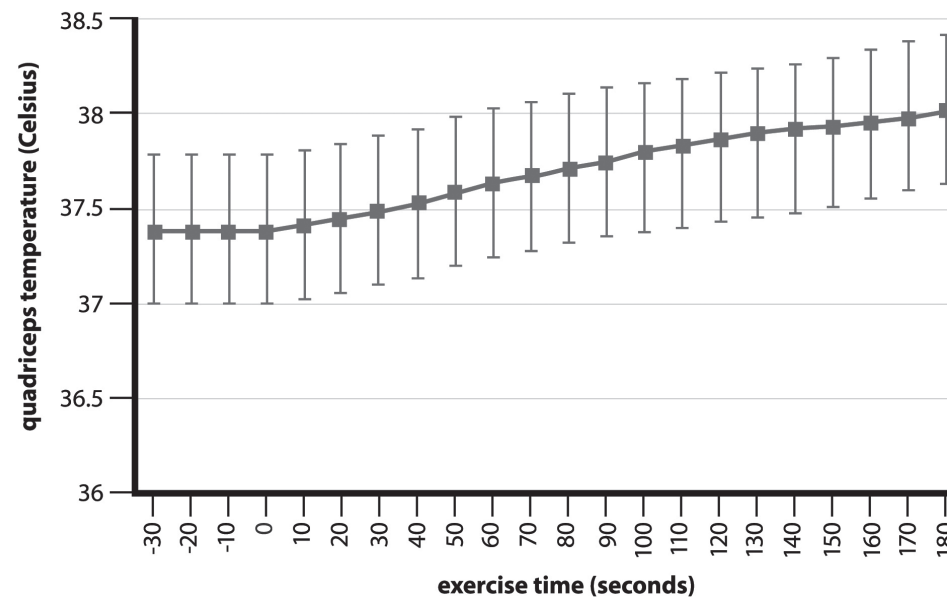


Evidence of Energy Transfer

Effects of Exercise on Muscle Temperature

In 2001, Peter Krstrup and his colleagues recruited five healthy men ranging in age from 22 to 25 years and obtained informed consent that satisfied the requirements of the university's human subjects approval board. Volunteers performed a single-legged knee-extension exercise while scientists recorded internal temperature of the thigh (quadriceps) muscle before and during exercise. Scientists repeated the study three times, averaged the data, and plotted the average and range in Figure 1.

Temperature of the muscle before and during knee-extensions



Source: Krstrup, P., J. Gonzalez-Alonso, B. Quistorff, and J. Bangsbo. 2001. Muscle heat production and anaerobic energy turnover during repeated intense dynamic exercise in humans. *Journal of Physiology* 536 (3): 947–956.