PhenX Toolkit

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.

The following descriptions are paraphrased. Complete protocols are available in the FITNESSGRAM®/ACTIVITYGRAM Test Administration Manual, which is available from Human Kinetics.

Progressive Aerobic Cardiovascular Endurance Run (PACER) - aerobic capacity

The child runs back and forth between two points 20 meters* apart. The pace of the run is progressive and timed according to beeps and background music on an audio CD (available from Human Kinetics). The objective is to reach the other point before the next beep sounds. The child must increase the pace of the run to keep up with the beeps. The tester counts the number of laps the child completes within the timed beeps. Document the number of laps completed and refer to the PACER Performance Evaluation Chart **. The chart includes the child's age, sex, PACER laps completed, and corresponding $VO_{2\ max}$ range. Use the chart to determine if the number of laps completed corresponds to the Healthy Fitness Zone® Standards for the child's sex and age. Note that the algorithm used to estimate $VO_{2\ max}$ for young girls aged 10 to 11 years is not as accurate as the estimate for boys. Alternatively, the FITNESSGRAM® software, available from Human Kinetics, can be used to convert the number of laps to $VO_{2\ max}$. Contact the Cooper Institute for further updates on this protocol and scoring.

* A 15 meter PACER is an option for those who do not have room for a 20 meter test. Results should be converted using a conversion chart in the FITNESSGRAM®/ACTIVITYGRAM Test Administration Manual.

** Note that the PACER Performance Evaluation Chart includes a revised version for new Healthy Fitness Zone® Standards to be released in August 2010. Also note that the chart only applies to the 20 meter protocol.

Option - 1 Mile Run/Walk (aerobic capacity)

The child runs or walks as fast as possible on a 1 mile flat course. The child is timed from start to finish and the results are recorded. The mile time, age, gender, height, and body mass index values are inserted into a prediction equation

developed by Cureton et al. (1995), which is fully described in the online Reference Guide available at the Cooper Institute website.

Alternatively, the child can walk 1 mile as quickly as possible. If the child walks rather than runs, aerobic capacity is estimated from age, gender, weight, mile walk time, and heart rate at the end of the walk using the Kline et al. (1987) equation. The heart rate should be measured by a heart rate monitor (e.g., Polar® heart rate monitor). The walk test has been validated for adolescents ages 13 years and older. See the PhenX measure called Cardiorespiratory Fitness-Exercise Test Estimate for the complete protocol for the 1 mile walk.

Curl-up (abdominal strength)

The child sits on a mat with knees up and slightly bent and feet flat on the mat. Arms are extended with hands flat on the mat. With back and head flat on the mat, the child lifts his upper body and "curls up" toward the knees and moves the hands (palms down) to the end of the measuring strip. The objective is to do as many curl-ups as possible (up to 75) to a specified cadence (3 seconds per repetition).

Trunk Lift (strength and flexibility of the back)

The child lies flat with stomach on mat and legs extended with hands placed under the legs. The child lifts the head up as far as possible but keeps the remainder of body in the same position. The distance from the floor to the child’s chin (with head up) is measured, in inches.

Push-up (upper body strength)

The child assumes a prone position with hands flat on the mat, arms slightly wider than shoulder, fingers stretched out, legs extended, and toes tucked under. The child lifts body with arms extended and back and legs straight and lowers the body so arms are bent at 90°. At this lowest position, the shoulders are parallel to the floor. The child repeats this motion (lifting and lowering body with back and legs straight) as many times as possible. Like the other tests, a cadence (one push-up every 3 seconds) should be used.

Option - Flexed Arm Hang

The instructor helps the child grasp the bar with palms facing outwards and lifts the child so the child is positioned with his or her chin above the bar. Then the child will hang independently in this position for as long as possible. Once the child is in position with chin above the bar, a stopwatch is used to determine how long the child retains the position.

Option - Modified Pull-up

The child grasps the modified pull-up bar with an overhand grip (palms facing inward) and gets into position. The child's legs are extended with heels touching the ground so that the body is inclined. The child lifts body until the chin is above the elastic band and then returns to the starting position to lift again. The goal is to complete as many modified pull-ups as possible.

Back-saver Sit and Reach (flexibility of upper legs)

This test requires a box and yardstick. The yardstick is taped to the top of the box with the 9 inch mark at the edge of the box where the child's feet will be placed. The child sits on the floor with left leg extended and foot resting on the edge of the box. The other leg remains bent. The child extends arms toward the box with left arm on bottom and right arm on top. Palms face the floor as child reaches as far as possible toward the extended yardstick. This distance is measured in inches. Make certain that the child does not allow one hand to reach farther than the other and that hips are kept square to the box.

Option - Shoulder Stretch

The child stands up straight, puts left arm behind back with elbow down, and twists the arm up as far as possible up the back with palm facing outward. Retain the position. The right arm goes back behind the head and as far as possible toward the left hand on back. The stretch is done to determine if the child can touch the tips of the other hand behind the back or not. Once the exercise is finished, alternate arms. To meet Health Fitness Zone® Standards, the child must touch fingertips together behind the back in both positions.

Compare the test results with Healthy Fitness Zone® Standards for the age of the child. These standards are found in the FITNESSGRAM®/ACTIVITYGRAM Test Administration Manual.

Protocol source: https://www.phenxtoolkit.org/protocols/view/150203