

Question 14F: What is the evidence that combined interventions (diet and exercise) in obese adults effect a change in fitness?

Reference	Design	Overweight defined as:	Adjuvant therapy	Intervention	Drop-out Total	Mean weight change	VO ₂ Max baseline (n) mean (95%CI)	VO ₂ Max change (n) mean (95%CI)	Side effects/comments
Page 684	Randomization: unclear Self-selected: unclear Included: non-overweight, subjects with impaired glucose tolerance Mean age: 39 Mean weight: not given Female/Total: ng/31	includes non-overweight	Diet: Yes ADA with increased fiber Kcal to lose 0.5-1.0 kg/w Exercise: Yes 20 min 3-5x/wk Behavioral: No	1. No intervention 2. Low-fat diet and exercise	1. 1/8 (12%) 2. 5/23 (22%)	1. (7) -1.0 mg/kg ² 2. (18) -1.0 mg/kg ² <u>2vs1</u> <u>BMI</u> 104 wks 0.00 (-2.38, 2.38)	<u>VO₂Max</u> 1. (7) 2.5 (95%CI 2.3, 2.7) 2. (18) 2.4 (95%CI 2.1, 2.7)	<u>VO₂Max</u> 1. (7) 2.6 (95%CI 2.0, 3.2) 2. (18) 2.7 (95%CI 2.4, 3.0) <u>VO₂Max</u> 0.20 (-0.14, 0.54)	
Anderssen 346	Randomized: unclear Self-selected: no Included: BMI >24 kg/m ² Mean age: 44.9 Mean Weight: 28.8 kg/m ² Female/Total: 21/212	BMI >24	Diet: Yes low calorie to lose 0.5 -1.0 kg/month Behavioral: No	1. Control (no diet or exercise) 2. Diet alone 3. Exercise alone 4. Diet and exercise	1. 0/43 2. 3/55 3. 5/54 4. 2/67	<u>BMI</u> 1a. (12) 0.2 (-0.46, 0.86) 2a. (16) -1.7 (-2.55, -0.85) 3a. (20) -0.4 (-1.03, 0.23) 4a. (24) -2.2 (-2.61, -1.79) <u>BMI</u> 1b. (16) 0.4 (-0.03, 0.83) 2b. (17) -1.4 (-2.46, -0.34) 3b. (16) 0 (-0.64, 0.64) 4b. (20) -2 (-2.84, -1.16) <u>BMI</u> 1c. (15) 0.4 (0.19, 0.61) 2c. (19) -0.7 (-1.12, -0.28) 3c. (13) -0.5 (-1.37, 0.37) 4c. (21) -1.2 (-2.03, -0.37)	Not given	<u>VO₂Max, ml/kg/min</u> 1a. (12) -2.3 (-4.50, -0.10) 2a. (16) -0.5 (-2.42, 1.42) 3a. (20) 1.6 (-0.91, 4.11) 4a. (24) 4.4 (2.95, 5.85) <u>VO₂Max, ml/kg/min</u> 1b. (16) -2.5 (-4.21, -0.79) 2b. (17) -0.3 (-2.42, 1.82) 3b. (16) 2.5 (0.37, 4.63) 4b. (20) 4.9 (2.60, 7.20) <u>VO₂Max, ml/kg/min</u> 1c. (15) -1.3 (-2.37, -0.23) 2c. (19) -0.1 (-1.78, 1.58) 3c. (13) 2 (-1.27, 5.27) 4c. (21) 4.9 (3.23, 6.57)	
Bertram 445	Randomization: unclear Self-selected: unclear Included: BMI >30 Mean age: 37 Mean weight: 94 Female/Total: 45/45	BMI >30	Diet: Yes Kcal/d: ng Exercise: Yes 60 min 3x/wk Max HR: 70% Behavioral: Yes Format: group Frequency: qw	1. Diet alone 2. Diet + behavioral 3. Diet plus exercise	1. (47%) 2. (0%) 3. (13%)	<u>Weight in kg</u> 1. (8) -9.3 2. (15) -8.1 3. (13) -7.0 <u>3vs2</u> 1.1 (-7.8, 10) <u>3vs1</u> 2.3 (-6.6, 11.2) <u>2vs1</u> 1.2 (-7.1, 9.5)	<u>VO₂Max</u> 1. (8) 1.95 (1.6, 2.3) 2. (15) 1.96 (1.7, 2.2) 3. (13) 1.89 (1.7, 2.1)	<u>VO₂Max</u> 1. (8) 1.99 (1.8, 2.2) 2. (15) 2.04 (1.8, 2.3) 3. (13) 2.39 (2.1, 2.7)	

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Hammer 434	Randomization: unclear Self-selected: yes Included: >130% IBW premenopausal women Mean age: not given Mean weight: 88.7 Female/Total: 36/36		Diet: 1,2. Low-fat ad libitum CHO 3,4. 800 kcal Exercise: Yes 1,3. None 2,4. 3-5x/w at 70-85% max HR Behavioral: Yes format: group frequency: qw	1. Low-fat, ad libitum carbohydrate diet with no exercise 2. Low-fat, ad libitum carbohydrate diet with exercise 3. Calorie restricted, low-fat, high-CHO diet with no exercise 4. Calorie restricted, low-fat, high-CHO diet with exercise	overall 10/36 (28%)	1. (4) -5.8 2. (8) -6.7 3. (8) -9.5 4. (6) -12.9 1,2. (12) -6.4 3,4. (14) -11.0 1,3. (12) -8.2 2,4. (14) -19.3 <u>2vs1</u> -0.9 (-14, 12) <u>3vs1</u> -3.7 (-14, 7.4) <u>4vs3</u> -3.4 (-16, 10) <u>4vs2</u> -6.2 (-21, 8.7) Low-fat vs ↓ Calorie <u>1,2vs3,4</u> -4.6 (-17.3,8.9) Exercise vs no exercise <u>2,4vs 1,3</u> -11.1 (-21.5, -0.7)	<u>VO₂Max</u> 1. (4) 2.04 (95%CI 1.9, 2.2) 2. (8) 2.29 (95%CI 2.0, 2.6) 3. (8) 2.24 (95%CI 2.1, 2.4) 4. (6) 2.14 (95%CI 1.7, 2.6) 1,2. (12) 2.2 (95%CI 2.0, 2.4) 3,4. (14) 2.19 (95%CI 2.0, 2.4) 1,3. (12) 2.17 (95%CI 2.0, 2.3) 2,4. (14) 2.22 (95%CI 2.0, 2.4)	<u>VO₂Max</u> 1. (4) 1.97 (95%CI 1.6, 2.4) 2. (8) 2.41 (95%CI 2.1, 2.8) 3. (8) 2.05 (95%CI 1.9, 2.2) 4. (6) 2.36 (95%CI 1.8, 2.9) 1,2. (12) 2.26 (95%CI 2.0, 2.5) 3,4. (14) 2.18 (95%CI 2.0, 2.4) 1,3. (12) 2.03 (95%CI 1.9, 2.2) 2,4. (14) 2.39 (95%CI 2.1, 2.6)	
Kanaley 681	Randomization: unclear Self-selected: unclear Included: BMI>29 Mean age: 36 Mean weight: 88.3 Female/Total: 24/24	BMI >29	Diet: 2.1 MJ less than BMR Exercise: 1. encouraged 2. 30 min x3/wk at Max HR 60-80% Behavioral: No	1. Diet with informal exercise 2. Diet with formal exercise	overall 5/24 (21%)	<u>Weight in kg, lower obesity</u> 1,2. (9) -7.7 <u>Weight in kg, upper obesity</u> 1,2. (10) -9.2	<u>VO₂Max, l/min</u> 1. (8) 1.9 (1.6, 2.2) 2. (12) 1.95 (1.2, 2.7)	<u>VO₂Max, l/min</u> 1. (8) 1.93 (95%CI 1.7, 2.1) 2. (11) 2.26 (95%CI 1.8, 2.8) <u>VO₂Max</u> 0.28 (-0.23, 0.79)	
Wood 380	Randomization: unclear Self-selected: yes Included: BMI 28-34 for premenopausal women and 24-30 for men Mean age: 39.7 Mean weight: 86.7 Female/Total: 132/264	BMI >24	Diet: NCEP I Exercise: Yes 45 min x3 Max HR: 60-80% Behavioral: No	1. No intervention 2. Diet alone 3. Diet and exercise	overall 27/264 (10%)	<u>Weight in kg, men</u> 1. (40) 1.7 (95%CI 0.2, 3.2) 2. (40) -5.1 (95%CI -7.0, -3.2) 3. (39) -8.7 (95%CI -10.5, -6.9) <u>EOT 2vs1 Weight kg, men</u>		<u>VO₂Max, men</u> 1. (40) -0.2 (95%CI -1.5, 1.1) 2. (40) 1.6 (95%CI 0.0, 3.2) 3. (39) 8.6 (95%CI 6.8, 10.4) <u>EOT 2vs1 VO₂Max, men</u> 1.80 (0.37, 3.23)	

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						-6.80 (-8.48, -5.12) <u>EOT 3vs1 Weight kg, men</u> -10.40 (-12.03, -8.77) <u>EPO 3vs2 Weight kg, men</u> -10.40 (-12.03, -8.77) <u>Weight in kg, women</u> 1. (39) 1.3 (95%CI -0.4, 3.0) 2. (31) -4.1 (95%CI -6.1, -2.1) 3. (42) -5.1 (95%CI -6.8,-3.4) <u>EOT 2vs1 Wgt kg, women</u> -5.40 (-7.20, -3.60) <u>EOT 3vs1 Wgt kg, women</u> -6.80 (-29.61, 16.01) <u>EOT 3vs2 Wgt kg, women</u> -1.00 (-25.27, 23.27)		<u>EOT 3vs1 VO₂Max, men</u> 8.80 (7.26, 10.34) <u>EOT 3vs2 VO₂Max, men</u> 7.00 (5.33, 8.67) <u>VO₂Max, ml/kg/min, women</u> 1. (39) 0 (95%CI -1.4,1.4) 2. (31) 1.4 (95%CI -0.1, 2.9) 3. (42) 6.4 (95%CI 4.9, 7.9) <u>EOT 2vs1 VO₂Max, women</u> 1.40 (-0.22, 2.82) <u>EOT 3vs1 VO₂Max, women</u> 6.40 (5.22, 7.98) <u>EOT 3vs2 VO₂Max, women</u> 5.00 (3.53, 6.47)	
Svensden 384	Randomization: unclear Self-selected: unclear Included: BMI>25 Mean age: ng Mean weight: 77.8 Female/Total: 121/121	BMI>25	Diet: 4.2 MJ/d Exercise: Yes 90 min x3 Max HR: ng Behavioral: No	1. Control (no diet, exercise) 2. Diet alone 3. Diet + exercise	none	<u>Weight in kg</u> 1. (20) 0.5 (95%CI -0.3,1.3) 2. (50) -9.5 (95%CI -10.3, -8.7) 3. (48) -10.3 (95%CI -11.2, -9.4) <u>EOT 3vs2 Weight kg</u> -0.80 (-1.64, 0.04) <u>EOT 2vs1 Weight kg</u> -10.00 (-10.79, -9.21) <u>EOT 3vs1 Weight kg</u> -10.80 (-11.66, -9.94)	<u>VO₂Max, ml/kg/min</u> 1. (21) 21.1 (95%CI 19.7, 22.5) 2. (51) 19.5 (95%CI 18.5, 20.5) 3. (49) 20.6 (95%CI 19.5, 21.7)	<u>VO₂Max, ml/kg/min</u> 1. (20) 1.8 (95%CI -3.1, 6.7) 2. (50) 2.3 (95%CI 1.7, 2.9) 3. (48) 6.9 (95%CI 4.1, 9.7) <u>VO₂Max, ml/kg/min 9 mo</u> 1. (16) -2.7 (95%CI 4.2, -1.2) 2. (47) 0.8 (95%CI -0.8, 2.4) 3. (47) 0.2 (95%CI -0.9, 1.3) <u>3vs2 VO₂Max</u> -0.60 (-1.95, 0.75) <u>2vs1 VO₂Max</u>	There was no significant difference in changes in parameters between the 2 intervention groups at follow-up. However, 47% of the women in the diet plus exercise group had stopped exercising at the follow-up.

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								3.50 (1.95, 5.05) 3vs1 VO ₂ Max 2.90 (1.72, 4.08) EOT 3vs2 VO ₂ Max 4.60 (2.62, 6.58) EOT 2vs1 VO ₂ Max 0.50 (-2.02, 3.02) EOT 3vs1 VO ₂ Max 5.10 (1.67, 8.53)	
Schuler 405	Randomization: yes Self-selected: no Included: non-overweight Mean age: 53.5 Mean weight: 26.5 Female/Total: 0/113	includes non-overweight	Exercise: Yes 30 min daily Behavioral: No	1. No intervention 2. Low-fat diet and exercise	1. 4/57 (7%) 2. 5/56 (9%)	1. (52) -0.2 mg/kg ² 2. (40) -1.6 mg/kg ² 2vs1 -1.4 (-2.2, -0.6)	VO ₂ Max, l/min 1. (52) 1.9 (95%CI 1.8, 2.0) 2. (40) 1.8 (95%CI 1.7, 1.9)	VO ₂ Max, l/min 1. (52) 1.9 (95%CI 1.8, 2.0) 2. (40) 2) (95%CI 1.9, 2.1) 2vs1 0.2 (0.09, 0.31)	
Verity 446	Randomization: unclear Self-selected: unclear Included: >120% IBW postmenopausal women with NIDDM Mean age: 59.2 Mean weight: 79.2 Female/Total: 10/10	>120% IBW	Diet: Yes Encouraged Exercise: Yes group 2: 60-90/3 Max HR :65-80% Behavioral: No	1. Control (diet) 2. Exercise	not reported	Weight in kg 1. (5) -2.9 2. (5) -2.1 2vs1 0.8 (-17, 18.68)	VO ₂ Max, ml/kg/min 1. (5) 17.8 (95%CI 8.9, 26.7) 2. (5) 17.3 (95%CI 7.6, 27.0)	VO ₂ Max, ml/kg/min 1. (5) 17.5 (95%CI 8.3, 26.7) 2. (5) 22.8 (95%CI 11.4, 34.2) 2vs1 5.8 (-1.66, 13.26)	
Katzel 369	Randomized: yes Self-selected: yes Included: 120-160% IBW, nonsmokers Mean age: 61 Mean weight: 91.07 Female/Total: 0/170	120-160% IBW	Diet: Yes 300-500 kcal/d to lose 10% in 9 mo Exercise: Yes 45 min x3 Behavioral: No	Group description 1. Control 2. Weight loss 3. Aerobic exercise Duration: 9 months	1. 8/26 (31%) 2. 25/73 (34%) 3. 19/71 (27%)	Weight in kg 2. (44) -9.5 (95%CI 8.1, -10.9)	not given	VO ₂ Max increase from baseline 2. (49) 17% 3. (49) 18%, estimate p<0.01	

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