Supplementary S2

Table S2: Included Studies for Relative $VO_{2max/peak}$ values ($Lmin^{-1}$)

Age Mean (y)	SD (y)	**Age**	**Body Mass** Mean (kg)	SD (kg)	**Height** Mean (cm)	SD (cm)	**BMI** Mean (kg/m^2)	SD (kg/m^2)	**VO_{2max}** Mean ($Lkg^{-1}min^{-1}$)	SD ($Lkg^{-1}min^{-1}$)	**COV** (%)	n	**Addditional Comments**	**Peak (P) or max (M) VO_2**	**Location**	**Reference**
7.4	0.6	6-10	29.9	5.3	130	11.1	NP	NP	41.7	3.3	7.9	6	Individual data: of VO_{2max}: 34.2-51.0	M	USA	Springer et al. (1991) (1)
7.5	0.8	7-12	24.0	2.3	126	6	NP	NP	47.0	6.0	12.8	22	BSA<1.0 m^3	M	USA	Washington et al. (1988) (2)
8	NP	8	32.7	6.6	133	5.0	18.3	2.8	45.1	11.8	26.2	NP	African-American	M	USA	McMurray et al. (2001) (3)
8	NP	8	30.7	6.0	132	6.0	17.5	2.6	46.5	8.9	19.1	NP	Caucasian	M	USA	McMurray et al. (2001) (3)
8.4	1.3	NP	27.5	4.7	125	9.4	NP	NP	14.4	5.4	37.5	13	Have Duchenne muscular dystrophy	P	USA	Sockolov et al. (1977) (4)
8.4	1.3	NP	27.0	4.7	128	6.6	NP	NP	40.0	3.9	9.8	13	Normal, untrained sample	P	USA	Sockolov et al. (1977) (4)
8.6	2.0	NP	27.6	6.9	132	11.3	NP	NP	40.2	5.9	14.7	6	VO_{2max} plateau group	M	PR	Rivera-Brown et al. (2001) (5)
8.9	0.6	7-9	30.4	5.2	132	4.7	17.4	2.4	49.1	6.4	13.0	23	Treadmill v. cycle study	M	USA	Turley et al.(1995) *Pediatr Exer Sci* 7:49-60
9	NP	9	37.0	10.0	139	7.0	19.0	3.7	43.9	10.6	24.1	NP	African-American	M	USA	McMurray et al. (2001) (3)
9	NP	9	35.0	8.6	137	6.0	18.5	3.5	45.2	9.9	21.9	NP	Caucasian	M	USA	McMurray et al. (2001) (3)
9.1	0.7	7-9	29.5	4.3	134	6.3	16.2	1.5	50.7	4.6	9.1	12	Cycle ergometer v. treadmill study	M	USA	Turley & Wilmore (1997) (6)
9.3	1.5	7-12.0	32.0	3.0	139	7	NP	NP	46.0	5.0	10.9	30	BSA: 1.0-1.19 m^3	M	USA	Washington et al. (1988) (2)
9.3	1.3	NP	36.1	9.1	136	8.9	NP	NP	39.8	7.3	18.3	12	No VO_{2max} plateau	M	PR	Rivera-Brown et al. (2001) (5)
9.4	1.7	7-12	33.2	7.3	139	10.3	NP	NP	42.7	5.5	12.9	32		P	USA	Gilliam et al. (1977) (7)
9.5	0.7	NP	33.3	4.5	141	6.4	NP	NP	40.8	10.9	26.7	16	Evaluation of two exertion scales	P	USA	Barkley et al. (2008) (8)

9.8	0.6	8.2-11.0	34.3	7.8	140	5.5	17.5	3.7	35.4	7.5	21.2	20	VO_{2max} 20.7-47.3	M	USA	Swain et al. (2010) (9)
9.8	1.6	8-12	38.0	2.1	143	7.6	NP	NP	45.0	2.6	5.8	12	A priori average VO_{2max}	P	USA	Robertson et al. (2001) (10)
10	NP	10	39.3	9.0	142	7.0	19.3	3.2	44.3	9.2	20.8	NP	African-American	M	USA	McMurray et al. (2001) (3)
10	NP	10	38.2	9.6	141	7.0	19.0	3.8	44.8	9.8	21.9	NP	Caucasian	M	USA	McMurray et al. (2001) (3)
10.0	1.7	8-12	37.3	1.7	143	9.9	NP	NP	54.5	2.3	4.2	12	A priori above average VO_{2max}	P	USA	Robertson et al. (2001) (10)
10.0	2.0	6-13	34.0	9.0	138	14.0	NP	NP	42.0	6.0	14.3	37		M	USA	Cooper et al. (1984) (11)
10.3	1.0	NP	36.1	8.0	141	8.0	18.1	2.0	38.4	5.0	13.0	19	Lean subjects	P	USA	Rivas et al. (2019) (12)
10.5	1.0	NP	39.9	8.0	143	6.8	NP	NP	45.5	7.0	15.4	11		P	USA	Mahon et al. (2003) (13)
10.5	1.3	NP	37.3	7.3	NP	NP	NP	NP	51.8	4.3	8.3	18		M	USA	Rowland et al. (1993) (14)
10.6	1	NP	38.0	10.0	143	7.0	18.0	3.0	50.0	9.0	18.0	61	Year 1 of a longitudinal study	P	USA	Janz et al. (1998) (15)
10.6	0.2	NP	36.4	1.8	144	2.0	NP	NP	49.5	1.1	2.2	11		M	USA	Del Corral et al. (1994) (16)
10.7	1	NP	64.2	15.0	148	9.0	28.9	5.0	24.6	5.0	20.3	16	Obese group	P	USA	Rivas et al. (2019) (12)
10.8	1.0	NP	39.0	11.0	144	7.0	NP	NP	49.0	8.0	16.3	63		M	USA	Janz et al. (2000) (17)
10.9	1.3	NP	37.6	3.4	145	5.0	NP	NP	50.9	8.3	16.3	15		P	USA	Rowland (1997) (18)
11	NP	9-12	87.2	21.8	157	11.0	31.8	6.5	22.6	4.5	19.9	15	Healthy obese	P	USA	DeStefano et al. (2000) (19)
7.6	0.4	6-18	27.0	4.0	126	5.0	NP	NP	48.0	5.0	10.4	36		M	Fra	Falgairette et al. (1991) (20)
8.1	1.0	NP	34.2	7.9	132	16.0	NP	NP	44.5	10.9	24.5	46		P	Spa	Guerrero et al. (2008) (21)
8.4	NP	NP	27.4	3.9	131	4.5	NP	NP	52.7	3.9	7.4	29	Part of a longitudinal study	M	Nor	Andersen et al. (1974) (22)
9	NP	9	34.0	6.3	140	6.0	17.2	2.4	48.3	7.0	14.5	487		P	Nor	Steene-Johannessen (2009) (23)
9	NP	9	34.0	6.4	140	6.3	NP	NP	47.2	8.0	16.9	279	Euro Youth Heart Study	M	Eur	Wedderkopp et al. (2003) (24)
9	NP	9	34.0	6.5	140	6.3	17.3	2.5	48.2	7.1	14.7	602	Population-based sample	P	Nor	Kolle et al. (2010) (25)
9	NP	8.2-11.3	33.5	6.7	139	6.3	17.3	2.6	50.5	8.7	17.2	121 9	Euro. Youth Heart Study(4 Nations)	P	Eur	Adegboye et al. (2011) (26)
9.3	0.7	9-10	32.0	4.0	137	5.0	NP	NP	50.0	7.0	14.0	27		M	Fra	Falgairette et al. (1991) (20)
9.4	0.3	9-14	31.0	4.5	137	4.8	NP	NP	54.4	5.2	9.6	29	Longitudinal study; 2ndear	M	Nor	Andersen et al. (1976) (27)

9.5	0.3	9	33.4	6.2	139	6.0	17.2	2.4	42.3	6.9	16.3	269	European Youth Heart Study	M	Eur	Ortega et al. (2010) (28)
9.5	0.4	NP	32.4	5.8	138	6.0	16.9	2.1	42.5	6.0	14.1	347	European Youth Heart Study	M	Eur	Ortega et al. (2010) (28)
9.6	0.9	8-10	NP	NP	NP	NP	NP	NP	42.6	8.3	19.5	279	20% overweight; 21% obese	P	Can	Herman et al. (2015) (29)
9.8	0.5	8-11	35.8	7.4	142	6.0	NP	NP	52.0	8.1	15.6	177	VO_{2max} = 45.1-54.6	P	Fin	Agbaje et al. (2019) (30)
9.9	0.6	8.6-11.1	34.4	6.9	141	6.5	17.4	2.6	42.0	7.0	16.7	127	VO_{2max} =22.0-58.3	P	Sca	Dencker et al. (2006) (31)
9.9	0.6	NP	34.4	6.9	140	6.5	17.4	2.6	42.0	7.0	16.7	113	Baseline	P	Swe	Danielson et al (2018) (32)
9.9	2.3	6-17	34.4	10.6	141	13.6	NP	NP	46.3	6.8	14.7	70		M	Ger	Foraita et al. (2015) (33)
9.9	0.4	NP	32.2	3.4	141	4.6	NP	NP	46.7	6.1	13.1	28	BMI in categories; most were "normal"	M	Nor	Andersen & Ghesquiere (1972) (34)
9.9	NP	9.5-10.1	35.6	NP	142	11.2	NP	NP	51.9	15.5	29.9	71	Part of the PANIC study	P	Fin	Lintu et al. (2015) (35)
9.9	0.3	NP	32.0	4.0	138	5.0	NP	NP	47.7	7.4	15.5	31		P	UK	McNarry et al. (2015) (36)
10	NP	9-10	26.7	NP	134	NP	14.8	NP	44.6	NP		87	VO_{2max} = 43.3-45.8; MWCE	M	Tan	Aandstad et al. (2006) (37)
10	NP	9-10	33.5	NP	140	NP	17.0	NP	45.9	NP		195	VO_{2max} = 44.9-46.9; MWCE	M	Nor	Aandstad et al. (2006) (37)
10.4	NP	10	33.9	5.0	141	5.5	NP	NP	60.0	6.5	10.8	31	Year 3 of a longitudinal study	M	Nor	Rutenfranz et al. (1981) (38)
10.5	0.5	10-11	37.2	6.6	141	4.7	NP	NP	46.1	6.0	13.0	50	Control group	M	Fra	Mandigout et al. (2001) (39)
10.6	0.3	NP	36.3	6.2	143	7.0	NP	NP	47.4	5.5	11.6	25		P	UK	Fawkner & Armstrong (2004) (40)
10.7	0.4	NP	36.0	5.0	141	5.0	NP	NP	53.7	6.1	11.4	48	Low altitude, high SES	M	Bol	Fellmann et al. (1994) (41)
10.7	0.8	NP	31.0	4.0	132	4.0	NP	NP	51.6	5.9	11.4	30	Low altitude, low SES	M	Bol	Fellmann et al. (1994) (41)
10.7	0.4	10-11	37.3	7.5	143	6.1	NP	NP	47.2	7.9	16.7	35	Training group (pre)	M	Fra	Mandigout et al. (2001) (39)
10.8	0.4	NP	34.9	5.2	146	6.0	NP	NP	53.4	5.3	9.9	45		M	Aus	Gaisl & Buchberger (1980) (42)
10.8	NP	9-10	35.2	5.9	142	6.7	NP	NP	48.8	8.8	18.0	62		M	Can	Cunningham et al. (1984) (43)
10.9	0.7	NP	30.0	4.0	131	5.0	NP	NP	46.7	7.5	16.1	44	High altitude, low SES	M	Bol	Fellmann et al. (1994) (41)
11.0	1.0	NP	37.0	8.0	144	7.0	NP	NP	45.7	9.3	20.4	25		M	Fra/ Net/ Bel	Boissiere et al. (2013) (44)
8.83	0.93	5-9	32.2	6.0	138	7.0	16.9	2.1	45.86	5.94		40	excluded BMI over 30 and athletes	M		Van der Steeg 2021

7.4	0.3	7	26.3	4.4	126	5.1	NP	NP	47.0	5.8	12.3	18	Test of a field procedure	M	Fra	Van Praagh et al. (1988) (45)
7.7	0.3	NP	27.4	3.4	130	4.4	NP	NP	55.5	7.0	12.6	18		M	Fin	Tompuri et al. (2015) (46)
8.2	NP	8	NP	NP	NP	NP	NP	NP	49.0	9.2	18.8	21		M	Nor	Rutenfranz et al. (1990) (47)
8.7	NP	8.3-9.8	27.6	3.6	132	6.1	NP	NP	52.7	6.3	12.0	20		M	Swe	Sunnegardh & Bratteby (1987) (48)
9	NP	8-10	26.2	2.8	130	4.4	NP	NP	50.0	6.5	13.0	19	Used IBP Handbook (1969)	M	Jap	Ikai & Kitagawa (1972) (49)
9.7	0.7		45.6	6.3	141	5.4	22.7	2.5	33.8	4.7	13.9	16	Obese prepubertal boys	P	Fra	Zunquin et al. (2009) (50)
10	NP	10	33.3	6.6	139	7.4	NP	NP	55.4	6.2	11.2	20		M	Can	Massicotte et al. (1985) (51)
10	NP	10	NP	NP	NP	NP	NP	NP	44.2	3.8	8.6	15	Rural boys	M	Jap	Yoshizawa (1972) (52)
10	NP	10	35.2	6.7	142	6.0	NP	NP	47.4	7.0	14.8	20	Have PE class 8 times/week	M	Aut	Petzl et al. (1988) (53)
10.2	NP	10	NP	NP	NP	NP	NP	NP	50.5	10.4	20.6	19		M	Nor	Rutenfranz et al. (1990) (47)
10.3	0.8	9-12	32.9	5.4	141	6.2	16.2	1.3	38.4	3.8	9.9	20	Normal-weight parents	P	Isr	Weinstein et al. (2004) (54)
10.3	0.8	9-12	31.5	3.1	140	5.5	16	1.1	40.4	4.9	12.1	20	One obese parent	P	Isr	Weinstein et al. (2004) (54)
10.3	0.9	NP	36.9	9.1	142	7.1	NP	NP	43.5	5.2	12.0	15		M	Fra	Leclair et al. (2011) (55)
10.3	0.8	NP	32.9	2.0	138	2.0	17.1	0.7	40.0	2.1	5.3	18	Lean subjects	P	Tha	Chuensiri et al. (2015) (56)
10.3	0.9	NP	38.9	10.2	142	7.0	NP	NP	43.8	5.2	11.9	15	VO_{2max} = 38.0-58.9	P	Fra	Leclair et al. (2013) (57)
10.3	0.2	8-12	NP	NP	NP	NP	NP	NP	51.4	1.1	2.1	16	Trained: test of exercise-induced hypoxia	M	Fra	Nourry et al. (2004) (58)
10.4	0.2	NP	57.9	3.0	150	3.0	25.4	3.3	30.8	1.9	6.2	17	Obese subjects	P	Tha	Chuensiri et al. (2015) (56)
10.5	0.4	NP	36.3	7.2	140	4.0	NP	NP	44.7	6.5	14.5	15	Control group	P	H-K	McManus (2005) (59)
10.5	NP	10	36.0	NP	NP	NP	NP	NP	54.3	NP		20	VO_{2max} =46-62 mL/kg-min	M	Nor	Hermansen & Oseid (1971) (60)
10.6	0.3	NP	37.9	5.4	144	4.6	NP	NP	47.9	7.0	14.6	17		M	Fra	Vinet et al. (2003) (61)
10.6	0.3	NP	35.5	5.4	141	5.6	NP	NP	56.6	7.7	13.6	15	Competitive hockey players	M	Can	Cunningham et al. (1976) (62)
10.8	0.5	NP	37.6	7.4	148	7.3	NP	NP	54.4	7.6	14.0	18		M	Can	Docherty & Gaul (1991) (63)
10.9	1.0	NP	33.2	5.2	142	6.0	NP	NP	54.0	9.7	18.0	16		M	Isr	Falk & Bar-Or (1993) (64)

11	NP	10-11	30.8	4.1	135	4.2	NP	NP	49.1	7.9	16.1	18		M	Jap	Ikai & Kitagawa (1972) (49)
11	0.7	NP	37.0	9.0	140	7.0	NP	NP	47.4	6.3	13.3	23	High altitude, high SES	M	Bol	Fellmann et al. (1994) (41)
8.4	NP	7-9	27.2	3.3	131	5.9	NP	NP	52.6	5.5	10.5	12	Non-active in sports/ with a warmup	M	Isr	Inbar & Bar-Or (1975) (65)
8.4	NP	7-9	27.2	0.3	131	5.9	NP	NP	49.4	4.7	9.5	12	Inactive, without warmup period	M	Isr	Inbar & Bar-Or (1975) (65)
9	NP	9	NP	NP	NP	NP	NP	NP	42.9	5.9	13.8	8	Rural boys	M	Jap	Yoshizawa (1972) (52)
9.3	0.3	8-10	27.1	1.3	NP	NP	NP	NP	52.8	2.1	4.0	9	Exercise in heated space	M	Isr	Inbar et al. (1981) (66)
9.5	0.3	9	34.7	6.2	141	6.3	17.4	2.5	50.3	6.8	13.5	10	Test of new VO_{2peak} equation	P	Ice	Arngrímsson et al. (2008) (67)
9.5	1.1	8-12	47.9	13.8	148	9.1	21.7	4.7	36.4	6.2	17.0	9	Overweight group	P	Aus	Crisp et al. (2012) (68)
9.7	1.0	NP	31.6	5.4	142	8.3	15.5	1.9	52.4	11.4	21.8	9	Normal weight group	P	Aus	Crisp et al. (2012) (68)
9.7	0.3	8-10	32.2	4.8	NP	NP	NP	NP	54.1	6.6	12.2	9	Exercise in air conditioning	M	Isr	Inbar et al. (1981) (66)
9.9	0.6	NP	41.7	13.9	140	5.7	20.9	5.9	39.2	7.8	19.9	12	42% overweight/obese	M	Chi	Garcia-Prieto et al. (2017) (69)
9.9	1.6	8-12	52.9	13.9	141	11.0	26.1	3.5	32.8	4.0	12.2	7	Obese subjects; pre-exercise program	M	Ita	Lazzer et al. (2008) (70)
10	NP	10	NP	NP	NP	NP	NP	NP	45.1	2.3	5.1	5	Urban boys	M	Jap	Yoshizawa (1972) (52)
10	NP	10	36.4	1.7	139	8.0	NP	NP	47.1	10.2	21.7	11	Have PE class 3 times/week	M	Aut	Petzl et al. (1988) (53)
10.2	NP	10	28.7	3.0	132	2.2	NP	NP	38.6	4.6	11.9	8		M	Jap	Yamaji & Miyashita (1977) (71)
10.2	0.4	NP	32.4	3.5	142	5.1	NP	NP	56.4	4.6	8.2	10	Second experiment	P	Den	Hansen et al. (1989) (72)
10.3	0.1	10-11	38.9	5.6	145	4.0	NP	NP	45.5	3.4	7.5	10	Interval training group (pre-training)	P	H-K	McManus (2005) (59)
10.3	NP	NP	33.2	5.7	143	7.8	NP	NP	49.3	6.7	13.6	14	Part of a longitudinal study	P	Nor	Andersen et al. (1974) (22)
10.4	0.4	NP	35.9	7.3	140	4.0	NP	NP	47.0	6.5	13.8	10	Continuous training group (pre-training)	P	H-K	McManus (2005) (59)
10.5	0.7	NP	51.0	9.0	146	5.2	24	3.4	51.5	7.5	14.6	14	Overweight boys	P	Can	Peralta-Huertas et al. (2008) (73)
10.5	0.3	10-11	37.5	5.4	142	5.0	NP	NP	44.1	6.1	13.8	9	Endurance training group (pre)	M	Fra	Obert et al. (2003) (74)
10.5	0.3	10-11	36.3	7.9	144	7.1	NP	NP	46.2	6.7	14.5	9	First experiment	M	Den	Hansen et al. (1989) (72)
10.5	1.1	NP	32.9	5.1	142	7.5	16.3	1.10	49.0	7.9	16.1	12	Inactive boys	M	Fra	Birat et al. (2018) (75)

10.5	0.8	NP	34.8	6.0	142	7.4	NP	NP	43.5	5.4	12.4	8		P	Isr	Dotan et al. (2000) (76)
10.6	0.9	NP	34.7	6.9	143	7.1	NP	NP	46.6	NP		12	Training group (pre-experiment)	P	UK	Tolfrey et al. (1998) (77)
10.6	0.3	10-11	36.9	6.1	143	5.0	NP	NP	51.5	6.3	12.2	9	Control group (pre)	M	Fra	Obert et al. (2003) (74)
10.6	1.0	NP	35.0	5.0	142	10.0	NP	NP	48.0	8.0	16.7	10		M	Fra	Martin et al. (2002) (78)
10.7	0.9	NP	35.7	6.6	147	8.4	NP	NP	48.0	6.0	12.5	9		P	Bel	Vandekerckhove et al. (2016) (79)
11	NP	10-11	35.3	8.1	141	5.5	17.6	3.2	50.1	12.4	24.8	12	Deaf boys	M	Pol	Zebrowska & Zwierzchowska (2009) (80)
11	NP	10-11	33.4	7.2	143	8.4	16.3	2.3	52.9	12.2	23.1	12	Normal hearing boys	M	Pol	Zebrowska & Zwierzchowska (2009) (80)
8.1	0.3	7-10	27.8	1.7	132	1.7	15.8	0.6	47.3	5.00		12	healthy boys	P	Ger	Schöffl et al. (2020) (81)
10.7	0.8	9-11	43.4	8.6	146.2	4.5	20.2	3.1	43.0	3.6		11	healthy boys	P	Bra	Langer et al. 2020 (82)
9.6	2.8	7-11	36.2	6.8	140	8.7	17.7	4.8	46.3	10.20		14			Fin	Haapala et al. 2021 (83)

(Y=years, VO_{2max}=maximal oxygen consumption, NP=not provided, BSA=body surface area, LBM=lean body mass, PR=Puerto Rico , Fra=France, Spa=Spain, Nor=Norway, Eur=Europe, Can=Canada, Fin=Finland, Sca=Scandinavian countries, Swe=Sweden, Ger=Germany, Tan=Tanzania, Bol=Bolivia, Aus=Australia, Net*Netherlands, Bel=Belgium, Jap=Japan, Aut=Austria, Isr=Israel, H-K=Hong Kong, Ice=Iceland, Chi=China, Ita=Italy, Den=Denmark, Pol=Poland, Bra=Brasil)

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