

Association of body shape phenotypes and body fat distribution indexes with inflammatory biomarkers in the European Prospective Investigation into Cancer and Nutrition (EPIC) and UK Biobank

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Fig. S1. Flowchart with the included number of subjects in EPIC and UK Biobank. IL1ra: Interleukin-1 receptor antagonist; TNF- α : Tumour necrosis factor alpha; IFN- γ : Interferon-gamma.

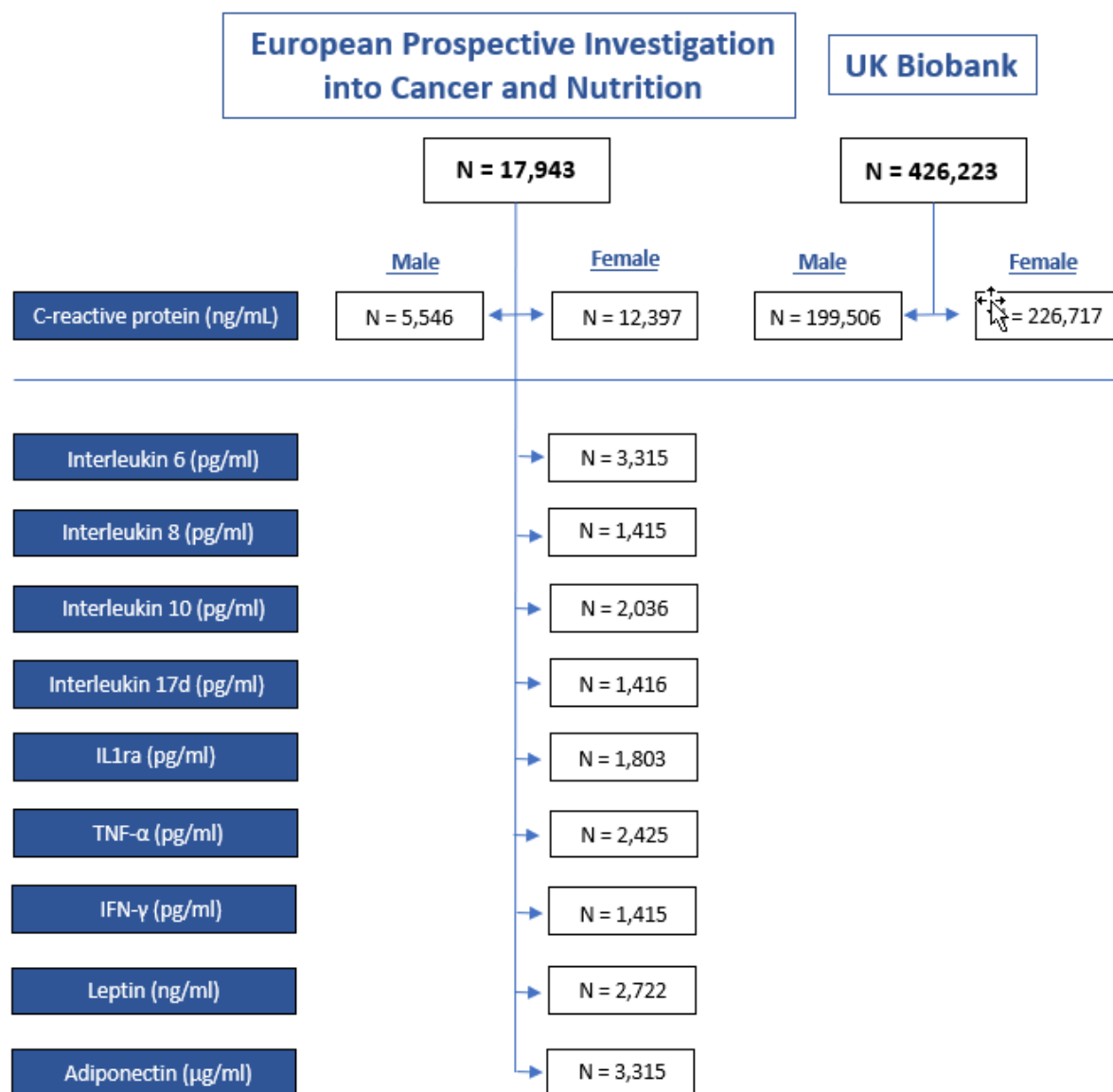
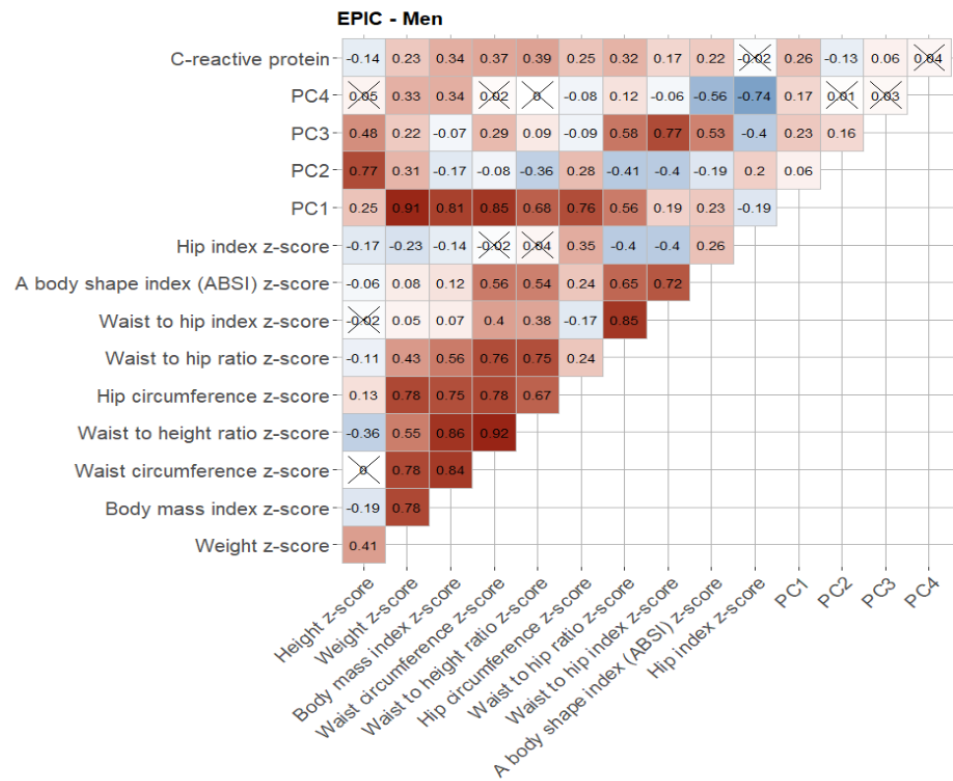
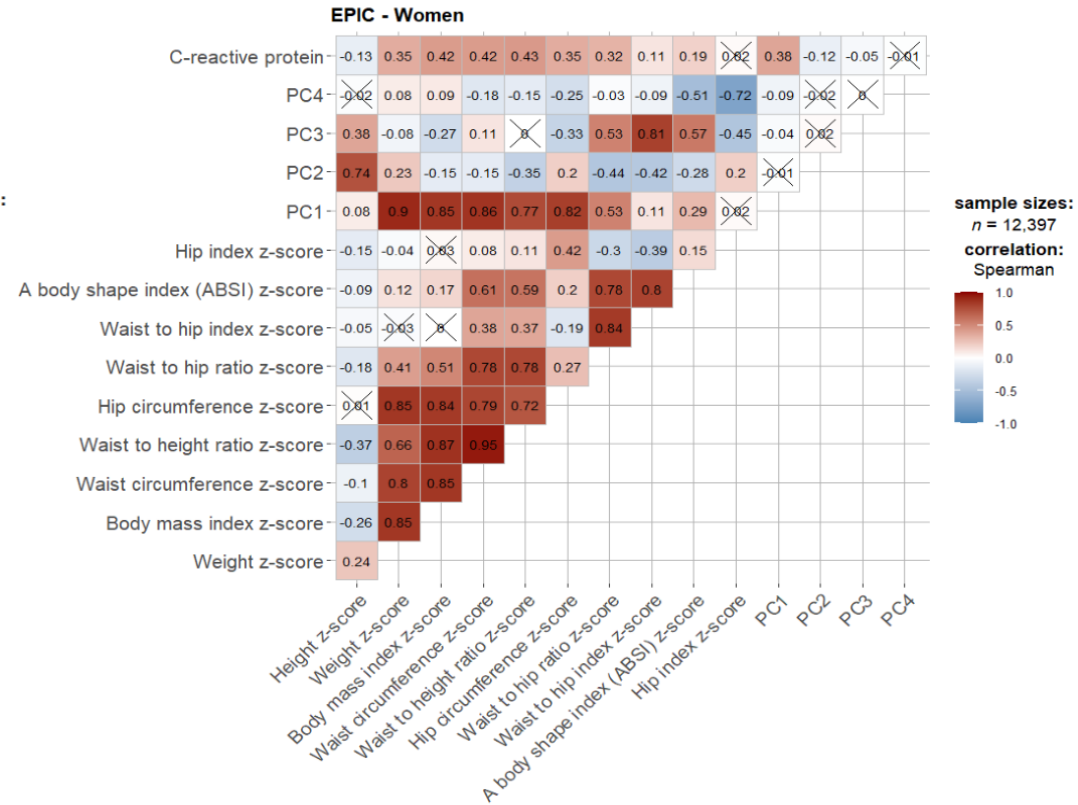


Fig. S2a. Correlations between adiposity and concentration of C-reactive protein in the EPIC study by sex.



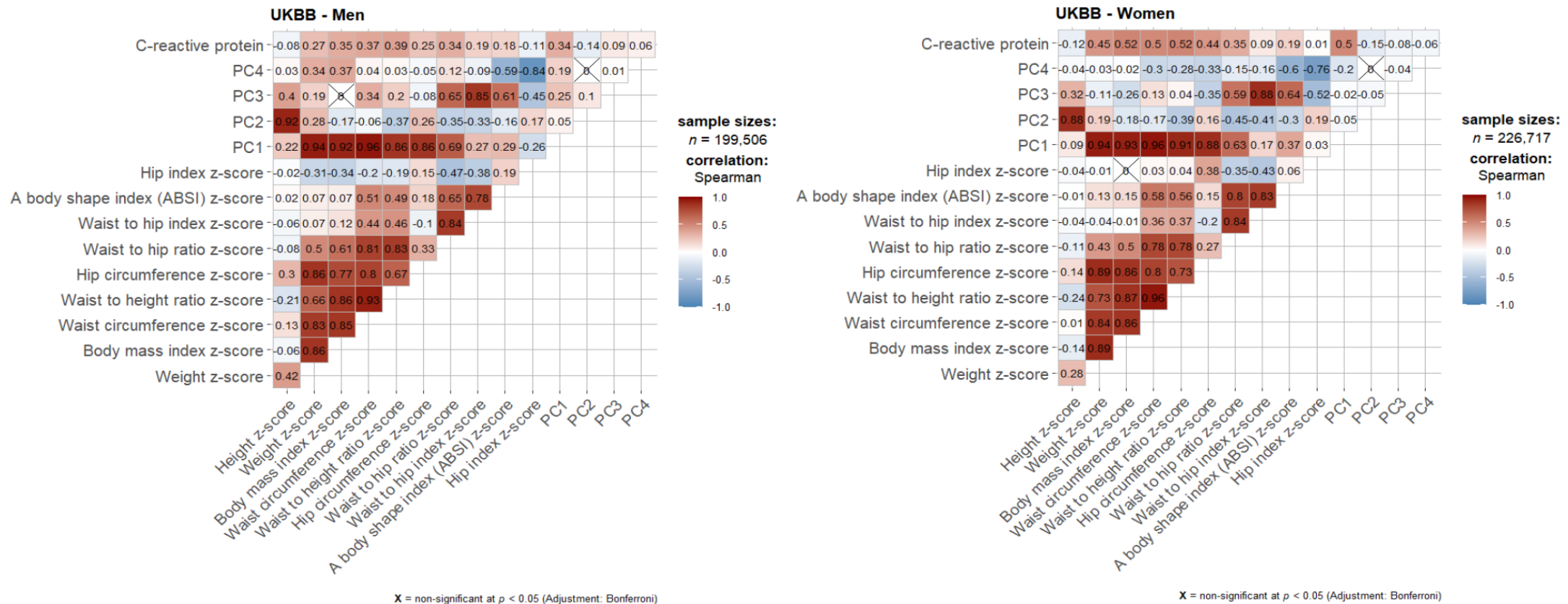
X = non-significant at $p < 0.05$ (Adjustment: Bonferroni)



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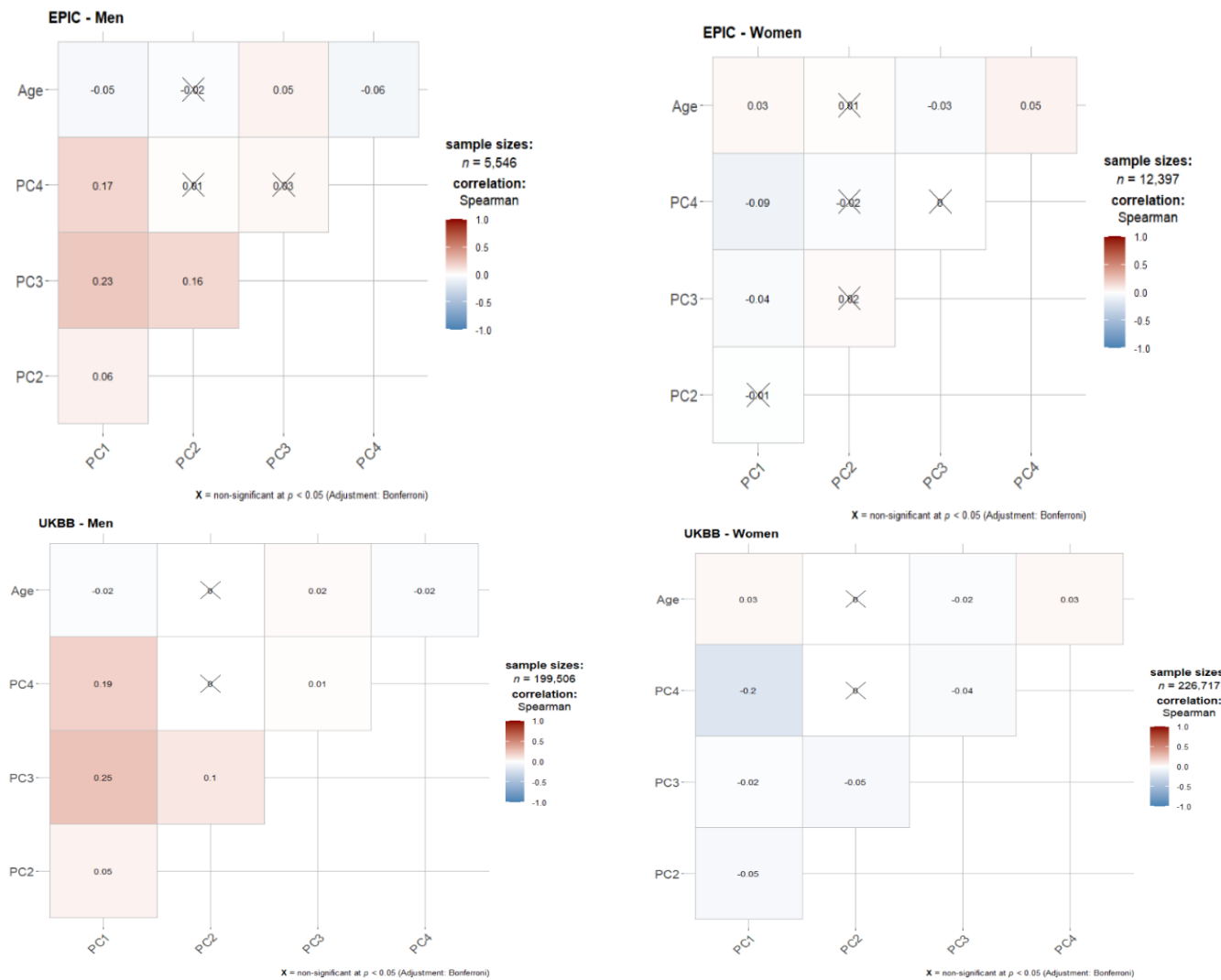
PC: principal component. PC1: overall adiposity; PC2: tall with low waist to hip ratio; PC3: tall with large waist to hip ratio, PC4: high BMI and weight with low waist circumference and hip circumference.

Fig. S2b. Correlations between adiposity and concentration of C-reactive protein in UK Biobank study by sex.



PC: principal component. PC1: overall adiposity; PC2: tall with low waist to hip ratio; PC3: tall with large waist to hip ratio, PC4: high BMI and weight with low waist circumference and hip circumference.

Fig. S3. Correlations between body shape phenotypes and age in the EPIC and UK Biobank study by sex.



PC: principal component. PC1: overall adiposity; PC2: tall with low waist to hip ratio; PC3: tall with large waist to hip ratio, PC4: high BMI and weight with low waist circumference and hip circumference.

Table S1. Loadings of the principal components derived in EPIC (n = 17,943) and UK Biobank (n = 426,223).

	EPIC				UK Biobank			
	PC1	PC2	PC3	PC4	PC1	PC2	PC3	PC4
Height	0.092	0.801	0.497	0.029	0.076	0.854	0.418	0.017
Weight	0.487	0.224	-0.042	0.497	0.478	0.220	-0.075	0.510
BMI	0.476	-0.149	-0.299	0.479	0.473	-0.147	-0.284	0.471
HC	0.446	0.219	-0.389	-0.595	0.449	0.177	-0.401	-0.604
WC	0.493	-0.146	0.175	-0.411	0.488	-0.109	0.166	-0.391
WHR	0.295	-0.466	0.693	-0.015	0.320	-0.396	0.742	-0.017

BMI: body mass index; WC: waist circumference; HC: hip circumference; WHR: waist to hip ratio; PC: principal component. PC1: overall adiposity; PC2: tall with low waist to hip ratio; PC3: tall with large waist to hip ratio, PC4: high BMI and weight with low waist circumference and hip circumference.

Table S2. Mean and standard deviations of age and the six anthropometric traits building the body shape phenotypes for individuals included in the top and bottom 5% of each PC in the EPIC study.

EPIC																
Men									Women							
	PC1		PC2		PC3		PC4		PC1		PC2		PC3		PC4	
	5%	95%	5%	95%	5%	95%	5%	95%	5%	95%	5%	95%	5%	95%	5%	95%
Age	55.0 (9.0)	53.1 (8.4)	52.9 (7.4)	53.2 (8.3)	52.4 (9.4)	53.0 (8.4)	53.9 (9.6)	53.2 (8.4)	54.1 (9.2)	52.5 (8.9)	52.4 (9.1)	52.4 (8.9)	53.7 (8.4)	52.5 (8.8)	52.8 (9.7)	52.4 (8.9)
Height	170.0 (6.8)	173.6 (7.3)	162.2 (5.3)	173.0 (6.7)	166.2 (6.6)	173.4 (7.2)	172.8 (7.3)	173.7 (7.3)	158.5 (6.2)	161.0 (6.7)	151.6 (5.1)	160.5 (6.2)	155.6 (6.1)	160.8 (6.5)	161.1 (7.1)	161.1 (6.7)
Weight	62.0 (4.9)	79.4 (9.9)	74.4 (11.1)	80.4 (11.4)	79.0 (14.2)	80.5 (11.5)	74.8 (10.6)	80.2 (11.0)	50.5 (4.3)	65.1 (9.4)	62.4 (10.5)	66.3 (11.3)	75.2 (17.1)	66.5 (11.5)	69.0 (12.2)	66.3 (11.2)
BMI	21.5 (1.9)	26.4 (3.1)	28.2 (3.7)	26.9 (3.6)	28.6 (4.9)	26.8 (3.6)	25.1 (3.7)	26.6 (3.4)	20.1 (1.8)	25.2 (3.7)	27.2 (4.5)	25.8 (4.5)	31.0 (6.4)	25.8 (4.5)	26.7 (5.0)	25.6 (4.4)
WC	78.5 (6.2)	93.9 (8.8)	98.0 (11.9)	95.2 (10.0)	91.9 (14.3)	94.7 (9.9)	97.5 (11.6)	94.9 (9.8)	66.6 (4.6)	79.8 (9.6)	86.6 (12.9)	81.3 (11.2)	84.5 (15.1)	80.7 (11.1)	91.2 (13.3)	81.2 (11.1)
HC	91.2 (4.6)	100.3 (6.2)	97.1 (7.1)	100.9 (6.9)	104.7 (10.2)	101.1 (6.9)	104.1 (7.6)	101.1 (6.7)	89.5 (4.6)	100.5 (7.8)	98.0 (9.0)	101.4 (9.1)	113.1 (12.6)	101.8 (9.1)	109.5 (10.1)	101.7 (9.0)
WHR	0.9 (0.1)	0.9 (0.1)	1.0 (0.1)	0.9 (0.1)	0.9 (0.1)	0.9 (0.1)	0.9 (0.1)	0.9 (0.1)	0.7 (0.0)	0.8 (0.1)	0.9 (0.1)	0.8 (0.1)	0.7 (0.1)	0.8 (0.1)	0.8 (0.1)	0.8 (0.1)

BMI: body mass index; WC: waist circumference; HC: hip circumference; WHR: waist to hip ratio; PC: principal component. PC1: overall adiposity; PC2: tall with low waist to hip ratio; PC3: tall with large waist to hip ratio, PC4: high BMI and weight with low waist circumference and hip circumference.

Table S3. Mean and standard deviations of age and the six anthropometric traits building the body shape phenotypes for individuals included in the top and bottom 5% of each PC in UK Biobank study.

UK Biobank																
Men									Women							
	PC1		PC2		PC3		PC4		PC1		PC2		PC3		PC4	
	5%	95%	5%	95%	5%	95%	5%	95%	5%	95%	5%	95%	5%	95%	5%	95%
Age	56.5 (8.3)	56.5 (8.2)	56.1 (8.3)	56.4 (8.2)	56.4 (8.5)	56.4 (8.2)	56.9 (8.5)	56.5 (8.2)	55.9 (8.0)	56.2 (8.0)	55.6 (8.1)	56.1 (8.0)	56.5 (7.9)	56.1 (8.0)	56.8 (8.0)	56.1 (8.0)
Height	171.9 (6.9)	175.5 (6.8)	162.8 (3.9)	174.9 (6.2)	169.9 (6.5)	175.4 (6.7)	175.2 (7.2)	175.6 (6.8)	159.9 (5.9)	162.4 (6.3)	151.1 (4.0)	161.8 (5.8)	158.4 (6.1)	162.3 (6.2)	162.0 (6.6)	162.5 (6.3)
Weight	63.1 (5.3)	84.1 (11.8)	77.6 (13.4)	85.5 (14.1)	87.4 (22.2)	85.6 (14.2)	80.0 (14.0)	85.1 (13.6)	51.2 (3.9)	69.5 (11.3)	66.0 (12.7)	71.1 (13.9)	88.3 (21.0)	71.4 (14.2)	78.3 (15.4)	71.1 (13.6)
BMI	21.4 (1.6)	27.3 (3.4)	29.2 (4.6)	27.9 (4.2)	30.2 (6.9)	27.8 (4.2)	26.1 (4.5)	27.6 (4.0)	20.0 (1.5)	26.4 (4.2)	28.9 (5.3)	27.1 (5.2)	35.1 (7.5)	27.1 (5.2)	29.9 (5.9)	26.9 (5.0)
WC	77.3 (4.0)	95.4 (9.5)	98.7 (11.9)	96.9 (11.3)	94.5 (17.7)	96.4 (11.1)	99.3 (11.9)	96.6 (11.0)	65.5 (3.0)	83.0 (10.6)	89.5 (12.6)	84.8 (12.5)	93.1 (17.4)	84.2 (12.4)	99.2 (12.8)	84.7 (12.4)
HC	92.0 (3.8)	102.5 (6.3)	99.4 (7.5)	103.2 (7.5)	108.9 (13.5)	103.5 (7.6)	106.5 (9.2)	103.4 (7.4)	88.7 (3.9)	102.0 (8.5)	100.0 (9.9)	103.1 (10.3)	120.9 (14.5)	103.6 (10.4)	114.8 (12.2)	103.5 (10.2)
WHR	0.8 (0.1)	0.9 (0.1)	1.0 (0.1)	0.9 (0.1)	0.9 (0.1)	0.9 (0.1)	0.9 (0.1)	0.9 (0.1)	0.7 (0.0)	0.8 (0.1)	0.9 (0.1)	0.8 (0.1)	0.8 (0.1)	0.8 (0.1)	0.9 (0.1)	0.8 (0.1)

BMI: body mass index; WC: waist circumference; HC: hip circumference; WHR: waist to hip ratio; PC: principal component. PC1: overall adiposity; PC2: tall with low waist to hip ratio; PC3: tall with large waist to hip ratio, PC4: high BMI and weight with low waist circumference and hip circumference.

Table S4. Sample size and associations between individuals with obesity and by obesity class and C-reactive protein (CRP) levels in EPIC.

CRP – EPIC								
	Men				Women			
	N (%)	Beta	95% CI ¹	P	N (%)	Beta	95% CI ¹	P
Obesity (BMI ≥30 kg/m²)	947 (17.1%)	0.502	0.436, 0.567	<0.001	1943 (15.7%)	0.779	0.732, 0.827	<0.001
Obesity class I (BMI 30 - <35 kg/m²)	829 (14.9%)	0.455	0.386, 0.524	<0.001	1468 (11.9%)	0.683	0.630, 0.736	<0.001
Obesity class II (BMI 35 - <40 kg/m²)	103 (1.9%)	0.815	0.632, 0.998	<0.001	377 (3.0%)	0.966	0.865, 1.066	<0.001
Obesity class III (BMI ≥40 kg/m²)	15 (0.3%)	0.823	0.347, 1.298	<0.001	98 (0.8%)	1.427	1.233, 1.620	<0.001
¹ CI = Confidence Interval								

All analyses were adjusted for age at recruitment, smoking status, education, and physical activity. BMI: body mass index.

Table S5. Sample size and associations between individuals with obesity and by obesity class and C-reactive protein (CRP) levels in UK Biobank.

CRP – UK Biobank								
	Men				Women			
	N (%)	Beta	95% CI ¹	P	N (%)	Beta	95% CI ¹	P
Obesity (BMI ≥30 kg/m²)	50629 (25.4%)	0.547	0.536, 0.557	<0.001	53330 (23.5%)	0.951	0.940, 0.961	<0.001
Obesity class I (BMI 30 - <35 kg/m²)	39228 (19.7%)	0.460	0.449, 0.472	<0.001	35508 (15.7%)	0.785	0.773, 0.797	<0.001
Obesity class II (BMI 35 - <40 kg/m²)	8739 (4.4%)	0.772	0.750, 0.795	<0.001	12363 (5.4%)	1.167	1.147, 1.187	<0.001
Obesity class III (BMI ≥40 kg/m²)	2662 (1.3%)	1.102	1.063, 1.143	<0.001	5459 (2.4%)	1.573	1.543, 1.603	<0.001
¹ CI = Confidence Interval								

All analyses were adjusted for age at recruitment, smoking status, education, and physical activity. BMI: body mass index.

Table S6. Associations between anthropometric indexes and C-reactive protein (CRP) in the EPIC study.

CRP – EPIC								
	Men				Women			
	N= 5,546				N= 12,397			
	Beta	95% CI ¹	P	P ²	Beta	95% CI ¹	P	P ²
Height z-score	-0.12	-0.15, -0.09	<0.001	<0.001	-0.10	-0.13, -0.08	<0.001	<0.001
Weight z-score	0.25	0.22, 0.28	<0.001	<0.001	0.39	0.37, 0.41	<0.001	<0.001
BMI z-score	0.36	0.33, 0.39	<0.001	<0.001	0.38	0.37, 0.40	<0.001	<0.001
Waist circumference z-score	0.39	0.36, 0.42	<0.001	<0.001	0.45	0.43, 0.47	<0.001	<0.001
Waist to Height z-score	0.40	0.37, 0.43	<0.001	<0.001	0.41	0.40, 0.43	<0.001	<0.001
Hip circumference z-score	0.29	0.26, 0.32	<0.001	<0.001	0.32	0.30, 0.33	<0.001	<0.001
Waist to hip ratio z-score	0.35	0.32, 0.39	<0.001	<0.001	0.36	0.33, 0.38	<0.001	<0.001
Waist to Hip index z score	0.16	0.12, 0.20	<0.001	<0.001	0.10	0.07, 0.12	<0.001	<0.001
ABSI index z-score	0.20	0.17, 0.24	<0.001	<0.001	0.16	0.14, 0.18	<0.001	<0.001
Hip index z-score	-0.01	-0.04, 0.03	0.724	1	0.02	0.00, 0.04	0.094	1
PC1	0.27	0.25, 0.30	<0.001	<0.001	0.36	0.34, 0.38	<0.001	<0.001
PC2	-0.09	-0.12, -0.07	<0.001	<0.001	-0.10	-0.12, -0.09	<0.001	<0.001
PC3	0.03	0.00, 0.06	0.022	0.308	-0.05	-0.06, -0.03	<0.001	<0.001
PC4	0.03	0.01, 0.06	0.006	0.084	-0.02	-0.04, 0.00	0.058	0.812
¹ CI = Confidence Interval, ² Adjusted P (Bonferroni correction)								

All analyses were adjusted for age at recruitment, smoking status, education, and physical activity. BMI: body mass index; ABSI: a body shape index; PC: principal component. PC1: overall adiposity; PC2: tall with low waist to hip ratio; PC3: tall with large waist to hip ratio, PC4: high BMI and weight with low waist circumference and hip circumference.

Table S7. Associations between anthropometric indexes and C-reactive protein (CRP) in UK Biobank study.

CRP – UK Biobank								
	Men				Women			
	N= 199,506				N= 226,717			
	Beta	95% CI ¹	P	P ²	Beta	95% CI ¹	P	P ²
Height z-score	-0.07	-0.07, -0.06	<0.001	<0.001	-0.12	-0.13, -0.11	<0.001	<0.001
Weight z-score	0.30	0.29, 0.30	<0.001	<0.001	0.52	0.52, 0.53	<0.001	<0.001
BMI z-score	0.36	0.36, 0.37	<0.001	<0.001	0.48	0.47, 0.48	<0.001	<0.001
Waist circumference z-score	0.39	0.38, 0.39	<0.001	<0.001	0.53	0.53, 0.54	<0.001	<0.001
Waist to Height z-score	0.40	0.39, 0.40	<0.001	<0.001	0.48	0.48, 0.49	<0.001	<0.001
Hip circumference z-score	0.30	0.29, 0.30	<0.001	<0.001	0.40	0.39, 0.40	<0.001	<0.001
Waist to hip ratio z-score	0.39	0.39, 0.40	<0.001	<0.001	0.41	0.41, 0.42	<0.001	<0.001
Waist to Hip index z score	0.21	0.21, 0.22	<0.001	<0.001	0.07	0.07, 0.08	<0.001	<0.001
ABSI index z-score	0.18	0.17, 0.18	<0.001	<0.001	0.16	0.16, 0.17	<0.001	<0.001
Hip index z-score	-0.13	-0.14, -0.13	<0.001	<0.001	0.02	0.01, 0.02	<0.001	<0.001
PC1	0.17	0.17, 0.17	<0.001	<0.001	0.24	0.24, 0.24	<0.001	<0.001
PC2	-0.11	-0.11, -0.10	<0.001	<0.001	-0.13	-0.14, -0.13	<0.001	<0.001
PC3	0.07	0.07, 0.08	<0.001	<0.001	-0.10	-0.11, -0.10	<0.001	<0.001
PC4	0.18	0.17, 0.20	<0.001	<0.001	-0.15	-0.16, -0.14	<0.001	<0.001
¹ CI = Confidence Interval, ² Adjusted P (Bonferroni correction)								

All analyses were adjusted for age at recruitment, smoking status, education, and physical activity. BMI: body mass index; ABSI: a body shape index; PC: principal component. PC1: overall adiposity; PC2: tall with low waist to hip ratio; PC3: tall with large waist to hip ratio, PC4: high BMI and weight with low waist circumference and hip circumference.

Table S8. Meta-analysis results of the associations between anthropometric indexes and C-reactive protein (CRP) in the EPIC and UK Biobank cohorts.

CRP – Meta-analysis														
	Men							Women						
	Beta	95% CI ¹	P	P ²	Heterogeneity			Beta	95% CI ¹	P	P ²	Heterogeneity		
					Q	P	I ²					Q	P	I ²
Height z-score	-0.09	-0.14, -0.04	<0.001	0.003	8.99	0.003	88.9%	-0.11	-0.14, -0.09	<0.001	<0.001	3.91	0.048	74.4%
Weight z-score	0.28	0.23, 0.32	<0.001	<0.001	10.3	0.001	90.2%	0.46	0.33, 0.58	<0.001	<0.001	159.2	<0.001	99.4%
BMI z-score	0.36	0.36, 0.37	<0.001	<0.001	0.03	0.864	0.0%	0.43	0.34, 0.52	<0.001	<0.001	111.5	<0.001	99.1%
Waist circumference z-score	0.39	0.38, 0.39	<0.001	<0.001	0.00	0.962	0.0%	0.49	0.41, 0.57	<0.001	<0.001	66.0	<0.001	98.9%
Waist to Height z-score	0.40	0.39, 0.40	<0.001	<0.001	0.15	0.697	0.0%	0.45	0.38, 0.52	<0.001	<0.001	55.0	<0.001	98.2%
Hip circumference z-score	0.30	0.29, 0.30	<0.001	<0.001	0.07	0.789	0.0%	0.35	0.28, 0.43	<0.001	<0.001	93.0	<0.001	98.9%
Waist to hip ratio z-score	0.38	0.34, 0.42	<0.001	<0.001	5.05	0.025	80.2%	0.38	0.33, 0.44	<0.001	<0.001	21.3	<0.001	95.3%
Waist to Hip index z score	0.19	0.14, 0.24	<0.001	<0.001	6.16	0.013	83.8%	0.08	0.06, 0.10	<0.001	<0.001	3.09	0.079	67.6%
ABSI index z-score	0.19	0.16, 0.21	<0.001	<0.001	2.41	0.120	58.6%	0.16	0.16, 0.17	<0.001	<0.001	0.19	0.663	0.0%
Hip index z-score	-0.07	-0.19, 0.05	0.254	1	48.0	<0.001	97.9%	0.02	0.01, 0.02	<0.001	<0.001	0.00	0.963	0.0%
PC1	0.22	0.12, 0.32	<0.001	<0.001	64.6	<0.001	98.5%	0.30	0.19, 0.41	<0.001	<0.001	198.5	<0.001	99.5%
PC2	-0.10	-0.11, -0.10	<0.001	<0.001	1.15	0.285	12.7%	-0.12	-0.15, -0.09	<0.001	<0.001	10.9	0.001	90.9%
PC3	0.06	0.01, 0.10	0.008	0.112	8.95	0.003	88.9%	-0.08	-0.13, -0.02	0.005	0.070	35.6	<0.001	97.2%
PC4	0.11	-0.04, 0.26	0.147	1	117.8	<0.001	99.2%	-0.08	-0.21, 0.04	0.203	1	126.9	<0.001	99.2%

¹ CI = Confidence Interval, ²Adjusted P (Bonferroni correction)

All analyses were adjusted for age at recruitment, smoking status, education, and physical activity. BMI: body mass index; ABSI: a body shape index; PC: principal component. PC1: overall adiposity; PC2: tall with low waist to hip ratio; PC3: tall with large waist to hip ratio, PC4: high BMI and weight with low waist circumference and hip circumference.

Table S9. Associations between anthropometric indexes and all the inflammatory biomarkers analysed in EPIC.

	Interleukin 6				Interleukin 8				Interleukin 10				Interleukin 17d			
	N= 3,315				N=1,415				N=2,036				N=1,416			
	Beta	95% CI ¹	P	P ²	Beta	95% CI ¹	P	P ²	Beta	95% CI ¹	P	P ²	Beta	95% CI ¹	P	P ²
Height z-score	-0.05	-0.09,-0.01	<0.001	<0.001	-0.04	-0.11, 0.03	0.264	1	0.05	-0.01, 0.12	0.080	1	0.02	-0.05, 0.10	0.483	1
Weight z-score	0.23	0.20, 0.27	<0.001	<0.001	0.02	-0.05, 0.08	0.558	1	-0.03	-0.08, 0.03	0.323	1	-0.09	-0.15, -0.03	0.005	0.070
BMI z-score	0.22	0.20, 0.26	<0.001	<0.001	0.04	-0.02, 0.09	0.199	1	-0.04	-0.09, 0.00	0.067	0.938	-0.09	-0.14, -0.03	0.002	0.028
WC z-score	0.26	0.22, 0.29	<0.001	<0.001	0.06	-0.01, 0.12	0.092	1	-0.03	-0.08, 0.03	0.284	1	-0.08	-0.15, -0.02	0.009	0.126
WHtR z-score	0.23	0.20,0.27	<0.001	<0.001	0.06	0.00, 0.12	0.041	0.574	-0.04	-0.09, 0.01	0.121	1	-0.08	-0.14, -0.02	0.008	0.112
HC z-score	0.18	0.15, 0.21	<0.001	<0.001	0.02	-0.04, 0.07	0.525	1	-0.03	-0.07, 0.02	0.245	1	-0.06	-0.11, 0.00	0.035	0.490
WHR z-score	0.18	0.14, 0.22	<0.001	<0.001	0.07	0.00, 0.14	0.043	0.602	-0.01	-0.07, 0.05	0.675	1	-0.06	-0.13, 0.01	0.008	0.112
WHI z-score	0.05	0.01,0.09	0.021	0.294	0.05	-0.01,0.12	0.115	1	0.01	-0.04,0.07	0.624	1	-0.01	-0.08,0.05	0.705	1
ABSI z-score	0.07	0.04, 0.10	<0.001	<0.001	0.04	-0.02, 0.10	0.205	1	0.01	-0.04, 0.06	0.755	1	0.00	-0.06, 0.06	0.920	1
HI z-score	-0.01	-0.05, 0.03	0.618	1	-0.01	-0.08, 0.06	0.687	1	0.00	-0.06, 0.06	0.968	1	0.04	-0.03, 0.11	0.234	1
PC1	0.21	0.18, 0.24	<0.001	<0.001	0.04	-0.02, 0.09	0.189	1	-0.03	-0.07, 0.02	0.249	1	-0.07	-0.12, -0.02	0.009	0.126
PC2	-0.05	-0.08,-0.02	0.001	0.014	-0.05	-0.10, 0.00	0.067	0.938	0.02	-0.02, 0.07	0.267	1	0.02	-0.03, 0.07	0.500	1
PC3	-0.02	-0.05, 0.01	0.155	1	0.02	-0.03, 0.06	0.505	1	0.02	-0.02, 0.06	0.238	1	0.00	-0.04, 0.05	0.830	1
PC4	0.01	-0.02, 0.04	0.524	1	-0.01	-0.07, 0.04	0.607	1	-0.02	-0.06, 0.03	0.489	1	-0.04	-0.09, 0.02	0.166	1

¹ CI = Confidence Interval, ²Adjusted P (Bonferroni correction)

Adjusted for age at recruitment, smoking status, education, and physical activity. IL1ra: Interleukin-1 receptor antagonist; TNF-α: Tumour necrosis factor alpha; IFN-γ: Interferon-gamma; BMI: body mass index; WC: waist circumference; WHtR: waist to height ratio; HC: Hip circumference; WHR: Waist to hip ratio; WHI: waist to hip index; ABSI: a body shape index. PC1: Overall adiposity; PC2: tall with low Waist to hip ratio; PC3: tall with large waist to hip ratio, PC4: high BMI and weight with low waist circumference and hip circumference.

Table S9 (cont.). Associations between anthropometric indexes and all the inflammatory biomarkers analysed in EPIC.

	IL1ra				TNF- α				IFN- γ				Leptin			
	N=1,803				N=2,425				N=1,415				N=2,722			
	Beta	95% CI ¹	P	P ²	Beta	95% CI ¹	P	P ²	Beta	95% CI ¹	P	P ²	Beta	95% CI ¹	P	P ²
Height z-score	0.01	-0.06, 0.08	0.766	1	0.04	-0.02, 0.09	0.236	1	-0.01	-0.09, 0.06	0.844	1	-0.09	-0.14, -0.05	<0.001	<0.001
Weight z-score	0.31	0.25, 0.36	<0.001	<0.001	0.16	0.11, 0.21	<0.001	<0.001	0.03	-0.04, 0.10	<0.001	<0.001	0.59	0.56, 0.62	<0.001	<0.001
BMI z-score	0.28	0.23, 0.32	<0.001	<0.001	0.13	0.09, 0.17	<0.001	<0.001	0.04	-0.02, 0.09	0.248	1	0.56	0.53, 0.58	<0.001	<0.001
WC z-score	0.34	0.28, 0.39	<0.001	<0.001	0.17	0.13, 0.22	<0.001	<0.001	0.06	0.00, 0.13	0.084	1	0.58	0.55, 0.62	<0.001	<0.001
WHtR z-	0.30	0.24, 0.35	<0.001	<0.001	0.15	0.10, 0.19	<0.001	<0.001	0.06	0.00, 0.12	0.074	1	0.54	0.51, 0.57	<0.001	<0.001
HC z-score	0.23	0.19, 0.28	<0.001	<0.001	0.11	0.06, 0.15	<0.001	<0.001	0.01	-0.04, 0.07	0.712	1	0.51	0.48, 0.54	<0.001	<0.001
WHR z-score	0.23	0.17, 0.29	<0.001	<0.001	0.15	0.10, 0.20	<0.001	<0.001	0.08	0.01, 0.15	0.030	0.420	0.30	0.26, 0.35	<0.001	<0.001
WHI z-score	0.09	0.03, 0.15	0.003	0.042	0.08	0.03, 0.13	0.002	0.028	0.06	0.00, 0.13	0.066	0.924	-0.02	-0.06, 0.02	0.272	1
ABSI z-score	0.11	0.06, 0.16	<0.001	<0.001	0.07	0.02, 0.12	0.002	0.028	0.04	-0.01, 0.10	0.136	1	0.09	0.06, 0.13	<0.001	<0.001
HI z-score	-0.03	-0.10, 0.03	0.264	1	-0.05	-0.10, 0.00	0.069	0.966	-0.05	-0.12, 0.02	0.199	1	0.07	0.02, 0.11	0.002	0.028
PC1	0.27	0.23, 0.32	<0.001	<0.001	0.14	0.10, 0.18	<0.001	<0.001	0.04	-0.02, 0.09	0.209	1	0.50	0.47, 0.53	<0.001	<0.001
PC2	-0.05	-0.09, 0.00	0.040	0.560	-0.01	-0.06, 0.02	0.432	1	-0.03	-0.08, 0.02	0.267	1	-0.06	-0.10, -0.03	<0.001	<0.001
PC3	0.02	-0.02, 0.06	0.453	1	0.03	0.00, 0.07	0.076	1	0.03	-0.02, 0.08	0.191	1	-0.12	-0.15, -0.09	<0.001	<0.001
PC4	-0.01	-0.06, 0.03	0.551	1	0.00	-0.04, 0.04	0.931	1	0.00	-0.05, 0.06	0.929	1	-0.03	-0.06, 0.01	0.112	1

¹ CI = Confidence Interval, ²Adjusted P (Bonferroni correction)

Adjusted for age at recruitment, smoking status, education, and physical activity. IL1ra: Interleukin-1 receptor antagonist; TNF- α : Tumour necrosis factor alpha; IFN- γ : Interferon-gamma; BMI: body mass index; WC: waist circumference; WHtR: waist to height ratio; HC: Hip circumference; WHR: Waist to hip ratio; WHI: waist to hip index; ABSI: a body shape index. PC1: Overall adiposity; PC2: tall with low Waist to hip ratio; PC3: tall with large waist to hip ratio, PC4: high BMI and weight with low waist circumference and hip circumference.

Table S9 (cont.). Associations between anthropometric indexes and all the inflammatory biomarkers analysed in EPIC.

Adiponectin				
N=3,315				
	Beta	95% CI¹	P	P²
Height z-score	0.05	0.01, 0.10	0.023	0.322
Weight z-score	-0.21	-0.25, -0.18	<0.001	<0.001
BMI z-score	-0.21	-0.24, -0.18	<0.001	<0.001
WC z-score	-0.30	-0.34, -0.27	<0.001	<0.001
WHtR z-score	-0.28	-0.31, -0.24	<0.001	<0.001
HC z-score	-0.11	-0.15, -0.08	<0.001	<0.001
WHR z-score	-0.35	-0.39, -0.30	<0.001	<0.001
WHI z-score	-0.23	-0.27, -0.19	<0.001	<0.001
ABSI z-score	-0.18	-0.21, -0.14	<0.001	<0.001
HI z-score	0.16	0.12, 0.20	<0.001	<0.001
PC1	-0.22	-0.25, -0.19	<0.001	<0.001
PC2	0.14	0.11, 0.17	<0.001	<0.001
PC3	-0.10	-0.12, -0.07	<0.001	<0.001
PC4	-0.02	-0.05, 0.02	0.330	1

¹ CI = Confidence Interval, ²Adjusted P (Bonferroni correction)

Adjusted for age at recruitment, smoking status, education, and physical activity. IL1ra: Interleukin-1 receptor antagonist; TNF- α : Tumour necrosis factor alpha; IFN- γ : Interferon-gamma; BMI: body mass index; WC: waist circumference; WHtR: waist to height ratio; HC: Hip circumference; WHR: Waist to hip ratio; WHI: waist to hip index; ABSI: a body shape index. PC1: Overall adiposity; PC2: tall with low Waist to hip ratio; PC3: tall with large waist to hip ratio, PC4: high BMI and weight with low waist circumference and hip circumference.

Table S10. Associations between anthropometric indexes and C-reactive protein (CRP) stratifying by sex-specific median age and p-values for likelihood ratio test comparing models without and with interactions in the EPIC study.

CRP – EPIC												
	Men						Women					
	N= 5,546						N= 12,397					
	< 53 years (N = 2,689)		≥ 53 years (N = 2,857)		P interaction		< 53 years (N = 6,340)		≥ 53 years (N = 6,057)		P interaction	
	Beta	95% CI ¹	Beta	95% CI ¹	P	P ²	Beta	95% CI ¹	Beta	95% CI ¹	P	P ²
Height z-score	-0.14	-0.18, -0.09	-0.11	-0.15, -0.06	0.170	1	-0.08	-0.11, -0.04	-0.12	-0.16, -0.09	0.635	1
Weight z-score	0.26	0.22, 0.30	0.25	0.21, 0.29	0.113	1	0.42	0.39, 0.44	0.37	0.34, 0.39	0.017	0.238
BMI z-score	0.40	0.35, 0.44	0.34	0.30, 0.38	0.003	0.042	0.40	0.38, 0.43	0.37	0.35, 0.39	0.060	0.840
Waist circumference z-score	0.43	0.38, 0.47	0.37	0.33, 0.41	0.002	0.028	0.48	0.45, 0.50	0.43	0.40, 0.45	0.048	0.672
Waist to Height z-score	0.45	0.41, 0.49	0.37	0.33, 0.41	0.001	0.014	0.44	0.41, 0.47	0.40	0.37, 0.42	0.070	0.980
Hip circumference z-score	0.31	0.27, 0.35	0.28	0.24, 0.32	0.011	0.154	0.34	0.32, 0.36	0.29	0.27, 0.31	0.001	0.014
Waist to hip ratio z-score	0.37	0.32, 0.43	0.35	0.30, 0.40	0.058	0.812	0.36	0.32, 0.40	0.35	0.32, 0.39	0.539	1
Waist to Hip index z score	0.18	0.12, 0.24	0.18	0.12, 0.23	0.646	1	0.06	0.03, 0.10	0.13	0.10, 0.16	0.053	0.742
ABSI index z-score	0.23	0.18, 0.28	0.20	0.15, 0.25	0.240	1	0.15	0.12, 0.18	0.17	0.15, 0.20	0.171	1
Hip index z-score	-0.01	-0.06, 0.05	-0.02	-0.07, 0.03	0.863	1	0.03	0.00, 0.06	0.00	-0.03, 0.04	0.471	1
PC1	0.28	0.25, 0.32	0.26	0.23, 0.30	0.042	0.588	0.37	0.35, 0.40	0.34	0.32, 0.36	0.046	0.644
PC2	-0.09	-0.12, -0.05	-0.10	-0.13, -0.07	0.547	1	-0.08	-0.11, -0.06	-0.12	-0.14, -0.09	0.763	1
PC3	0.04	0.00, 0.08	0.04	0.00, 0.08	0.728	1	-0.08	-0.11, -0.05	-0.02	-0.04, 0.00	<0.001	0.003
PC4	0.04	0.01, 0.07	0.02	-0.01, 0.06	0.073	1	-0.01	-0.04, 0.01	-0.02	-0.04, 0.00	0.541	1

¹ CI = Confidence Interval, ²Adjusted P (Bonferroni correction)

Adjusted for smoking status, education, and physical activity. Significant p-values are highlighted in bold. AT: anthropometric indexes; BMI: body mass index; WHR: waist to hip ratio; ABSI: a body shape index; PC: principal component. PC1: overall adiposity; PC2: tall with low waist to hip ratio; PC3: tall with large waist to hip ratio, PC4: high BMI and weight with low waist circumference and hip circumference. Median age EPIC among males and among women was 53 years old.

Table S11. Associations between anthropometric indexes and C-reactive protein (CRP) stratifying by smoking status and p-values for likelihood ratio test comparing models without and with interactions in the EPIC study.

CRP – EPIC												
	Men						Women					
	N= 5,546						N= 12,397					
	Never (N = 1,676)		Ever (N = 3,806)		P interaction		Never (N = 7,143)		Ever (N = 5,140)		P interaction	
	Beta	95% CI ¹	Beta	95% CI ¹	P	P ²	Beta	95% CI ¹	Beta	95% CI ¹	P	P ²
Height z-score	-0.09	-0.15, -0.03	-0.13	-0.17, -0.09	0.053	0.742	-0.12	-0.16, -0.09	-0.06	-0.1, -0.02	0.006	0.084
Weight z-score	0.34	0.28, 0.39	0.20	0.17, 0.24	<0.001	<0.001	0.40	0.38, 0.43	0.37	0.34, 0.4	0.123	1
BMI z-score	0.44	0.39, 0.49	0.31	0.28, 0.35	<0.001	0.001	0.39	0.37, 0.41	0.37	0.34, 0.39	0.275	1
Waist circumference z-score	0.47	0.41, 0.52	0.35	0.31, 0.39	<0.001	0.001	0.45	0.43, 0.48	0.44	0.41, 0.47	0.433	1
Waist to Height z-score	0.46	0.41, 0.51	0.37	0.34, 0.41	0.005	0.070	0.42	0.39, 0.44	0.41	0.38, 0.44	0.324	1
Hip circumference z-score	0.37	0.31, 0.42	0.25	0.22, 0.29	<0.001	0.002	0.32	0.30, 0.35	0.29	0.26, 0.32	0.025	0.350
Waist to hip ratio z-score	0.42	0.36, 0.49	0.33	0.28, 0.37	0.004	0.056	0.33	0.30, 0.37	0.38	0.34, 0.42	0.482	1
Waist to Hip index z score	0.20	0.12, 0.27	0.17	0.12, 0.21	0.461	1	0.07	0.03, 0.10	0.14	0.1, 0.18	0.037	0.518
ABSI index z-score	0.20	0.14, 0.27	0.22	0.18, 0.26	0.697	1	0.14	0.12, 0.17	0.19	0.16, 0.22	0.192	1
Hip index z-score	-0.07	-0.13, 0.00	0.02	-0.03, 0.06	0.125	1	0.03	0.00, 0.06	-0.01	-0.04, 0.03	0.086	1
PC1	0.34	0.30, 0.39	0.23	0.20, 0.26	<0.001	<0.001	0.37	0.35, 0.39	0.34	0.31, 0.36	0.057	0.798
PC2	-0.08	-0.12, -0.03	-0.10	-0.13, -0.07	0.105	1	-0.09	-0.12, -0.07	-0.11	-0.14, -0.08	0.899	1
PC3	0.07	0.02, 0.12	0.03	-0.01, 0.06	0.229	1	-0.06	-0.08, -0.04	-0.02	-0.05, 0.01	0.026	0.364
PC4	0.09	0.05, 0.14	0.01	-0.02, 0.04	0.008	0.112	-0.01	-0.03, 0.02	-0.04	-0.07, -0.01	0.333	1

¹ CI = Confidence Interval, ²Adjusted P (Bonferroni correction)

Adjusted for age at recruitment, education, and physical activity. Significant p-values are highlighted in bold. AT: anthropometric indexes; BMI: body mass index; WHR: waist to hip ratio; ABSI: a body shape index; PC: principal component. PC1: overall adiposity; PC2: tall with low waist to hip ratio; PC3: tall with large waist to hip ratio, PC4: high BMI and weight with low waist circumference and hip circumference.

Table S12. Associations between anthropometric indexes and C-reactive protein (CRP) stratifying by sex-specific median age and p-values for likelihood ratio test comparing models without and with interactions in UK Biobank study.

CRP – UK Biobank												
	Men						Women					
	N= 199,506						N= 226,717					
	< 58 years (N = 98,426)		≥ 58 years (N = 101,080)		P interaction		< 57 years (N = 108,395)		≥ 57 years (N = 118,322)		P interaction	
	Beta	95% CI ¹	Beta	95% CI ¹	P	P ²	Beta	95% CI ¹	Beta	95% CI ¹	P	P ²
Height z-score	-0.08	-0.09, -0.07	-0.07	-0.08, -0.06	0.028	0.394	-0.15	-0.16, -0.14	-0.11	-0.12, -0.10	<0.001	<0.001
Weight z-score	0.33	0.32, 0.34	0.25	0.25, 0.26	<0.001	<0.001	0.55	0.54, 0.55	0.48	0.47, 0.49	<0.001	<0.001
BMI z-score	0.40	0.40, 0.41	0.31	0.31, 0.32	<0.001	<0.001	0.51	0.50, 0.51	0.44	0.43, 0.44	<0.001	<0.001
Waist circumference z-score	0.44	0.43, 0.45	0.34	0.33, 0.34	<0.001	<0.001	0.58	0.58, 0.59	0.48	0.47, 0.49	<0.001	<0.001
Waist to Height z-score	0.45	0.44, 0.46	0.34	0.34, 0.35	<0.001	<0.001	0.53	0.53, 0.54	0.43	0.43, 0.44	<0.001	<0.001
Hip circumference z-score	0.34	0.33, 0.35	0.25	0.24, 0.26	<0.001	<0.001	0.43	0.43, 0.44	0.35	0.35, 0.36	<0.001	<0.001
Waist to hip ratio z-score	0.46	0.45, 0.47	0.33	0.33, 0.34	<0.001	<0.001	0.47	0.46, 0.48	0.36	0.35, 0.37	<0.001	<0.001
Waist to Hip index z score	0.26	0.24, 0.27	0.19	0.18, 0.20	<0.001	<0.001	0.08	0.07, 0.09	0.08	0.07, 0.09	0.077	1
ABSI index z-score	0.20	0.19, 0.21	0.16	0.16, 0.17	<0.001	<0.001	0.18	0.17, 0.19	0.16	0.15, 0.17	0.007	0.093
Hip index z-score	-0.17	-0.18, -0.16	-0.09	-0.10, -0.08	<0.001	<0.001	0.01	0.00, 0.02	0.03	0.02, 0.04	0.011	0.152
PC1	0.19	0.19, 0.19	0.15	0.14, 0.15	<0.001	<0.001	0.26	0.26, 0.26	0.22	0.22, 0.22	<0.001	<0.001
PC2	-0.12	-0.12, -0.11	-0.10	-0.10, -0.09	<0.001	<0.001	-0.14	-0.15, -0.13	-0.12	-0.13, -0.11	<0.001	<0.001
PC3	0.09	0.08, 0.09	0.07	0.06, 0.08	0.010	0.134	-0.13	-0.14, -0.13	-0.07	-0.08, -0.06	<0.001	<0.001
PC4	0.27	0.26, 0.29	0.09	0.07, 0.11	<0.001	<0.001	-0.07	-0.09, -0.04	-0.21	-0.23, -0.19	<0.001	<0.001

¹ CI = Confidence Interval, ²Adjusted P (Bonferroni correction)

Adjusted for smoking status, education, and physical activity. Significant p-values are highlighted in bold. AT: anthropometric indexes; BMI: body mass index; WHR: waist to hip ratio; ABSI: a body shape index; PC: principal component. PC1: overall adiposity; PC2: tall with low waist to hip ratio; PC3: tall with large waist to hip ratio, PC4: high BMI and weight with low waist circumference and hip circumference. In UK Biobank, median age was 58 and 57 for men and women, respectively.

Table S13. Associations between anthropometric indexes and C-reactive protein (CRP) stratifying by smoking status and p-values for likelihood ratio test comparing models without and with interactions in UK Biobank study.

CRP – UK Biobank												
	Men						Women					
	N= 199,506						N= 226,717					
	Never (N = 97,847)		Ever (N = 100,649)		P interaction		Never (N = 135,953)		Ever (N = 89,672)		P interaction	
	Beta	95% CI ¹	Beta	95% CI ¹	P	P ²	Beta	95% CI ¹	Beta	95% CI ¹	P	P ²
Height z-score	-0.07	-0.08, -0.06	-0.07	-0.08, -0.06	0.339	1	-0.12	-0.13, -0.11	-0.12	-0.13, -0.11	0.282	1
Weight z-score	0.33	0.32, 0.34	0.25	0.24, 0.26	<0.001	<0.001	0.53	0.52, 0.54	0.50	0.49, 0.51	<0.001	<0.001
BMI z-score	0.40	0.39, 0.41	0.31	0.30, 0.31	<0.001	<0.001	0.48	0.48, 0.49	0.46	0.45, 0.47	<0.001	0.001
Waist circumference z-score	0.42	0.41, 0.43	0.35	0.34, 0.35	<0.001	<0.001	0.54	0.53, 0.55	0.52	0.51, 0.53	0.045	0.637
Waist to Height z-score	0.42	0.42, 0.43	0.36	0.35, 0.37	<0.001	<0.001	0.49	0.48, 0.49	0.48	0.47, 0.48	0.894	1
Hip circumference z-score	0.33	0.33, 0.34	0.25	0.24, 0.26	<0.001	<0.001	0.40	0.40, 0.41	0.38	0.37, 0.38	<0.001	<0.001
Waist to hip ratio z-score	0.41	0.40, 0.42	0.38	0.37, 0.38	<0.001	<0.001	0.41	0.40, 0.41	0.43	0.42, 0.44	<0.001	<0.001
Waist to Hip index z score	0.21	0.20, 0.22	0.23	0.22, 0.24	0.051	0.709	0.06	0.05, 0.07	0.10	0.09, 0.11	<0.001	<0.001
ABSI index z-score	0.17	0.16, 0.18	0.19	0.18, 0.20	0.004	0.056	0.16	0.15, 0.16	0.18	0.17, 0.19	<0.001	<0.001
Hip index z-score	-0.15	-0.16, -0.14	-0.12	-0.13, -0.11	<0.001	<0.001	0.02	0.01, 0.03	0.01	0.00, 0.02	0.010	0.141
PC1	0.19	0.18, 0.19	0.15	0.15, 0.15	<0.001	<0.001	0.24	0.24, 0.25	0.23	0.23, 0.24	<0.001	<0.001
PC2	-0.11	-0.11, -0.10	-0.11	-0.11, -0.10	0.276	1	-0.13	-0.13, -0.12	-0.14	-0.15, -0.13	0.030	0.426
PC3	0.07	0.06, 0.08	0.09	0.08, 0.10	<0.001	0.001	-0.11	-0.12, -0.10	-0.08	-0.09, -0.07	<0.001	<0.001
PC4	0.22	0.20, 0.24	0.13	0.11, 0.15	<0.001	<0.001	-0.14	-0.16, -0.12	-0.16	-0.18, -0.13	0.138	1

¹ CI = Confidence Interval, ²Adjusted P (Bonferroni correction)

Adjusted for age at recruitment, education, and physical activity. Significant p-values are highlighted in bold. AT: anthropometric indexes; BMI: body mass index; WHR: waist to hip ratio; ABSI: a body shape index; PC: principal component. PC1: overall adiposity; PC2: tall with low waist to hip ratio; PC3: tall with large waist to hip ratio, PC4: high BMI and weight with low waist circumference and hip circumference.

Table S14. Associations between anthropometric indexes and C-reactive protein (CRP) in the EPIC study. Data presented for all women and by menopausal status.

CRP – EPIC																
All women ²					Premenopausal				Postmenopausal ³				Postmenopausal ⁴			
N= 12,170					N= 3,775				N = 6,058				N = 6,152			
	Beta	95% CI ¹	P	P ⁵	Beta	95% CI ¹	P	P ⁵	Beta	95% CI ¹	P	P ⁵	Beta	95% CI ¹	P	P ⁵
Height z-score	-0.10	-0.13, -0.08	<0.001	<0.001	-0.12	-0.16, -0.07	<0.001	<0.001	-0.11	-0.15, -0.08	<0.001	<0.001	-0.11	-0.15,-0.08	<0.001	<0.001
Weight z-score	0.39	0.37, 0.41	<0.001	<0.001	0.41	0.37, 0.44	<0.001	<0.001	0.38	0.35, 0.41	<0.001	<0.001	0.38	0.35, 0.40	<0.001	<0.001
BMI z-score	0.38	0.37, 0.40	<0.001	<0.001	0.40	0.37, 0.43	<0.001	<0.001	0.38	0.35, 0.40	<0.001	<0.001	0.37	0.35, 0.39	<0.001	<0.001
WC z-score	0.45	0.43, 0.47	<0.001	<0.001	0.47	0.43, 0.51	<0.001	<0.001	0.44	0.42, 0.47	<0.001	<0.001	0.44	0.41, 0.46	<0.001	<0.001
WHtR z-score	0.41	0.40, 0.43	<0.001	<0.001	0.43	0.40, 0.47	<0.001	<0.001	0.41	0.38,0.43	<0.001	<0.001	0.40	0.38, 0.42	<0.001	<0.001
HC z-score	0.32	0.30, 0.33	<0.001	<0.001	0.33	0.30, 0.37	<0.001	<0.001	0.30	0.28, 0.33	<0.001	<0.001	0.30	0.28, 0.32	<0.001	<0.001
WHR z-score	0.36	0.33, 0.38	<0.001	<0.001	0.37	0.32, 0.42	<0.001	<0.001	0.36	0.33, 0.39	<0.001	<0.001	0.36	0.32, 0.39	<0.001	<0.001
WHI z-score	0.10	0.07, 0.12	<0.001	<0.001	0.05	0.00,0.11	0.023	0.322	0.12	0.09,0.15	<0.001	<0.001	0.12	0.08,0.15	<0.001	<0.001
ABSI index z-score	0.16	0.14, 0.18	<0.001	<0.001	0.13	0.09, 0.18	<0.001	<0.001	0.18	0.15, 0.21	<0.001	<0.001	0.18	0.15, 0.21	<0.001	<0.001
HI index z-score	0.02	-0.00, 0.04	0.041	0.574	0.02	-0.02,0.06	0.379	1	0.01	-0.01,0.04	0.296	1	0.01	-0.01,0.04	0.373	1
PC1	0.36	0.34, 0.38	<0.001	<0.001	0.37	0.33, 0.40	<0.001	<0.001	0.35	0.33, 0.38	<0.001	<0.001	0.35	0.33, 0.37	<0.001	<0.001
PC2	-0.10	-0.12, -0.09	<0.001	<0.001	-0.10	-0.13, -0.06	<0.001	<0.001	-0.11	-0.13, -0.08	<0.001	<0.001	-0.11	-0.13, -0.08	<0.001	<0.001
PC3	-0.05	-0.06, -0.03	<0.001	<0.001	-0.09	-0.13, -0.06	<0.001	<0.001	-0.02	-0.04, 0.00	0.054	0.756	-0.02	-0.04, -0.00	0.043	0.602
PC4	-0.02	-0.04, 0.00	0.034	0.476	0.01	-0.02, 0.04	0.540	0.540	-0.02	-0.05, -0.00	0.036	0.504	-0.02	-0.04, 0.00	0.063	0.882
¹ CI = Confidence Interval, ⁵ Adjusted P (Bonferroni correction)																

All analyses were adjusted for age at recruitment, smoking status, education, and physical activity. BMI: body mass index; WC: waist circumference; WHtR: waist to height ratio; HC: Hip circumference; WHR: Waist to hip ratio; WHI: waist to hip index; ABSI: a body shape index; PC: principal component. PC1: overall adiposity; PC2: tall with low waist to hip ratio; PC3: tall with large waist to hip ratio, PC4: high BMI and weight with low waist circumference and hip circumference.²Additionally adjusted for menopause status and hormone replacement therapy. ³Additionally adjusted for hormone replacement therapy and ⁴without the hormone replacement therapy adjustment.

Table S15. Associations between anthropometric indexes and C-reactive protein (CRP) in UK Biobank study. Data presented for all women and by menopausal status.

CRP – UK Biobank																
All women ²					Premenopausal				Postmenopausal ³				Postmenopausal ⁴			
N = 149,980					N = 46,429				N = 103,551				N = 103,765			
	Beta	95% CI ¹	P	P ⁵	Beta	95% CI ¹	P	P ⁵	Beta	95% CI ¹	P	P ⁵	Beta	95% CI ¹	P	P ⁵
Height z-score	-0.12	-0.13, -0.11	<0.001	<0.001	-0.13	-0.14, -0.12	<0.001	<0.001	-0.11	-0.12, -0.10	<0.001	<0.001	-0.11	-0.12, -0.10	<0.001	<0.001
Weight z-score	0.52	0.52, 0.53	<0.001	<0.001	0.55	0.53, 0.55	<0.001	<0.001	0.51	0.50, 0.51	<0.001	<0.001	0.51	0.50, 0.51	<0.001	<0.001
BMI z-score	0.48	0.47, 0.48	<0.001	<0.001	0.51	0.50, 0.51	<0.001	<0.001	0.46	0.45, 0.46	<0.001	<0.001	0.46	0.45, 0.46	<0.001	<0.001
WC z-score	0.53	0.53, 0.54	<0.001	<0.001	0.58	0.57, 0.59	<0.001	<0.001	0.51	0.50, 0.51	<0.001	<0.001	0.51	0.50, 0.51	<0.001	<0.001
WHtR z-score	0.48	0.48, 0.49	<0.001	<0.001	0.53	0.52, 0.54	<0.001	<0.001	0.46	0.45, 0.46	<0.001	<0.001	0.45	0.45, 0.46	<0.001	<0.001
HC z-score	0.40	0.39, 0.40	<0.001	<0.001	0.43	0.42, 0.44	<0.001	<0.001	0.38	0.37, 0.38	<0.001	<0.001	0.38	0.37, 0.38	<0.001	<0.001
WHR z-score	0.41	0.40, 0.42	<0.001	<0.001	0.45	0.44, 0.46	<0.001	<0.001	0.39	0.38, 0.40	<0.001	<0.001	0.39	0.38, 0.39	<0.001	<0.001
WHI z-score	0.07	0.07, 0.08	<0.001	<0.001	0.05	0.03, 0.06	<0.001	<0.001	0.08	0.07, 0.08	<0.001	<0.001	0.07	0.07, 0.08	<0.001	<0.001
ABSI index z-score	0.16	0.16, 0.17	<0.001	<0.001	0.15	0.14, 0.16	<0.001	<0.001	0.16	0.15, 0.17	<0.001	<0.001	0.16	0.15, 0.17	<0.001	<0.001
HI index z-score	0.02	0.01, 0.02	<0.001	<0.001	0.01	-0.01, 0.04	0.284	1	0.05	0.03, 0.07	<0.001	<0.001	0.05	0.03, 0.07	<0.001	<0.001
PC1	0.24	0.24, 0.24	<0.001	<0.001	0.25	0.25, 0.26	<0.001	<0.001	0.23	0.23, 0.23	<0.001	<0.001	0.23	0.23, 0.23	<0.001	<0.001
PC2	-0.13	-0.14, -0.13	<0.001	<0.001	-0.13	-0.14, -0.12	<0.001	<0.001	-0.12	-0.13, -0.12	<0.001	<0.001	-0.12	-0.13, -0.12	<0.001	<0.001
PC3	-0.10	-0.11, -0.09	<0.001	<0.001	-0.14	-0.15, -0.13	<0.001	<0.001	-0.08	-0.08, -0.07	<0.001	<0.001	-0.08	-0.08, -0.07	<0.001	<0.001
PC4	-0.15	-0.17, -0.14	<0.001	<0.001	-0.03	-0.06, 0.00	0.015	0.209	-0.19	-0.21, -0.18	<0.001	<0.001	-0.19	-0.21, -0.18	<0.001	<0.001
¹ CI = Confidence Interval, ⁵ Adjusted P (Bonferroni correction)																

All analyses were adjusted for age at recruitment, smoking status, education, and physical activity. BMI: body mass index; WC: waist circumference; WHtR: waist to height ratio; HC: Hip circumference; WHR: Waist to hip ratio; WHI: waist to hip index; ABSI: a body shape index; PC: principal component. PC1: overall adiposity; PC2: tall with low waist to hip ratio; PC3: tall with large waist to hip ratio, PC4: high BMI and weight with low waist circumference and hip circumference.²Additionally adjusted for menopause status and hormone replacement therapy. ³Additionally adjusted for hormone replacement therapy and ⁴without the hormone replacement therapy adjustment. ⁵Adjusted p-value by Bonferroni correction.

Table S16. Associations between anthropometric indexes and C-reactive protein (CRP) in the EPIC study excluding 3,643 participants with CVD at baseline defined as myocardial infarction (heart attack), stroke or hypertension.

CRP – EPIC								
	Men				Women			
	N=3,684				N=7,995			
	Beta	95% CI ¹	P	P ²	Beta	95% CI ¹	P	P ²
Height z-score	-0.12	-0.16, -0.08	<0.001	<0.001	-0.08	-0.12, -0.05	<0.001	<0.001
Weight z-score	0.25	0.22, 0.28	<0.001	<0.001	0.39	0.37, 0.42	<0.001	<0.001
BMI z-score	0.38	0.34, 0.42	<0.001	<0.001	0.38	0.36, 0.40	<0.001	<0.001
Waist circumference z-score	0.40	0.36, 0.44	<0.001	<0.001	0.43	0.40, 0.46	<0.001	<0.001
Waist to Height z-score	0.41	0.38, 0.45	<0.001	<0.001	0.39	0.37, 0.41	<0.001	<0.001
Hip circumference z-score	0.31	0.27, 0.34	<0.001	<0.001	0.30	0.28, 0.33	<0.001	<0.001
Waist to hip ratio z-score	0.33	0.29, 0.38	<0.001	<0.001	0.31	0.28, 0.34	<0.001	<0.001
Waist to Hip index z score	0.13	0.08, 0.18	<0.001	<0.001	0.08	0.05, 0.11	<0.001	<0.001
ABSI index z-score	0.19	0.15, 0.23	<0.001	<0.001	0.13	0.10, 0.15	<0.001	<0.001
Hip index z-score	0.01	-0.03, 0.05	0.581	1	0.00	-0.02, 0.00	0.747	1
PC1	0.28	0.25, 0.31	<0.001	<0.001	0.35	0.33, 0.37	<0.001	<0.001
PC2	-0.08	-0.11, -0.05	<0.001	<0.001	-0.09	-0.11, -0.06	<0.001	<0.001
PC3	0.01	-0.01, 0.04	0.409	1	-0.04	-0.06, -0.02	0.383	1
PC4	0.02	-0.00, 0.05	0.159	1	-0.01	-0.03, 0.01	<0.001	<0.001
¹ CI = Confidence Interval, ² Adjusted P (Bonferroni correction)								

All analyses were adjusted for age at recruitment, smoking status, education, and physical activity , including sex in the analysis for all sample. BMI: body mass index; WHR: waist to hip ratio; ABSI: a body shape index; PC: principal component. PC1: overall adiposity; PC2: tall with low waist to hip ratio; PC3: tall with large waist to hip ratio, PC4: high BMI and weight with low waist circumference and hip circumference.

Table S17. Associations between anthropometric indexes and C-reactive protein (CRP) in the EPIC Study excluding 484 participants with diabetes at baseline.

CRP – EPIC								
	Men				Women			
	N=4,785				N=11,238			
	Beta	95% CI ¹	P	P ²	Beta	95% CI ¹	P	P ²
Height z-score	-0.11	-0.14, -0.07	<0.001	<0.001	-0.09	-0.12, -0.06	<0.001	<0.001
Weight z-score	0.25	0.22, 0.28	<0.001	<0.001	0.39	0.37, 0.41	<0.001	<0.001
BMI z-score	0.36	0.33, 0.39	<0.001	<0.001	0.38	0.36, 0.40	<0.001	<0.001
Waist circumference z-score	0.39	0.35, 0.42	<0.001	<0.001	0.44	0.42, 0.46	<0.001	<0.001
Waist to Height z-score	0.40	0.36, 0.43	<0.001	<0.001	0.41	0.39, 0.42	<0.001	<0.001
Hip circumference z-score	0.29	0.26, 0.32	<0.001	<0.001	0.31	0.29, 0.33	<0.001	<0.001
Waist to hip ratio z-score	0.34	0.30, 0.38	<0.001	<0.001	0.34	0.31, 0.36	<0.001	<0.001
Waist to Hip index z score	0.14	0.10, 0.18	<0.001	<0.001	0.07	0.05, 0.10	<0.001	<0.001
ABSI index z-score	0.19	0.16, 0.23	<0.001	<0.001	0.15	0.12, 0.17	<0.001	<0.001
Hip index z-score	0.00	-0.03, 0.04	0.847	1	0.02	-0.00, 0.04	0.083	1
PC1	0.27	0.24, 0.30	<0.001	<0.001	0.36	0.34, 0.37	<0.001	<0.001
PC2	-0.08	-0.10, -0.05	<0.001	<0.001	-0.09	-0.11, -0.07	<0.001	<0.001
PC3	0.02	-0.00, 0.05	0.060	0.840	-0.05	-0.07, -0.03	<0.001	<0.001
PC4	0.03	0.00, 0.05	0.013	0.182	-0.01	-0.03, 0.00	0.121	1
¹ CI = Confidence Interval, ² Adjusted P (Bonferroni correction)								

All analyses were adjusted for age at recruitment, smoking status, education, and physical activity , including sex in the analysis for all sample. BMI: body mass index; WHR: waist to hip ratio; ABSI: a body shape index; PC: principal component. PC1: overall adiposity; PC2: tall with low waist to hip ratio; PC3: tall with large waist to hip ratio, PC4: high BMI and weight with low waist circumference and hip circumference.

Table S18. Associations between anthropometric indexes and C-reactive protein (CRP) in UK Biobank excluding 102,020 participants with CVD at baseline defined as myocardial infarction (heart attack), stroke, or hypertension.

CRP – UK Biobank								
	Men				Women			
	N= 109,965				N= 133,151			
	Beta	95% CI ¹	P	P ²	Beta	95% CI ¹	P	P ²
Height z-score	-0.06	-0.07, -0.05	<0.001	<0.001	-0.11	-0.12, -0.10	<0.001	<0.001
Weight z-score	0.31	0.31, 0.32	<0.001	<0.001	0.53	0.52, 0.54	<0.001	<0.001
BMI z-score	0.39	0.39, 0.40	<0.001	<0.001	0.50	0.49, 0.50	<0.001	<0.001
Waist circumference z-score	0.42	0.41, 0.42	<0.001	<0.001	0.54	0.54, 0.55	<0.001	<0.001
Waist to Height z-score	0.43	0.42, 0.43	<0.001	<0.001	0.50	0.49, 0.50	<0.001	<0.001
Hip circumference z-score	0.32	0.31, 0.32	<0.001	<0.001	0.40	0.40, 0.41	<0.001	<0.001
Waist to hip ratio z-score	0.41	0.40, 0.42	<0.001	<0.001	0.40	0.40, 0.41	<0.001	<0.001
Waist to Hip index z score	0.23	0.22, 0.24	<0.001	<0.001	0.06	0.06, 0.07	<0.001	<0.001
ABSI index z-score	0.17	0.17, 0.18	<0.001	<0.001	0.15	0.14, 0.15	<0.001	<0.001
Hip index z-score	-0.15	-0.16, -0.14	<0.001	<0.001	0.01	0.00, 0.02	0.003	0.039
PC1	0.18	0.18, 0.18	<0.001	<0.001	0.25	0.24, 0.25	<0.001	<0.001
PC2	-0.10	-0.11, -0.10	<0.001	<0.001	-0.12	-0.12, -0.11	<0.001	<0.001
PC3	0.09	0.08, 0.10	<0.001	<0.001	-0.09	-0.10, -0.09	<0.001	<0.001
PC4	0.18	0.16, 0.20	<0.001	<0.001	-0.15	-0.17, -0.14	<0.001	<0.001
¹ CI = Confidence Interval, ² Adjusted P (Bonferroni correction)								

All analyses were adjusted for age at recruitment, smoking status, education, and physical activity. BMI: body mass index; WHR: waist to hip ratio; ABSI: a body shape index; PC: principal component. PC1: overall adiposity; PC2: tall with low waist to hip ratio; PC3: tall with large waist to hip ratio, PC4: high BMI and weight with low waist circumference and hip circumference.

Table S19. Associations between anthropometric indexes and C-reactive protein (CRP) in UK Biobank excluding 26,365 participants with diabetes at baseline.

CRP – UK Biobank								
	Men				Women			
	N= 151,737				N= 167,044			
	Beta	95% CI ¹	P	P ²	Beta	95% CI ¹	P	P ²
Height z-score	-0.06	-0.07, -0.06	<0.001	<0.001	-0.11	-0.12, -0.10	<0.001	<0.001
Weight z-score	0.30	0.29, 0.30	<0.001	<0.001	0.52	0.51, 0.52	<0.001	<0.001
BMI z-score	0.37	0.37, 0.38	<0.001	<0.001	0.48	0.48, 0.48	<0.001	<0.001
Waist circumference z-score	0.40	0.39, 0.40	<0.001	<0.001	0.53	0.53, 0.54	<0.001	<0.001
Waist to Height z-score	0.41	0.40, 0.41	<0.001	<0.001	0.49	0.48, 0.49	<0.001	<0.001
Hip circumference z-score	0.30	0.29, 0.30	<0.001	<0.001	0.39	0.39, 0.40	<0.001	<0.001
Waist to hip ratio z-score	0.39	0.39, 0.40	<0.001	<0.001	0.40	0.39, 0.40	<0.001	<0.001
Waist to Hip index z score	0.22	0.21, 0.22	<0.001	<0.001	0.06	0.05, 0.06	<0.001	<0.001
ABSI index z-score	0.17	0.16, 0.17	<0.001	<0.001	0.15	0.14, 0.15	<0.001	<0.001
Hip index z-score	-0.14	-0.15, -0.13	<0.001	<0.001	0.02	0.01, 0.02	<0.001	<0.001
PC1	0.17	0.17, 0.17	<0.001	<0.001	0.24	0.24, 0.24	<0.001	<0.001
PC2	-0.10	-0.10, -0.10	<0.001	<0.001	-0.12	-0.12, -0.11	<0.001	<0.001
PC3	0.08	0.07, 0.09	<0.001	<0.001	-0.10	-0.10, -0.09	<0.001	<0.001
PC4	0.17	0.16, 0.18	<0.001	<0.001	-0.14	-0.16, -0.13	<0.001	<0.001
¹ CI = Confidence Interval, ² Adjusted P (Bonferroni correction)								

All analyses were adjusted for age at recruitment, smoking status, education, and physical activity. BMI: body mass index; WHR: waist to hip ratio; ABSI: a body shape index; PC: principal component. PC1: overall adiposity; PC2: tall with low waist to hip ratio; PC3: tall with large waist to hip ratio, PC4: high BMI and weight with low waist circumference and hip circumference.

Table S20. Associations between anthropometric indexes and C-reactive protein (CRP) in UK Biobank additionally adjusted for ethnicity.

CRP – UK Biobank								
	Men				Women			
	N= 199,506				N= 226,717			
	Beta	95% CI ¹	P	P ²	Beta	95% CI ¹	P	P ²
Height z-score	-0.07	-0.08, -0.06	<0.001	<0.001	-0.12	-0.13, -0.11	<0.001	<0.001
Weight z-score	0.30	0.29, 0.30	<0.001	<0.001	0.52	0.52, 0.53	<0.001	<0.001
BMI z-score	0.36	0.36, 0.37	<0.001	<0.001	0.47	0.47, 0.48	<0.001	<0.001
Waist circumference z-score	0.39	0.38, 0.39	<0.001	<0.001	0.53	0.53, 0.54	<0.001	<0.001
Waist to Height z-score	0.40	0.39, 0.40	<0.001	<0.001	0.48	0.48, 0.49	<0.001	<0.001
Hip circumference z-score	0.30	0.29, 0.31	<0.001	<0.001	0.39	0.39, 0.40	<0.001	<0.001
Waist to hip ratio z-score	0.39	0.39, 0.40	<0.001	<0.001	0.41	0.41, 0.42	<0.001	<0.001
Waist to Hip index z score	0.22	0.21, 0.22	<0.001	<0.001	0.07	0.06, 0.08	<0.001	<0.001
ABSI index z-score	0.18	0.17, 0.18	<0.001	<0.001	0.16	0.16, 0.17	<0.001	<0.001
Hip index z-score	-0.13	-0.14, -0.13	<0.001	<0.001	0.02	0.01, 0.02	<0.001	<0.001
PC1	0.17	0.17, 0.17	<0.001	<0.001	0.24	0.24, 0.24	<0.001	<0.001
PC2	-0.11	-0.11, -0.10	<0.001	<0.001	-0.13	-0.14, -0.13	<0.001	<0.001
PC3	0.07	0.07, 0.08	<0.001	<0.001	-0.10	-0.11, -0.10	<0.001	<0.001
PC4	0.19	0.17, 0.20	<0.001	<0.001	-0.14	-0.16, -0.13	<0.001	<0.001
¹ CI = Confidence Interval, ² Adjusted P (Bonferroni correction)								

All analyses were adjusted for age at recruitment, smoking status, education, physical activity, and ethnicity. BMI: body mass index; WHR: waist to hip ratio; ABSI: a body shape index; PC: principal component. PC1: overall adiposity; PC2: tall with low waist to hip ratio; PC3: tall with large waist to hip ratio, PC4: high BMI and weight with low waist circumference and hip circumference.

Table S21. Associations between body shape phenotypes and C-reactive protein (CRP) in the EPIC study excluding age as a confounder.

CRP – EPIC								
	Men				Women			
	N= 5,546				N= 12,397			
	Beta	95% CI ¹	<i>P</i>	Adjusted <i>P</i>	Beta	95% CI ¹	<i>P</i>	Adjusted <i>P</i>
PC1	0.26	0.24, 0.29	<0.001	<0.001	0.36	0.34, 0.37	<0.001	<0.001
PC2	-0.10	-0.12, -0.07	<0.001	<0.001	-0.10	-0.12, -0.08	<0.001	<0.001
PC3	0.04	0.01, 0.07	0.004	0.004	-0.05	-0.07, -0.03	<0.001	<0.001
PC4	0.03	0.00, 0.05	0.023	0.023	-0.01	-0.03, 0.00	0.132	0.527
¹ CI = Confidence Interval								

All analyses were adjusted for smoking status, education, and physical activity. PC: principal component; PC1: overall adiposity; PC2: tall with low waist to hip ratio; PC3: tall with large waist to hip ratio, PC4: high BMI and weight with low waist circumference and hip circumference.

Table S22. Associations between anthropometric indexes and C-reactive protein (CRP) in UK Biobank study excluding age as a confounder.

CRP – UK Biobank								
	Men				Women			
	N= 199,506				N= 226,717			
	Beta	95% CI ¹	<i>P</i>	Adjusted <i>P</i>	Beta	95% CI ¹	<i>P</i>	Adjusted <i>P</i>
PC1	0.16	0.16, 0.17	<0.001	<0.001	0.24	0.24, 0.24	<0.001	<0.001
PC2	-0.10	-0.11, -0.10	<0.001	<0.001	-0.13	-0.13, -0.12	<0.001	<0.001
PC3	0.08	0.07, 0.08	<0.001	<0.001	-0.10	-0.11, -0.10	<0.001	<0.001
PC4	0.18	0.16, 0.19	<0.001	<0.001	-0.14	-0.15, -0.12	<0.001	<0.001
¹ CI = Confidence Interval								

All analyses were adjusted for smoking status, education, and physical activity. PC: principal component. PC1: overall adiposity; PC2: tall with low waist to hip ratio; PC3: tall with large waist to hip ratio, PC4: high BMI and weight with low waist circumference and hip circumference.