




Exercise Guidance During and Following Youth Cancer Treatment



EVIDENCE LEVEL	OUTCOME	EXERCISE DOSE				TYPE
		FREQUENCY	INTENSITY	TIME		
Moderate (mixed diagnoses, on/off treatment)	↑Muscle strength 	2-3 sessions per week ≥8 weeks	Moderate-to-vigorous Strength exercises: 5-8 in OMNI scale Aerobic exercises: 60-80% of peak HR	30-45 min/session	Concurrent training Strength/power exercises: - Major muscle groups - 2-3 sets - 8-15 repetitions/set - 1-2 min rest between sets Aerobic exercises: running, cycling, ball games	
Moderate (for ALL, off treatment)	↑CRF 	2-3 sessions per week ≥12 weeks	Moderate-to-vigorous 60-80% of peak HR	15-40 min/session	Aerobic exercise	
Moderate (mixed diagnoses, on/off treatment)	↑Physical function 	2-3 sessions per week ≥8 weeks	Moderate-to-vigorous Strength exercises: 5-8 in OMNI scale Aerobic exercises: 60-80% of peak HR	30-45 min/session	Concurrent training Strength/power exercises: - Major muscle groups - 2-3 sets - 8-15 repetitions/set - 1-2 min rest between sets Aerobic exercises: running, cycling, ball games	
Insufficient	CRF (during active treatment), cardiotoxicity, bone health, body composition, sleep, HRQoL, fatigue, cognitive function, depression, anxiety, metabolism, immune function					

The exercise types that are likely to account for the improvement in the relevant outcome are marked in bold. Of note, although no study in our search assessed the effects of strength/power exercises alone (i.e., outside a concurrent exercise program), it is conceivable that these types of exercises *per se* largely account for the gains in muscle strength induced by concurrent training. As such, if time limitations or other circumstances do not allow completing the aerobic component, performing “only” the strength component of the program is also highly recommended to achieve gains in muscle strength. Similarly, the lack of evidence for a particular outcome does not necessarily imply lack of benefit, and certainly does not suggest patients should avoid exercise.

CRF - Cardiorespiratory Fitness
 HR - Heart Rate
 HRQoL - Health-related Quality of Life

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