

# Framingham Heart Study

## Manual of Procedures

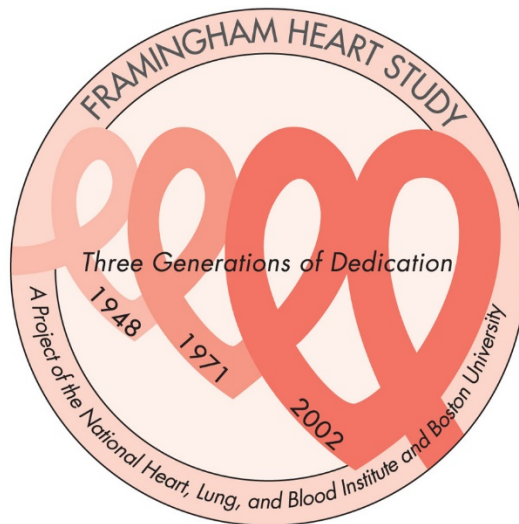
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### Research Examination Center

Generation 3, Omni 2, NOS Cohorts Examination 3

### Section #5 Handgrip Protocol





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## 1.0 Observed Physical Performance

### A. Overview:

An objective performance measure of physical functioning is an assessment instrument in which an individual is asked to perform a specific task and is evaluated in an objective, standardized manner using predetermined criteria, which may include counting of repetitions or timing of the activity as appropriate. Two theoretical models of the pathway from disease to disability have been developed. The first comes from the World Health Organization and goes from disease to impairment to disability, to handicapped. The second, which is being used more now by geriatricians and aging researchers, progresses from disease, to impairment, to functional limitations, to disability.

### Definitions

**Impairment:** Dysfunctional and structural abnormalities in specific body systems, such as the musculoskeletal system or the cardiovascular system.

**Functional limitations:** Restrictions in basic physical and mental actions, including things such as ambulation reaching, and grasping.

**Disability:** Difficulty doing activities of daily life, including not only personal care, but household management, jobs, and hobbies.

### B. Methods:

During all tests, participant safety is paramount. Participants who do not feel safe or who are unable to perform a test should not be pressed. All procedures should be clearly demonstrated to the participant prior to performing any test and the participant should be queried to ensure that they understand the instructions. If it is obvious that the participant has not understood the directions, reread the standard instructions. You will be demonstrating each maneuver. Someone who may not completely understand the verbal instructions may still be able to perform the test following the demonstration.

### D. A note on encouragement:

If a participant expresses doubt as to whether he or she can perform the task, ask the participant whether they would like to try. If they say yes, proceed with the task but if they say no, honor the participant's choice to decline the testing.

## 1.1 JAMAR Hand Grip Strength Test:

Introductory script: *This instrument will measure your grip strength. I will first explain what I would like you to do, then I will demonstrate it for you, and then I will ask you to try it for me.*

*The instrument is a little heavy, so be careful. When I tell you, I want you to squeeze the instrument as hard as you can. Do not expect the handle to move very much.*

1. Participant is seated in chair with arms, forearm resting on chair arm, elbow at about a 90 degree angle.
2. Participant should hold JAMAR in upright position, wrist in neutral position,
  - a. JAMAR facing the technician.
3. Make sure that red peak-hold needle is set to zero.
4. Tell participant to squeeze as hard as s/he can, and squeeze until you tell s/he to
  - a. stop. Hold squeeze for a 3 to 5-1000 second count.
5. Take back JAMAR, hold at eye level at about a foot from your eyes and record reading on the kilogram scale. If directly in the middle of the scale then the reading is the odd number between the two even hash marks; otherwise record as the closest hash mark.
6. Repeat steps until three measurements are recorded with the right hand.
7. Repeat steps for three trials with the left hand.
8. **If only one hand is completed then test is still coded as completed.**

## 2.0 Equipment and Calibration for Hand Grip

### Equipment:

- JAMAR Dynamometer
- Table
- Chair

### Calibration:

<b>Hand Grip</b>	<b>Daily</b>		<b>Yearly</b>	
Zero Reading	<b>X</b>			
Professional Calibration			<b>X</b>	

### **3.0 Training and Certification of Staff**

#### **New Staff**

- Given Protocol to read, understand, ask questions to Supervisor
- Protocol is demonstrated by Supervisor
- New Staff observes other Techs performing Protocol
- New Staff practices Protocol on staff and volunteers
- New Staff performs Protocol on participant with Supervisor or Certified Tech observing
- When Supervisor feels New Staff is proficient in Protocol, Supervisor will certify New Staff
- Certified New Staff will perform Protocol on own
- Certification date is noted in Certification Log

#### **Recertification of Staff**

- Occurs when there is a major deviation on Supervisor Observations or a new study with a new protocol is introduced into the exam
- Protocol is demonstrated by Supervisor
- Staff observes other Techs performing Protocol
- When Supervisor feels Staff is proficient in Protocol, Supervisor will recertify Staff
- Recertification date is noted in Certification Log

## 4.0 Supervisor Checklist

Date: \_\_\_\_\_

Tech ID# \_\_\_\_\_

Supervisor: \_\_\_\_\_

Participant \_\_\_\_\_

### JAMAR Supervisor Checklist

Check that each procedure is carried out correctly. Check yes if correct or no if incorrect. Provide an explanation of the incorrect item. Items are presented in the sequence of the examination procedure, but may require confirmation before or after the exam.

Yes	No	JAMAR Hand Grip Strength Test
		Introductory script: <i><b>This instrument will measure your grip strength. The instrument is a little heavy, so be careful. When I tell you, I want you to squeeze the instrument as hard as you can. Do not expect the handle to move very much.</b></i>
		Participant is seated in chair with arms, forearm resting on chair arm, elbow at about a 90 degree angle.
		Participant should hold JAMAR in upright position, wrist in neutral position, JAMAR facing the technician.
		Make sure that red peak-hold needle is set to zero.
		Tell participant to squeeze as hard as s/he can, and squeeze until you tell s/he to stop. Hold squeeze for a 3 to 5-1000 second count.
		Take back JAMAR, hold at eye level at about a foot from your eyes and record reading on the kilogram scale. If directly in the middle of the scale then the reading is the odd number between the two even hash marks; otherwise record as the closest hash mark.
		Repeat steps until three measurements are recorded with the right hand.
		Repeat steps for three trials with the left hand.

Yes	No	Deviations
		Did the tech perform any minor deviations?
		Did the tech perform any major deviations?
<b>Comments/Corrections/Deviations:</b>		



<b>Supervisor Signature:</b>
<b>Date:</b>