

## Perceived Exertion (RPE), Comfort, and Control Assessment

As you become more familiar with your body's reactions during exercise, you'll learn to recognize when it's time to change how hard you work. For instance, consider a walker aiming for **moderate-intensity exercise**. Their target would be to hit a **"somewhat hard"** level, corresponding to **12-14 on the Borg Scale**. Should they find their effort registering as **"very light" (a 9 on the Borg Scale)**, this is an indicator to ramp up your pace. Conversely, if the walker experiences his or her effort as **"extremely hard" (ranking at 19 on the Borg Scale)**, it's a sign to reduce the intensity, slowing down to stay within the moderate-intensity zone.

### Rating of Perceived Exertion

- 6 - No exertion, sitting and resting
- 7 - Very, very light
- 8 - Very, very light
- 9 - Very light
- 10 - Very light
- 11 - Fairly light
- 12 - Somewhat hard
- 13 - Somewhat hard
- 14 - Somewhat hard
- 15 - Hard
- 16 - Very hard
- 17 - Very hard
- 18 - Very, very hard
- 19 - Extremely hard
- 20 - Maximum exertion (Borg, 1998)

## 1. Scoop Shovel

### Worksheet 1: Comfort and Cardiovascular Effort Assessment for Shovel **without** Auxiliary Attachment Use

Participant Information:

Participant ID:

Shovel Types (A, B, C, D, E, F, G, H, I, J, K, L, M, N.....):

Task Description: *Scoop up wood pellets and transfer them to a wheelbarrow.*

### Comfort Evaluation for Scoop Shovel:

1. On a scale from 1 to 5, rate the overall comfort of using the shovel (1 being extremely comfortable, 2 comfortable, 3 moderately comfortable, 4 uncomfortable, 5 being extremely uncomfortable).

(Rating Shovel 1 - yellow 3 \_\_ Shovel 2 \_\_2\_\_ sort metal \_\_ Shovel 3 \_\_3\_\_ metal and blue \_\_).

- Describe any specific discomfort points while using shovels. (e.g. hands, wrists, arms, or body)  
Please describe.

Shovel 1 \_\_\_ I didn't really feel any discomfort \_\_\_

Shovel 2 \_\_\_ I felt slight discomfort in my back \_\_\_

Shovel 3 \_\_\_ I felt a little discomfort in my back \_\_\_

- Identify features of the shovel that contributed to or alleviated discomfort. (e.g., grip design, curvature)

Shovel 1 \_\_\_ the handle definitely made the work easier \_\_\_

Shovel 2 \_\_\_ The attachment made it easier to perform the tasks \_\_\_

Shovel 3 \_\_\_ I really liked the added grip \_\_\_

- Suggest improvements for the shovel's comfort.

Shovel 1 \_\_\_ I don't have any suggestions \_\_\_

Shovel 2 \_\_\_ I don't have any suggestions \_\_\_

Shovel 3 \_\_\_ I don't have any suggestions \_\_\_

## Worksheet 2: Control and Perceived Exertion Assessment for Shovel without Auxiliary Attachment Use

### Control Evaluation:

- On a scale from 1 to 5, rate **your perceived level of control while using the shovel** (1 being extremely in control, 2 in control, 3 moderately in control, 4 slightly in control, 5 Not in control at all).

(Rating Shovel 1 \_\_\_ I felt very in control \_\_\_ Shovel 2 \_\_\_ I felt I had the most control with this shovel \_\_\_  
Shovel 3 \_\_\_ I felt I had the least amount of control with this shovel \_\_\_).

- Discuss the shovel's ability to maintain control over the load.

Shovel 1 \_\_\_ I think the shovel did a good job controlling the load \_\_\_

Shovel 2 \_\_\_ I think the shovel maintained control over the load \_\_\_

Shovel 3 \_\_\_ I think the shovel did a good job maintaining control. \_\_\_

- Identify any design aspects of the shovel that hindered control.

Shovel 1 \_\_\_ I think the shovel was a little tall \_\_\_

Shovel 2 \_\_\_ I think this shovel was a little short \_\_\_

Shovel 3 \_\_\_ I think this shovel was a little too big at the base. \_\_\_

- 4 Recommend enhancements for better control.

Shovel 1 \_\_\_\_\_ I think this shovel could have been a little shorter \_\_\_\_\_

Shovel 2 \_\_\_ I think this shovel could have been a little bigger \_\_\_\_\_

Shovel 3 \_\_\_ I think this shovel could have been a little smaller at the bottom. \_\_\_\_\_

**Cardiovascular Effort Evaluation *without* Auxiliary Attachment:**

5. Estimate your heart rate during the task and compare it to your target heart rate zone.

Using the Borg RPE scale (6-20), rate your perceived exertion.

(Rating Rating Shovel 1 \_\_14\_\_\_\_ Shovel 2\_\_\_13\_\_\_ Shovel 3 \_\_\_\_\_15\_\_\_).

**Comfort Evaluation for Scoop Shovel **with** auxiliary attachment:**

- 1 On a scale from 1 to 5, rate the overall comfort of using the shovel (**1 being extremely comfortable, 2 comfortable, 3 moderately comfortable, 4 uncomfortable, 5 being extremely uncomfortable**).

(Rating Shovel 1 - yellow 3\_\_Shovel 2\_\_2 sort metal \_\_ Shovel 3\_3 metal and blue\_).

- 2 Describe any specific discomfort points while using shovels. (e.g. hands, wrists, arms, or body) Please describe.

Shovel 1 \_\_\_ I didn't have any discomfort points using this shovel. \_\_\_

Shovel 2 \_\_\_ I didn't have any discomfort points while using this shovel. \_\_\_\_\_

Shovel 3 \_\_\_ I didn't have any discomfort points while using this shovel. \_\_\_\_\_

- 3 Identify features of the shovel that contributed to or alleviated discomfort. (e.g., grip design, curvature)

Shovel 1 \_\_\_ I didn't really like the handle on this shovel. \_\_\_

Shovel 2 \_\_\_ I liked the size of the handle \_\_\_\_\_

Shovel 3 \_\_\_ I liked the height of the shovel \_\_\_\_\_

- 4 Suggest improvements for the shovel's comfort.

Shovel 1 \_\_\_ I think this shovel could be a little shorter and maybe have a different handle. \_

Shovel 2 \_\_\_ I don't have any suggestions. \_\_\_\_\_

Shovel 3 \_\_\_ I don't have any suggestions. \_\_\_\_\_

**Worksheet 2: Control and Perceived Exertion Assessment for Shovel **with** auxiliary attachment Use**

**Control Evaluation:**

- 5 On a scale from 1 to 5, rate **your perceived level of control while using the shovel** (**1 being extremely in control, 2 in control, 3 moderately in control, 4 slightly in control, 5 Not in control at all**).

5 (Rating Shovel 1 \_2\_\_Shovel 2\_\_1\_\_ Shovel 3\_\_3\_\_\_\_\_).

- 6 Discuss the shovel's ability to maintain control over the load.
  - Shovel 1 \_\_\_\_ I think this shovel did a good job maintaining control over the load. \_\_\_\_\_
  - Shovel 2 \_\_\_\_ I think this shovel did the best job maintaining control over the load. \_\_\_\_
  - Shovel 3 \_\_\_\_ I think this shovel did the worst because it is a little too wide at the base. \_\_\_\_\_
- 7 Identify any design aspects of the shovel that hindered control.
  - Shovel 1 \_\_\_\_ I didn't notice any design aspects that hindered control. \_\_\_\_\_
  - Shovel 2 \_\_\_\_ I think this shovel was designed very well, it is just kind of short. \_\_\_\_\_
  - Shovel 3 \_\_\_\_ I think this shovel is just a little wide at the bottom. \_\_\_\_
- 8 Recommend enhancements for better control.
  - Shovel 1 \_\_\_\_ I don't have any recommendations. \_\_\_\_\_
  - Shovel 2 \_\_\_\_ I don't have any recommendations. \_\_\_\_\_
  - Shovel 3 \_\_\_\_ I don't have any recommendations. \_\_\_\_\_

**Cardiovascular Effort Evaluation with auxiliary attachment:**

5. Estimate your heart rate during the task and compare it to your target heart rate zone.  
 Using the Borg RPE scale (6-20), rate your perceived exertion.  
 (Rating Rating Shovel 1 \_\_ 13 \_\_ Shovel 2 \_\_ 12 \_\_ Shovel 3 \_\_ 14 \_\_\_\_).

## 2. Pitchfork

### Worksheet 1: Comfort and Cardiovascular Effort Assessment for Pitchfork **without** Auxiliary Attachment Use

Pitchfork Type (A, B, C, D, E, F, G, H, I, J, K, L, M.....):

Task Description: *Removing straw mixed with dung and transferring them to a wheelbarrow.*

#### Comfort Evaluation for Pitchfork:

1 On a scale from 1 to 5, rate the overall comfort of using the pitchfork (**1 being extremely comfortable, 2 comfortable, 3 moderately comfortable, 4 uncomfortable, 5 being extremely uncomfortable**).

(Rating Pitchfork 1 \_\_ (orange) 3\_\_ Pitchfork 2 \_\_ (yellow) 2\_\_ Pitchfork 3 \_\_ purple 1 \_\_).

2 Describe any specific discomfort points while using shovels. ( e.g. hands, wrists, arms, or body) Please describe.

Pitchfork 1 \_\_\_\_ My wrist \_\_\_\_\_

Pitchfork 2 \_\_\_\_ I didn't have any discomfort \_\_\_\_\_

Pitchfork 3 \_\_\_\_ I didn't have any discomfort \_\_\_\_\_

3 Identify features of the shovel that contributed to or alleviated discomfort. (e.g., grip design, curvature)

Pitchfork 1 \_\_\_\_ I think the height of the shovel made it a little harder to work with \_\_

Pitchfork 2 \_\_\_\_ I liked the grip on this shovel. \_\_\_\_\_

Pitchfork 3 \_\_\_\_ I liked the grip on this shovel. \_\_\_\_\_

4 Suggest improvements for the shovel's comfort.

Pitchfork 1 \_\_\_\_ It could be a little shorter \_\_\_\_\_

Pitchfork 2 \_\_\_\_ I don't have any suggestions \_\_\_\_\_

Pitchfork 3 \_\_\_\_ I don't have any suggestions \_\_\_\_\_

**Worksheet 2: Control and Perceived Exertion Assessment for Pitchfork **without** Auxiliary Attachment Use**

**Control Evaluation:**

- 1 On a scale from 1 to 5, rate **your perceived level of control while using the** (1 being extremely in control, 2 in control, 3 moderately in control, 4 slightly in control, 5 Not in control at all).

(Rating Pitchfork 1   2   Pitchfork 2            1    Pitchfork 3   1             ).

- 2 Discuss the shovel's ability to maintain control over the load.

Pitchfork 1            I feel like the shovel was able to maintain control           

Pitchfork 2            I think the shovel did a good job maintaining control.           

Pitchfork 3    I thought the shovel was able to maintain control over the load.   

- 3 Identify any design aspects of the shovel that hindered control.

Pitchfork 1    I think the height of the shovel made it a little awkward to work with.           

Pitchfork 2            There wasn't anything that hindered control.           

Pitchfork 3            There wasn't any design aspects that hindered control.           

- 4 Recommend enhancements for better control.

Pitchfork 1    I think it could have been a little shorter, and the handle could have been smaller.

Pitchfork 2    I don't have any recommendations           

Pitchfork 3            I don't have any recommendations.           

**Cardiovascular Effort Evaluation **without** Auxiliary Attachment:**

5. Estimate your heart rate during the task and compare it to your target heart rate zone.

Using the **Borg RPE scale (6-20)**, rate your perceived exertion for pitchforks.

(Rating Pitchfork 1   13   Pitchfork 2   12   Pitchfork 3   12             ).





**Worksheet 2: Control and Perceived Exertion Assessment for Pitchfork **with** auxiliary attachment Use**

**Control Evaluation:**

- 1 On a scale from 1 to 5, rate your perceived level of control while using the (1 being extremely in control, 2 in control, 3 moderately in control, 4 slightly in control, 5 Not in control at all).
- 2 (Rating Pitchfork 1   3   Pitchfork 2   1   Pitchfork 3   1  ).
- 3 Discuss the shovel's ability to maintain control over the load.  
 Pitchfork 1            The shovel was able to maintain control over the load.             
 Pitchfork 2            The shovel was able to maintain control over the load.             
 Pitchfork 3            The shovel was able to maintain control over the load.
- 4 Identify any design aspects of the shovel that hindered control.  
 Pitchfork 1            The height / size of the shovel             
 Pitchfork 2            There wasn't any hinderance.             
 Pitchfork 3            There wasn't any hinderance.
- 5 Recommend enhancements for better control.  
 Pitchfork 1            It could be slightly shorter.             
 Pitchfork 2            I don't have any recommendations.             
 Pitchfork 3            I don't have any recommendations.

**Cardiovascular Effort Evaluation **with** Auxiliary Attachment:**

- 6 . Estimate your heart rate during the task and compare it to your target heart rate zone.  
 Using the **Borg RPE scale (6-20)**, rate your perceived exertion for pitchforks.  
 (Rating Pitchfork 1   12   Pitchfork 2   11   Pitchfork 3   11  ).