

Table 1: Description of studies on the association between physical activity and weight gain / obesity.

Author Year	Study	Baseline – measuring points	Follow up time	Baseline sample; Age at Baseline	Drop out	Sample in Survey	Variables - PA; Outcome	Results	Limitations
DiPietro et al. 2004 [15]	Aerobics Center Longitudinal Study - ACLS	Baseline between 1970 - 1998 (min. 4 examinations during that time)	5 years	216,356 woman-years - 735,554 man-years; 20 - 55 years		2501 men	PA: 10 specific exercise-related activities within previous 3 months (frequency; duration) Physical Activity Level – energy expenditures (MET) – Daily physical activity level Outcome: Body weight	Daily physical activity level is inversely related to weight gain	- results just for men - no common baseline - longitudinal research via person-years and not via overall years - just a subgroup of the basic sample
Petersen et al. 2004 [18]	Copenhagen City Heart Study	Baseline 1976/1978 - 81/83 - 92/93	10 years	14 151 men and 20 – 78 years	1981/19 83: 11085; 1992/19 93: 6542 Overall: 10 498	3,653 women. 2,626 men	PA: Questionnaire by Saltin & Grimby Outcome: Body weight	Cross-sectional Analyse - Odds Ratios [with 95% Confidence Interval] for weight gain in addition to LTPA level Women 1 st survey: Low LTPA: 1.00 (Ref.) Medium LTPA: 0.70 [0.59-0.83] High LTPA: 0.51 [0.40-0.64] 2 nd survey: Men 1 st survey: Low LTPA: 1.00 (Ref.) Medium LTPA: 0.71 [0.58-0.85] High LTPA: 0.65 [0.52-0.80] 2 nd survey:	- high drop out rate

PA = physical activity, MET = metabolic equivalent of task; Ref. = Reference group

								Low LTPA: 1.00 (Ref.) Medium LTPA: 0.75 [0.63-0.91] High LTPA: 0.58 [0.47-0.72] 3 rd survey: Low LTPA: 1.00 (Ref.) Medium LTPA: 0.61 [0.49-0.76] High LTPA: 0.36 [0.27-0.47]	Low LTPA: 1.00 (Ref.) Medium LTPA: 0.87 [0.70-1.08] High LTPA: 0.76 [0.61-0.95] 3 rd survey: Low LTPA: 1.00 (Ref.) Medium LTPA: 0.71 [0.54-0.92] High LTPA: 0.52 [0.39-0.68]	
								Longitudinal Analyse: - odds ratios [with 95% Confidence Interval] for becoming obese between 2 nd and 3 rd survey		
								Women Low LTPA: 1.00 (Ref.) Medium LTPA: 0.93 [0.59-1.45] High LTPA: 1.35 [0.83-2.18]	Men Low LTPA: 1.00 (Ref.) Medium LTPA: 1.35 [0.73-2.50] High LTPA: 1.93 [1.03-3.60]	
Gordon-Larsen et al. 2009 [16]	Coronary Artery Risk Development in Young Adults - CARDIA	Baseline: 1985/1986 Follow up points: 1987/1988 - 1990/1991 - 1992/1993 - 1995/1996 - 2000/2001 - 2005/2006	20 years	5115 - 30,690 observatio ns; 18 - 30 years	90% - 86% - 81% - 79% - 74%	4995 men and women - 23,633 observati ons	PA: Frequency of participation in 13 activity categories (8 vigorous, 5 moderate) over 12 months; exercise units (frequency * intensity) <i>Outcome:</i> Body weight measured with a calibrated balance-beam	Inverse association between 30 minutes walking / day and weight gain related to percentile of baseline weight: 25 th percentile: m: $\beta = -0.07$ kg/y; p = .4 w: $\beta = -0.12$ kg/y; p < .001 50 th percentile: m: $\beta = -0.15$ kg/y; p = .03 w: $\beta = -0.29$ kg/y; p < .001 75 th percentile: m: $\beta = -0.25$ kg/y; p < .001 w: $\beta = -0.53$ kg/y; p < .001 women's total weight gain (15 year): inactive women: +13 kg active women: +5 kg	- just walking was added in an energy-index - no other sports are included	

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Hankinson et al. 2010 [17]	Coronary Artery Risk Development in Young Adults - CARDIA	Baseline: 1985/1986 Follow up points: 1987/1988 - 1990/1991 - 1992/1993 - 1995/1996 - 2000/2001 - 2005/2006	20 years	5115 - total of 30,690 observations; 18 - 30 years	90% - 86% - 81% - 79% - 74%	3554 men and women	PA: CARDIA Physical Activity History questionnaire <i>Outcome:</i> Body weight, bod height, waist circumference	Higher activity level is associated with a smaller increase in mean BMI and weight per year, compared with low activity Mean BMI change / year relative to lower activity category (less than 340 exercise units (men) and less than 192 exercise units (women) [95 CI]																					
								<table border="0"> <tr> <td></td> <td>Women</td> <td>Men</td> </tr> <tr> <td></td> <td>Lower BMI: 1.00 (Ref.)</td> <td>Lower BMI: 1.00 (Ref.)</td> </tr> <tr> <td></td> <td>Moderate BMI: -.05 [-.16- .05]</td> <td>Moderate BMI: -.06 [-.11- .00]</td> </tr> <tr> <td></td> <td>Higher BMI: -.13 [-.19 - .07]</td> <td>Higher BMI: -.05 [-.10 - .03]</td> </tr> <tr> <td></td> <td colspan="2">Total less weight gain:</td> </tr> <tr> <td></td> <td colspan="2">Men – high activity: 2.6 kg</td> </tr> <tr> <td></td> <td colspan="2">Women – high activity: 6.1 kg</td> </tr> </table>		Women	Men		Lower BMI: 1.00 (Ref.)	Lower BMI: 1.00 (Ref.)		Moderate BMI: -.05 [-.16- .05]	Moderate BMI: -.06 [-.11- .00]		Higher BMI: -.13 [-.19 - .07]	Higher BMI: -.05 [-.10 - .03]		Total less weight gain:			Men – high activity: 2.6 kg			Women – high activity: 6.1 kg	
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