Testing Protocol: Grip and Pinch

	PATIENT START POSITION	PLACEMENT OF DYNAMOMETER	POSITION OF THERAPIST	TEST
POWER GRIP (RIGHT/LEFT)	- seated or upright - test arm at side with elbow flexed 90° - palm facing inward	Adjust handle to appropriate rung, where grip is comfortable and the thumb overlaps the fingernail of middle finger.	In front of and to the side of patient.	Have patient squeeze, hold and release. Patient should not feel grip move nor see gauge.





hand grip

lateral pinch







chuck pinch

pulp pinch

lateral pinch

	PATIENT START POSITION	PLACEMENT OF PINCH GAUGE	POSITION OF THERAPIST	TEST
LATERAL (KEY) PINCH (RIGHT/LEFT) - seated or uprig - test arm at side with elbow flexed so - palm facing inward		Pinch gauge between flexed PIP joint of index finger and thumb.	In front of patient, to the side, stabilizing pinch gauge.	Have patient squeeze, hold and release.
CHUCK PINCH (RIGHT/LEFT)	- seated or upright - test arm at side with elbow flexed 90° - palm facing down	Pinch gauge between thumb and the index and middle fingers.	In front of patient, to the side, stabilizing pinch gauge.	Have patient squeeze, hold and release.
PULP PINCH (RIGHT/LEFT ON EACH FINGER)	- seated or upright - test arm at side with elbow flexed 90° - palm facing down - test finger on button	Pinch gauge between thumb and test finger (make sure other fingers do not interfere).	In front of patient, to the side, stabilizing pinch gauge.	Have patient squeeze, hold and release.



muscle strength testing

functional capacity evaluation

DASCLINE PUSH-PULL DASCLINE DASCER

A simple, easy-to-use, ergonomically designed instrument that *objectively* measures push, pull and lift forces for manual muscle testing, functional capacity evaluation and job task evaluation at a remarkably *affordable* price. Because the instrument is lightweight, small and *portable*, you can perform precise, objective evaluations in your office, at the client's location, or in the field. Ergonomically designed dynamometer is easy to grasp while testing small forces. The easy-to-attach single or dual grip handle can be used when measuring larger forces. Can be used with functional lift platform to perform lifting evaluations.

muscle strength measurement

This hand-held dynamometer lets you *objectively* measure manual muscle strength.

job task analysis

Measure actual push, pull and lift forces needed to perform a particular task (function).

◆ functional capacity evaluation

Quantitatively evaluate an individual's push, pull or lift capacity to perform a given task (function).



job task evaluation

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DISTRIBUTED BY:

Baseline® grip and pinch strength dynamometers



200 Pound

dynamometer has become the standard tool used by therapists all across the world. The regular sized head is the industry standard and our most popular size. But...The new HiRes large head makes for easier reading. Comes standard with

200 lb. regular head 12-0240 standard

200 lb. HiRes™ large head HiRes large head 12-0243

300 lb. HiResTM large head 12-0246 HiRes large head

300 lb. digital head digital LCD sys.



300 Pound

The 200 pound Baseline hand The 300 lb. (135 kg) digital hand dynamometer uses the same hydraulic system but has the is made in the USA and has a 1-year added advantage of an easy-toread LCD display. Features an electronic zero calibration system, a power management system that assures at least 1000 hours of use without changing the 2 "AAA" batteries, a low battery light, and an automatic shut off. Push button console includes a button to zero the last maximum reading stored in memory, a maximum button to display the highest reading since the last press of the maximum clear button, and a lb./kg. toggle button to change measurement reading.

warrantee. CE certified. **Hydraulic Pinch Gauge**

Hydraulic Hand Dynamometer The Baseline® hand dynamometer gives

accurate grip strength readings without the subject being able to "feel" the handle

move. Results are consistent with published

Baseline® and Jamar® studies. The internationally accepted design assures reliability, user convenience and measurement repeatability. The five position adjustable handle

can accommodate any hand size. The

maximum reading remains until the unit is

reset. The strength reading can be viewed

as pounds or kilograms. Each dynamometer

comes in a molded carrying case. The unit

The Baseline® hydraulic pinch gauge uses the improved hydraulic system of the hand dynamometer to assure convenience, product reliability and measurement accuracy and repeatability. The therapist can support the pinch gauge during testing. This yields a more accurate result for all pinch tests (tip, key and palmer). The results are consistent with the published Baseline® and Jamar® studies. The maximum reading remains until the unit is reset. The strength reading can be viewed pounds or kilograms. dynamometer comes in a rugged carrying case. The unit is made in the USA and has a 1-year warrantee. CE certified.



Baseline® Mechanical Pinch Gauges

Measure tip, key and palmer pinch strength in both pounds and kilograms. Measurements are accurate and repeatable. Results are consistent with published Markowitz studies. Indicator remains at the maximum reading until reset. Comes with hard shelled, padded protective case.

orthopaedic & sports medicine

12-0200 30 lb. with case, blue 12-0201 60 lb. with case, red

weak and damaged hand

12-0202 2 lb. with case, gold 12-0203 10 lb.with case, silver



12-0235

Baseline® Hydraulic Pinch Gauges

dial

The 50 pound hydraulic pinch gauge offers accurate and repeatable pinch strength measurements. The HiRes large head offers a bigger viewing dial and more measurement gradations.

50 lb. regular head

standard 50 lb. HiResTM large head 12-0228 HiRes large head

100 lb. HiRes™ large head 12-0228 HiRes large

100 lb. digital head 12-0237 digital LCD system

15

Testing Protocol: Lift Tests (Physical Capacity Tests)









arm lift

high far lift

high near lift

torso lift







		PLACEMENT OF DYNAMOMETER	POSITION OF THERAPIST	TEST
ARM LIFT (cervical/upper extremity)	- Stand on base with feet shoulder width apart - relax knees - elbows at 90° - palms facing up	Set correct start position by adjusting chain length and ensuring chain is per- pendicular to base.	In front of and aside patient. Hand on patient hip to isolate movement.	Patient should pull straight up and hold - without leaning back.
HIGH FAR LIFT (cervical/upper extremity)	- Stand on base with feet shoulder width apart - relax knees - elbows at 90°, palms up - shoulders flexed to 45°	Set correct start position by adjusting chain length and ensuring chain is per- pendicular to base.	In front of and aside patient. Hand on patient hip to isolate movement.	Patient should pull straight up and hold - without leaning back.
HIGH NEAR LIFT (cervical/upper extremity)	- Stand on base with feet shoulder width apart - relax knees - elbows at 45°, palms up - shoulders flexed to 45°	Chain length same as with high far lift. Ensure chain is per- pendicular to base.	In front of and aside patient. Hand on patient hip to isolate movement.	Patient should pull straight up and hold - without leaning back.
TORSO LIFT (lumbar/lower extremity)	- Stand on base with feet shoulder width apart - relax knees - arms straight, palms down - torso bent at hips	Set correct start position by adjusting chain length and ensuring chain is per- pendicular to base.	In front of and aside patient. Hand on patient hip to isolate movement.	Patient should pull straight up and hold - without leaning back.
LEG LIFT (lumbar/lower extremity)	- Stand on base with feet wider than shoulder width apart and knees bent - shoulders/head up - arms straight, palms down	Chain length same as with torso lift. Ensure chain is perpendicular to base, and bar is gripped at mid to lower thigh height.	In front of and aside patient. Hand on patient hip to isolate movement.	Patient should use his legs to pull straight up and hold - without leaning back.
FLOOR LIFT (lumbar/lower extremity)	- Stand on base with feet wider than shoulder width apart and knees bent - feet flat - torso straight, palms down	Remove chain, and attach handle grip bar directly to gauge. Ensure gauge is aligned perpendicular to base.	In front of and aside patient. Hand on patient hip to isolate movement.	Patient should use his legs to pull straight up and hold - without leaning back.

Introduction to Manual Muscle Testing (MMT)

General Testing Concepts

This instruction manual contains some standard test protocols to demonstrate the types of tests that can be performed using various Baseline® dynamometers. Refer to appropriate textbooks and manual muscle testing resources and guides for patient conditions suitable for dynamometry testing, further testing methods and protocols, and for evaluation of test data.

Reasons for Muscle testing:

Screening: measurement of the subject's strength against a know norm (i.e., grip strength of fireman) or against a benchmark value needed to perform a given task (i.e., ability to lift a box)

Comparative: to measure the subject's strength dominant side vs. non-dominant side (right hand against left hand) to ascertain extent of "impairment." To measure the subject's strength over time to ascertain the effectiveness of a treatment protocol.

Muscle testing methodology:

Positioning the subject: The angle of the joint during the test has a direct effect on the strength measurement result. If the objective is to simulate a given activity, then the joint angle should be as close as possible to the angle required by the activity to be performed.

Stabilizing the subject: The subject's body should be stabilized to ensure that the muscle or muscle group being tested is isolated.

Testing methodology:

Break test: The tester firmly holds the dynamometer and applies force against the subject's body until it begins to move. The reading represents the muscle strength "break" point at which the subject could not overcome the tester's force.

Make test: The subject initiates and exerts a force against the dynamometer (that is firmly held by the tester) until it begins to move. The reading represents the muscle strength "make" point at which the subject overcomes the tester's force of resistance.

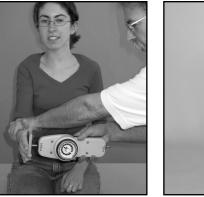
Instrument test: The subject gradually (no sudden, jerky or abrupt movements) exerts force against the instrument until the strength or pain threshold in reached. The final result is not dependent upon the tester's resistance, only upon the instrument.

Consistent results: Regardless of the test, the subject should be made to perform the test three (3) times. If the individual readings are inconsistent, wait a few minutes and repeat the test. If possible, test the uninjured side first.

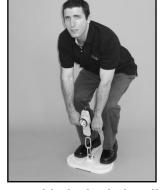
Baseline® Push-Pull Dynamometer The heavy-duty dynamometer features the hydraulic system that is used in the industry accepted Baseline® and Jamar® hand dynamometers and pinch gauges. Hydraulic system ensures accurate readings. Much lighter (1½ lb. vs. 6lb.) and easier to use than

digital or analog





use without handle



use with dual grip handle



use with functional lift platform base

push-pull dynamometers

analog (Dial) readout			
12-0392	50 lb./22.5 kg.		
12-0393	100 lb./45 kg.		
12-0394	250 lb./115 kg.		
12-0388	500 lb./225 kg.		

Digital (LCD) readout
12-0397	50 lb /22 5

12-0398	100 lb./45 kg.
12-0399	250 lb./115 kg
12-0387	500 lb./225 kg

spring push-pull dynamometers that are in common use today.

Dial continuously shows instantaneous force and holds the maximum force reading. This maximum reading should be manually recorded prior to resetting for the next test.

Available with either an analog (dial) or a digital (LCD) readout. Choose either 50 lb., 100 lb., 250 lb., or 500 lb. force capacity unit. Comes with 3 push pads (padded curved, padded straight, and 1cm² circular), 1 pull hook and 1 snap-lock hook. Comes in cushioned carrying case with muscle test manual. 1 year warranty. CE certified.



optional accessories

12-0385	single grip	
12-0389	dual grip	
functiona	ıl lift bases	
12-0406	regular (15"x15")	
12-0407	large (24"x24")	
WalSlide ⁷	^{rm} wall anchor	
slides and locks to any		

12-0446

handles

slides and locks to any position along 6' system.

10-5094 adjustable anchor

hardware
12-0443 chain (per foot)
12-0445 snap oval (pair)

threaded oval (pair)

MORE BASELINE PRODUCTS ON THE WEB: WWW.FABRICATIONENTERPRISES.COM DISTRIBUTED BY:

Baseline® Lift (Back-Leg-Chest) Dynamometer



Baseline® back-leg-chest dynamometer

Measure strength of back, leg and chest. Base provides sure footing. Chain length is adjusted to accommodate for height differences or to vary the point of force application. Shows pounds and kilograms. Pointer remains at maximum until reset. Comes with specified base.

12-0403	large base, 660 lb. adult
12-0400	regular base, 660 lb. adult
12-0401	regular base, 330 lb. adolescent
12-0402	regular base, 165 lb. child





back-leg-chest hardware accessories Complete with 5 foot chain, snap hook and threaded oval.

functional lift bases

12-0406 regular bases (15x15") 12-0407 large base (24x24")

Baseline® push-pull dynamometers with lifting accessories



 Dial (analog) hydraulic

 12-0392
 50 lb./22.5 kg.

 12-0393
 100 lb./45 kg.

 12-0394
 250 lb./115 kg.

 12-0388
 500 lb./225 kg.



 Digital (LCD) hydraulic

 12-0397
 50 lb./22.5 kg.

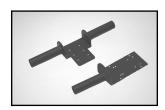
 12-0398
 100 lb./45 kg.

 12-0399
 250 lb./115 kg.

 12-0387
 500 lb./225 kg.



	electronic
12-0340	50lb/22.5kg
12-0341	100lb/45kg
12-0342	250lb/112.5kg
12-0343	500lb/225kg



Baseline® push-pull handles Handle system screws onto pushpull dynamometer body. Allows for a variety of tests. Fits Baseline® hydraulic and electronic push-pull dynamome-

12-0385 Single Grip Handle



Baseline® pull accessories
Attachments can be used for a variety of tests

variety of tests	· ·
12-0377	Medium Hook
12-0376	Small Hook
12-0379	Oval Snap Hook
12-0371 12-0370 12-0372 12-0373	curved push pad straight push pad small circular tip large circular tip





back-leg-chest hardware accessories

chains/straps 12-0443 chain (ft)

ovals
12-0445 snap oval (pair)
12-0446 threaded oval (pair)

Testing Protocol: Lumbar



lumbar flexion



lumbar flexion



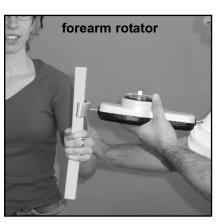
<u>Testing Protocol: Elbow and Forearm</u>







elbow extension



	PATIENT START POSITION	PLACEMENT OF DYNAMOMETER	POSITION OF THERAPIST	TEST
FLEXION (RIGHT/LEFT)	- seated - shoulder flexed 45° - elbow flexed 45° - palm up	On the inside of the arm just above the wrist of the arm being tested.	Hand not holding dynamometer stabilizing underneath the upper arm of patient.	Break test - exert force to push arm downward
EXTENSION (RIGHT/LEFT)	- seated - shoulder flexed 45° - elbow flexed 45° - palm up	shoulder flexed or the arm just above the wrist of the arm being from the standard f	Hand not holding dynamometer stabilizing on the front of the upper arm of patient.	Break test - exert force to push arm upward.
FOREARM ROTATOR	- seated - shoulder flexed 45° - elbow flexed 45° - palm in	On the outside of rod held by hand.	Hand not holding dynamometer stabilizing on the front of the upper arm of patient.	Break test - exert force on rod to push arm inward.

	PATIENT START POSITION	PLACEMENT OF DYNAMOMETER	POSITION OF THERAPIST	TEST
FLEXION	- supine - knees bent - feet flat - arms resting at side - head mid-line	On the sternum at the center of the chest.	Above and to side of patient.	Break test - patient's arms are relaxed and head + shoulders lifted off table, exert force to push down head.
EXTENSION	- prone - arms resting at side - head mid-line	At the inferior angle of the scapulae on the center of the back between the shoulder blades.	Above and to side of patient.	Break test - patient's arms are relaxed and head and chest lifted off table, exert force to push down body.
LATERAL FLEXION (RIGHT)	- seated on table - back laterally flexed to right - arms resting in lap - head mid-line	Under the arm of the rib cage (right side).	In front of and to side of patient with non- dynamometer hand isolating the left hip.	Break test - have patient lean right slightly with buttocks on table, exert force to push patient inward.

12 5

<u>Testing Protocol: Wrist</u>

wrist flexion



ulnar deviation

	PATIENT START POSITION	PLACEMENT OF DYNAMOMETER	POSITION OF THERAPIST	TEST
FLEXION (RIGHT/LEFT)	- seated with arm stabilized on table edge. - palm in, wrist slightly flexed and fingers relaxed.	On the palm of the hand being tested just below the bend of the fingers.	In front of patient, stabilizing patient's forearm against table.	Break test - exert force to push hand out
EXTENSION (RIGHT/LEFT)	- seated with arm stabilized on table edge. - palm down, wrist slightly extended and fingers relaxed.	On the back of the hand being tested just below the bend of the fingers.	In front of patient, stabilizing patient's forearm against table.	Break test - exert force to push hand down
ULNAR DEVIATION (RIGHT/LEFT)	- seated with arm stabilized on table edge. - palm down, wrist flexed slightly towards the ulna.	On the outside of the hand being tested just below the bend of the little finger.	In front of patient, stabilizing patient's forearm against table.	Break test - exert force to push hand in
RADIAL DEVIATION (RIGHT/LEFT)	- seated with arm stabilized on table edge. - palm down, wrist flexed slightly towards the radius.	On the inside of the hand being tested just below the bend of the index finger.	In front of patient, stabilizing patient's forearm against table.	Break test - exert force to push hand out

<u>Testing Protocol: Cervical (neck)</u>

wrist extension

radial deviation





flexion



lateral flexion



rotation



extension

	PATIENT START	PLACEMENT OF	POSITION OF	TEST
	POSITION	DYNAMOMETER	THERAPIST	IESI
FLEXION	- supine - head mid-line - chin slightly tucked - knees bent & feet flat	On forehead.	Aside the patient.	Break test - have patient lift head slightly while keeping chin tucked. Exert force to push head down.
EXTENSION	- prone - head mid-line - arms at sides - chin slightly tucked	On back of head (occipital).	Aside the patient.	Break test - have patient lift head slightly while keeping chin tucked. Exert force to push head down.
LATERAL FLEXION (RIGHT)	- supine - head turned to left - chin tucked slightly - knees bent & feet flat	On right temple.	Aside the patient.	Break test - have patient lift and keep head turned and chin tucked. Exert force to push head down.
ROTATION (RIGHT)	- prone - head turned to right - arms at side - chin tucked slightly	Above and behind the ear on the right temporal area.	Aside the patient.	Break test - have patient lift and keep head turned and chin tucked. Exert force to push head down.

11

<u>Testing Protocol: Knee</u>





knee flexion

knee extension

	PATIENT START POSITION	PLACEMENT OF DYNAMOMETER	POSITION OF THERAPIST	TEST
FLEXION (RIGHT/LEFT)	- prone - test leg flexed 90° - non-test leg straight	On the back of leg slightly above ankle.	Aside patient. Non- dynamometer hand stabilizes thigh.	Break test - exert force to push leg down.
EXTENSION (RIGHT/LEFT)	- sitting with legs over the table edge - test leg extended slightly	On the front of leg slightly above ankle.	In front of patient. Non-dynamometer hand under knee of test leg.	Break test - exert force to push leg down.

Testing Protocol: Shoulder









shoulder flexion

shoulder extension

shoulder adduction shoulder abduction









internal rotation

external rotation

upper trapezius

internationation ex		skierriai rotatioi	і аррсі	liapezius
	PATIENT START POSITION	PLACEMENT OF DYNAMOMETER	POSITION OF THERAPIST	TEST
FLEXION (RIGHT/LEFT)	- seated - shoulder flexed to 90° - elbow straight - palm facing in	Slightly above elbow of test arm.	At patients side, opposite hand on shoulder of test arm.	Break test - exert force to push arm downward.
EXTENSION (RIGHT/LEFT)	- prone w/ head to side - arms at sides w/ arm being tested slightly extended & straight - palm facing in	Slightly above elbow of test arm.	To the side of test arm, opposite hand stabilizes test shoulder.	Break test - exert force to push arm downward.
ADDUCTION (RIGHT/LEFT)	- standing - arm being tested out to side 8-10" from body - palm facing in	Slightly above elbow on inside of test arm.	To the front-side of patient, with opposite hand on patient's hip.	Break test - exert force to push arm out.
ABDUCTION (RIGHT/LEFT)	- seated - arm out to side at 90° - elbow flexed 90° - palm facing down	Slightly above elbow of test arm.	Behind and to the side of patient with the opposite hand on test shoulder.	Break test - exert force to push arm downward.
INTERNAL ROTATION (RIGHT/LEFT)	- seated - arms at sides with 90° elbow flexion - palm facing in	Slightly above wrist on inside of test arm.	In front of patient with other hand stabilizing the outside of elbow.	Break test - exert force to push arm out.
EXTERNAL ROTATION (RIGHT/LEFT)	- seated - arms at sides with 90° elbow flexion - palm facing in	Slightly above wrist on outside of test arm.	In front of patient with other hand stabilizing the inside of elbow.	Break test - exert force to push arm in.
UPPER TRAPEZIUS (RIGHT/LEFT)	- seated - arms at sides - test shoulder shrugged slightly	On top of test shoulder.	Behind patient, stabilizing non test- side shoulder.	Break test - exert force to push shoulder downward.

Testing Protocol: Hip







hip flexion hip extension

hip abduction







hip abduction

internal rotation

external rotation

	PATIENT START POSITION	PLACEMENT OF DYNAMOMETER	POSITION OF THERAPIST	TEST
FLEXION (RIGHT/LEFT)	- Supine with knees bent and feet flat - hip of test leg flexed to about 90°	Slightly above knee of test leg.	To the side of test leg.	Break test - exert force to push leg downward.
EXTENSION (RIGHT/LEFT)	- prone w/ arms at side - test leg is bent at knee with hip extended and knee off table	Slightly above knee on back of test leg.	To the side of test leg.	Break test - exert force to push leg downward.
ADDUCTION (RIGHT/LEFT)	- lye on side w/ test (bottom) leg touching table, in line with trunk top leg in step position to allow movement.	Slightly above knee on inside of test leg.	To the side of patient.	Break test - patient lifts lower leg slightly off table, then exert force to push leg out.
ABDUCTION (RIGHT/LEFT)	- lye on side w/ test leg on top, in line with trunk. - bottom leg bent to stabilize body.	Slightly above knee on outside of test leg.	To the side of patient.	Break test - patient lifts upper leg slightly off table, then exert force to push leg down.
INTERNAL ROTATION (RIGHT/LEFT)	- seated w/ legs over edge of table - knees bent 90° - hip rotated in slightly	Slightly above ankle on outside of test leg.	In front of patient with non-testing hand on inside of patient's knee.	Break test - exert force to push leg in.
EXTERNAL ROTATION (RIGHT/LEFT)	- seated w/ legs over edge of table - knees bent 90° - hip rotated out slightly	Slightly above ankle on inside of test leg.	In front of patient with non-testing hand on outside of patient's knee.	Break test - exert force to push leg in.

Testing Protocol: Ankle

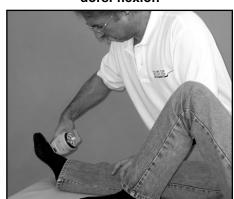




plantar flexion

dorsi flexion





inversion

eversion

	PATIENT START POSITION	PLACEMENT OF DYNAMOMETER	POSITION OF THERAPIST	TEST
PLANTAR- FLEXION (RIGHT/LEFT)	- prone with feet of end of table - foot in neutral position	On ball of test foot.	Non-dynamometer hand stabilizes lower leg against table.	Break test - exert force to push down foot.
DORSI- FLEXION (RIGHT/LEFT)	- supine - test leg straight - ankle in neutral position	On top of foot positioned below toe.	Non-dynamometer hand stabilizes lower leg against table.	Break test - exert force to push down foot.
INVERSION (RIGHT/LEFT)	- supine - test leg straight - ankle inverted slightly	On inside of foot positioned below toe.	Non-dynamometer hand stabilizes lower leg against table.	Break test - exert force to push out foot.
EVERSION (RIGHT/LEFT)	- supine - test leg straight - ankle everted slightly	On outside of foot positioned below toe.	Non-dynamometer hand stabilizes lower leg against table.	Break test - exert force to push in foot.