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100 EFFECTS OF EXERCISE TRAINING ON PROTEIN KINETICS IN CHILDREN WITH CYSTIC FIBROSIS

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Exercise training in children with cystic fibrosis (CF) could be benificial in sustaining maximal oxygen consumption (VO_2max), but may have detrimental effects on nutritional status. We studied 12 clinically declined CF patients (12-17 y; weight <P_{10} and/or FEV_1 <70%pred) during 6 months (pre-training) and subsequently during 6 months bicycle ergometry at home (20 min/day at 70% of maximum). VO_2max (measured with incremental bicycle test), body weight and fat free mass (4-skinfolds method) were measured every 6 months. Fasting leucine kinetics was studied at 3 and 9 months (primed, continuous intravenous infusion of ^{13}C-1-leucine (6 µmolkg/hr during 4 hrs). Leucine oxidation (OX) and turnover (Q) were calculated at plateau from enrichments of $^{13}CO_2$ in breath air and ^{13}C-leucine in plasma, respectively; non-oxidative leucine disposal (NOLD) was calculated as Q minus OX. Results (mean ±SD; MANOVA & paired T-tests) were as follows: Table

	Pre-training		*Training*		P
Month	0	3	6	9	12	
VO_2max (ml/kg/min)	45±9		40±6		41±7	<.05
Body weight (kg)	40±9		42±10		45±10	NS
Fat free mass (kg)	34±8		35±9		37±9	NS
Leucine kinetics:						
-Q (μmol/kg/hr)		105±13		118±28		.10
-OX (μmol/kg/hr)		17±5		17±5		NS
-NOLD (μmol/kg/hr)		87±11		102±28		<.05

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While OX remained unchanged, NOLD —a parameter of protein synthesis- was significantly increased during training. Increment of fat free mass was not significantly accelerated by training. We conclude that in clinically declined children with CF, exercise training is associated with improvement in maximal oxygen uptake and increased protein conversion and apparently does not affect growth.

Section Description

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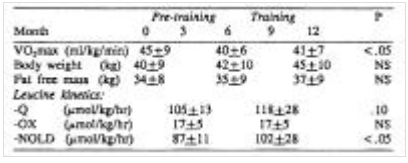

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