

SUPPLEMENTARY TABLES

Supplementary Table 1 Comparison between Fried et al.'s suggested criteria for frailty and modified frailty indicators used in this study

Frailty	Fried et al. (2001)	Current study																																								
Exhaustion	<p>Questions from the Center for Epidemiologic Studies Depression Scale: (a) I felt that everything I did was an effort (b) I could not get going How often in the last week did you feel this day? 0 = Rarely or none of the time (<1 day) 1 = Some or a little of the time (1–2 days) 2 = A moderate amount of time (3–4 days) 3 = Most of the time</p> <p>Exhausted: “A moderate amount of time (3–4 days)” or “Most of the time”</p>	<p>Hopkins Symptom Checklist (HSCL-10): During the last week, have you experienced that everything is a struggle? 1 = No complaint 2 = Little complaint 3 = Pretty much 4 = Very much</p> <p>Exhausted: “Pretty much” or “Very much”</p>																																								
Physical activity	<p>Minnesota Leisure Time Activity Questionnaire asking about walking, chores (moderately strenuous), mowing the lawn, raking, gardening, hiking, jogging, biking, exercise, cycling, dancing, aerobics, bowling, golf, singles, tennis, racquetball, calisthenics, swimming. The kcal/week expended was calculated using a standardized algorithm. Lowest 20% were identified, resulting in following cut-off for frailty: Men: <383 kcal of physical activity/week Women: <270 kcal of physical activity/week</p>	<p>Describe your exercise and physical exertion in leisure time over the last year (Saltin & Grimby's Scale). 1 = Reading, watching TV/screen or other sedentary activity 2 = Walking, cycling, or other forms of exercise at least 4 hours a week 3 = Participation in recreational sports, heavy gardening, snow shoveling, etc. at least 4 hours a week 4 = Participation in hard training or sports competitions, regularly several times a week</p> <p>Low physical activity level: “Reading, watching TV/screen or other sedentary activity”</p>																																								
Weight loss	<p>In the last year, have you lost more than 10 pounds (4.5 kg) unintentionally (not due to dieting or exercise)?</p> <p>Frail: “Yes”</p>	<p>Have you involuntarily lost weight during the last 6 months? (Malnutrition Universal Screening Tool) 0 = No 1 = Yes</p> <p>Lost weight: “Yes”</p>																																								
Grip strength	<p>Measured by Jamar dynamometer (kg) Maximal strength in dominant hand (3 trials) Stratified by sex and BMI quartiles. Lowest 20% were identified, resulting in the following cut-off for frailty:</p> <table border="0"> <tr> <td>Men</td> <td>Cut-off for grip strength (kg) criterion for frailty</td> </tr> <tr> <td>BMI ≤24</td> <td>≤29 kg</td> </tr> <tr> <td>BMI 24.1–26</td> <td>≤30 kg</td> </tr> <tr> <td>BMI 26.1–28</td> <td>≤30 kg</td> </tr> <tr> <td>BMI >28</td> <td>≤32 kg</td> </tr> <tr> <td>Women</td> <td></td> </tr> <tr> <td>BMI ≤23</td> <td>≤17 kg</td> </tr> <tr> <td>BMI 23.1–26</td> <td>≤17.3 kg</td> </tr> <tr> <td>BMI 26.1–29</td> <td>≤18 kg</td> </tr> <tr> <td>BMI >29</td> <td>≤21 kg</td> </tr> </table>	Men	Cut-off for grip strength (kg) criterion for frailty	BMI ≤24	≤29 kg	BMI 24.1–26	≤30 kg	BMI 26.1–28	≤30 kg	BMI >28	≤32 kg	Women		BMI ≤23	≤17 kg	BMI 23.1–26	≤17.3 kg	BMI 26.1–29	≤18 kg	BMI >29	≤21 kg	<p>Measured by Jamar dynamometer (kg) Strongest measurement from 3 trials in each hand Stratified by sex and BMI quartiles as per Fried's definition:</p> <table border="0"> <tr> <td>Men</td> <td>Cut-off for grip strength (kg) criterion for frailty</td> </tr> <tr> <td>BMI ≤24</td> <td>≤29 kg</td> </tr> <tr> <td>BMI 24.1–26</td> <td>≤30 kg</td> </tr> <tr> <td>BMI 26.1–28</td> <td>≤30 kg</td> </tr> <tr> <td>BMI >28</td> <td>≤32 kg</td> </tr> <tr> <td>Women</td> <td></td> </tr> <tr> <td>BMI ≤23</td> <td>≤17 kg</td> </tr> <tr> <td>BMI 23.1–26</td> <td>≤17.3 kg</td> </tr> <tr> <td>BMI 26.1–29</td> <td>≤18 kg</td> </tr> <tr> <td>BMI >29</td> <td>≤21 kg</td> </tr> </table>	Men	Cut-off for grip strength (kg) criterion for frailty	BMI ≤24	≤29 kg	BMI 24.1–26	≤30 kg	BMI 26.1–28	≤30 kg	BMI >28	≤32 kg	Women		BMI ≤23	≤17 kg	BMI 23.1–26	≤17.3 kg	BMI 26.1–29	≤18 kg	BMI >29	≤21 kg
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Frailty	Fried et al. (2001)	Current study
Walking speed	Time to walk (seconds) <u>15 feet</u> at <u>usual pace</u> stratified by sex and height (gender-specific cut-off at medium height): Lowest 20% were identified, resulting in the following cut-off for frailty: Men Cut-off for walking speed criterion for frailty Height ≤173 cm ≥7 s Height >173 cm ≥6 s Women Height ≤159 cm ≥7 s Height >159 cm ≥6 s	SPPB: Short Physical Performance Battery – walking test Fastest of two times (seconds) to walk 4 m stratified by sex and height according to Fried's gender-specific cut-off. Converted to feet from meters. Men Cut-off for walking speed criterion for frailty Height ≤173 cm ≥7 s Height >173 cm ≥6 s Women Height ≤159 cm ≥7 s Height >159 cm ≥6 s
Frailty status	Frailty score: 0 = Robust 1–2 = Pre-frail ≥3 = Frail	Frailty score: 0 = Robust 1–2 = Pre-frail ≥3 = Frail Pre-frailty/frailty score: 0 = Robust ≥1 = Pre-frail/frail

Supplementary Table 2 Descriptive characteristics of participants at follow-up: The Tromsø Study 2015-2016

	Frailty status		P value
	Robust (% (n)) 70.5 (3,179)	Pre-frail/ frail (% (n)) 29.5 (1,330)	
Age in years, mean (SD)	72.1 (5.1)	73.8 (5.9)	<0.001 ^a
Women	50.6 (1608)	55.0 (732)	0.006
Smoking status			
Current smokers	8.3 (262)	14.4 (188)	
Former smokers	53.2 (1,674)	50.8 (666)	<0.001
Never	38.4 (1,208)	34.8 (456)	
Married or cohabiting	71.0 (2,258)	64.6 (859)	<0.001
Self-perceived health – good	69.4 (2,178)	43.2 (566)	<0.001
Social support – enough good friends	87.4 (2,676)	82.0 (1,047)	<0.001
Educational level			
Primary/Partly secondary	39.1 (1,201)	50 (632)	
Upper secondary	26.6 (817)	26.2 (331)	<0.001
College/University short	16.3 (500)	12.2 (154)	
College/University long	18.1 (556)	11.6 (147)	
Alcohol intake			
Never/Abstaining	11.2 (352)	17.4 (229)	
Infrequent drinkers	58.6 (1,846)	61.0 (803)	<0.001
Frequent drinkers	30.3 (954)	21.6 (284)	
Prevalent diseases			
Pulmonary disease ^b	14.6 (444)	19.9 (250)	<0.001
Coronary heart disease ^c	13.7 (415)	19.3 (241)	<0.001
Diabetes	7.3 (224)	14.8 (186)	<0.001
Cancer	15.6 (475)	19.3 (243)	0.003
Stroke	5.1 (154)	8.1 (101)	<0.001
Peptic ulcer	–	–	<0.001
Comorbidity	89.8 (2,800)	82.4 (1,075)	<0.001
BMI categories			
Underweight	0.5 (17)	1.4 (18)	
Normal	30.0 (951)	24.5 (323)	<0.001
Overweight	49.4 (1,566)	41.4 (547)	
Obese	20.1 (639)	32.7 (432)	
WC categories			
Normal	22.6 (716)	17.1 (225)	
Moderately high	28.0 (888)	21.3 (281)	<0.001
High	49.4 (1,569)	61.6 (812)	

Values are percentage (number); P value: χ^2 test for categorical variables P value: ^aStudent's t-test; ^bincluding asthma/chronic bronchitis/emphysema; ^cincluding angina pectoris/myocardial infarction. BMI, body mass index; WC, waist circumference.

BMI categories	WC categories
Underweight: <18.5 kg/m ²	Normal: men ≤94 cm; women ≤80 cm
Normal: 18.5–24.9 kg/m ²	Moderately high: men 95–102 cm; women 81–88 cm
Overweight: 25.0–29.9 kg/m ²	High: men >102 cm; women >88 cm
Obesity: ≥30 kg/m ²	

Supplementary Table 3 Descriptive baseline characteristics of Tromsø4 participants who attended Tromsø7 versus those who did not: The Tromsø Study 1994–2016

	Frailty status		P value
	Not attended Tromsø7 n = 8,649 (% (n))	Attended Tromsø7 n = 4,809 (% (n))	
Age in years, mean (SD)	63.2 (11.0)	52.0 (5.8)	<0.001 ^a
Women	52.4 (4,533)	52.4 (2520)	0.990
Smoking status			
Current smokers	33.7 (2,916)	29.4 (1,414)	
Former smokers	33.4 (2,886)	35.6 (1,714)	<0.001
Never	32.9 (2,847)	(34.9) 1,681	
Married or cohabiting	64.7 (5,568)	(82.7) 3,977	<0.001
Self-perceived health status – good	50.7 (4,378)	(70.3) 3,379	<0.001
Social support – enough good friends	83.0 (5,775)	(82.2) 3,590	0.330
Educational level			
Primary/Partly secondary	57.2 (4,911)	(36.9) 1,768	
Upper secondary	27.5 (2,362)	(34.1) 1,633	<0.001
College/University short	8.1 (696)	(14.9) 716	
College/University long	7.2 (622)	(14.1) 678	
Alcohol intake			
Never/Abstaining	24.5 (2,108)	(10.2) 491	
Infrequent drinkers	66.8 (5,749)	(76.2) 3655	<0.001
Frequent drinkers	8.7 (744)	(13.5) 649	
Prevalent diseases			
Pulmonary disease ^b	16.2 (1,097)	(9.9) 430	<0.001
Coronary heart disease ^c	14.8 (1,281)	(3.1) 149	<0.001
Diabetes	4.3 (374)	(0.5) 25	<0.001
Cancer	7.7 (517)	(3.1) 132	<0.001
Stroke	3.7 (318)	(0.7) 33	<0.001
Ulcer	14.1 (908)	(7.8) 333	<0.001
Comorbidity	9.9 (858)	(2.3) 36	<0.001
BMI categories			
Underweight	1.7 (149)	0.5 (22)	
Normal	40.0 (3,463)	44.9 (2,169)	<0.001
Overweight	42.3 (3,659)	43.5 (2,094)	
Obesity	15.9 (1,378)	11.1 (533)	
WC categories			
Normal	39.0 (1,784)	45 (765)	
Moderately high	29.7 (1,356)	32.6 (554)	<0.001
High	31.3 (1,434)	22.4 (381)	

Values are percentage (number); P value: χ^2 test for categorical variables P value: ^aStudent's t-test; ^bincluding asthma/chronic bronchitis/emphysema; ^cincluding angina pectoris/myocardial infarction. BMI, body mass index; WC, waist circumference.

BMI categories	WC categories
Underweight: <18.5 kg/m ²	Normal: men ≤94 cm; women ≤80 cm
Normal: 18.5–24.9 kg/m ²	Moderately high: men 95–102 cm; women 81–88 cm
Overweight: 25.0–29.9 kg/m ²	High: men >102 cm; women >88 cm
Obesity: ≥30 kg/m ²	

Supplementary Table 4 Cross-sectional association between BMI and WC, and pre-frailty/frailty: The Tromsø Study 2015–2016

	Frailty status		Model 1	Model 2
	Robust (% (n))	Pre-frail/frail (% (n))	OR (95% CI)	OR (95% CI)
BMI, kg/m²	70.5 (3179)	29.5 (1330)		
Underweight	0.5 (17)	1.4 (18)	2.93 (1.48–5.83)	2.32 (1.09–4.94)
Normal	30.0 (951)	24.5 (323)	Ref.	Ref.
Overweight	49.4 (1,566)	41.4 (547)	1.07 (0.91–1.26)	1.03 (0.86–1.23)
Obesity	20.1 (639)	32.7 (432)	2.14 (1.79–2.56)	1.88 (1.54–2.30)
WC, cm				
Normal	22.6 (716)	17.1 (225)	Ref.	Ref.
Moderately high	28.0 (888)	21.3 (281)	1.02 (0.83–1.25)*	1.01 (0.81–1.26)*
High	49.4 (1,569)	61.6 (812)	1.69 (1.42–2.01)*	1.45 (1.20–1.76)*

Model 1: minimally adjusted for age and sex (*excluding sex) at Tromsø7.

Model 2: adjusted for age, sex, educational level, smoking status, alcohol intake, comorbidities, social support, and self-perceived health (*excluding sex) at Tromsø7.

BMI, body mass index; CI, confidence interval; OR: odds ratio; WC, waist circumference.

Supplementary Table 5 Longitudinal association between BMI and WC, combined profiles and trajectories, and pre-frailty/frailty: The Tromsø Study 1994–2016

	Frailty status		Model 1	Model 2
	Robust (%) (n)	Pre-frail/frail (≥2) (%) (n)	OR (95% CI)	OR (95% CI)
BMI, kg/m²	n= 2925	n= 1125		
Underweight	0.4 (10)	0.7 (8)	2.28 (0.89–5.88)	1.37 (0.49–3.89)
Normal	48.0 (1404)	40.1 (451)	Ref.	Ref.
Overweight	43.0 (1259)	41.7 (469)	1.16 (0.99–1.36)	1.16 (0.99–1.36)
Obesity	8.6 (252)	17.5 (197)	2.38 (1.92–2.95)	2.31 (1.83–2.92)
WC, cm	n= 714	n = 387		
Normal	51.5 (368)	39.0 (151)	Ref.	Ref.
Moderately high	31.1 (222)	33.1 (128)	1.40 (1.05–1.87)*	1.50 (1.10–2.05)*
High	17.4 (124)	27.9 (108)	2.10 (1.52–2.89)*	2.19 (1.54–3.14)*
BMI and WC profile, baseline	n= 650	n = 347		
Normal BMI and normal WC	36.6 (238)	30.8 (107)	Ref.	Ref.
Normal BMI and moderately high/high WC	8.0 (52)	6.4 (22)	0.94 (0.54–1.63)*	0.92 (0.50–1.66)
Overweight and normal WC	15.4 (100)	9.2 (32)	0.73 (0.46– 1.15)*	0.74 (0.45– 1.20)
Overweight and moderately high/high WC	32.0 (208)	34.9 (121)	1.31 (0.95– 1.81)*	1.47 (1.04–2.08)
Obesity and moderately high/high WC	8.0 (52)	18.7 (65)	2.73 (1.77– 4.20)*	2.91 (1.83–4.65)
BMI trajectories	n= 653	n = 348		
Stable normal BMI	26.9 (176)	22.1 (77)	Ref.	Ref.
Stable overweight	46.6 (304)	41.1 (143)	1.16 (0.83–1.63)	1.14 (0.79–1.63)
Overweight to obese	22.4 (146)	25.9 (90)	1.53 (1.04–2.24)	1.55 (1.02–2.35)
Increasing obesity	4.1 (27)	10.9 (38)	3.35 (1.90–5.90)	3.17 (1.72–5.85)
WC trajectories (women)	n= 287	n = 172		
Normal to moderately high WC	25.5 (73)	20.4 (35)	Ref.	Ref.
Moderately high to high WC	50.5 (145)	38.9 (67)	0.98 (0.60–1.62)*	1.12 (0.65–1.93)*
Gradually increasing high WC	20.9 (60)	33.7 (58)	1.99 (1.15–3.43)*	2.02 (1.10–3.71)
Steeply increasing high WC	3.1 (9)	7.0 (12)	2.63 (1.01–6.86)*	3.30 (1.09–10.04)*
WC trajectories (men)	n= 366	n = 176		
Normal WC	21.6 (79)	17.6 (31)	Ref.	Ref.
Stable moderately high WC	41.5 (152)	36.4 (64)	1.09 (0.66–1.81)*	1.03 (0.60–1.76)*
Moderately high to high WC	32.2 (118)	29.6 (52)	1.17 (0.69–1.99)*	1.06 (0.60–1.87)*
Increasing high WC	4.6 (17)	16.5 (29)	4.51 (2.17–9.38)*	4.36 (1.94–9.80)*

Analysis was restricted to individuals who were <60 years at Tromsø4

Model 1: adjusted for age and sex (*excluding sex) at baseline.

Model 2: adjusted for age, sex, educational level, marital/cohabitation status, smoking status, alcohol intake, social support, self-perceived health, and physical activity level (*excluding sex) at baseline.

BMI, body mass index; CI, confidence interval; OR, odds ratio; WC, waist circumference.

Supplementary Table 6 Longitudinal association between BMI and WC, combined profiles and trajectories, and pre-frailty/frailty (frailty score ≥ 2): The Tromsø Study 1994–2016

	Frailty status		Model 1 OR (95% CI)	Model 2 OR (95% CI)
	Robust (%) (n)	Pre-frail/frail (≥ 2) (%) (n)		
BMI, kg/m²	n= 2925	n= 199		
Underweight	0.4 (10)	0.5 (1)	1.45 (0.18–11.98)	0.95 (0.11–7.85)
Normal	48.0 (1404)	37.7 (75)	Ref.	Ref.
Overweight	43.0 (1259)	38.7 (77)	1.22 (0.87–1.71)	1.18 (0.82–1.71)
Obesity	8.6 (252)	23.1 (46)	3.47 (2.33–5.18)	3.27 (2.09–5.08)
WC, cm	n= 714	n = 88		
Normal	51.5 (368)	30.7 (27)	Ref.	Ref.
Moderately high	31.1 (222)	36.4 (32)	1.97 (1.15–3.38)*	1.98 (1.10–3.54)*
High	17.4 (124)	32.9 (29)	3.20 (1.82–5.64)*	3.18 (1.71–5.93)*
BMI and WC profile, baseline	n= 650	n = 81		
Normal BMI and normal WC	36.6 (238)	27.2 (22)	Ref.	Ref.
Normal BMI and moderately high/high WC	8.0 (52)	8.6 (7)	1.45 (0.59–3.59)	1.41 (0.52–3.86)
Overweight and normal WC	15.4 (100)	3.7 (3)	0.33 (0.09–1.13)	0.37 (0.11– 1.31)
Overweight and moderately high/high WC	32.0 (208)	38.3 (31)	1.65 (0.92–2.95)	1.81 (0.97–3.38)
Obesity and moderately high/high WC	8.0 (52)	22.2 (18)	3.79 (1.89– 7.62)	3.66 (1.71–7.81)

Analysis was restricted to individuals who were <60 years at Tromsø4 and had frailty score ≥ 2

Model 1: adjusted for age and sex (*excluding sex) at baseline.

Model 2: adjusted for age, sex, educational level, marital/cohabitation status, smoking status, alcohol intake, social support, self-perceived health, and physical activity level (*excluding sex) at baseline.

BMI, body mass index; CI, confidence interval; OR, odds ratio; WC, waist circumference.

Supplementary Table 7 Longitudinal association between BMI and WC, and pre-frailty/frailty among individuals with information on all five frailty criteria: The Tromsø Study 1994–2016

	Frailty status		Model 1 OR (95% CI)	Model 2 OR (95% CI)
	Robust (%) (n)	Pre-frail/frail (%) (n)		
	70.4% (2016)	29.6% (848)		
BMI, kg/m²				
Underweight	0.4 (8)	0.7 (6)	1.98 (0.67–5.84)	0.97 (0.28–3.23)
Normal	48.4 (976)	40.1 (340)	Ref.	Ref.
Overweight	42.8 (862)	42.9 (364)	1.19 (0.99–1.42)	1.18 (0.97–1.43)
Obesity	8.4 (170)	16.3 (168)	2.36 (1.82–3.05)	2.28 (1.72–3.01)
WC, cm	n = 600	n = 350		
Normal	53.3 (320)	40.9 (143)	Ref.	Ref.
Moderately high	31.3 (188)	34.0 (119)	1.40 (1.03–1.90)*	1.50 (1.08–2.08)*
High	15.3 (92)	25.1 (88)	2.15 (1.51–3.08)*	2.15 (1.46–3.18)*

Model 1: adjusted for age and sex (*excluding sex) at baseline.

Model 2: adjusted for age, sex, educational level, marital/cohabitation status, smoking status, alcohol intake, social support, self-perceived health, and physical activity level (*excluding sex) at baseline.

BMI, body mass index; CI, confidence interval; OR, odds ratio; WC, waist circumference.

Supplementary Table 8 Longitudinal association between BMI and WC, and frailty components: The Tromsø Study 1994–2016

	Model 1 OR (95% CI)	Model 2 OR (95% CI)
Low grip strength		
BMI, kg/m²		
Underweight	0.85 (0.11–6.63)	0.78 (0.10–6.17)
Normal	Ref.	Ref.
Overweight	1.45 (1.05–2.00)	1.34 (0.95–1.89)
Obesity	2.00 (1.31–3.05)	1.52 (0.95–2.43)
WC, cm		
Normal	Ref.	Ref.
Moderately high	0.99 (0.58–1.68)*	0.92 (0.51–1.65)*
High	1.40 (0.81–2.43)*	1.37 (0.75–2.50)*
Low walking speed		
BMI, kg/m²		
Underweight	4.51 (1.20–16.95)	3.03 (0.64–14.35)
Normal	Ref.	Ref.
Overweight	1.63 (1.12–2.37)	1.67 (1.12–2.48)
Obesity	3.32 (2.13–5.16)	3.15 (1.96–5.07)
WC, cm		
Normal	Ref.	Ref.
Moderately high	2.24 (1.27–3.94)*	2.52 (1.38–4.63)*
High	2.65 (1.45–4.85)*	2.35 (1.19–5.63)*
Exhaustion		
BMI, kg/m²		
Underweight	1.72 (0.22–13.18)	1.62 (0.20–13.24)
Normal	Ref.	Ref.
Overweight	1.11 (0.74–1.65)	1.06 (0.69–1.64)
Obesity	1.39 (0.793–2.42)	1.25 (0.69–2.27)
WC, cm		
Normal	Ref.	Ref.
Moderately high	1.67 (0.75–3.72)*	1.67 (0.72–3.89)*
High	1.74 (0.72–4.20)*	1.69 (0.66–4.29)*
Unintentional weight loss		
BMI, kg/m²		
Underweight	2.84 (0.92–8.79)	2.15 (0.60–7.76)
Normal	Ref.	Ref.
Overweight	0.63 (0.49–0.82)	0.64 (0.49–0.85)
Obesity	0.68 (0.45–1.03)	0.70 (0.46–1.08)
WC, cm		
Normal	Ref.	Ref.
Moderately high	0.99 (0.64–1.55)*	1.10 (0.70–1.73)*
High	0.57 (0.57–1.03)*	0.56 (0.30–1.07)*
Low physical activity		
BMI, kg/m²		
Underweight	–	–
Normal	Ref.	Ref.
Overweight	1.42 (1.16–1.74)	1.43 (1.15–1.79)
Obesity	3.62 (2.81–4.68)	3.71 (2.80–4.90)
WC, cm		
Normal	Ref.	Ref.
Moderately high	1.85 (1.24–2.78)*	1.71 (1.10–2.66)*
High	4.47 (2.97–6.72)*	4.94 (3.15–7.76)*

Analysis was restricted to individuals who were <60 years at Tromsø4

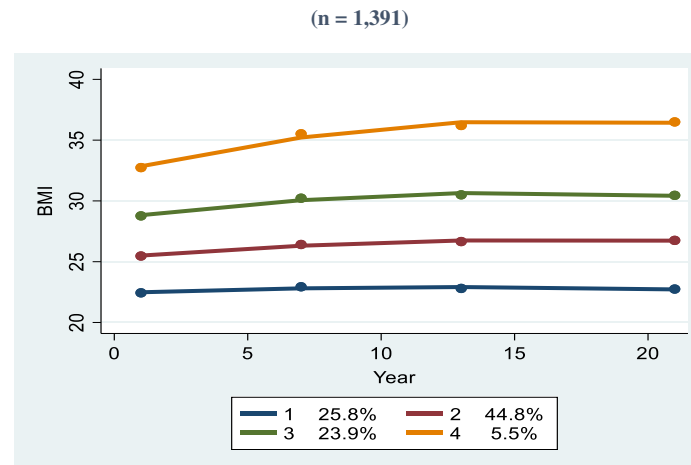
Model 1: adjusted for age and sex (*excluding sex) at baseline.

Model 2: adjusted for age, sex, educational level, marital/cohabitation status, smoking status, alcohol intake, social support, self-perceived health, and physical activity level (*excluding sex) at baseline.

BMI, body mass index; CI, confidence interval; OR, odds ratio; WC, waist circumference.

SUPPLEMENTARY FIGURES

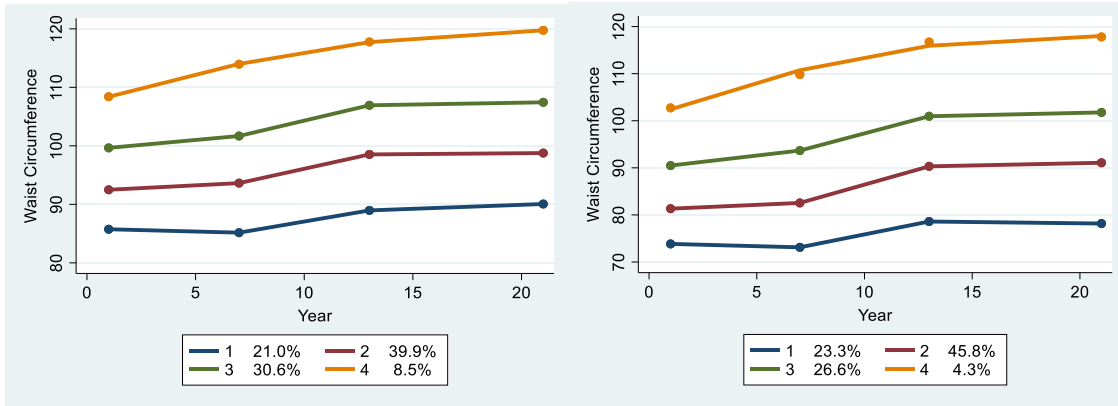
Supplementary Figure 1 Trajectories of individuals with repeated body mass index measurements between Tromsø4 and Tromsø7: The Tromsø Study 1994–2016.



Group 1	Stable normal weight	25.8%
Group 2	Stable overweight	44.8%
Group 3	Overweight to obesity	23.9%
Group 4	Increasing obesity	5.5%

Supplementary Figure 2 Trajectories of individuals with repeated waist circumference measurements between Tromsø4 and Tromsø7: The Tromsø Study 1994–2016.

(Males: n = 731; females n = 660)



Male		
Group 1	Stable normal WC	21.00%
Group 2	Stable moderately high WC	39.90%
Group 3	Moderately high to high WC	30.60%
Group 4	Increasing high WC	8.5 %

Female		
Group 1	Stable normal WC	23.30%
Group 2	Moderately high to high WC	45.80%
Group 3	Gradually increasing high WC	26.60%
Group 4	Steeply increasing high WC	4.30%