

INSTRUCTIONS FOR ANALOG & DIGITAL HAND DYNAMOMETERS

Hand Dynamometers are used to secure an index of general upper body strength, an index of right-vs-left handedness and general comparison purposes. They may be used to formulate an index of endurance of fatigue, or may be combined with other forms of strength measurements for comprehensive data about a Subject's total physical fitness.

Operation

1. Adjust the grip size until the joints of the Subject's fingers are approximately on a plane perpendicular to the scale plate. When the adjustment is optimal, the subject will sense he can comfortably exert his maximum grip.
2. For the analog dynamometer, move the indicator lever to zero with your finger. For digital dynamometer, clear the display by pressing the "ON/C" button.
3. Subject should stand straight with weight evenly distributed on both feet. There are two common standard procedures with respect to hand and arm positions One is with arms hanging straight down at the sides. The other is with the upper arm hanging straight down with the elbow bent at 90 degrees and the forearm straight forward and parallel to the floor. In either position the subject should squeeze the Hand Dynamometer with as much force as possible being careful to squeeze only once. Record the resultant scale reading.
4. Allow three trials with each hand, right and left alternating. There should be a brief pause of about 10 to 15 seconds between each trial to avoid excessive fatigue. Record the amount registered at each trial, but use only the highest recorded for each hand.

Compare your findings with the averages shown in Table 1 and 2.

TABLE 1					
Averages of Strength of Grip, in kg . for Children					
	Boys			Girls	
AGE	RIGHT HAND	LEFT HAND		RIGHT HAND	LEFT HAND
6	9.21	8.48		8.36	7.74
7	10.74	10.11		9.88	9.24
8	12.41	11.67		11.16	11.97
9	14.34	13.47		12.77	11.97
10	16.52	15.59		14.65	13.72
11	18.85	17.72		16.54	15.52
12	21.24	19.71		18.92	17.78
13	24.44	22.51		21.84	20.39
14	28.42	26.22		24.79	22.92
15	33.39	30.88		27.00	24.92
16	39.37	36.39		28.70	26.56
17	44.74	40.96		29.56	27.48
18	49.28	45.01		29.75	27.66

TABLE 2											
Averages of Strength of Grip, in kg. for Adults											
	MALE										
AGE	10TH%		25TH%		50TH%		75TH%		90TH%		
	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left	
20-29	44	40	49	45	56	52	62	58	67	63	
30-39	40	36	45	42	52	48	58	54	64	59	
40-49	35	29	41	48	48	44	54	50	60	55	
50-59	32	29	37	34	44	40	50	46	55	52	
60-69	28	26	33	30	40	36	46	43	52	48	
70-79	24	21	29	26	36	33	42	39	47	45	
	FEMALE										
AGE	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left	
20-29	21	18	25	22	28	25	31	29	35	32	
30-39	20	17	23	20	27	24	30	28	33	31	
40-49	18	15	22	19	25	23	29	26	32	29	
50-59	17	14	20	18	24	21	27	25	30	28	
60-69	15	13	19	16	22	20	25	23	29	27	
70-79	14	11	17	15	21	18	24	22	28	25	

Note that the preceding tables are averages based on data obtained from large groups of people. Significant variations from these figures should not necessarily be considered abnormal or indicative of a problem. The testers judgment should also be used. For Example, one would expect a 16 year old boy who is 6'2" and weighs 210 lb. to have a higher grip strength than average, and a 30 year old man who is 5'7" and weighs 135 lbs. might have a lower grip strength than the average shown.

Strength testers are particularly useful in showing change over time. For example, when a person first starts an exercise program, by measuring at the start of the program and then at regular intervals, the progress of the person can be observed. For someone who has had an injury and is undergoing physical therapy, measuring at the beginning and then at regular intervals can verify the therapy is having the desired results.