ANALYSIS OF PHYSIOLOGICAL PARAMETERS DURING CLASSICAL DANCE CLASS AND PERFORMANCE

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The physical demands placed on dancers from current choreography and performance schedules make their physiology and fitness just as important as skill development. On the contrary dance class is usually focused on improving musicality, on developing expression, on emphasizing technique, and it is not well known if it allows to enhance physiological qualities for performance. This partly reflects the unfounded view, shared by sections of the dance world, that any exercise training that is not directly related to dance would diminish dancers’ aesthetic appearances. A dance class that seems to correctly stimulate physiological qualities is center floor exercise. Therefore the aim of the study was to analyze and compare actual energy demand of a center floor exercise (allegro of Royal Academy of Dancing syllabus) with performance (Bayadere) in order to understand if this specific dance class workload prepare dancers to performance.

6 classical ballerinas (age: 14.83±1.3yr; fat mass: 21.80±4.4%) volunteered to participate in the study and underwent a laboratory test (incremental test to exhaustion on treadmill) in order to identify maximal oxygen consumption (\(\text{VO}_2\text{max}\): 46.40±8.11ml/kg/min, Quarkb2, Cosmed, Italy) and peak blood lactate concentration (LA-peak: 8.36±1.15mM, Biosen 5030, EKF, Germany). Each ballerina was analysed during a 30 min of center floor exercise and during a 10 min of performance. Oxygen consumption and heart rate were continuously monitored (K4b2, Cosmed, Italy), while blood lactate was detected at baseline and every 5 min during class and at the end of performance during the first minutes of recovery (\(\text{VO}_2\), HR, LA).

No significant differences were detected between mean \(\text{VO}_2\) during class 26.48±3.71ml/kg/min (54.07±6.37%\(\text{VO}_2\)max) and during performance 22.97±4.13ml/kg/min (47.13±10.93%\(\text{VO}_2\)max), with no significantly different peak values during class and during performance: 33.23±5.38ml/kg/min (69.65±9.62%\(\text{VO}_2\)max) and 33.37±4.90ml/kg/min (66.01±14.36%\(\text{VO}_2\)max) respectively. Peak and mean HR were significantly higher during class if compared with performance (peak value 187.77±3.17 vs 178.36±8.13bpm, p<0.05; mean value 174.50±5.54 vs 159±12.88bpm, p<0.05). Blood lactate remained elevated above resting values during class (average LA 7.34±2.2mM), with no significantly different peak values of about 9.32±2.26 and 8.24±2.31mM during class and performance respectively.

Our study confirms that classical dance can be very demanding energetically. Therefore attention should be given to ballerinas’ physical preparation during dance class and allegro center floor exercise seems to elicit the correct energy demand and as a result properly prepare ballerinas physically to performance.


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