Central pattern generators are neuronal networks that endogenously produce rhythmic motor output. The heart of the American lobster, *Homarus americanus*, contains a simple central pattern generator, called the cardiac ganglion (CG), which initiates the beating of the heart. The motor output of the cardiac ganglion can be altered by several factors, such as neuropeptides, nitric oxide and stretch. Previous studies have suggested that stretch feedback relays information to the cardiac ganglion about the degree of filling in the heart and that this feedback is mediated by stretch-sensitive dendrites of the CG neurons. The goal of our research is to determine if and how dendrites carry stretch information in the lobster, at a whole heart and cellular level. Candidate stretch-sensitive dendrites were identified for three of the large motor neurons along the trunk portion of the CG through intracellular fills with Alexa-Fluor hydrazide sodium salt. These dendrites were located near the cell body of each neuron but were not shared between neurons. Using a semi-intact heart preparation, we stretch the heart longitudinally while recording the heartbeat with a force transducer. In most hearts, the heart rate frequency of the lobster changes with tonic stretch, with an increase in frequency being the most common stretch response. The dendrites of the CG trunk were then cut, and the same stretches were applied. In hearts that showed a robust change in frequency to stretch, 83% showed a significantly decreased sensitivity when dendrites were cut. This indicates that the dendrites that extend from the CG, and particularly those along the trunk portion of the ganglion, carry stretch feedback. We also will examine the cellular mechanism through which stretch feedback is mediated in the CG by recording intracellularly from a motor neuron while stretching individual cardiac muscles.