Is it their bodies that let them down?
Dancing past 35 years old

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Age and not being able to cope physically with the demands of performing have often been cited as the reason why dancers retire from dance. The average age of retirement still remains in the thirties for professional dancers. The aim of the present study is to examine whether there is any underlying physiological data to substantiate these claims. Seventy professional dancers undertook a number of physical fitness tests. Results indicate that age did not influence the physiological data. In conclusion it is suggested that physical fitness is not a performance-limiting factor for dancers, though it is recognized that other factors may also play a part such as age-reduced healing ability.

Keywords: ballet; age; physical fitness; performance

Dancing is potentially the most physical art form not only in its performance demands but also in its training (Allen and Wyon 2008, Koutedakis and Jamurtas 2004). Presently dancers often spend more time preparing to be a performer than they do actually performing (Laws 2005). Dancers’ physical fitness levels have been shown to be slightly higher than sedentary individuals, though not as high as non-endurance athletes (Koutedakis et al. 1999, Koutedakis and Jamurtas 2004, Koutedakis et al. 1997, Laws 2005, Wyon et al. 2007, Wyon et al. 2004, Wyon 2007), and this seems a dichotomy considering the hours they dance. Part of this can be explained by the fact that as the skill element of an activity increases the physical intensity has to decrease as otherwise the skill element is compromised (Tomporowski 2003). The high skill levels of dancers have allowed them to develop excellent economy of movement so they can cope with these demands without overly stressing their cardiorespiratory systems. The physical demands of dance have only recently been studied (Wyon et al. 2002, Wyon et al. 2004). Dance has been classified
as high intensity intermittent exercise which places a demand on both the aerobic and anaerobic energy systems (Cohen et al. 1982a, Cohen et al. 1982b, Redding and Wyon 2003, Schantz and Astrand 1984). The cardiorespiratory demands of dance class and rehearsal have been seen to be at a significantly lower intensity than dance performance (Wyon et al. 2004), though supplemental training has been shown to have a beneficial affect not only on dancers’ fitness levels but also on the aesthetic aspects of dance performance (Angioi et al. 2009, Twitchett et al. 2011). The aims of the present paper will review the physical demands of dance performance in comparison to physical fitness levels, age, and skill.

**METHOD**

**Participants**

Seventy professional ballet dancers (age range 18-45 years) volunteered for the study.

**Procedure**

All participants underwent a series of physical fitness tests based on protocols set out by the British Association of Sport and Exercise Science (Wyon 2007). These included anthropometric (height, weight, sum of 7 skinfolds), aerobic capacity (treadmill VO2 max test), vertical jump, and flexibility (active and passive range of movement). Univariate analyses of variance (ANOVA) were used to analyze the fitness test data with age as well as in comparison with published data on the physiological demands of ballet performance. Significance was set at p<0.05.

*Figure 1. Sum of skinfolds versus age.*
Figure 2. Vertical jump versus age.

Figure 3. Range of movement versus age.

Figure 4. VO2 peak versus age.
RESULTS

Statistical analysis noted age did not influence the physical fitness parameters. In comparison with performance data, there is no significant difference between the aerobic capacity demands of ballet performance and aerobic fitness levels of dancers.

DISCUSSION

The present study suggests that age was not an influence on fitness levels in professional ballet dancers. One possible reason is that skill will increase with dance experience and age, thereby improving movement economy and decreasing the cardiorespiratory demands of actually dancing. This benefit has to be coupled with an age-reduced healing ability not only from injury but also daily dancing. The utilization of supplemental training, even just once a week, would help all ballet dancers cope with the demands of dance performance, as presently they are performing at close to their maximum (Allen and Wyon 2008, Twitchett et al. 2011). By increasing their varying fitness capacities, it would allow them to operate at a lower relative workload and reduce the stress in their systems.

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References