Weight change – Young and Mid-aged

Variables for weight change are not included in the ALSWH datasets. However it is recommended that weight change (in kilograms) is calculated so that negative values indicate weight loss and positive values indicate weight gain.

The statistical analysis of weight change has varied according to the research question being addressed; some analyses have used categories for the observed weight change[1] while others used percentage change in BMI.[2]

Review of measured weight change in community-dwelling populations of women

A literature search was conducted on 22 June 2006 using Pubmed (www.pubmed.gov). The criteria were: (weight change AND prospective studies AND epidemiology) NOT (clinical OR controlled trial OR oncology) with limits Adults: 19-44 years, Middle Aged: 45-64 years, Middle aged + Aged: 45+years, Aged: 65+ years, 80 and over: 80+ years, English, published in the last 5 years, Journal Article, Female, Humans.

The search found 74 articles of which 8 were relevant.[4-9]. Other data sources were also included.[3, 10-12]

Published means and standard deviations (SD) for weight change (Table A1a) were used to estimate the range of change by calculating the mean ± 2.5SD for the period observed in the study; to obtain an estimate of change per year these limits were divided the years (or mean of years) observed. Where the range of weight change (Table A1a) was reported they were similarly converted to an estimate of the range per year. Studies summarised in Table A1b have not been used at this time.

Table A2 Estimates of annual range and mean of weight changes from studies with measured weight, extrapolated to intervals between surveys

		Intervals between ALSWH surveys		
Reference/ Relevant ALSWH cohorts	**Estimated change(kg) per year**	**3 years (All cohorts)**	**2 years (Mid-age Surveys 1 to 2)**	**4 years (Younger Surveys 1 to 2)**
Range				
Younger[12]	-2.3 to 3.7	-6.9 to 11.1	-4.6 to 7.4	-9.2 to 14.8
Younger[13]	-3.0 to 5.1	-9.0 to 15.3	-6.0 to 10.2	-12.0 to 20.4
Mid-age[10]	-2.1 to 3.0	-6.3 to 9.0	-4.2 to 6.0	-8.4 to 12.0
Mid-age[10]	-3.7 to 5.2	**-11.1** to 15.6	-7.4 to 10.4	-14.8 to 20.8
Mid-age[11]	-1.8 to 3.1	-5.4 to 9.3	-3.6 to 6.2	-7.2 to 12.4
Mid-age[13]	-3.0 to 5.1	-9.0 to 15.3	-6.0 to 10.2	-12.0 to 20.4
Mid-age[13]	-2.8 to 6.6	-8.4 to 19.8	-5.6 to 13.2	-11.2 to 26.4
Older[11]	-2.5 to 2.8	-7.5 to 8.4	-5.0 to 5.6	-10.0 to 11.2
Older[13]	-2.8 to 6.6	-8.4 to **19.8**	-5.6 to 13.2	-11.2 to 26.4
Mean				
Younger[12]	0.7	2.1	1.4	2.8
Younger[13]	1.1	3.3	2.2	4.4
Mid-age[10]	0.4-0.6	1.2-1.8	0.8-1.2	1.6-2.4
Mid-age[11]	0.6	0.9	1.2	2.4
Mid-age[13]	1.1, 1.9	3.3, 5.7	2.2, 3.8	4.4, 7.6
Older[11]	0.2	0.6	0.4	0.8
Older[13]	1.9	5.7	3.8	7.6

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Table A1a Studies with follow-up in which weight was measured – kilograms of weight change reported as Mean, (SD) or [Range]

1st author, Year Published	Study Population	Years of Follow-up	Weight Change reported (kg)		Estimated change/year (kg) Range[a]	Mean
K Ball, 2003[b]	Melbourne Collaborative Cohort Study: Multi-ethnic; men & women; 35-69 years; Australia	5	*Anglo-Celtic women* *35-40yrs* 3.15 (4.91) *65+ yrs* 1.03 (5.13)		 -1.8 to 3.1 -2.5 to 2.8	 0.6 0.2
J Guthrie, 1999	Melbourne Mid-Life Study: women aged 46-57 years (106 Pre menopausal; 106 Peri-menopausal; 21 HRT), Australia	5	Overall: 2.1 (5.1) Premenopausal➔Premenopausal Premenopausal➔Perimenopausal Premenopausal➔Postmenopausal Overall: [-18.5 to 26.0]	 2.0 2.7 3.0 	-2.1 to 3.0 [-3.7 to 5.2]	0.4 0.4 0.5 0.6
C Lewis, 1997	CARDIA (Coronary Artery Risk Development in Young Adults): Black and white, men and women aged 18-30 years, USA	7	*White women* 5.2 (8.4)		-2.3 to 3.7	0.7
P Lahmann, 2005[c]	EPIC (European Prospective Investigation into Cancer and Nutrition): women median age [Range] 1992 to 2000: Premenopausal 39 [20-58], Postmenopausal 59 [39-80]	Mean 5.8 (±1.6)	Premenopausal: 6.2 (9.4) Postmenopausal: 11.2 (10.9)		-3.0 to 5.1 -2.8 to 6.6	1.1 1.9
C Langenberg, 2005	Rancho Bernardo Cohort: men and women aged 20-79 years in 1972 to 1974 (mean age: 74.4 years men, 75.6 years women), USA	Median 4.7 (0-18.2)	*Men & women, kg/yr* 60-64 years: 0.01 [-1.3 to 1.6] 70-74 years: 0.19 [-2.5 to 2.5] ≥80 years: -0.47 [-3.1 to 2.5]		negligible	

[a] Estimated range of change calculated as mean ± 2.5SD for the period observed; limits so calculated divided (mean) years observed
[b] Self-report weight at follow-up, corrected according to Australian National Nutrition Survey; [c] Baseline is recalled weight at 20 years

Table A1b Studies with follow-up in which weight was measured – percentage changes

1st author & Pub Year	Study Population	Years of Follow-up	Weight Change
K Ball, 2003	Melbourne Collaborative Cohort Study: Multi-ethnic; men & women; 35-69 years; Australia	5	***Percent who Gained or Lost > 10kg*** *Anglo-Celtic women* 35-40yrs: 6.3% Gained >10 kg 0.9% Lost > 10kg 65+ yrs:1.5%Gained>10kg 1.8% Lost>10kg
A Newman, 2001	Community dwelling adults, 65+ years; USA	3	*Women* 4.0% Gained >10kg 6.3% Lost >10kg
A Bell, 2001	CHNS (Chinese Health and Nutrition Survey); adults 20-45 years	8	***Percent increase of BMI≥25*** *Women*: 10.2%
J Stevens, 2006	(Review)		***Percent Weight Change*** Recommended definition of long-term maintenance in adults was 'weight change <3% of body weight'
E Bannerman	Australian Longitudinal Study of Ageing (ALSA): Community dwelling adults, 70+ years; Australia	2	*Women aged 70-103 years; mean (SD) 77.1 (5.5)* Mean (SD) [Range]: -0.8% (6.6) [-29.6% to 48.1%]
S Maru, 2004	DOM cohort (Diagnostic Investigation into Breast Cancer): population-based screening program, women aged 50-66 years; Netherlands	0.5 to 3.4 (mean 1)	1.2% Gained>10% body weight 1.8% Lost>10% body weight