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Functional Movement Assessment in the Performing Arts

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Ballet is physically and mentally demanding, contributing to the development of musculoskeletal injuries. Combined assessment of dynamic balance and functional movement has been recommended to improve predictive injury ability, but has their use within dance is limited. **PURPOSE:** The purposes of this investigation were to identify the effect of 10 weeks of ballet training on functional movement and dynamic balance and to examine the relationship between functional movement and balance in ballet dancers. **METHODS:** Sixteen (16) female collegiate ballet dancers (19.06 ± 1.18 years old), were assessed using the Functional Movement Screen™ (FMS) and the Y-Balance test, prior to and after 10 weeks of ballet training. **RESULTS:** FMS, YBT-LQ composite (YBT CompR/L) scores, and YBT-LQ asymmetry improved but did not reach significance (see table 1). A moderate effect on FMS and YBT-LQ posteromedial (YBTA PM) asymmetry, and a small effect on YBT CompL, and YBTA Ant and YBTA PL were seen. FMS composite score was correlated with the deep squat ($r(13) = 0.79, p < 0.01$), rotary stability ($r(13) = 0.46, p < 0.05$), and shoulder mobility ($r(13) = 0.49, p < 0.05$). Pre-test FMS scores were not correlated with YBT-LQ composite score (Left $r(13) = 0.40, p = 0.14$; Right $r(13) = 0.45, p = 0.90$). Post-test FMS score was associated with YBT CompR ($r(13) = 0.57, p < 0.05$). **CONCLUSION:** The moderate effect of ballet on movement competency and the small effect on balance, combined with the association of certain components of the total FMS score, highlights the role of movement quality and balance in ballet. Identifying dysfunctional movement patterns and enhancing dynamic balance remain pertinent concepts in dance injury prevention.

Table 1. Mean FMS and YBT-LQ performance with effect size (Cohen's d).

	<u>Pre-Test</u>	<u>Post-Test</u>	<u>p-value</u>	<u>Effect Size</u>
FMS 21	15.73 ± 1.62	16.4 ± 1.24	0.07	0.52
YBT CompR (%)	86.12 ± 9.5	87.57 ± 7.74	0.40	0.22
YBT CompL (%)	87.11 ± 7.04	88.47 ± 9.05	0.25	0.32
YBTA Ant (cm)	3.25 ± 3.53	3.0 ± 2.18	0.66	0.11
YBTA PM (cm)	4.06 ± 3.60	3.07 ± 3.71	0.11	0.45
YBTA PL (cm)	3.28 ± 2.61	2.00 ± 5.88	0.39	0.23

YBTA = Y Balance Test Asymmetry; PM = posteromedial, PL = posterolateral