

F-24F FREE COMMUNICATION/POSTER MENSTRUAL DYSFUNCTION

1369 STRENGTH AND FATIGUE IN AMENORRHEIC BALLET DANCERS
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The incidence of musculoskeletal injuries in ballet dancers is higher in women versus men. Among women, the incidence of injury is higher in amenorrheic (amen) versus eumenorrheic (eumen) dancers. The purpose of this study was to compare strength and fatigue between amen (n=5), eumen (n=9) and men (n=10) professional ballet dancers. Percent body fat, BMI, isokinetic quadriceps (quad) and hamstring (ham) strength at 60°/sec and EMG activity during isometric quad fatigue tests at 50% MVC were measured. Body fat was lower in men (10%) versus eumen (20%, $p<0.01$) and amen (16%, $p<0.05$). BMI was lower in amen (18.3) versus eumen (20.2, $p<0.05$) and men (21.3, $p<0.01$). Quad strength (Nm/kg) in amen was 48% lower than eumen ($p<0.001$) and 60% lower than men ($p<0.001$). Ham strength (Nm/kg) in amen was 50% lower than eumen ($p<0.001$) and 63% lower than men ($p<0.001$). EMG amplitude (RMS) and mean frequency (MF) during quad MVCs were not different between groups ($p=0.81$, $p=0.19$). Time-to-fatigue, RMS slope and MF slope were not different between groups during fatigue tests ($p=0.59$, $p=0.91$, $p=0.24$). These results demonstrate gross quad and ham weakness in amen ballet dancers who are participating fully in professional schedules. RMS and MF during MVCs indicated normal activation and recruitment. Despite gross weakness in amen dancers, all indices of fatigue were similar between groups. Injuries in amenorrheic dancers may be linked to inadequate strength to meet the demands of ballet.