

**Baseline® measurement - the most complete line of instruments for the physical therapist**



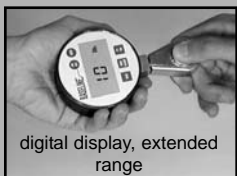
3-piece hand evaluation set



7-piece hand evaluation set



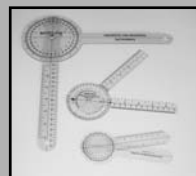
wrist evaluation set



digital display, extended range



larger lifting platform



goniometers and inclinometers



available in 2, 10, 30 and 60 pound ranges

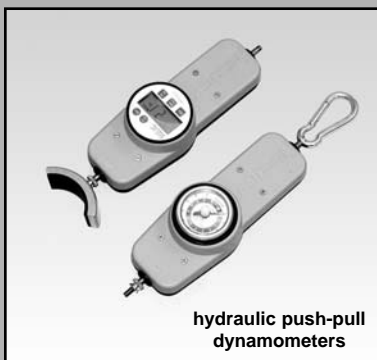


300 pound large head extended range hand dynamometer

many new options...



push-pull dynamometers



hydraulic push-pull dynamometers



more Baseline® measurement



800.531.3746 • info@thehumansolution.com • thehumansolution.com

**BASELINE® EVALUATION INSTRUMENTS**

**HYDRAULIC HAND DYNAMOMETER**



Fabrication Enterprises Incorporated

INSTRUCTION MANUAL

Manufacturer and Master Distributor of Physical Therapy and Rehabilitation Products

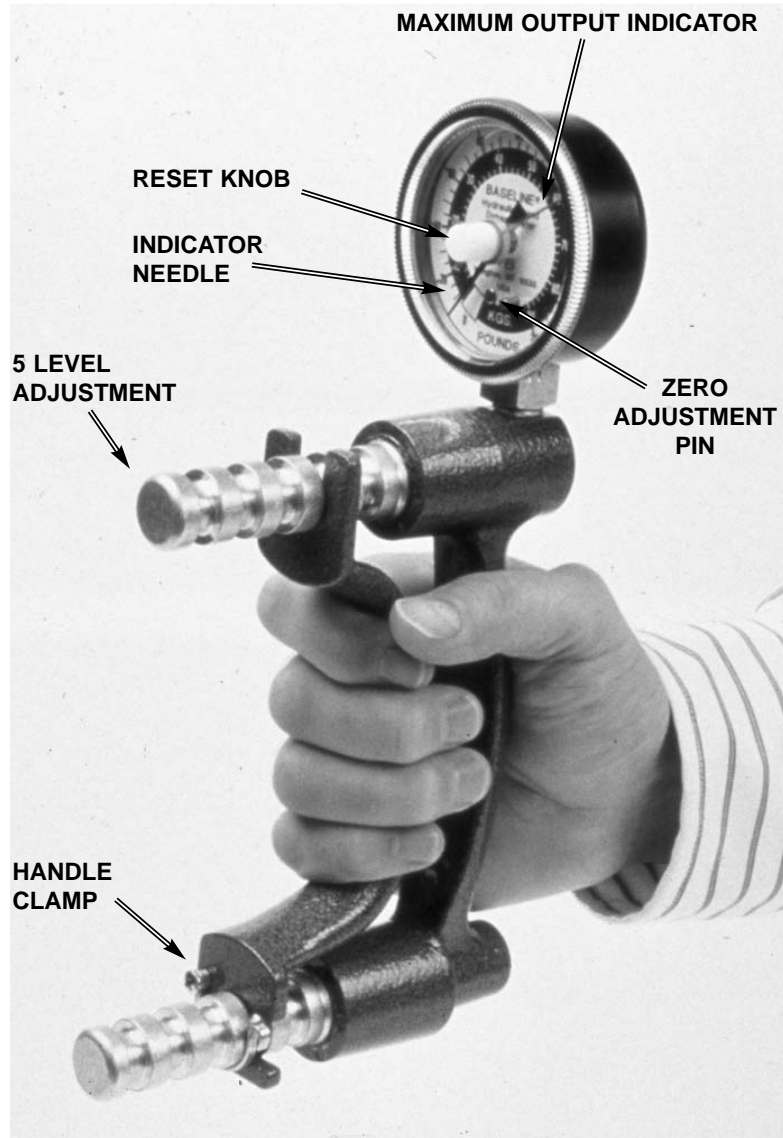
## PARTS/SPECIFICATIONS

## WARRANTY

The BASELINE® Hydraulic Hand Dynamometer is warranted for 1 (one) full year (parts and labor) from date of purchase. If unit needs repair contact your local dealer or Fabrication Enterprises, Inc.:

Fabrication Enterprises, Inc.  
3 Westchester Plaza STE 111  
Elmsford, NY 10523  
U.S.A.

TEL: 800-431-2830, (914) 345-9300



<b>Specifications</b>	200 lb. / 90 kg capacity
<b>Grip adjust range</b>	1.35 in. / 3.35 in.
<b>Weight</b>	22.6 oz. / 638 gms.

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

## USAGE

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

## CALIBRATION

The BASELINE® hand dynamometer is a sealed unit and calibrated at the factory. However, if indicator needle is out of "zero-range" it may be reset. Remove clear cover by turning counter clockwise. Adjustment pin located by 90Kg marking. Turn pin to reset to zero.

If unit is leaking hydraulic fluid it should be returned to factory for repair and recalibration.

## COMPONENTS

- ♦Machined aluminum handle, post and body
- ♦Bronze bellows
- ♦Stainless steel hydraulic tubing
- ♦Teflon bushings
- ♦Non-toxic mechanical hydraulic pump fluid
- ♦Gauge - Bourdon tube element with spring suspended movement. Constructed to ASME B 40.1 standards. Accuracy better than 98%.

## DATA

The BASELINE® hand dynamometer can utilize the large amount of data pertaining to the Jamar® hand dynamometer. The internal workings of both are hydraulic and bellows operated.

## 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 that was collected with the Jamar® dynamometer ...".

For each test of grip strength, the subject was seated with shoulder adducted and neutrally rotated, elbow flexed at 90°, forearm in neutral position, and wrist between 0° and 30° dorsiflexion and between 0° and 15° ulnar deviation.

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

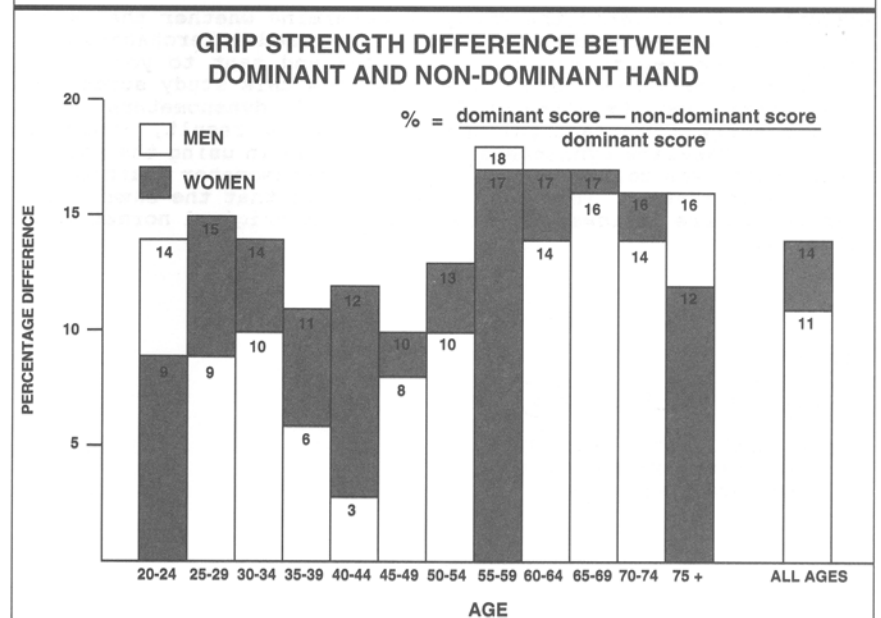
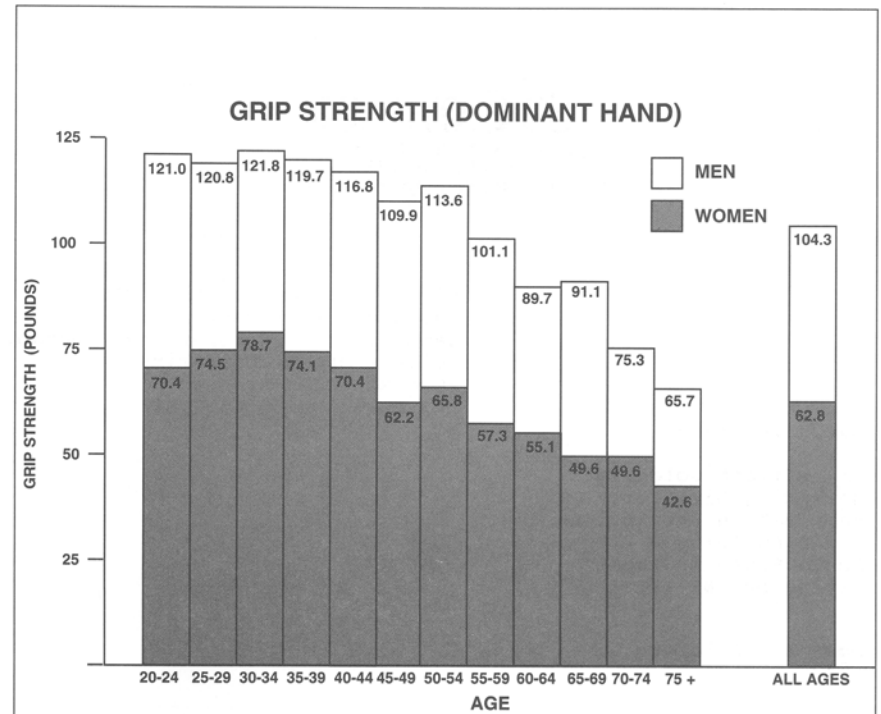
The test results show a relationship between:

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

**REFERENCES:**

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2. Everett 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.



\* charts generated from data published in Mathiowetz's article "Grip and Pinch Strength: Normative Data for Adults", *Archives of Physical Medicine and Rehabilitation* 66: 69-74, 1985.