

# Fitness Reference Booklet

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# PERSONAL INFORMATION

## HEART RATE (normal resting)

Newborn infants	100 to 160 beats per minute
Children 1 to 10 years	70 to 120 beats per minute
Children over 10 and adults	60 to 100 beats per minute
Well-trained athletes	40 to 60 beats per minute

Adapted from MEDLINEPlus Medical Encyclopedia Website (2004)

## BLOOD PRESSURE (resting)

### Adults (>18 years)

	Normal	Prehypertention	Hypertention
<b>SYSTOLIC</b>	<120	120-139	≥140
<b>DIASTOLIC</b>	< 80	80-89	≥ 90

## CHOLESTEROL (>20 years)

	Total	LDL	HDL
Desirable	<200 mg/dl	< 130	> 45
Borderline	200-239	139-159	40-45
Undesirable	≥ 240	≥160	< 40

Adapted from Mayo Clinic (2005)

### Youth (normal ranges for ages 12-18 years)

	12-15 yrs.	16-18 yrs.
<b>SYSTOLIC</b>	≤126	≤ 132
<b>DIASTOLIC</b>	≤ 78	≤ 82

Adapted from American Heart Association (2004)

## BODY MASS INDEX TABLE

BMI	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
<b>Height (Inches)</b>	<b>Body Weight (pounds)</b>																
<b>60</b>	97	102	107	112	118	123	128	133	138	143	148	153	158	163	168	174	179
<b>61</b>	100	106	111	116	122	127	132	137	143	148	153	158	164	169	174	180	185
<b>62</b>	104	109	115	120	126	131	136	142	147	153	158	164	169	175	180	186	191
<b>63</b>	107	113	118	124	130	135	141	146	152	158	163	169	175	180	186	191	197
<b>64</b>	110	116	122	128	134	140	145	151	157	163	169	174	180	186	192	197	204
<b>65</b>	114	120	126	132	138	144	150	156	162	168	174	180	186	192	198	204	210
<b>66</b>	118	124	130	136	142	148	155	161	167	173	179	186	192	198	204	210	216
<b>67</b>	121	127	134	140	146	153	159	166	172	178	185	191	198	204	211	217	223
<b>68</b>	125	131	138	144	151	158	164	171	177	184	190	197	203	210	216	223	230
<b>69</b>	128	135	142	149	155	162	169	176	182	189	196	203	209	216	223	230	236
<b>70</b>	132	139	146	153	160	167	174	181	188	195	202	209	216	222	229	236	243
<b>71</b>	136	143	150	157	165	172	179	186	193	200	208	215	222	229	236	243	250
<b>72</b>	140	147	154	162	169	177	184	191	199	206	213	221	228	235	242	250	258

Adapted from National Heart, Lung and Blood Institute (NIH) Website.

### BMI Categories:

Underweight = < 18.5

Normal Weight = 18.5 – 24.9

Overweight = 25 – 29.9

Obesity = 30 or greater

Adapted from National Heart, Lung and Blood Institute (NIH) Website.

# AEROBIC FITNESS

## PACER

	14-years old		15-years old		16-years old		17-years old	
	Males	Females	Males	Females	Males	Females	Males	Females
High Performance	61-80	33-44	65-85	38-50	70-90	43-56	74-94	50-61
Good Fitness	41-60	18-32	46-64	23-37	52-69	28-42	57-73	34-49
Marginal Fitness	36-40	16-17	41-45	21-22	47-51	25-27	52-56	30-33
Low Fitness	<35	<15	<40	<20	<46	<24	<51	<29

Adapted from Corbin & Lindsey (2005) p. 123

<u>12-MINUTE RUN TEST</u>												
Male						Female						
	20-29	30-39	40-49	50-59	60 +		20-29	30-39	40-49	50-59	60 +	
<b>Excellent</b>	≥ 1.65	≥ 1.61	≥ 1.54	≥ 1.45	≥ 1.37	<b>Excellent</b>	≥ 1.45	≥ 1.38	≥ 1.32	≥ 1.21	≥ 1.18	
<b>Good</b>	1.54 – 1.64	1.49 – 1.60	1.42 – 1.53	1.33 – 1.44	1.24 – 1.36	<b>Good</b>	1.33 – 1.44	1.27 – 1.37	1.21 – 1.31	1.13 – 1.20	1.07 – 1.17	
<b>Fair</b>	1.45 – 1.53	1.39 – 1.48	1.33 – 1.41	1.25 – 1.32	1.15 – 1.23	<b>Fair</b>	1.25 – 1.32	1.21 – 1.26	1.13 – 1.20	1.06 – 1.12	0.99 – 1.06	
<b>Poor</b>	≤ 1.44	≤ 1.38	≤ 1.32	≤ 1.24	≤ 1.14	<b>Poor</b>	≤ 1.24	≤ 1.20	≤ 1.12	≤ 1.05	≤ 0.98	

Adapted from Cooper Institute for Aerobic Research, Dallas, TX. (1998) p. 104-106 and 113-115

## COOPER ONE MILE WALK

	MEN UNDER 40	MEN OVER 40	WOMEN UNDER 40	WOMEN OVER 40
<b>EXCELLENT</b>	13:00 or less	14:00 or less	13:30 or less	14:30 or less
<b>GOOD</b>	13:01-15:30	14:01-16:30	13:31-16:00	14:31-17:00
<b>AVERAGE</b>	15:31-18:00	16:31-19:00	16:01-18:30	17:01-19:30
<b>BELOW AVERAGE</b>	18:01-19:30	19:01-21:30	18:31-20:00	19:31-22:00
<b>LOW</b>	19:31 or more	21:31 or more	20:01 or more	22:01 or more

Walking Handbook, Susan Johnson, Ed.D. (1997) The Cooper Institute for Aerobics Research, Dallas, TX. (1997) in The Cooper Institute for Aerobics Research, Dallas, TX (1998) p.90

# MUSCULAR STRENGTH

## GRIP STRENGTH

	Below 15 years old		15-17 years old	
	Males	Females	Males	Females
Good Fitness	191+	121+	226+	136+
Marginal Fitness	158-190	99-120	191-225	114-135
Low Fitness	<157	<98	<190	<113

Adapted from Corbin & Lindsey (2005) p.184

## GRIP STRENGTH NORMS & PERCENTILES BY AGE GROUPS & GENDER

(For combined right and left hand grip strength in pounds)

AGE (yrs)	20 -29		30-39		40-49		50-59		60-69	
GENDER	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Excellent	≥ 254	≥ 154	≥ 254	≥ 157	≥ 238	≥ 152	≥ 222	≥ 135	≥ 220	≥ 119
Very Good	229-253	139-153	229-253	139-156	214-237	135-151	203-221	119-134	201-219	106-118
Good	210-228	128-138	210-228	128-138	194-213	119-134	185-202	108-118	185-200	99-105
Fair	185-209	115-127	185-209	112-127	176-193	108-118	168-184	99-107	161-184	90-98
Needs Improvement	≤ 184	≤ 114	≤ 184	≤ 111	≤ 175	≤ 107	≤ 167	≤ 98	≤ 160	≤ 89

Adapted from The Canadian Physical Activity, Fitness & Lifestyle Approach: CSEP-Health & Fitness Program's Health-Related Appraisal and Counseling Strategy, (3<sup>rd</sup> Edition) © 2003.

## PREDICTED 1-REP MAX BASED ON REPETITIONS-TO-FATIGUE

Weight lifted	REPETITIONS						Weight lifted	REPETITIONS					
	5	6	7	8	9	10		5	6	7	8	9	10
100	112	116	120	124	129	133	155	174	180	186	192	199	207
105	118	122	126	130	135	140	160	180	186	192	199	206	213
110	124	128	132	137	141	147	165	186	192	198	205	212	220
115	129	134	138	143	148	153	170	191	197	204	211	219	227
120	135	139	144	149	154	160	175	197	203	210	217	225	233
125	141	145	150	155	161	167	180	202	209	216	223	231	240
130	146	151	158	161	167	173	185	208	215	222	230	238	247
135	152	157	162	168	174	180	190	214	221	228	236	244	253
140	157	163	168	174	180	187	195	219	226	234	242	251	260
145	163	168	174	180	186	193	200	225	232	240	248	257	267
150	169	174	180	186	193	200							

Adapted from Corbin & Lindsey (2005) p. 182

## RATING CHART: ARM PRESS (IRM)

	<15 years		15-17 years		>18 years	
	Males	Females	Males	Females	Males	Females
Good fitness	.80+	.60+	1.00+	.70+	1.10+	.85+
Marginal fitness	.67-.79	.50-.59	.75-.99	.60-.69	.80-1.09	.67-.84
Low fitness	<.66	<.49	<.74	<.59	<.79	<.66

Adapted from Corbin & Lindsay (2005) p.184

### Formula for Bench Press Weight Ratio

$$\frac{\text{weight pushed in lbs.}}{\text{body weight in lbs.}}$$

## 1-REPITITION MAXIMUM BENCH PRESS FOR MALES

	20-29	30-30	40-49	50-59	60 +
EXCELLENT	≥1.32	≥ 1.12	≥1.00	≥ .90	≥ .82
GOOD	1.14 – 1.31	.98 – 1.11	.88 -- .99	.79 – .89	.72 -- .81
FAIR	.99 – 1.13	.88 -- .97	.80 -- .87	.71 -- .78	.66 -- .71
POOR	≤ .98	≤ .87	≤ .79	≤ .70	≤ .65

# MUSCULAR ENDURANCE

## PUSH-UP (total number)

	14 Years Old		15 Years Old		16 Years Old	
	Males	Females	Males	Females	Males	Females
<b>High Performance</b>	31+	16+	36+	16+	36+	16+
<b>Good Fitness</b>	14 – 30	7 - 15	16 -35	7 - 15	18 - 35	7-15
<b>Marginal Fitness</b>	12 – 13	6	14 - 15	6	16 - 17	6
<b>Low Fitness</b>	- 11	- 5	- 13	- 5	- 15	-5

Adapted from Corbin & Lindsey (2005) p. 31

## FULL BODY PUSH-UP (number per minute)

	MALES						FEMALES		
	20-29	30-39	40-49	50-59	60+		20-29	30-39	40-49
<b>EXCELLENT</b>	≥ 47	≥ 39	≥ 30	≥ 25	≥ 23	<b>EXCELLENT</b>	≥ 28	≥ 23	≥ 15
<b>GOOD</b>	37 - 46	30 – 38	24 - 29	19 - 24	18 - 22	<b>GOOD</b>	21 - 27	15 - 22	13 - 14
<b>FAIR</b>	29 - 36	24 – 29	18 - 23	13 - 18	10 - 17	<b>FAIR</b>	15 - 20	11 - 14	9 - 12
<b>POOR</b>	≤ 28	≤ 23	≤ 17	≤ 12	≤ 9	<b>POOR</b>	≥ 14	≥ 10	≥ 8

Adapted from The Cooper Institute for Aerobics Research, Dallas TX. (1998) pp.110 & 120.

## CURL-UP (total number)

	14 Years Old		15 – 18 Years	
	Males	Females	Males	Females
<b>High Performance</b>	46+	33+	48+	36+
<b>Good Fitness</b>	24-45	18-32	24-47	18-35
<b>Marginal Fitness</b>	20-23	15-17	20-23	15-17
<b>Low Fitness</b>	-19	-14	-19	-14

Adapted from Corbin & Lindsey (2005) p.30

## CURL-UP NORMS (number per minute)

AGE	18-29		30-39		40-49		50-59		60+	
	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE
<b>ADVANCED</b>	> 45	>50	>40	>45	>35	>40	>30	>35	>25	>30
<b>INTERMEDIATE</b>	25-45	30-50	20-40	22-45	18-35	21-40	12-30	18-35	11-25	15-30
<b>BEGINNER</b>	< 25	<30	<20	<22	<18	<21	<12	<18	<11	<15

Adapted from The Cooper Institute for Aerobics Research, Dallas TX. (1998) p.95

# FLEXIBILITY

## TRUNK LIFT (inches)

<b>High Performance</b>	11-12
<b>Good Fitness</b>	9-10
<b>Marginal Fitness</b>	7-8
<b>Low Fitness</b>	≤ 6

Adapted from Corbin & Lindsey (2005) p. 122

## BACKSAVER SIT AND REACH (inches)

	13 – 14 Years Old		15 – 18 Years	
	Male	Female	Male	Female
<b>High Performance</b>	10+	12+	10+	14+
<b>Good Fitness</b>	8-9	10-11	8-9	12-13
<b>Marginal Fitness</b>	6-7	8-9	6-7	10-11
<b>Low Fitness</b>	-5	-7	-5	-9

Adapted from Corbin & Lindsey (2005) p. 82

## SIT AND REACH (inches)

SIT AND REACH (inches)											
MALES						FEMALES					
	20-29	30-39	40-49	50-59	60+		20-29	30-39	40-49	50-59	60+
<b>EXCELLENT</b>	≥ 20.5	≥ 19.5	≥ 18.5	≥ 17.5	≥ 17.3	<b>EXCELLENT</b>	≥ 22.5	≥ 21.5	≥ 20.5	≥ 20.3	≥ 19.0
<b>GOOD</b>	18.5 – 20.4	17.5 – 19.4	16.3 – 18.4	15.5 – 17.4	14.5 – 17.2	<b>GOOD</b>	20.5 – 22.4	20.0 – 21.4	19.0 – 20.4	18.5 – 20.2	17.0 – 18.9
<b>FAIR</b>	16.5 – 18.4	15.5 – 17.4	14.3 – 16.2	13.3 – 15.4	12.5 – 14.4	<b>FAIR</b>	19.3 – 20.4	18.3 – 19.9	17.3 – 18.9	16.8 – 18.4	15.5 – 16.9
<b>POOR</b>	≤ 16.4	≤ 15.4	≤ 14.2	≤ 13.2	≤ 12.4	<b>POOR</b>	≤ 19.2	≤ 18.2	≤ 17.2	≤ 16.7	≤ 15.4

Adapted from *The Cooper Institute for Aerobics Research*, Dallas TX. (1998) p. 108 & p. 117

**Note:** There is some feeling that flexibility should not decrease with age if regular range of motion exercise is sustained.

# BODY COMPOSITION

## SKINFOLD MEASUREMENT

FITNESS RATING	% FAT	
	MALES	FEMALES
Too Little Fat	<6	<12
High Performance	6 – 9.9	12 – 14.9
Good	10 – 19.9	15 – 24.9
Marginal	20 – 24.9	25 – 29.9
Too Much fat	25+	30+

Corbin & Lindsey (2005) p.227

## WAIST-TO-HIP RATIO

	MALES	FEMALES
Good Health Zone	<.90	<.80