



## Data Collection Worksheet

**Please Note:** The Data Collection Worksheet (DCW) is a tool to aid integration of a PhenX protocol into a study. The PhenX DCW is not designed to be a data collection instrument. Investigators will need to decide the best way to collect data for the PhenX protocol in their study. Variables captured in the DCW, along with variable names and unique PhenX variable identifiers, are included in the PhenX Data Dictionary (DD) files.

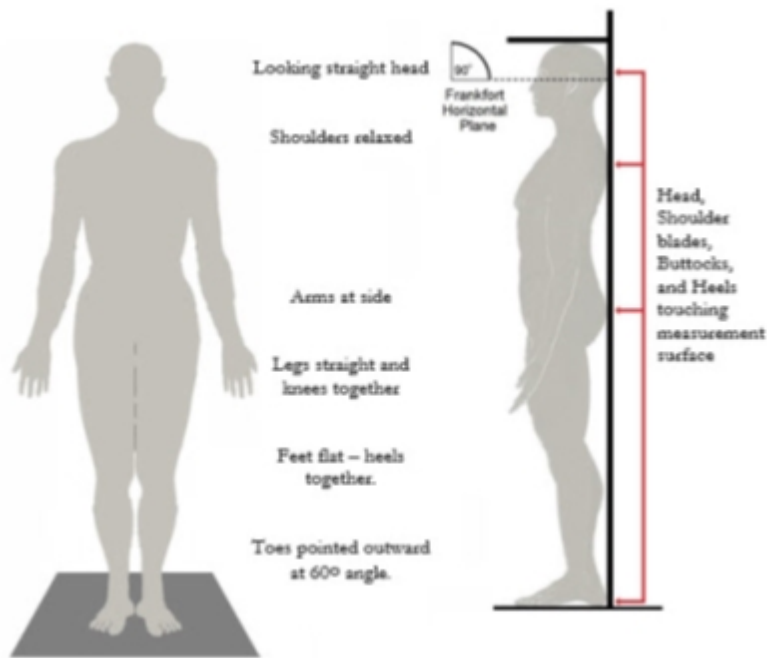
### Standing Height Protocol

Standing height is an assessment of maximum vertical size. This stature measurement is collected on all SPs aged 2 years and older who are able to stand unassisted. Standing height is measured using a stadiometer with a fixed vertical backboard and an adjustable head piece.

**1. Position the SP.** Direct the SP to the stadiometer platform. Ask him or her to remove any hair ornaments, jewelry, buns, or braids from the top of the head. Exhibit 3-4 depicts the correct position for the measurement of standing height. First, have the SP stand up straight against the backboard with the body weight evenly distributed and both feet flat on the platform. Instruct the SP to stand with the heels together and toes apart. The toes should point slightly outward at approximately a 60° angle. Check that the back of the head, shoulder blades, buttocks, and heels make contact with the backboard (Exhibit 1).

**Note:** Depending on the overall body conformation of the individual, all four contact points—head, shoulders, buttocks, and heels—may not touch the stadiometer backboard. For example, elderly SPs may frequently have **kyphosis**, a forward curvature of the spine that appears as a hump at the upper back. In particular, dowager’s hump is a form of kyphosis that creates a hump at the back of the neck. Additionally, some overweight SPs cannot stand straight while touching all four contact points to the backboard. In such instances it is important to obtain the best measurement possible according to the protocol. If you cannot ensure that the SP’s trunk remains vertical above the waist, the arms and shoulders are relaxed, and the head lies in the Frankfort plane, then call “NS” to the recorder who will capture the measurement and add the “Not Straight” comment beside the appropriate stature measure in ISIS.

**Exhibit 1. Standing height position**



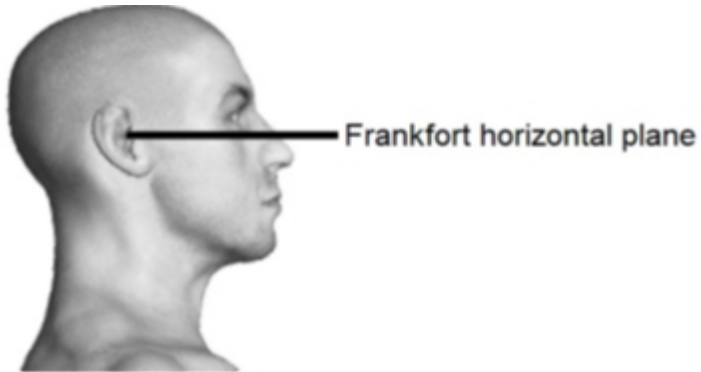
2. Second, align the head in the Frankfort horizontal plane. The head is in the Frankfort plane when the horizontal line from the ear canal to the lower border of the orbit of the eye is parallel to the floor and perpendicular to the vertical backboard (Exhibit 3-5). Many people will assume this position naturally, but for some SPs the examiner may need to gently tilt the head up or down to achieve the proper alignment. Instruct the SP to look straight ahead. Next, lower the stadiometer head piece so that it rests firmly on top of the participant's head, with sufficient pressure to compress the hair. Instruct the SP to stand as tall as possible, take a deep breath, and hold this position. The act of taking a deep breath helps straighten the spine to yield a more consistent and reproducible stature measurement. Notice that the inhalation will cause the head piece to rise slightly.

**Note:** Some SPs have hair styles such as a barrette, bun, or braid that will interfere with the placement of the stadiometer head piece. Other SPs may refuse to remove their shoes for the height measurement. In these cases, while the SP remains positioned on the stadiometer platform, the examiner will measure the hair piece and/or the shoe heel with the 15-cm height adjustment ruler. The recorder will enter this number in the Height Correction Above/Below Waist field on the screen. ISIS will use this correction factor to automatically calculate an adjusted height value.

3. Capture the Result. While the SP is correctly positioned and holding the breath, call "Get" to the recorder, who will click the Get button on the ISIS screen to capture the result. Tell the SP to release the breath as you hold the head piece in position. Wait for the computer to repeat the measurement aloud. After verifying the correct value, have the SP relax and step away from the stadiometer. Slide the head piece to the top of the measurement column and secure it in place with the brake lever, in preparation for the next participant.

**Note:** In the event of a power outage or if the stadiometer malfunctions, slide the head piece to the top of the measurement column and obtain the height using the tape measure mounted on the right side of the measurement column. Call the result to the recorder, who will manually enter this number in the appropriate ISIS field.

**Exhibit 2. Frankfort horizontal plane**



Protocol source: <https://www.phenxtoolkit.org/protocols/view/20706>