Question: What is the relationship between sedentary behaviors (including recreational, occupational and screen time) and dietary intake and body weight in adults?

Table 2: Summary of studies examining the relationship between sedentary behavior during adulthood and body weight in adults

Author, Year, Data Source, Country, Risk of Bias*	Sample Size, Age, Gender, Race/Ethnicity, Study Duration	Sedentary Behavior, Outcome Measures	Results
Direct Measure of Sedentary Behavior			
Ekelund, 2008 **Medical Research Council Ely Study, UK** **Risk of Bias: 2/24**	N=393 49.4y (SD=7.6y); 55.7% female NR 5.6y	**Sedentary Behavior:** Measured sedentary time using a heart rate monitor **Outcomes:** Measured BMI, body weight, waist circumference, fat mass	Baseline sedentary behavior was not related to change in body weight, BMI, fat mass, or waist circumference
Self-Reported TV Viewing			
Ding, 2012 **Original data collection, Australia** **Risk of Bias: 5/24**	N=969 44.5y (SD=12.3y); 63.7% female NR 4y	**Sedentary Behavior:** Frequency and quantity of TV viewing **Outcomes:** Self-reported height and weight	**Relationship between TV viewing and weight change, grouped by active transport category** **Inactive transport:** 0.65 kg (95% CI = 0.21 - 1.09) **Occasionally active transport:** NS **Regularly active transport:** NS
French, 2012 Secondary analysis from a group (household) randomized trial: Take Action, USA **Risk of Bias: 2/24**	N=144 adults 41.0y (SD=8.7y); 61.4% females White(79.7%) 1y	**Sedentary Behavior:** TV/video/DVD daily viewing time **Outcomes:** Measured height and weight	**Adult change in TV viewing quantity ("decreased" vs. "no change/increase") over 1 year and BMI at follow-up:** NS

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Meyer, 2008 **Atherosclerosis Risk in Communities (ARIC) Study, USA** **Risk of Bias: 4/24**	N=12,678 45-64y; 55.2% female White (73.3%), Black (26.6%) 6y	**Sedentary Behavior:** TV viewing frequency **Outcomes:** Measured height and weight	TV exposure not associated with risk of overweight/obesity
Mozaffarian, 2011 **Nurses' Health Study (NHS), NHS II, Health Professionals Follow-up Study (HPFs), USA** **Risk of Bias: 1/24**	N=70,455 Mean 37y (women), 51y (men); 68% female NR Duration: 8-10y	Average number of hours per week spent watching television at home, repeated measures **Outcomes:** Stated height and weight (correlated with measured weight r=0.96)	**Weight change every 4 Years (95% CI):** *Increase in hours/day watching television:* 0.31 (0.20 to 0.42), P<0.001
Raynor, 2006 **National Weight Control Registry (NWCR), USA** **Risk of Bias: 4/24**	N=1,422 47.9y (SD=12.7); 77% female White (95%) 1y	**Sedentary behaviors:** TV viewing **Outcomes:** Self-reported height and weight	**TV viewing and weight change at follow-up:** *Baseline TV viewing:* β=0.081, P=0.011 *Change in TV time:* β=0.123, P<0.001
Stamatakis, 2012 **1958 British Birth Cohort, UK** **Risk of Bias: 4/24**	N=5,972 23y; 50.6% female NR 21y	**Sedentary Behavior:** TV viewing frequency **Outcomes:** Measured waist circumference (WC)	**TV viewing frequency at age 23y and waist circumference at age 44y** (referent group: <2 times per week): *TV viewing >5 times per week:* β=1.166 (95% CI=0.325-2.008), P for trend=0.004

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Wijndaele, 2010 **Australian Diabetes, Obesity, and Lifestyle Study (AusDiab), Australia** **Risk of Bias: 2/24**	N=3,846 48.1y; 55.7% female NR 5y	**Sedentary Behavior:** TV/video viewing time **Outcomes:** Measured waist circumference	**Baseline TV/video viewing and change in waist circumference:** NS **Continuous TV/video viewing time and change in waist circumference:** *Men:* 0.43cm (95% CI=0.08 to 0.78), (P=0.02) *Women:* 0.68cm (95% CI=0.20 to 1.05), (P=0.001)
Total Sedentary Time or Composite Measures			
Blanck, 2007 **Cancer Prevention Study II, USA** **Risk of Bias: 2/24**	N=18,583 60.1y; 100% female NR 7y	**Sedentary Behavior:** Self-report non-occupational sedentary time including daily TV viewing **Outcomes:** Self-reported height and weight	**For non-overweight participants, activity level and risk of gaining ≥10lbs:** *≥18.0 MET hours/week (referent: <4.0 MET hours/week):* OR = 0.88 (95% CI = 0.77 – 0.99) *≥6 hours/day sedentary behavior (referent: <3 hours/day):* OR=1.47 (95% CI=1.21-1.79) **For overweight participants, activity level and risk of gaining ≥10lbs:** *≥18.0 MET hours/week (referent: <4.0 MET hours/week):* NS *≥6 hours/day sedentary behavior (referent: <3 hours/day):* NS No associations with risk of gaining 5-9lbs

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De Cocker, 2010 **Australian Longitudinal Study on Women's Health (ALSWH), Australia** **Risk of Bias: 0/24**	N=5,562 24.6y (SD=1.5y); 100% female Australian descent (92.7%), English-speaking country descent (3.7%), non-English speaking country descent (3.6%) 6y	**Sedentary Behavior:** Self-report sitting time, including sitting while watching TV **Outcomes:** Self-reported height and weight	No associations between sitting and BMI
Mortensen, 2005 **University of North Carolina Alumni Heart Study Cohort, USA** **Risk of Bias: 4/24**	N=4,595 ~40.5y (SD=~2.5y); 18.3% female NR 8y	**Sedentary Behavior:** Leisure-time physical activity **Outcomes:** Self-reported height and weight	**Baseline sedentary behavior and BMI at follow-up (referent: non-sedentary):** NS **Sedentary behavior and BMI (referent: non-sedentary):** **Age 41-44y** *Sedentary:* β=0.43 (95% CI=0.26-0.60), P<0.001 Become non-sedentary: β=-0.36 (95% CI=-0.55 to -0.17), P<0.001 *Become sedentary:* β = 0.18 (95% CI=0.03-0.32), P=0.02 **Age 44-46y** *Sedentary:* β=0.47 (95% CI=0.26-0.68), P<0.001 *Become non-sedentary:* NS Become sedentary: β=0.55 (95% CI=0.38-0.72), P<0.001 **Age 46-54y** *Sedentary:* β=0.73 (95% CI=0.40-1.07), P<0.001 *Become non-sedentary:* β=-0.33 (95% CI=-0.65 to -0.01), P=0.04 *Become sedentary:* β=0.48 (95% CI=0.21-0.75), P<0.001 **Sedentary behavior and risk of obesity** (referent: non-sedentary): NS other than baseline sedentary

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			activity level and obesity at ages 44-46y: OR=1.71 (95% CI=1.02-2.84), P=0.04
Pereira, 2013 **1958 British Birth Cohort, UK** **Risk of Bias: 1/26**	N=6,562 50y; 49.4% female NR 5y	**Sedentary Behavior:** **Self-report sedentary time:** 1) TV-viewing 2) Work sitting 3) Motorized commuting. **Outcomes:** Measured height and weight	**Increased hours of TV viewing (hours/day) and change in BMI:** +0.06 (95% CI=0.01-0.12) **Sitting at work (hours/day):** NS **Motorized commute to work:** NS Mean increase in BMI between 45y and 50y was 0.25 (95% CI: 0.17, 0.34) kg/m^2 in men (P=0.001), there was no difference in women.

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Pulsford, 2013 Whitehall II Cohort, UK Risk of Bias: 6/26	N=1,559 40.5y; 33% female NR 7y	**Sedentary Behavior:** **Self-report sitting time:** 1) Work-related sitting time, 2) TV-viewing time, 3) Non-TV leisure sitting time, 4) Total leisure-time sitting, and 5) Total sitting time. **Outcomes:** Measured height and weight	No prospective association between sitting behaviors and risk of obesity
Saunders, 2013 **Quebec Family Study, Canada** **Risk of Bias: 0/26**	N=286 18-65y; 53.5% female White (100%) 6y	**Sedentary Behavior:** Self-report sedentary behavior. **Outcomes:** Measured height, weight, waist circumference, percent body fat.	**Baseline sedentary behavior change in anthropometric variables at follow-up:** *BMI:* NS *Percent body fat:* NS *Waist circumference*: +0.13cm increase 0.13 (95% CI=0.02-0.25) *Visceral adiposity:* NS
van Uffelen, 2010 **Australian Longitudinal Study on Women's Health (ALSWH), Australia** **Risk of Bias: 0/24**	N=8,233 50-55y; 100% female Australian descent (69.0%), English speaking country descent (13.9%), non-English speaking country descent (17.1%) 6y	**Sedentary Behavior:** Self-report sitting time **Outcomes:** Self-reported weight	No association between sitting time and change in body weight.
Commute Time			

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Núñez-Córdoba, 2013 **Seguimiento Universidad de Navarra Project,1999-2011, Spain** **Risk of Bias: 2/24**	N=9,160 36.9y; 57.6% female NR 6.4y	**Sedentary Behavior:** Self-report annual distance traveled in motor vehicles **Outcomes:** Self-reported height and weight	Full sample Annual distance traveled in motorized vehicles and risk of obesity **Risk across categories of annual distance traveled:** NS **Subsample: Only participants who maintained level of travel during follow-up** (referent: <10,000 km): *>20,000km traveled:* HR=1.34, 95% CI=1.1-1.7, P for trend 0.021
Sugiyama, 2013 **Physical Activity in Localities and Community Environments, Australia** **Risk of Bias: 8/24**	N=822 48.6y (SD=10.2); 61% female NR 4y	**Sedentary Behavior:** Frequency of car use **Outcomes:** Self-reported weight	**Frequency of commuting in vehicle change in body weight:** NS **Change in body weight for participants with low leisure time PA, by frequency of vehicle commuting:** NS **Change in body weight for participants with high leisure time PA, by frequency of vehicle commuting:** *No vehicle commuting:* NS *Occasional vehicle commuting:* NS *Daily vehicle commuting:* +1.98kg (95% CI=1.02-2.93), P=0.035

*Risk of Bias as determined using the Nutrition Evidence Library Bias Assessment Tool