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Contribution ID: 76

Type: 3 - Talk

## Exercise for survivorship: effectiveness of a community-based group exercise program for adolescent and young adult cancer survivors.

Wednesday 22 July 2026 15:15 (15 minutes)

**Background:** Adolescent and young adult (AYA) cancer survivors experience persistent physical and psychosocial effects after treatment. Despite evidence supporting exercise in adult cohorts, research specific to AYAs remains limited. This study examined the effectiveness of a community-based, group exercise program in improving physical and psychosocial outcomes among AYA cancer survivors.

**Methods:** A pragmatic, single-arm, pre-post study design was used. AYAs aged 15–27 years within two years post-treatment completed a 12-week group exercise program in a community setting. Biweekly, individualised sessions incorporated aerobic, resistance, and flexibility training under Accredited Exercise Physiologist supervision. The primary outcome was  $VO_{2peak}$ , with secondary outcomes including 1RM strength, physical function, body composition, and quality of life (EORTC QLQ-C30, SF-36). Pre-post changes were analysed using mixed-effects models adjusted for diagnosis.

**Results:** Of 127 participants (mean age  $21.4 \pm 3.0$  years; 51% male), 93 (73%) completed the program and final assessments. A significant improvement was observed in  $VO_{2peak}$  ( $3.1 \text{ mL}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}$ ,  $p < 0.001$ ), all 1RM strength measures (Leg press:  $p < 0.001$ ; Chest press:  $p < 0.001$ ; Seated Row:  $p < 0.001$ ), physical function (Push Ups:  $p < 0.001$ ; Sit Ups:  $p < 0.001$ ; 5-rep Sit-to-Stand  $p < 0.001$ ; Grip Strength:  $p = 0.028$ ), lean mass ( $p < 0.001$ ) and quality of life across physical, role and social domains ( $p < 0.001$ ). Fat mass percentage ( $p = 0.002$ ) and fatigue ( $p < 0.001$ ) decreased. No adverse events occurred.

**Conclusion:**

Community-based, group exercise is safe and effective for AYA cancer survivors, improving fitness, strength, and quality of life. Findings support scalable, real-world exercise models to enhance long-term survivorship outcomes.

### Keywords

Adolescent and Young Adult, Survivorship, Community-based, Exercise

### Conflict of Interest & Ethical Approval

yes

### Abstract submitters declaration

yes

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**Session Classification:** Oral Session