## SUPPLEMENT 2

Supplement 2: The original published references for the regression equations that were compared in the present study. A – females, B – males.

Α

Equation (or set of equations)	Equation type (D -direct, ID - indirect)	Author(s)	Study title	Publication	Year	Author(s) of 2 <sup>nd</sup> indirect equation*
F 1	D	Edwards, Whyte	The simple measurement of obesity	Clin Sci	1962	/
F 2	D	Edwards, Whyte	The simple measurement of obesity	Clin Sci	1962	/
F 3	D	Levitt, Heymsfield, Pierson, Shapses, Kral	Physiological models of body composition and human obesity	Nutr Metab (Lond)	2007	/
F 4	ID	Katch, McArdle	Prediction of body density from simple anthropometric measurements in college-age men and women	Hum Biol	1973	В
F 5	D	Al-Gindan, Hankey, Govan, Gallagher, Heymsfield, Lean	Derivation and validation of simple anthropometric equations to predict adipose front thighsue mass and total fat mass with MRI as the	British Journal of Nutrition	2015	/
F6	ID	Katch, McArdle	reference method Prediction of body density from simple anthropometric measurements in college-age men and women	Hum Biol	1973	s
F 7	D	Al-Gindan, Hankey, Govan, Gallagher, Heymsfield, Lean	Derivation and validation of simple anthropometric equations to predict adipose front thighsue mass and total fat mass with MRI as the reference method		2015	/
F8	ID	Withers, Norton, Craig, Hartland, Venables	The relative body fat and anthropometric prediction of body density of South Australian females aged 17-35 years	Eur J Appl Physiol Occup Physiol	1987	В
F9	ID	Withers, Norton, Craig, Hartland, Venables	The relative body fat and anthropometric prediction of body density of South Australian females aged 17-35 years	Eur J Appl Physiol Occup Physiol	1987	В
F 10	ID	Withers, Norton, Craig, Hartland, Venables	The relative body fat and anthropometric prediction of body density of South Australian females aged 17-35 years	Eur J Appl Physiol Occup Physiol	1987	S
F 11	ID	Withers, Norton, Craig, Hartland, Venables	The relative body fat and anthropometric prediction of body density of South Australian females aged 17-35 years	Eur J Appl Physiol Occup Physiol	1987	s
F 12	ID	Withers, Norton, Craig, Hartland, Venables	The relative body fat and anthropometric prediction of body density of South Australian females aged 17-35 years	Eur J Appl Physiol Occup Physiol	1987	В
F 13	ID	Withers, Norton, Craig, Hartland, Venables	The relative body fat and anthropometric prediction of body density of South Australian females aged 17-35 years	Eur J Appl Physiol Occup Physiol	1987	В
F 14	ID	Sloan	Estimation of body fat in young women	Journal of Applied Physiology	1962	В
F 15	D	Slaughter, Lohman, Boileau, Horswill, Stillman, van Loan, Bemben	Skinfold equations for estimation of body fatness in children and youth	Human Biology	1988	/
F 16	ID	Pollock, Laughridge, Coleman, Linnerud, Jackson	Prediction of body density in young and middle- aged women	J Appl Physiol	1975	В
F 17	D	Jackson, Stanforth, Gagnon, Rankinen, Leon, Rao, Skinner, Bouchard, Wilmore	The effect of sex, age and race on estimating percentage body fat from body mass index: The Heritage Family Study	International Journal of Obesity	2002	/
F 18	ID	Withers, Norton, Craig, Hartland, Venables	The relative body fat and anthropometric prediction of body density of South Australian females aged 17-35 years	Eur J Appl Physiol Occup Physiol	1987	S
F 19	ID	Jackson, Pollock, Ward	Generalized equations for predicting body density of women	Med Sci Sports Exer	1980	В
F 20	ID	Withers, Norton, Craig, Hartland, Venables	The relative body fat and anthropometric prediction of body density of South Australian females aged 17-35 years	Eur J Appl Physiol Occup Physiol	1987	S
F 21	ID	Withers, Norton, Craig, Hartland, Venables	The relative body fat and anthropometric prediction of body density of South Australian females aged 17-35 years	Eur J Appl Physiol Occup Physiol	1987	В
F 22	ID	Katch, Michael	Prediction of body dentisty from skin-fold and girth measurements of college females	J Appl Physiol	1963	В
F 23	ID	Sloan	Estimation of body fat in young women	Journal of Applied Physiology	1962	S
F 24	ID	Pollock, Laughridge, Coleman, Linnerud, Jackson	Prediction of body density in young and middle- aged women	J Appl Physiol	1975	s
F 25	ID	Jackson, Pollock, Ward	Generalized equations for predicting body density		1980	s
			of women Generalized equations for predicting body density	Exer Med Sci Sports		1
F 26 F 27	ID ID	Jackson, Pollock, Ward	of women Generalized equations for predicting body density	Exer	1980	В
F 28	ID	Jackson, Pollock, Ward Withers, Norton, Craig, Hartland, Venables	of women The relative body fat and anthropometric prediction of body density of South Australian	Exer  Eur J Appl Physiol  Occup Physiol	1980	B S
F 29	D	Lean, Han, Deurenberg	females aged 17-35 years  Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical	1996	/
F 30	D	Slaughter, Lohman, Boileau, Horswill, Stillman, van Loan, Bemben	Skinfold equations for estimation of body fatness in children and youth	Nutrition Human Biology	1988	/
F 31	ID	Katch, Michael	Prediction of body dentisty from skin-fold and	J Appl Physiol	1963	S
F 32	ID	Jackson, Pollock, Ward	girth measurements of college females Generalized equations for predicting body density	Med Sci Sports	1980	В
F 32	ID	Lean, Han, Deurenberg	of women  Predicting body composition by densitometry from simple anthropometric measurements	Exer The Amercan Journal of Clinical	1980	В
F 34	ID	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	Nutrition The Amercan Journal of Clinical	1996	В
F 35	ID	Jackson, Pollock, Ward	Generalized equations for predicting body density	Nutrition Med Sci Sports	1980	s
			of women Generalized equations for predicting body density	Exer Med Sci Sports		
F 36	ID	Jackson, Pollock, Ward	of women	Exer	1980	В
F 37	ID ID	Jackson, Pollock, Ward Pollock, Laughridge, Coleman, Linnerud,	Generalized equations for predicting body density of women  Prediction of body density in young and middle-	Med Sci Sports Exer  J Appl Physiol	1980 1975	S B
		Jackson	aged women  Generalized equations for predicting body density			
F 39	ID ID	Jackson, Pollock, Ward Lean, Han, Deurenberg	Generalized equations for predicting body density of women  Predicting body composition by densitometry	Med Sci Sports Exer The Amercan Journal of Clinical	1980 1996	S B
			from simple anthropometric measurements  Predicting body composition by densitometry	Nutrition The Amercan		
F 41	ID	Lean, Han, Deurenberg	from simple anthropometric measurements	Journal of Clinical Nutrition	1996	S

F 42	D	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	/
F 43	ID	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	S
F 44	ID	Wilmore, Behnke	An anthropometric estimation of body density and lean body weight in young women	The Amercan Journal of Clinical Nutrition	1970	В
F 45	ID	Jackson, Pollock, Ward	Generalized equations for predicting body density	Med Sci Sports	1980	s
F 46	ID	Jackson, Pollock, Ward	of women Generalized equations for predicting body density of women	Med Sci Sports Exer	1980	В
F 47	ID	Pollock, Laughridge, Coleman, Linnerud, Jackson	Prediction of body density in young and middle- aged women	J Appl Physiol	1975	S
F 48	D	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	/
F 49	ID	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	В
F 50	D	Deurenberg, Weststrate, Seidell	Body mass index as a measure of body fatness: age- and sex- specific prediction formulas	British Journal of Nutrition	1991	/
F 51	ID	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	S
F 52	ID	Wilmore, Behnke	An anthropometric estimation of body density and lean body weight in young women	The Amercan Journal of Clinical Nutrition	1970	S
F 53	ID	Jackson, Pollock, Ward	Generalized equations for predicting body density of women	Med Sci Sports Exer	1980	S
F 54	ID	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	В
F 55	ID	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	S
F 56	D	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	/
F 57	ID	Pollock, Laughridge, Coleman, Linnerud, Jackson	Prediction of body density in young and middle- aged women	J Appl Physiol	1975	В
F 58	ID	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	В
F 59	D	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	/
F 60	ID	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	S
F 61	D	Gómez-Ambrosi, Silva, Galofré, Escalada, Santos, Millán, Vila, Ibañez, Gil, Valentí, Rotellar, Ramírez, Salvador, Frühbeck	Body mass index classification misses subjects with increased cardiometabolic risk factors related to elevated adiposity	Int J Obes (Lond)	2011	1
F 62	ID	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	В
F 63	ID	Pollock, Laughridge, Coleman, Linnerud, Jackson	Prediction of body density in young and middle- aged women	J Appl Physiol	1975	S
F 64	ID	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	В
F 65	ID	Durnin, Womersly	Body fat assessed from total body density and its estimation from skinfold thisckness: measeurements on 481 men and women aged from 16 to 72 years	British Journal of Nutrition	1974	В
F 66	ID	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	S
F 67	D	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	/
F 68	D	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	/
F 69	ID	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	S
F 70	D	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	/
F 71	ID	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	S
F 72	ID	Durnin, Womersly	Body fat assessed from total body density and its estimation from skinfold thisckness: measeurements on 481 men and women aged from 16 to 72 years	British Journal of Nutrition	1974	S
F 73	D	Ramirez-Zea, Torun, Martorell, Stei	Anthropometric predictors of body fat as measured by hydrostatic weighing in Guatemalan adults	Am J Clin Nutr	2006	/
F 74	ID	Durnin, Rahaman	The assessment of the amount of fat in the human body from measurements of skinfold thickness	British Journal of Nutrition	1967	В
F 75	D	Ramirez-Zea, Torun, Martorell, Stei	Anthropometric predictors of body fat as measured by hydrostatic weighing in Guatemalan adults	Am J Clin Nutr	2006	/
F 76	ID	Durnin, Rahaman	The assessment of the amount of fat in the human body from measurements of skinfold thickness	British Journal of Nutrition	1967	S
F 77	D	Edwards, Whyte	The simple measurement of obesity	Clin Sci The Amercan	1962	/
F 78	D	Peterson, Czerwinski, Siervogel	Development and validation of skinfold-thickness prediction equations with a 4-compartment model	Journal of Clinical Nutrition	2003	/

Equation (or set of equations)	Equation type (D -direct, ID - indirect)	Author(s) of direct or 1 <sup>st</sup> indirect equation	Study title	Publication	Year	Author(s) of 2 <sup>nd</sup> indirect equation*
M 1	D	Edwards, Whyte	The simple measurement of obesity	Clin Sci	1962	/
M 2	ID	Brožek, Keys	The evaluation of leanness-fatness in man: norm and interrelationships	British Journal of Nutrition	1951	S
М 3	ID	Brožek, Keys	The evaluation of leanness-fatness in man: norm and interrelationships	British Journal of Nutrition	1951	s
M 4	ID	Brožek, Keys	The evaluation of leanness-fatness in man: norm and interrelationships	British Journal of Nutrition	1951	В
M 5	ID	Brožek, Keys	The evaluation of leanness-fatness in man: norm and interrelationships	British Journal of Nutrition	1951	В
M 6	ID	Lohman	Skinfolds and Body Density and Their Relation to Body Fatness: A Review	Human Biology	1981	S
M 7	ID	Lohman	Skinfolds and Body Density and Their Relation to Body Fatness: A Review	Human Biology	1981	В
M 8	ID	Cowgill	A formula for estimating the specific gravity of the human body with a consideration of its possible uses	Am J Clin Nutr	1957	S
M 9	ID	Brožek, Keys	The evaluation of leanness-fatness in man: norm and interrelationships	British Journal of Nutrition	1951	s
M 10	ID	Cowgill	A formula for estimating the specific gravity of the human body with a consideration of its possible uses	Am J Clin Nutr	1957	S
M 11	ID	Cowgill	A formula for estimating the specific gravity of the human body with a consideration of its possible uses	Am J Clin Nutr	1957	В
M 12	ID	Brožek, Keys	The evaluation of leanness-fatness in man: norm and interrelationships	British Journal of Nutrition	1951	В
M 13	ID	Cowgill	A formula for estimating the specific gravity of the human body with a consideration of its possible uses	Am J Clin Nutr	1957	В
M 14	D	Levitt, Heymsfield, Pierson, Shapses, Kral	Physiological models of body composition and human obesity	Nutr Metab (Lond)	2007	/
M 15	ID	Sloan	Estimation of body fat in young men	Journal of Applied Physiology	1967	s
M 16	ID	Sloan	Estimation of body fat in young men	Journal of Applied Physiology	1967	В
M 17	ID	Katch, McArdle	Prediction of body density from simple anthropometric measurements in college-age men and women	Hum Biol	1973	s
M 18	ID	Katch, McArdle	Prediction of body density from simple anthropometric measurements in college-age men and women	Hum Biol	1973	В
M 19	D	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	/
M 20	ID	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	S
M 21	ID	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	В
M 22	D	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	/
M 23	D	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	/
M 24	ID	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	S
M 25	D	Chinn, Allen	Body fat in men from two skinfolds, weight, height, and age	Rep. U.S. Army med. Res. Nutr. Lab. no. 248	1960	/
M 26	D	Slaughter, Lohman, Boileau, Horswill, Stillman, van Loan, Bemben	Skinfold equations for estimation of body fatness in children and youth	Human Biology	1988	/
M 27	ID	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	В
M 28	ID	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	S
M 29	D	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	/
M 30	ID	Forsyth, Sinning	The anthropometric estimation of body density	Med Sci Sports	1973	s

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M 31	ID	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	В
M 32	ID	Forsyth, Sinning	The anthropometric estimation of body density and lean body weight of male athletes	Med Sci Sports	1973	В
M 33	ID	Forsyth, Sinning	The anthropometric estimation of body density and lean body weight of male athletes	Med Sci Sports	1973	S
M 34	ID	Forsyth, Sinning	The anthropometric estimation of body density and lean body weight of male athletes	Med Sci Sports	1973	В
M 35	D	Al-Gindan, Hankey, Govan, Gallagher, Heymsfield, Lean	Derivation and validation of simple anthropometric equations to predict adipose front thighsue mass and total fat mass with MRI as the reference method	British Journal of Nutrition	2015	/
M 36	D	Ross, Léger, Morris, de Guise, Guardo	Quantification of adipose front thighsue by MRI: relationship with anthropometric variables	American Journal of Physiology	1992	/
M 37	D	Garcia, Wagner, Hothorn, Koebnick, Zunft, Trippo	Improved Prediction of Body Fat by Measuring Skinfold Thickness, Circumferences, and Bone Breadths	Obesity Research	2005	/
M 38	D	Slaughter, Lohman, Boileau, Horswill, Stillman, van Loan, Bemben	Skinfold equations for estimation of body fatness in children and youth	Human Biology	1988	/
M 39	ID	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	S
M 40	ID	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	В
M 41	D	Al-Gindan, Hankey, Govan, Gallagher, Heymsfield, Lean	Derivation and validation of simple anthropometric equations to predict adipose front thighsue mass and total fat mass with MRI as the reference method	British Journal of Nutrition	2015	/
M 42	ID	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	S
M 43	D	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	/
M 44	ID	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	В
M 45	D	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	/
M 46	ID	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	s
M 47	ID	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	В
M 48	ID	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	S
M 49	D	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	/
M 50	ID	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	В
M 51	ID	Durnin, Womersly	Body fat assessed from total body density and its estimation from skinfold thisckness: measeurements on 481 men and women aged from 16 to 72 years	British Journal of Nutrition	1974	S
M 52	ID	Durnin, Womersly	Body fat assessed from total body density and its estimation from skinfold thisckness: measeurements on 481 men and women aged from 16 to 72 years	British Journal of Nutrition	1974	В
M 53	D	Deurenberg, Weststrate, Seidell	Body mass index as a measure of body fatness: age- and sex- specific prediction formulas	British Journal of Nutrition	1991	/
M 54	ID	Haisman	The assessment of body fat content in young men from measurements of body density and skinfold thickness	Human Biology	1970	s
M 55	ID	Haisman	The assessment of body fat content in young men from measurements of body density and	Human Biology	1970	В
M 56	ID	Durnin, Rahaman	skinfold thickness The assessment of the amount of fat in the human body from measurements of skinfold	British Journal of Nutrition	1967	В
M 57	ID	Durnin, Rahaman	thickness The assessment of the amount of fat in the human body from measurements of skinfold	British Journal of Nutrition	1967	s
M 58	D	Jackson, Stanforth, Gagnon, Rankinen, Leon, Rao, Skinner, Bouchard,	thickness The effect of sex, age and race on estimating percentage body fat from body mass index: The Haritage Enmily Study.	International Journal of Obesity	2002	/
M 59	D	Wilmore Gómez-Ambrosi, Silva, Galofré, Escalada, Santos, Millán, Vila, Ibañez, Gil, Valentí, Rotellar, Ramírez, Salvador, Frühbeck	Heritage Family Study  Body mass index classification misses subjects with increased cardiometabolic risk factors related to elevated adiposity	Int J Obes (Lond)	2011	/
M 60	D	Edwards, Whyte	The simple measurement of obesity	Clin Sci	1962	/
M 61	ID	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	В
M 62	ID	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	S
M 63	D	Peterson, Czerwinski, Siervogel	Development and validation of skinfold-thickness prediction equations with a 4-compartment model	The Amercan Journal of Clinical Nutrition	2003	/
M 64	D	Lean, Han, Deurenberg	Predicting body composition by densitometry from simple anthropometric measurements	The Amercan Journal of Clinical Nutrition	1996	/
M 65	D	Edwards, Whyte	The simple measurement of obesity	Clin Sci	1962	/
M 66	ID	Sloan	Estimation of body fat in young men	Journal of Applied Physiology	1967	В
<del>                                     </del>				Journal of Applied		

<sup>\*</sup> S - Siri, W.E. In: J. Brozek & A. Hanschel (Eds.), Techniques for measuring body composition (pp. 223-244). Washington, DC: Nat Acad Sci. 1961 B - Brožek, Grande, Anderson, Keys. Ann N Y Acad Sci. 110: 113-40. 1963 / - Direct equation for BF calculation.