

# HAND GRIP TEST (F19)

## Chronic Kidney Disease in Children (CKiD)

### SECTION A: GENERAL INFORMATION

A1. PARTICIPANT ID: AFFIX ID LABEL OR ENTER NUMBER IF ID LABEL IS NOT AVAILABLE

|\_| - |\_|\_| - |\_|\_|\_|

A2. CKiD VISIT #:

\_\_\_ \_

A3. FORM VERSION:

1 0 / 0 1 / 1 4

A4. DATE OF VISIT:

\_\_\_ \_\_\_ / \_\_\_ \_\_\_ / \_\_\_ \_\_\_ \_\_\_ \_\_\_  
M M D D Y Y Y Y

A5. FORM COMPLETED BY (INITIALS):

\_\_\_ \_\_\_

#### Instructions:

The purpose of this form is to assess the participant's grip strength. Participants should complete this form if they:

- are six (6) years old or older at the time of the study visit
- have at least one hand without visible limitations (i.e., wearing cast/bandage, missing digits, paralysis)
- have not had surgery performed on either hand within the past three (3) months
- are not using a wheelchair (i.e., not wheelchair bound)

The following procedure should be followed:

1. Read pre-test script and administer Pre-Hand-Grip Test questionnaire
2. Ask participant to remove hand jewelry, adjust dynamometer for grip size; administer practice test
3. Administer Hand-Grip Test according to protocol, 3 times on each hand if alternating between hands or 6

A6. a. Is participant at least **6 years** of age?

Yes..... 1

No..... 2 → **(END FORM)**

b. Are there **any visible limitations** to the participant's hands (missing arm, hand, or thumb; hand paralysis; wearing a cast on wrist or hand; most of hand covered by bandages; missing fingers other than thumb or broken fingers)?

No visible limitations..... 0

Visible limitation to **right** hand..... 1

Visible limitation to **left** hand..... 2

Visible limitation to **both** hands..... 3 → **(END FORM)**

c. Has the participant had **hand surgery** in the past 3 months?

No surgery to hands in the last 3 months..... 0

Yes, surgery to **right** hand in the last 3 months..... 1

Yes, surgery to **left** hand in the last 3 months..... 2

Yes, surgery to **both** hands in the last 3 months..... 3 → **(END FORM)**

## HAND GRIP TEST (F19)

- d. Does the participant have at least **one hand** without any visible limitations and in which no hand surgery has been performed in the last 3 months? (**Only complete grip strength of hands with no visible limitation and no surgery in the last 3 months**)  
Yes..... 1  
No..... 2 → (END FORM)
- e. Is the participant using a wheelchair?  
Yes..... 1 → (END FORM)  
No..... 2
- A7. Did the participant complete the Hand Grip Test?  
Yes..... 1  
No..... 2 → (END FORM)

Read the **pre-test** script to the participants:

***In this exam, we want to get some information about your muscle strength. We will be asking you to squeeze as hard as possible with each of your hands or at least one of your hands. I will explain this in more detail in a few minutes but first I want to ask you a few questions.***

### SECTION B: PRE-HAND GRIP TEST QUESTIONNAIRE

- B1. a. Have you **ever** had surgery on your hands or wrists for **arthritis** or **carpal tunnel syndrome**?  
Yes..... 1  
No..... 2 → (Skip to B2)  
Don't Know..... -8 → (Skip to B2)
- b. Which hand or wrist was the surgery on?  
Right hand/wrist..... 1  
Left hand/wrist..... 2  
Both hands/wrist..... 3  
Don't Know..... -8
- B2. a. Have you had any pain, aching or stiffness in your hands in the **past 7 days**?  
Yes..... 1  
No..... 2 → (Skip to B3)
- b. Is the pain, aching or stiffness in your hand(s) caused by **arthritis, tendonitis, or carpal tunnel syndrome**? (Choose only one response.)  
No, pain is not caused by arthritis, tendonitis or carpal tunnel syndrome..... 0  
Yes, pain in **right** hand is caused by arthritis, tendonitis or carpal tunnel syndrome..... 1  
Yes, pain in **left** hand is caused by arthritis, tendonitis or carpal tunnel syndrome..... 2  
Yes, pain in **both** hands is caused by arthritis, tendonitis or carpal tunnel syndrome.... 3  
Don't Know..... -8
- c. Has the pain, aching or stiffness in your hand(s) gotten worse in the past 7 days? (Choose only one response.)  
No pain has not gotten worse..... 0  
Yes, pain has gotten worse in the **right** hand.... 1  
Yes, pain has gotten worse in the **left** hand..... 2  
Yes, pain has gotten worse in **both** hands..... 3  
Don't Know..... -8

## HAND GRIP TEST (F19)

- B3. Are you right-handed, left-handed, or do you use both hands equally?
- |                             |    |
|-----------------------------|----|
| Right-handed.....           | 1  |
| Left-handed.....            | 2  |
| Use both hands equally..... | 3  |
| Don't Know.....             | -8 |

1. Instruct the participant to remove all hand and wrist jewelry.
2. Have the participant complete two warm-up exercises on the hand or hands to be tested
  - a. Shake both hands three (3) times
  - b. Bend and stretch all fingers three (3) times

**FOLLOW STEPS 2 – 7 and FIGURES 1.1 – 1.4 of the CHEAT SHEET for details on ADJUSTING GRIP SIZE and obtaining a 90° angle).**

**Also refer to Section 29 of the Manual of Procedures (MOP) for details.**

Introduce the grip size adjustment by reading the following script:

***“Next, I am going to adjust this device to fit your hand(s). Please hold this with your (right/left hand).”***

- B4. Was the participant able to achieve a 90° angle with the **right** index finger?
- |                 |    |                |
|-----------------|----|----------------|
| Yes.....        | 1  | → (Skip to B5) |
| No.....         | 2  |                |
| Don't Know..... | -8 | → (Skip to B5) |
1. Please specify, reason: \_\_\_\_\_

- B5. Was the participant able to achieve a 90° angle with the **left** index finger?
- |                 |    |                        |
|-----------------|----|------------------------|
| Yes.....        | 1  | → (PRE-TEST ENDS HERE) |
| No.....         | 2  |                        |
| Don't Know..... | -8 | → (PRE-TEST ENDS HERE) |
1. Please specify, reason: \_\_\_\_\_

**STOP HERE AND PREPARE TO ADMINISTER THE HAND GRIP.  
FOLLOW STEPS 9 – 14 and FIGURES 1.5 – 1.6 in the CHEAT SHEET  
for details on performing the demo and practice trial.  
STEP 9 BEGINS WITH READING THE SCRIPT.**

**Also refer to Section 29 of the MOP for details.**

# HAND GRIP TEST (F19)

Read the script to the participant and demonstrate the grip test:

***“For the test, I will ask you to squeeze this hand grip as hard as you can. You will stand with your feet hip width apart and your toes pointing forward like this. You will position your hand so that it’s not touching your body and squeeze the handle. I want you to stand tall and try not to lean when you squeeze. You will take a breath in, then blow out while you squeeze. You will squeeze as hard as you can until you can’t squeeze any harder. Like this.***

*(Do the squeeze demo)*

*If testing both hands, say: **We will test each hand 3 times.***

*If testing same hand, say: **We will test your hand 6 times.”***

**PERFORM THE DEMO.**

Instruct the participant to do the practice trial by reading the script below:

***“Now try it once just to get the feel of it. For this practice, just squeeze gently. Ready, take a breath in, let it out, squeeze gently.”***

## SECTION C: HAND GRIP PREPARATION

- C1. a. Are both hands being tested? (only test hands without visible limitations, and no surgery in the past 3 months)
- |          |   |
|----------|---|
| Yes..... | 1 |
| No.....  | 2 |
- b. Which hand was used for the Practice Test\*?
- \*Participant only has to perform one practice test. However, additional practice test can be performed if needed. Use the same hand to perform all practice tests.
- |                 |   |
|-----------------|---|
| Right hand..... | 1 |
| Left hand.....  | 2 |
- c. Was the dynamometer cleared by pressing “ON/Clear”?
- |          |   |
|----------|---|
| Yes..... | 1 |
| No.....  | 2 |

## HAND GRIP TEST (F19)

Now the participant is ready to do the hand grip strength test.  
**FOLLOW STEPS 16 – 20 IN THE CHEAT SHEET and FIGURES 1.5 – 1.6**  
 for details on administering the grip strength test.

Also refer to Section 29 of the MOP for details.

### SECTION D: HAND GRIP TEST

Start the stopwatch after each test. The stopwatch is used to ensure that the participant waits at **least 60 seconds between each test**. After appropriate time has elapsed, reset the stopwatch to zero (i.e., 00:00). If using two hands for the test, then have the participant start the test with the opposite hand than was used during the practice test. Note that “maximal” effort is define as when the hand slightly shakes.

**Remember to press “ON/Clear” before starting each test.**

	Grip Test	(i) Hand	(ii) Dynamometer Reading	(iii) Effort
D1.	Grip Test #1 Comments:	1 = right 2 = left	_ _ . _	1 = maximal 2 = questionable
D2.	Grip Test #2 Comments:	1 = right 2 = left	_ _ . _	1 = maximal 2 = questionable
D3.	Grip Test #3 Comments:	1 = right 2 = left	_ _ . _	1 = maximal 2 = questionable
D4.	Grip Test #4 Comments:	1 = right 2 = left	_ _ . _	1 = maximal 2 = questionable
D5.	Grip Test #5 Comments:	1 = right 2 = left	_ _ . _	1 = maximal 2 = questionable
D6.	Grip Test #6 Comments:	1 = right 2 = left	_ _ . _	1 = maximal 2 = questionable