



Instruction Manual

Hydraulic Hand Dynamometer with Digital LCD Gauge

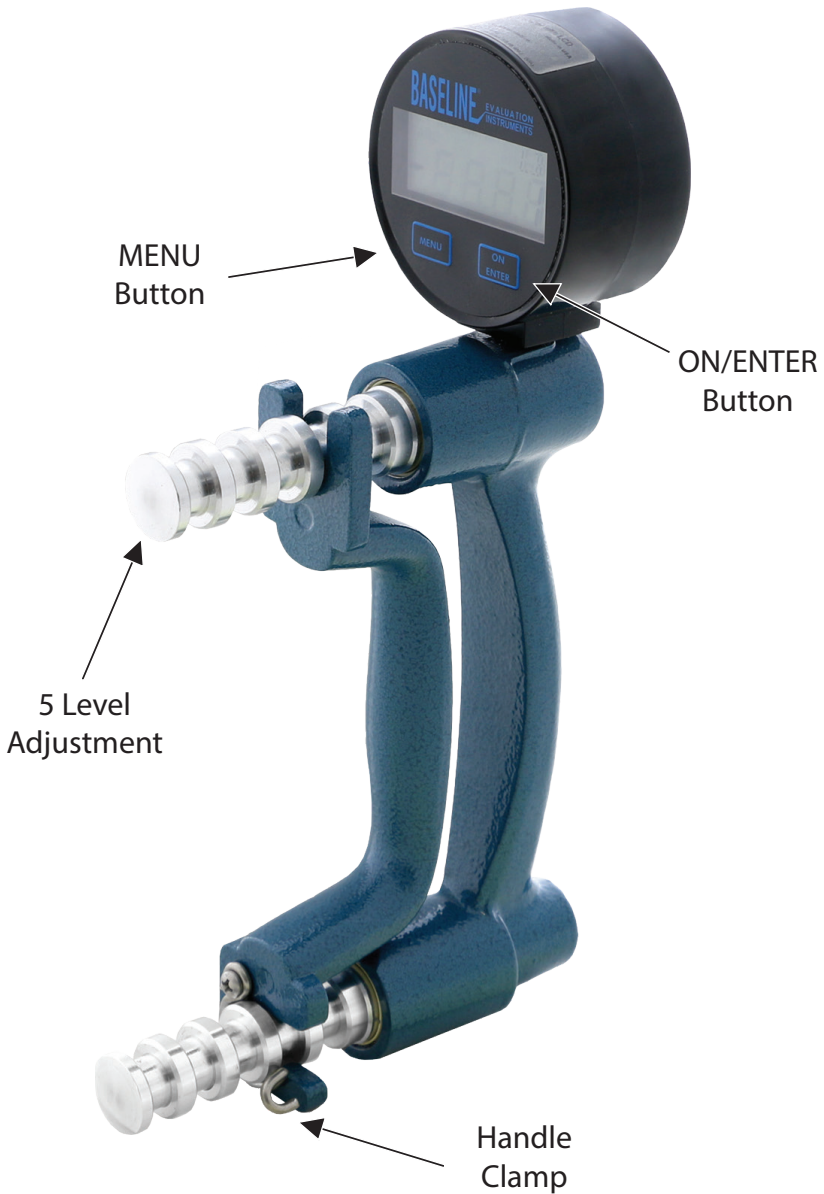


Manufacturer and Master
Distributor of Physical Therapy
and Rehabilitation Products

REF 12-0247

ver 0723

Parts/Specifications



Specifications
Grip adjust range
Weight

300 lb / 136 kg capacity
1.35 in / 3.35 cm
22.6 oz / 638 gm



Hydraulic Hand Dynamometer with Digital LCD Gauge

Purpose / Intended Use

The purpose of this Medical Device is to measure a patient's grip strength. It can be used to evaluate initial and ongoing impacts of hand trauma and dysfunction. The Baseline Hydraulic Hand Dynamometer can be used to measure isometric force and peak strength with five adjustable grip positions. This helps track strength and rehabilitation over time and is ideal for physical therapy professionals.

How to Use

Set handle to comfortable grip for patient. Reset max indicator to zero. Have patient squeeze with maximum force, note reading. Reset to zero for next test.

Components

- Machined aluminum handle, post and body
- Bronze bellows
- Stainless steel hydraulic tubing
- Teflon bushings
- Non-toxic mechanical hydraulic pump fluid
- Digital Gauge

Accuracy greater than 97%.

Data

The Baseline® Hydraulic Hand Dynamometer with Digital LCD Gauge can utilize some of data pertaining to the Jamar® Hydraulic Hand Dynamometer. The internal workings of both are hydraulic and bellows-operated.

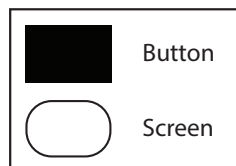
Instructions

How to turn on/off unit:

Press

ON
ENTER

- Press ON/ENTER to switch ON and OFF.



How to zero out unit:

Hold

MENU

Zero Screen

ZERO
UNIT

Hold

ON
ENTER

- Display "----" on the LCD. Zero the unit and save the Zero Offset.

How to view max:

Hold

MENU

Zero Screen

ZERO
UNIT

Press

MENU

Max Screen

MAX

Hold

ON
ENTER

- Exit without changing anything.

How to clear max:

Hold

MENU

Zero Screen

ZERO
UNIT

Press

MENU

Max Screen

MAX

Press

MENU

Max Clear
Screen

MAX
CLR

Hold

ON
ENTER

Confirm
Clear

CLR
YES?

Hold

ON
ENTER

- Display "----" on the LCD. Clear MAX to 0 and save the MAX value.

How to switch between LB and KG:

Hold

MENU

Zero Screen

ZERO
UNIT

Press

MENU

Max Screen

MAX

Press

MENU

Max Clear
Screen

MAX
CLR

Press

MENU

Select Unit
Screen

LBKG
SEL

Hold

ON
ENTER

Press

MENU

Hold

ON
ENTER

- Switch the weight unit (LB and KG)
- Display "----" on the LCD. Save the weight unit.

Norms for Adult Grip Strength

A recent study by Dr. Virgil Mathiowetz indicates that "... individuals using the Baseline® dynamometer are justified in using the normative data collected with the Jamar® dynamometer..."

For each test of grip strength, the subject was seated with shoulder adducted and neutrally rotated with the elbow between 0° and 15° ulnar deviation.

The standard test protocol used the mean of three strength tests as a resultant score. A score was taken with both the dominant (right) and non-dominant (left) hands.

The rest results show a relationship between:

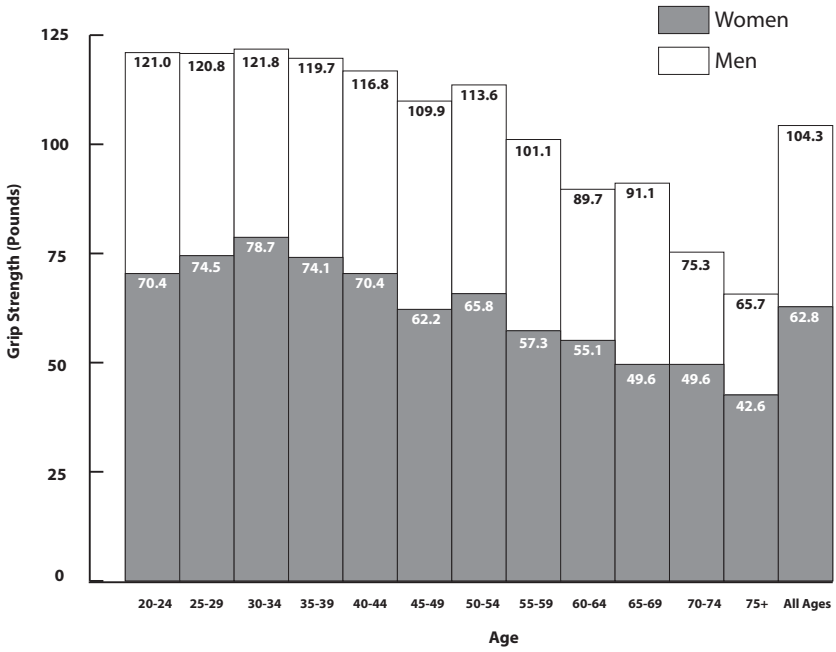
- hand strength vs. age
- hand strength of men vs. hand strength of women
- dominant hand strength vs. non-dominant hand strength

Average Performance of all Subjects on Grip Strength (pounds)- Test results												
Men							Women					
Mean	SD	SE	Low	High	Age	Hand	Mean	SD	SE	Low	High	
121.0 104.5	20.6 21.8	3.8 4.0	91 71	167 150	20-24	R L	70.4 61.0	14.5 13.1	2.8 2.6	46 33	95 88	
120.8 110.5	23.0 16.2	4.4 4.4	78 77	158 139	25-29	R L	74.5 63.5	13.9 12.2	2.7 2.4	48 48	97 97	
121.8 110.4	22.4 21.7	4.3 4.2	70 64	170 145	30-34	R L	78.7 68.0	19.2 17.7	3.8 3.5	46 36	137 115	
119.7 112.9	24.0 21.7	4.8 4.2	76 73	176 157	35-39	R L	74.1 66.3	10.8 11.7	2.2 2.3	50 49	99 91	
116.8 112.8	20.7 18.7	4.1 3.7	84 73	165 157	40-44	R L	70.4 62.3	13.5 13.8	2.4 2.5	38 35	103 94	
109.9 100.8	23.0 22.8	4.3 4.3	65 58	155 160	45-49	R L	62.2 56.0	15.1 12.7	3.0 2.1	39 37	100 83	
113.6 101.9	18.1 17.0	3.6 3.4	79 70	151 143	50-54	R L	65.8 57.3	11.6 10.7	2.3 2.1	38 35	87 76	
101.1 83.2	26.7 23.4	5.8 5.1	59 43	154 128	55-59	R L	57.3 47.3	12.5 11.9	2.5 2.4	33 31	86 76	
89.7 76.8	20.4 20.3	4.2 4.1	51 27	137 116	60-64	R L	55.1 45.7	10.1 10.1	2.0 2.0	37 29	77 66	
91.1 76.8	20.6 19.8	4.0 3.8	56 43	131 117	65-69	R L	49.6 41.0	9.7 8.2	1.8 1.5	35 29	74 63	
75.3 64.8	21.5 18.1	4.2 3.7	32 32	108 93	70-74	R L	49.6 41.5	11.7 10.2	2.2 1.9	33 23	78 67	
65.7 55.0	21.0 17.0	4.2 3.4	40 31	135 119	75+	R L	42.6 37.6	11.0 8.9	2.2 1.7	25 24	65 61	
104.3 93.1	28.3 27.6	1.6 1.6	32 27	176 160	All Subjects	R L	62.8 53.9	17.0 15.7	0.96 0.88	25 23	137 115	

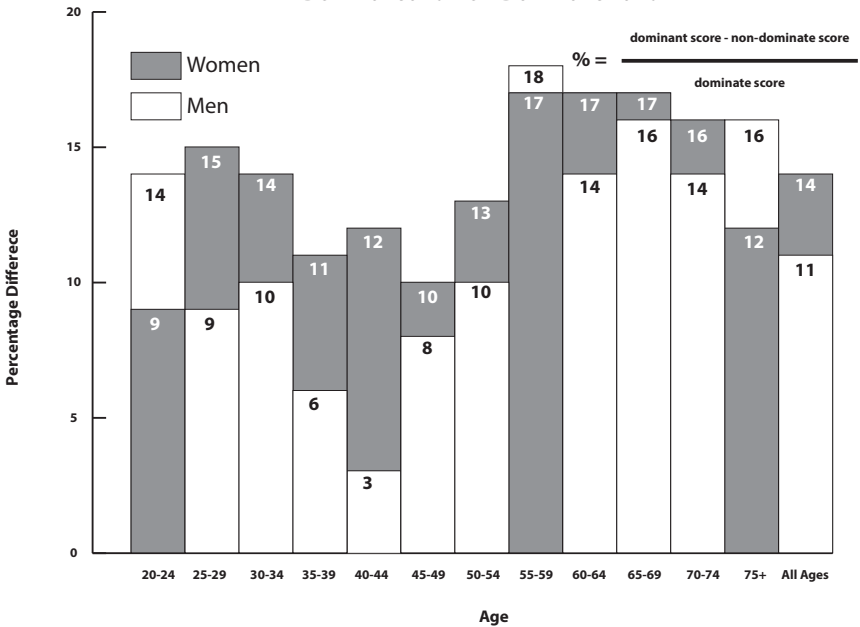
References:

1. Gill D, Reddon J, Renney C, Stefanyk W: Hand Dynamometer: Effects of Trials and Sessions. *Perpetual and Motor Skills* 61: 195-8, 1985.
2. Everrett P, Sills F: The relationship of Grip Strength to Stature, Somatotype Components, and Anthropometric Measurements of the Hand. *The Research Quarterly* 23: 161-6, 1952
3. Mathiowetz V, Federman S, Wiermer D: Grip and Pinch Strength: Norms for 6 to 19 Year Olds. *The American Journal of Occupational Therapy* 40: 705-11, 1986
4. Mathiowetz V, Donahoe L, Renells C: Effect of Elbow Position on Grip and Key Pinch Strength. *The Journal of Hand Surgery* 10A: 694-7, 1985
5. Mathiowetz V, Kashman N, Volland G, Weber K, Dove M, Rogers S: Grip and Pinch Strength: Normative Data for Adults. *Archives of Physical Medicine and Rehabilitation* 66: 69-74, 1985.

Grip Strength (Dominant Hand)



Grip Strength Difference Between Dominant and Non-Dominant Hand



THE COLLEGE OF
ST. CATHERINE
2004 Randolph Avenue
St. Paul, Minnesota 55105
(612) 690-6000 FAX(612) 690-6024

Virgil Mathiowetz, PhD, OTR
Associate Professor
Department of Occupational Therapy
College of St. Catherine
2004 Randolph Avenue
St. Paul, MN 55105-1794

March 18, 1993

Mr. Elliott Goldberg,
Marketing Director
Fabrication Enterprises Inc.
Trent Building
South Buckout Street
Irvington, NY 10533

Dear Mr. Goldberg,

Recently, I completed the study to determine whether the Baseline and Jamar hydraulic dynamometers can be used interchangeable. A draft of the report has been completed and sent to you. In the summary, I concluded that, "The data from this study suggest that the Jamar and Baseline hydraulic hand dynamometers measure equivalently for practical purposes. As a result, individuals using the Baseline Dynamometer are justified in using the normative data, which was collected with the Jamar dynamometer (Mathiowetz et al., 1985; 1986)." This conclusion assumes that the same standard procedures are followed as were used in the original normative data studies.

Sincerely,



Virgil Mathiowetz, PhD, OTR
Associate Professor &
Research Consultant

WARRANTY

The Baseline® Hydraulic Hand Dynamometer with Digital LCD Gauge is warranted for 2 years covering parts and labor from date of purchase. If unit needs repair, contact your local dealer or Fabrication Enterprises, Inc.

250 Clearbrook rd, Elmsford NY, 10523 (USA)

tel: 914-345-9300 • 800-431-2830

fax: 914-345-9800 • 800-634-5370



Fabrication Enterprises Inc.
250 Clearbrook Rd, Suite 240
Elmsford, NY 10523 (USA)
tel: +1-914-345-9300 • 800-431-2830
fax: +1-914-345-9800 • 800-634-5370
FabEnt.com



AJW Technology Consulting GmbH
Breite Strasse 3
40213 Düsseldorf (Germany)