

Supplementary Table 1. Multivariable-adjusted associations between adiposity measures (continuous) and mammographic breast density

Adiposity measures ^b	N	Volumetric percent density (%)	
		%Diff ^a	95% CI
Body fat (%) ^c	362	-2.9	-3.5,-2.4
Hip circumference (cm) ^c	365	-1.1	-1.4,-0.8
Waist circumference (cm) ^c	366	-1.3	-1.6,-1.1
BMI at age 18 years (kg/m ²)	367	-1.6	-2.8,-0.4
BMI at age 30 years (kg/m ²)	367	-2.2	-3.0,-1.3
BMI at mammogram (kg/m ²)	367	-3.5	-4.1,-2.9
BMI change from age 10 to age at mammogram (kg/m ²) ^d	357	-3.5	-4.2,-2.8
BMI change from age 18 to age at mammogram (kg/m ²) ^d	367	-3.6	-4.3,-2.8
BMI change from age 30 to age at mammogram (kg/m ²) ^d	367	-3.9	-4.8,-2.9
Weight at age 18 years (kg)	367	-0.7	-1.2,-0.3
Weight at age 30 years (kg)	367	-1.0	-1.3,-0.6
Weight change from age 18 to age at mammogram (kg) ^d	367	-1.5	-1.8,-1.2
Weight change from age 30 to age at mammogram (kg) ^d	367	-1.6	-2.0,-1.3

^a Percentage difference (%Diff) represents one unit change in adiposity measures associated with percent change in volumetric percent density, dense volume, and non-dense volume.

^b All models were adjusted for age at mammogram (continuous, years), family history of breast cancer (yes/no), age at menarche (continuous, years), parity and age at first birth (categorical), race (Non-Hispanic white/African American/Others), current alcohol consumption (yes/no) and menopausal hormone therapy use (yes/no).

^c Adiposity measures at time of mammogram.

^d For each BMI change and weight change variables were additionally adjusted for BMI at age 10 (continuous, kg/m²).

Supplementary Table 2. Multivariable-adjusted associations between changes in body mass index (BMI) over the life course and volumetric percent density, stratified by race

BMI measures ^b	Non-Hispanic White (N=228)			African American (N=130)		
	N (%)	%Diff ^a	95% CI	N (%)	%Diff ^a	95% CI
BMI change from age 10 to age at mammogram (kg/m²)^c						
BMI gain: 0.1-5	13 (5.7%)	Ref		6 (4.6%)	Ref	
BMI gain: 5.1 - 10	69 (30.3%)	-26.2	-43.8,-3.1	26 (20.0%)	-26.0	-51.7,13.4
BMI gain: 10.1 - 15	64 (28.1%)	-50.8	-62.6,-35.4	36 (27.7%)	-35.9	-58.1,-1.8
BMI gain: > 15	74 (32.5%)	-57.0	-67.1,-43.9	60 (46.2%)	-54.4	-70.1,-30.6
<i>P</i> _{interaction} ^d = 0.31						
BMI change from age 18 to age at mammogram (kg/m²)						
BMI loss	13 (5.7%)	-3.02	-26.5,28.0	3 (2.3%)	27.7	-34.1,147.4
BMI gain: 0.1-5	63 (27.6%)	Ref		15 (11.5%)	Ref	
BMI gain: 5.1 - 10	63 (27.6%)	-29.5	-40.3,-16.8	43 (33.1%)	2.7	-34.1,147.4
BMI gain: 10.1 - 15	54 (23.7%)	-44.1	-52.7,-34.0	41 (31.5%)	-9.0	-32.0,21.7
BMI gain: > 15	35 (15.4%)	-48.6	-57.7,-37.6	28 (21.5%)	-28.1	-47.0,-2.4
<i>P</i> _{interaction} ^d = 0.23						
BMI change from age 30 to age at mammogram (kg/m²)						
BMI loss	23 (10.1%)	17.4	-6.1,46.9	11 (8.5%)	27.5	-8.7,77.9
BMI gain: 0.1-5	92 (40.4%)	Ref		33 (25.4%)	Ref	
BMI gain: 5.1 - 10	69 (30.3%)	-25.1	-35.5,-12.9	49 (37.7%)	-14.2	-30.5, 6.0
BMI gain: 10.1 - 15	32 (14.0%)	-36.8	-47.7,-23.6	25 (19.2%)	-18.2	-36.7, 5.9
BMI gain: > 15	12 (5.3%)	-41.1	-56.6,-20.2	12 (9.2%)	-20.7	-42.4, 9.4
<i>P</i> _{interaction} ^d = 0.68						

^a Percentage difference (%Diff) represents one unit change in BMI associated with percent change in volumetric percent density.

^b All models were adjusted for age at mammogram (continuous, years), family history of breast cancer (yes/no), age at menarche (continuous, years), parity and age at first birth (categorical), current alcohol consumption (yes/no), menopausal hormone therapy use (yes/no), and BMI at age 10 (continuous, kg/m²).

^c There were 356 women who had BMI gain from age 10 to age at mammogram, we did not show data on 1 woman who had BMI loss from age 10 to age at mammogram; 10 women had missing information for BMI from age 10 to age at mammogram.

^d Interaction between race and BMI change at various time periods in multivariable-adjusted model.

Supplementary Table 3. Multivariable-adjusted associations between changes in body mass index (BMI) over the life course and volumetric percent density, stratified by menopausal hormone therapy use

BMI measures ^b	No receiving menopausal hormone therapy (N=244)			Receiving menopausal hormone therapy (N=122)		
	N (%)	%Diff ^a	95% CI	N (%)	%Diff ^a	95% CI
BMI change from age 10 to age at mammogram (kg/m²)^c						
BMI gain: 0.1-5	8 (3.3%)	Ref		11 (9.0%)	Ref	
BMI gain: 5.1 - 10	68 (27.9%)	-19.9	-44.1,14.9	30 (24.6%)	-24.0	-43.2, 1.71
BMI gain: 10.1 - 15	64 (26.2%)	-40.7	-58.7,-14.9	38 (31.2%)	-48.1	-61.4,-30.3
BMI gain: > 15	96 (39.3%)	-54.2	-68.0,-34.4	40 (32.8%)	-56.3	-67.1,-41.9
<i>P</i> _{interaction} ^d = 0.68						
BMI change from age 18 to age at mammogram (kg/m²)						
BMI loss	7 (2.9%)	11.8	-23.5,63.4	11 (9.0%)	-4.8	-31.2,31.8
BMI gain: 0.1-5	55 (22.5%)	Ref		25 (20.5%)	Ref	
BMI gain: 5.1 - 10	67 (27.5%)	-15.1	-28.5, 0.7	41 (33.6%)	-36.9	-50.0,-20.6
BMI gain: 10.1 - 15	66 (27.1%)	-34.5	-44.8,-22.4	30 (24.6%)	-44.4	-56.6,-28.7
BMI gain: > 15	49 (20.1%)	-43.1	-52.7,-31.7	15 (12.3%)	-51.8	-64.5,-34.7
<i>P</i> _{interaction} ^d = 0.18						
BMI change from age 30 to age at mammogram (kg/m²)						
BMI loss	25 (10.3%)	19.2	-3.9,47.8	11 (9.0%)	23.0	-11.2,70.4
BMI gain: 0.1-5	76 (31.2%)	Ref		52 (42.6%)	Ref	
BMI gain: 5.1 - 10	84 (34.4%)	-27.5	-37.4,-15.9	35 (28.7%)	-12.8	-29.6, 8.1
BMI gain: 10.1 - 15	38 (15.6%)	-34.7	-45.7,-21.4	20 (16.4%)	-29.5	-46.1,-7.9
BMI gain: > 15	21 (8.6%)	-36.7	-50.1,-19.5	4 (3.3%)	-35.9	-60.6, 4.4
<i>P</i> _{interaction} ^d = 0.88						

^a Percentage difference (%Diff) represents one unit change in BMI associated with percent change in volumetric percent density.

^b All models were adjusted for age at mammogram (continuous, years), family history of breast cancer (yes/no), age at menarche (continuous, years), parity and age at first birth (categorical), race (Non-Hispanic white/African American/Others), current alcohol consumption (yes/no), and BMI at age 10 (continuous, kg/m²).

^c There were 356 women who had BMI gain from age 10 to age at mammogram, we did not show data on 1 woman who had BMI loss from age 10 to age at mammogram; 10 women had missing information for BMI from age 10 to age at mammogram.

^d Interaction between menopausal hormone therapy and BMI change at various time periods in multivariable-adjusted model.