Discussion

Buckling is the primary modality of failure of tape spring steerable needles. Thus minimizing the insertion force necessary for the needle to cut through tissue is advantageous as it will:

- reduce likelihood of buckling
- minimize damage to surrounding tissue
- allow the steerable needle to cut through more tough, fibrous tissue.

Since velocity and force are correlated, this data indicates that can enable the device to be used at higher velocities as well.

Future Work: Characterize effect of vibration on insertion force in porcine liver and muscle tissue.

- Fibrous regions in tissue require large cutting forces
- Magnitude of reduced cutting force could be greater in cutting force dominated medium such as liver or muscle