The effects of these differences on neuromuscular economy (NME), as determined by echo intensity of the vastus lateralis (VL), were non-significant (m: 51.7±9.0 au; w: 58.8±15.0 au; p<0.05). The current data suggest that different muscle morphological characteristics in men and women may be related to the economy of muscle during submaximal cycling.

INTRODUCTION

Morphological differences in muscle size and structure between men and women are well established. These differences appear to be related to strength and rates of force development and fatigue.1-3 The effects of these differences on neuromuscular economy (NME), defined as the proportion of muscle activation required to move an absolute load, has yet to be investigated.

METHODS

Participants

Forty-four recreationally-active men (n=23; 23.7±3.7y; 178.5±7.1cm; 83.3±9.5kg) and women (n=21; 22.4±2.9y; 165.0±7.5cm; 63.0±7.2kg) participated in this study. Maximal Isometric Strength/Leg Extensor Trial (MVC)

A bipolar (4.5 cm center-to-center) surface electrode arrangement was placed over the VL muscle of the right leg at 60% of the distance from the lateral portion of the patella and the greater trochanter.

Take-home messages:

- Muscle quantity, as measured by CSA of the VL, was shown to provide the best prediction of NME in men.
- Muscle quality, as determined by EI, was shown to provide the best prediction of NME in women.
- The current data suggest that different muscular morphological characteristics in men and women may be related to the economy of neuromuscular activity during submaximal cycling.

REFERENCES