

**Rehabilitation Guidelines for
Management of post-COVID-19 Inmates
within the Federal Bureau of Prisons:
Recommendations to guide clinical practice**

Version 1.0

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TITLE:

Rehabilitation Guidelines for Management of post-COVID-19 Inmates within the Federal Bureau of Prisons: Recommendations to guide clinical practice.

DESCRIPTION AND OBJECTIVES:

This guide outlines rehabilitation recommendations for management of post-COVID-19 inmates within the Federal Bureau of Prisons setting. It includes rehabilitative objective criteria, exercise selection recommendations, and exercise rehabilitation goals.

TARGET AUDIENCE:

Health Services personnel and other relevant stakeholders in the Federal Bureau of Prisons setting caring for adult post-COVID-19 inmates.

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PURPOSE

COVID-19 is a disease caused by a new coronavirus, primarily directly impacting the respiratory system. Symptoms of COVID-19 can range from mild illness, such as fever, cough and fatigue, to pneumonia. Some inmates will have mild symptoms and recover easily, while others may become deconditioned from prolonged quarantine and/or develop respiratory failure requiring hospitalization. This guide has been prepared to provide guidelines intended to assist Federal Bureau of Prisons (BOP) healthcare services personnel in the management of deconditioned post-COVID-19 inmates.

Health services personnel who work in the BOP will have an important role in the management of post-COVID-19 deconditioned inmates and assisting them in returning to a prior level of function. Exercise prescription may be beneficial in the rehabilitation of post-COVID-19 inmates.

Post-COVID-19 inmates may demonstrate a variable amount of disability related to deconditioning which can significantly impact their ability to safely perform activities of daily living (ADLs). An expert task force, consisting of the BOP Chief Therapist and Regional Chief Therapists, developed a simple function based classification system to identify and stratify the severity of impairment that an inmate is experiencing in conjunction with deconditioning from COVID-19. This classification system is based off a validated scale often used in geriatric medicine called the *Clinical Frailty Scale*. The assessment and classification of patient function using this system, along with the recommendations provided within this document, will help guide treatment of inmates recovering from COVID-19 in the BOP with the goal of helping them return to their prior level of function.

The classification system uses objective criteria to define the functional level of each post-COVID-19 inmate. As an inmate's health improves or declines they may experience a change in functional status and or level of frailty. **Inmates who have tested positive for COVID-19 or who are exhibiting signs and symptoms similar to COVID-19 should be monitored regularly by health services until resolution of symptoms have occurred. Rehabilitation of deconditioned post-COVID-19 inmates should not begin until resolution of infection has been confirmed.**

IMPAIRMENT LEVELS

LEVEL 1: No impairment from COVID-19 infection. Inmates are independent with all ADLs and functional mobility tasks and are able to participate in regular amount of exercise with minimal shortness of breath. Inmates in this category are at or near a level of function prior to contracting COVID-19. These inmates would be able to maneuver the institution and make all 10-minute moves. Inmates in a Level 1 would be considered *Very Fit, Well, or Managing Well* based off of the *Clinical Frailty Scale*. The ADLs that should be assessed include dressing, bathing and toileting. Functional mobility tasks that should be assessed include bed mobility, transfers, wheelchair propulsion and ambulation.

LEVEL 2: Mild Impairment from COVID-19 infection. Inmates at this level are experiencing some degree of limited mobility or require adaptive medical equipment to be independent with mobility and ADLs. Individuals in this group may require a cane, walker, or wheelchair to independently maneuver the institution or experience mild to moderate shortness of breath with extended activity or long distance locomotion, but are still able to function without significant assistance from others. Inmates in a Level 2 would be considered *Vulnerable or Mildly Frail* in accordance with the *Clinical Frailty Scale*.

LEVEL 3: Moderate Impairment from COVID-19 infection. Inmates at this level are experiencing a moderate degree of impaired mobility and likely can only ambulate or maneuver very short distances before experiencing shortness of breath, fatigue or extreme malaise. Individuals at this level require assistance with ADLs for safety. Inmates in a Level 3 would be considered *Moderately Frail* in accordance with the *Clinical Frailty Scale*.

LEVEL 4: Severe Impairment from COVID-19 infection. Inmates at this level likely are hospitalized and require no intervention from the BOP until it is time for them to return. Inmates at this level require moderate to maximum assistance with all mobility and ADLs. Inmates at this level may present with unstable vital signs in response to physical activity. If a patient is severely disabled or bedridden from prolonged hospitalization and is unable to stand, transfer, or walk or has other significant impairments that require long term rehab and medical care, please reach out to the respective Regional Chief Therapist to discuss the inmate case.

General Things to Consider and Monitor when Providing Exercise Recommendations for Deconditioned Inmates:

- Prior level of function
- Significant co-morbidities
- Fall risk (inmates at Level 3 and 4 are most likely to be a fall risk)
- Inmate environment (isolation and/or housing in a small cell with limited movement)
- Airway Clearance Devices (**Appendix 1**)
- Mucus Expulsion/Coughing Techniques and Breathing Exercises (**Appendix 2**)
- Modified Borg Rating of Perceived Exertion (**Appendix 3**)
- Exercise pictures/descriptions and suggested repetitions/sets (**Appendix 4**)
- Rehab Guidelines for Management of COVID-19 Inmates Field Guide (**Appendix 5**)

RECOMMENDATION LEVELS

Level 1 Recommendations: Inmates categorized as Level 1 do not require any additional medical intervention and should be encouraged to partake in recommended physical activity per the Surgeon General's *Physical Activity Guidelines for Americans*. Specifically, the Surgeon General's Guideline recommends performing at least 150 to 300 minutes a week of moderate intensity, or 75 to 150 minutes a week of vigorous intensity aerobic physical activity. In addition, the Surgeon General recommends 2 times per week should be spent performing muscle strengthening activities of moderate or greater intensity that involve all major muscle groups of the upper and lower extremities. If the inmate experiences a decline in function or mobility, they should be encouraged to use the sick call process to notify their healthcare provider. This may require a reassessment and reassignment to another level based on this assessment.

Level 2 Recommendations: Inmates categorized as Level 2 should be encouraged to be active throughout the day and avoid sedentary behaviors, such as sitting and sleeping all day. They should be encouraged to perform light activity and/or light exercise to improve their functional capacity. They should be encouraged to begin a walking or mobility program. Education should be provided to encourage rest with moderate dyspnea. Inmates should be encouraged to work up to a point of mild to moderate dyspnea and then to rest until symptoms subside. It is important to also encourage relatively pain free muscle strengthening exercises. Inmates at this level should be reassessed as needed to determine any changes in functional mobility or ADLs. If the inmate demonstrates improvement or decline in function or mobility, they may be reassigned to another level based on this assessment.

Level 3 Recommendations: Inmates that are categorized as Level 3 may require frequent monitoring of vital signs during the performance of physical activities. Providers are encouraged to monitor and assess the inmate's response to physical activity and exercise, the prescription of the most appropriate durable medical equipment, assistance as needed for ADLs and functional mobility tasks, evaluation for supplemental oxygen needs and collaborate with nursing staff and other healthcare professionals involved in the inmate's care. The level of assistance required by the inmate to complete ADLs and functional mobility tasks should be assessed, when possible, at a frequency of approximately one time per week. If the inmate demonstrates improvement or decline, they may be reassigned to another level based on this assessment.

Level 4 Recommendations: It is recommended that these inmates receive an individualized plan of care under the supervision of a licensed physical therapist. Specific rehabilitation, exercise and activity recommendations should be deferred to an onsite physical therapist. If physical therapy services are not available, these inmates' cases should be reviewed with a Regional Chief Therapist for specific guidance on managing recovery from COVID-19 infection. A suggestion for all healthcare providers involved in the care of a Level 4 inmate includes providing assistance as needed for the performance of ADLs and functional mobility tasks, while encouraging to be as independent as possible in the performance of all activities. This is intended to promote the restoration of functional independence and prior level of function. This inmate will benefit from sitting upright in a chair for a minimum of 3 times a day for at least 2 hours at a time. Practical application of the afore-mentioned recommendations include coordination with nursing staff to ensure that the inmate gets out of bed and into a chair prior to the delivery of daily meals.

EXERCISE RECOMMENDATIONS

COVID-19 Exercises: Begin with Level 3 exercises, as inmates improve they may progress to Level 2 and Level 1 exercises based off their prior level of function. The inmate should be instructed in performing exercises that do not exacerbate any pre-existing conditions (to include, but not limited to musculoskeletal, cardiac, or respiratory conditions). See **Appendix 4** for exercise descriptions and suggested sets/repetitions.

Level 3 Exercises:

- Supine bridging
- Seated marching
- Seated heel/toe raises
- Seated long arc quads
- Seated trunk flexion
- Seated lateral trunk flexion
- Seated scapular protraction/retraction
- Seated elbow flexion/extension
- Seated arm circles
- Straight leg raises
- Sit to stand with support/assistance as needed
- Double leg stance (eyes closed)
- Laying Hip Abduction
- Graded Walking Program (5 minutes, 2 x day, RPE 4 to 6)

Level 2 Exercises:

- Modified prone plank
- Supine bridge
- Standing marching in place with upper extremity support
- Standing heel raises with upper extremity support
- Standing mini-squats (with chair support)
- Standing hip abduction with upper extremity support
- Standing hip extension with upper extremity support
- Prone scapular retraction (superman)
- Prone scapular retraction (“W”)
- Standing bicep curls with resistance
- Standing shoulder flexion in scapular plane with resistance
- Standing bilateral scaption with resistance
- Sit to stand (use of arms, progress to no upper extremity support)
- Graded Walking Program (10 minutes, 2 x day, RPE 4 to 6)

Level 1 Exercises:

- Prone plank
- Reverse plank
- Sit to stand (without use of upper extremity support)
- Alternating step ups
- Body-weighted air squats
- Wall sit
- Upper body ergometer/Arm bike: 10-15 minutes (optional based on availability)
- NuStep bike/Recumbent bike: 20-30 minutes (optional based on availability)
- Moderate Intensity Walking Program (20-30 minutes, 2 x day, RPE 4 to 6)

WALKING PROGRAM: The task force recommends that inmates recovering from COVID-19 related deconditioning participate in a moderate intensity walking program that will be performed at a minimum of twice daily. Each inmate should be asked to set functional walking endurance goals that align with their prior level of function prior to the initiation of the walking program. It is recommended that the intensity of the walking program be measured by the Modified Borg Rating of Perceived Exertion (RPE) scale (**Appendix 3**) with a recommendation for a moderate intensity rating of 4 to 6 when performing cardiovascular endurance. Each inmate should be familiarized with the Modified Borg RPE scale prior to the initiation of the walking program. The task force recommends that the inmates utilize appropriate assistive devices and supplemental oxygen as needed while ambulating. Inmates requiring the use of supplemental oxygen should have their oxygen saturation assessed periodically by healthcare services personnel while ambulating. The goal for each session of the walking program would be for each inmate to ambulate as far as possible without exceeding the threshold of 8 to 10 on the Modified Borg RPE scale. A seated rest break should be initiated if an inmate's SpO2% drops below 90%, and/or if an inmate reaches a level at or above 8 to 10 on the Modified Borg RPE scale. Inmates should be encouraged to increase their ambulation distance during each session, while not exceeding the threshold of 8 to 10 on the Modified Borg RPE scale.

FUNCTIONAL GOALS

1. Inmate will demonstrate independence with performance of a home exercise program.
2. Inmate will demonstrate the ability to perform ADLs timely without assistance.
3. Inmate will demonstrate independence with mobility with/without use of assistive devices.
4. Inmate will demonstrate the ability to return to the institution and/or housing unit to which they were assigned prior to hospitalization and subsequent deconditioning.
5. Inmate will demonstrate ability to return to work-related activities without restriction.

SUMMARY OF FUNCTIONAL GOALS:

The overall goal of a comprehensive rehabilitation program for an inmate that is experiencing physical impairments and functional limitations secondary to a COVID-19 infection is to return the inmate to their prior level of function.

APPENDIX 1: AIRWAY CLEARANCE DEVICES

COVID-19 can initially present with an influenza like illness and respiratory tract infection demonstrating cough, shortness of breath and sputum/mucus production. If mucus is allowed to collect in the airways, breathing may become increasingly difficult. If the healthcare provider feels the inmate has continued issues related to lung clearance post COVID-19 infection, see **Appendix 2** for mucus expulsion/coughing techniques and breathing exercises.

Airway clearance devices may assist in loosening secretions and removing mucus from the airways, thus decreasing risk for continued infection. Airways clearance devices* include:

1. Acapella Choice®
2. Incentive Spirometer

*Airway clearance devices may not be available at all BOP institutions.

APPENDIX 2: MUCUS EXPULSION/COUGHING TECHNIQUES AND BREATHING EXERCISES

Infection Prevention

Infection Prevention guidelines for mucus expulsion/coughing techniques in an inmate recovering from COVID-19 include potential risks related to droplet expulsion and therefore **Appendix 2** techniques should not be performed in areas with other inmates or staff. Mucus expulsion/coughing techniques need to be performed in a single room with the door closed. Inmates performing mucus expulsion/coughing techniques in an open room should wear a surgical mask.

When recovering from COVID-19, you may produce a large amount of mucus. If the mucus is allowed to collect in the airways, breathing may become difficult and infection may occur. If you have a prescribed inhaled bronchodilator medication, the techniques used to remove mucus are most effective if performed after using the inhaled medication. Common techniques used to help remove mucus include:

- **Deep Coughing:** Start by taking a deep breath. Hold the breath for 2-3 seconds. Use your stomach muscles to forcefully expel the air. Avoid a hacking cough or merely clearing the throat. A deep cough is less tiring and more effective in clearing mucus out of the lungs.
- **Huff Coughing:** Huff coughing, or huffing, is an alternative to deep coughing if you have trouble clearing your mucus. Take a breath that is slightly deeper than normal. Use your stomach muscles to make a series of three rapid exhalations with the airway open, making a "ha, ha, ha" sound. Follow this by controlled diaphragmatic breathing and a deep cough if you feel mucus moving.
- **Controlled Coughing:**
 1. Sit on a chair or on the edge of your bed, with both feet on the floor. Lean slightly forward. Relax.
 2. Fold your arms across your abdomen and breathe in slowly through your nose (the power of the cough comes from moving air).
 3. **To exhale:** lean forward, pressing your arms against your abdomen. Cough 2-3 times through a slightly open mouth. Coughs should be short and sharp. **The first cough loosens the mucus and moves it through the airways. The second and third cough enables you to cough the mucus up and out.**
 4. Breathe in again by "sniffing" slowly and gently through your nose. This gentle breath helps prevent mucus from moving back down your airways.
 5. Rest
 6. Perform again if needed.



Tips

- Avoid breathing in quickly and deeply through your mouth after coughing. Quick breaths can interfere with the movement of mucus up and out of the lungs, and can cause uncontrolled coughing.

- Drink 6 to 8 glasses of fluid per day unless your healthcare provider has told you to limit your fluid intake. When mucus is thin, coughing is easier.
- Use the controlled coughing technique after any time you feel mucus (congestion) in the airways. If you have a prescribed inhaled bronchodilator medication, the techniques to remove mucus are most effective if performed after using the inhaled medication as the medication helps loosen the mucus and open the airway.
- Exercise is also a good way to help bring up mucus in the lungs.

Breathing Exercises

Out with the old, stale air and in with new fresh air. That's the theme of the two most useful breathing exercises: pursed lip breathing and diaphragmatic breathing. Aerobic exercise improves your heart function and strengthens your muscles, while breathing exercises can make your lungs more efficient.

Why Breathing Exercises Help

When you have healthy lungs, breathing is natural and easy. You breathe in and out with your diaphragm doing about 80 percent of the work to fill your lungs with a mixture of oxygen and other gases and then to send the waste gas out. The lungs are springy like a screen door with a spring that opens and shuts on its own. Over time with asthma and especially with COPD, lungs lose that springiness. They don't return to the same level as when you start breathing, and air can get trapped in the lungs. The same effect can occur when recovering from COVID-19.

Over time, stale air builds up, leaving less room for the diaphragm to contract and bring in fresh oxygen. With the diaphragm not working to full capacity, the body starts to use other muscles in the neck, back, and chest for breathing. This translates into lower oxygen levels, and less reserve for exercise and activity. If practiced regularly, breathing exercises can help rid the lungs of accumulated stale air, increase oxygen levels, and get the diaphragm to return to its job of helping you breathe.

Pursed Lip Breathing

This exercise reduces the number of breaths you take and keeps your airways open longer. More air is able to flow in and out of your lungs so you can be more physically active. To practice it, simply breathe in through your nose and breathe out at least twice as long through your mouth, with pursed lips.

Diaphragmatic Breathing

As with pursed lip breathing, start by breathing in through your nose. Pay attention to how your belly fills up with air. You can put your hands lightly on your stomach so you can be aware of your belly rising and falling. Breathe out through your mouth at least two to three times as long as your inhale. Be sure to relax your neck and shoulders as you retrain your diaphragm to take on the work of helping to fill and empty your lungs.







Practice Makes Perfect

These exercises take some time to master. Do not first try these exercises when you're short of breath. Try them when you're breathing normally, and then later on when you're more comfortable, you can use them when you're short of breath. Ideally, you should practice both exercises about 5 to 10 minutes every day.

APPENDIX 3: MODIFIED BORG RATING OF PERCEIVED EXERTION SCALE









The Modified Borg Rating of Perceived Exertion (RPE) scale is a way of measuring the intensity of physical activity and/or exercise. Perceived exertion is commonly described as how hard an individual feels like their body is working. The Modified Borg RPE scale ranges from 0 to 10 where 0 means "at rest" or "no exertion at all" and 10 means "maximal exertion." The task force recommends the utilization of the Modified Borg RPE scale for determining physical activity and exercise intensity in inmates recovering from COVID-19 related deconditioning.

RPE Scale Rate of Perceived Exertion	
10	Maximum Effort feels almost impossible to continue no conversation possible
9	Very Hard difficult to maintain exercise intensity conversation becomes difficult
7-8	Vigorous on the verge of becoming uncomfortable breathing heavily but still able to speak
4-6	Moderate feels like you can maintain activity for hours breathing heavily but can carry on a conversation
2-3	Light feels like you can maintain activity for hours easy to breathe and carry on a conversation
1	Very Light little to no activity







APPENDIX 4: LEVEL 3 EXERCISES		Do <u>NOT</u> exercise beyond a 6-7 on the modified RPE scale. Take rest breaks if you experience any shortness of breath. If you experience a significant change in function or symptoms, notify your healthcare provider immediately.	
1  Repeat 10 Times Hold 5 Seconds Complete 2 Sets Perform 2 Times a Day	Bridging While lying on your back with knees bent, tighten your lower abdominals, squeeze your buttocks and then raise your buttocks off the floor/bed as creating a "Bridge" with your body. Hold and then lower yourself and repeat.	4  Repeat 10 Times Hold 5 Seconds Complete 3 Sets Perform 2 Times a Day	Eccentric Long Arc Quad In a seated position straighten one knee. Slowly bring the leg down to flexed position. Repeat.
2  Repeat 10 Times Hold 1 Second Complete 3 Sets Perform 1 Times a Day	Seated marching with abdominal contraction SET UP: Sit on edge of seat with good posture. Feel your sides and lower abdominals with your hands ACTION: Tighten your abdominals, and expand the muscles into your hands as you slowly lift one leg at a time without leaning back or tilting your pelvis.	5  Repeat 10 Times Hold 1 Second Complete 1 Set Perform 2 Times a Day	Seated Trunk Flexion While in a seated position, cross your arms over your chest and slowly curl your back forward in order to round your upper back.
3  Repeat 15 Times Hold 1 Second Complete 3 Sets Perform 2 Times a Day	Seated Heel/Toe Raises Sitting in a chair, push your heels in the air so you come up on your toes. Lower your heels and raise your toes toward the ceiling.	6  Repeat 10 Times Hold 2 Seconds Complete 3 Sets Perform 2 Times a Day	Thoracic Matrix Lateral Side Bend In seated position, patient will move slowly through full, pain free range of motion. Full Lateral Flexion, right and left of the trunk with scapular retraction for mobility and stability of the spine.

Adapted from www.hep2go.com









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<p>7</p>  <p>Repeat 30 Times Hold 0 Seconds Complete 2 Sets Perform 2 Times a Day</p>	<p>Seated Scapular Protraction/ Retraction</p> <p>Seated with both hands remaining on your thighs, gently retract both shoulder blades back and towards each other. Then reverse directions and gently protract both shoulder blades forward. Leave your hands on your thighs throughout</p>	<p>11</p>  <p>Repeat 10 Times Hold 1 Second Complete 2 Sets Perform 2 Times a Day</p> <p>Sit to Stand - Both Hands Assist (as needed)</p> <p>While seated in a chair, scoot forward towards the edge of the chair. Next, hold on to the arm rest with both hands for support as needed and then raise up to standing.</p>
<p>8</p>  <p>Repeat 15 Times Hold 1 Second Complete 3 Sets Perform 2 Times a Day</p>	<p>Elbow Flexion/Extension</p> <p>Seated with your affected arm hanging at your side, bend your elbow fully then lower it back down.</p>	<p>12</p>  <p>Hold 30 Seconds Complete 3 Set Perform 2 Times a Day</p> <p>Double Leg Stance (Eyes Closed)</p> <p>Stand in front of a firm surface and close your eyes while attempting to maintain balance.</p>
<p>9</p>  <p>Repeat 15 Times Hold 1 Second Complete 3 Sets Perform 2 Times a Day</p>	<p>Arm Circles</p> <p>Sitting in a chair, push your heels in the air so you come up on your toes. Lower your heels and raise your toes toward the ceiling.</p>	<p>13</p>  <p>Repeat 10 Times Hold 2 Seconds Complete 3 Sets Perform 2 Times a Day</p> <p>Hip Abduction - Laying</p> <p>In seated position, patient will move slowly through full, pain free range of motion. Full Lateral Flexion, right and left of the trunk with scapular retraction for mobility and stability of the spine.</p>
<p>10</p>  <p>Repeat 10 Times Hold 1 Second Complete 2 Sets Perform 2 Times a Day</p>	<p>Straight leg raise (SLR)</p> <p>While lying on your back, raise up your leg with a straight knee, Keep the opposite knee bent with the foot planted on the ground.</p>	<p>14</p>  <p>Duration 5 Minutes Complete 1 Set Perform 2 Times a Day RPE 4 to 6</p> <p>Walking</p> <p>Walk at a pace that feels somewhat moderate to hard. Gradually increasing time walked each day.</p>







Adapted from www.hep2go.com








APPENDIX 4: LEVEL 3 EXERCISES		Do NOT exercise beyond a 6-7 on the modified RPE scale. Take rest breaks if you experience any shortness of breath. If you experience a significant change in function or symptoms, notify your healthcare provider immediately.	
1  Repeat 10 Times Hold 5 Seconds Complete 2 Sets Perform 2 Times a Day	Bridging <p>While lying on your back with knees bent, tighten your lower abdominals, squeeze your buttocks and then raise your buttocks off the floor/bed as creating a "Bridge" with your body. Hold and then lower yourself and repeat.</p>	4  Repeat 10 Times Hold 5 Seconds Complete 3 Sets Perform 2 Times a Day	Eccentric Long Arc Quad <p>In a seated position straighten one knee. Slowly bring the leg down to flexed position. Repeat.</p>
2  Repeat 10 Times Hold 1 Second Complete 3 Sets Perform 1 Times a Day	Seated marching with abdominal contraction <p>SET UP: Sit on edge of seat with good posture. Feel your sides and lower abdominals with your hands</p> <p>ACTION: Tighten your abdominals, and expand the muscles into your hands as you slowly lift one leg at a time without leaning back or tilting your pelvis.</p>	5  Repeat 10 Times Hold 1 Second Complete 1 Set Perform 2 Times a Day	Seated Trunk Flexion <p>While in a seated position, cross your arms over your chest and slowly curl your back forward in order to round your upper back.</p>
3  Repeat 15 Times Hold 1 Second Complete 3 Sets Perform 2 Times a Day	Seated Heel/Toe Raises <p>Sitting in a chair, push your heels in the air so you come up on your toes. Lower your heels and raise your toes toward the ceiling.</p>	6  Repeat 10 Times Hold 2 Seconds Complete 3 Sets Perform 2 Times a Day	Thoracic Matrix Lateral Side Bend <p>In seated position, patient will move slowly through full, pain free range of motion. Full Lateral Flexion, right and left of the trunk with scapular retraction for mobility and stability of the spine.</p>

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<p>7</p>  <p>Repeat 30 Times Hold 0 Seconds Complete 2 Sets Perform 2 Times a Day</p>	<p>Seated Scapular Protraction/Retraction</p> <p>Seated with both hands remaining on your thighs, gently retract both shoulder blades back and towards each other. Then reverse directions and gently protract both shoulder blades forward. Leave your hands on your thighs throughout</p>	<p>11</p>  <p>Repeat 10 Times Hold 1 Second Complete 2 Sets Perform 2 Times a Day</p> <p>Sit to Stand - Both Hands Assist (as needed)</p> <p>While seated in a chair, scoot forward towards the edge of the chair. Next, hold on to the arm rest with both hands for support as needed and then raise up to standing.</p>
<p>8</p>  <p>Repeat 15 Times Hold 1 Second Complete 3 Sets Perform 2 Times a Day</p>	<p>Elbow Flexion/Extension</p> <p>Seated with your affected arm hanging at your side, bend your elbow fully then lower it back down.</p>	<p>12</p>  <p>Hold 30 Seconds Complete 3 Set Perform 2 Times a Day</p> <p>Double Leg Stance (Eyes Closed)</p> <p>Stand in front of a firm surface and close your eyes while attempting to maintain balance.</p>
<p>9</p>  <p>Repeat 15 Times Hold 1 Second Complete 3 Sets Perform 2 Times a Day</p>	<p>Arm Circles</p> <p>Sitting in a chair, push your heels in the air so you come up on your toes. Lower your heels and raise your toes toward the ceiling.</p>	<p>13</p>  <p>Repeat 10 Times Hold 2 Seconds Complete 3 Sets Perform 2 Times a Day</p> <p>Hip Abduction - Laying</p> <p>In seated position, patient will move slowly through full, pain free range of motion. Full Lateral Flexion, right and left of the trunk with scapular retraction for mobility and stability of the spine.</p>
<p>10</p>  <p>Repeat 10 Times Hold 1 Second Complete 2 Sets Perform 2 Times a Day</p>	<p>Straight leg raise (SLR)</p> <p>While lying on your back, raise up your leg with a straight knee, Keep the opposite knee bent with the foot planted on the ground.</p>	<p>14</p>  <p>Duration 5 Minutes Complete 1 Set Perform 2 Times a Day RPE 4 to 6</p> <p>Walking</p> <p>Walk at a pace that feels somewhat moderate to hard. Gradually increasing time walked each day.</p>


Adapted from www.hep2go.com

APPENDIX 4: LEVEL 2 EXERCISES		Do NOT exercise beyond a 6-7 on the modified RPE scale. Take rest breaks if you experience any shortness of breath. If you experience a significant change in function or symptoms, notify your healthcare provider immediately.	
1	<p>Modified Prone Plank</p> <p>With hands on a chair or coffee table, walk your feet back and get your back and hips to a straight position as in the picture.</p>  <p>Repeat 10 Times Hold 5 Seconds Complete 2 Sets Perform 2 Times a Day</p>	4	<p>Standing Heel Raises</p> <p>While standing, raise up on your toes as you lift your heels off the ground.</p>  <p>Repeat 10 Times Hold 3 Seconds Complete 3 Sets Perform 2 Times a Day</p>
2	<p>Bridging</p> <p>While lying on your back with knees bent, tighten your lower abdominals, squeeze your buttocks and then raise your buttocks off the floor/bed as creating a "Bridge" with your body. Hold and then lower yourself and repeat.</p>  <p>Repeat 10 Times Hold 20 Seconds Complete 3 Sets Perform 1 Times a Day</p>	5	<p>Squat - Supported with Chair for Safety</p> <p>Place a chair behind you for safety. While standing with feet shoulder width apart and in front of a stable support for balance assist if needed, bend your knees and lower your body towards the floor. Your body weight should mostly be directed through the heels of your feet. Return to a standing position. Knees should bend in line with the 2nd toe and not pass the front of the foot</p>  <p>Repeat 10 Times Hold 1 Second Complete 1 Set Perform 2 Times a Day</p>
3	<p>Standing Marching</p> <p>While standing, draw up your knee, set it down and then alternate to your other side.</p>  <p>Repeat 10 Times Hold 1 Second Complete 2 Sets Perform 2 Times a Day</p>	6	<p>Hip Abduction - Standing</p> <p>While standing, raise your leg out to the side. Keep your knee straight and maintain your toes pointed forward the entire time.</p>  <p>Repeat 10 Times Hold 2 Seconds Complete 3 Sets Perform 2 Times a Day</p> <p>Use your arms for support if needed for balance and safety.</p>
Adapted from www.hep2go.com			

<p>7</p>  <p>Repeat 10 Times Hold 3 Seconds Complete 3 Sets Perform 2 Times a Day</p>	<p>Hip Extension - Standing</p> <p>While standing, balance on one leg and move your other leg in a backward direction. Do not swing the leg. Perform smooth and controlled movements.</p> <p>Keep your trunk stable and without arching during the movement.</p> <p>Use your arms for support if needed for balance and safety.</p>	<p>11</p>  <p>Repeat 10 Times Hold 3 Second Complete 3 Sets Perform 2 Times a Day</p> <p>Bilateral Scaption - Resistance (if applicable)</p> <p>Raise both hands up away from your side in a forward/ lateral direction (hold a free weight in both hands if applicable).</p> <p>Your elbows should be straight and the movement should occur in the plane of the scapula or 45 degrees to the side as shown.</p> <p>Do not let your shoulder shrug upwards. A bottle, book, or any object 2-4 lbs. can be used</p>
<p>8</p>  <p>Repeat 10 Times Hold 5 Second Complete 3 Sets Perform 2 Times a Day</p>	<p>Prone Scapular Retraction - Superman</p> <p>Lie face down with a pillow under your hips and arms straight above your head. Raise your arms above your head and hold them there for the desired amount of time.</p>	<p>12</p>  <p>Hold 30 Seconds Complete 3 Set Perform 2 Times a Day</p> <p>Sit to Stand - No Support</p> <p>Start by scooting close to the front of the chair. Next, lean forward at your trunk and reach forward with your arms and rise to standing without using your hands to push off from the chair or other object.</p> <p>Use your arms as a counter-balance by reaching forward when in sitting and lower them as you approach standing.</p>
<p>9</p>  <p>Repeat 15 Times Hold 1 Second Complete 3 Sets Perform 2 Times a Day</p>	<p>Prone Scapular Retraction - "W"</p> <p>Sitting in a chair, push your heels in the air so you come up on your toes. Lower your heels and raise your toes toward the ceiling.</p>	<p>13</p>  <p>Duration 10 Minutes Complete 1 Set Perform 2 Times a Day RPE 4 to 6</p> <p>Walking</p> <p>Walk at a pace that feels somewhat moderate to hard. Gradually increasing time walked each day.</p>
<p>10</p> 	<p>Bicep Curls</p> <p>With your arm at your side, draw up your hand by bending at the elbow. Keep your palm face up the entire time. A bottle, book, or any object about 2-4lbs can be used.</p> <p>Repeat 10 Times Hold 3 Second Complete 3 Sets Perform 2 Times a Day</p>	

Adapted from www.hep2go.com

APPENDIX 4: LEVEL 1 EXERCISES		Do NOT exercise beyond a 6-7 on the modified RPE scale. Take rest breaks if you experience any shortness of breath. If you experience a significant change in function or symptoms, notify your healthcare provider immediately.	
1  Repeat 3 Times Hold 30 Seconds Complete 1 Sets Perform 2 Times a Day	Plank While lying face down, lift your body up on your elbows and toes. Try and maintain a straight spine. Do not allow your hips or pelvis on either side to drop. Maintain pelvic neutral position the entire time. Work up to holding for 1-2 minutes	4  Repeat 15 Times Hold 1 Seconds Complete 2 Sets Perform 2 Times a Day	Step Up While standing with both feet on the floor, step up a step with one leg. Return backward towards the floor leading with the same leg. Put weight through heel as you step up. Switch legs and step up with the other leg.
2  Repeat 3 Times Hold 30 Seconds Complete 1 Sets Perform 2 Times a Day	Reverse Plank While lying on your back, lift your body up on your elbows and heels. Try and maintain a straight spine.	5  Repeat 15 Times Hold 1 Second Complete 2 Sets Perform 2 Times a Day	Air Squat Stand with feet shoulder width apart and toes pointed forward to slightly turned out. Bend knees and lower buttock towards floor keeping your back straight and bending at your hips. Allow your arms to raise up forward as you lower down and then return arms to side as you straight back up. Your buttock should lower behind your feet as if you are going to sit on a chair. Emphasize your weight going through your heels.
3  Repeat 15 Times Hold 1 Second Complete 2 Sets Perform 2 Times a Day	Sit to Stand - No Support Start by scooting close to the front of the chair. Next, lean forward at your trunk and reach forward with your arms and rise to standing without using your hands to push off from the chair or other object. Use your arms as a counter-balance by reaching forward when in sitting and lower them as you approach standing.	6  Repeat 5 Times Hold 30 Seconds Complete 1 Set Perform 2 Times a Day	Wall Sit Leaning up against a wall or closed door on your back, slide your body downward, hold for 30 seconds, and then return back to upright position. A door was used here because it was smoother and had less friction than the wall. Knees should bend in line with the 2nd toe and not pass the front of the foot.
Adapted from www.hep2go.com			

<p>7</p> <p>Repeat 1 Time Duration 10 Minutes Complete 1 Sets Perform 1 Times a Day</p>	<p>UBE (Upper Body Ergometer) / Arm Bike (optional based on availability)</p> <p>Position the seat or wheelchair at a height so that your shoulders are in the same axis of rotation as the crank. Adjust seat or wheelchair horizontally so that the arms are not quite completely extended when furthest from the body while arms are in rotation. Goal is to use the UBE for 10-15 minutes daily.</p>
<p>8</p> <p>Duration 20 Minutes Complete 1 Set Perform 1 Times a Day</p>	<p>Stationary Recumbent Bike or NuStep Bike (optional based on availability)</p> <p>STEP 1: Position yourself in the seat and adjust the seat to allow approximately 5-10 degrees of bend in the knee with the foot on the pedals.</p> <p>STEP 2: Slowly begin to pedal, making full rotations if possible</p>
<p>9</p>  <p>Duration 20-30 Minutes Complete 1 Set Perform 2 Times a Day RPE 4 to 6</p>	<p>Walking</p> <p>Walk at a pace that feels somewhat moderate to hard. Gradually increasing time walked each day.</p>

Adapted from www.hep2go.com

APPENDIX 5: REHABILITATION GUIDELINES FOR MANAGEMENT OF POST-COVID-19 INMATES WITHIN THE FEDERAL BUREAU OF PRISONS: FIELD GUIDE

Post-COVID-19 inmates may demonstrate a variable amount of disability related to deconditioning which can significantly impact their ability to safely perform activities of daily living (ADLs). The ADLs that should be assessed include dressing, bathing and toileting. Functional mobility tasks that should be assessed include bed mobility, transfers, wheelchair propulsion and ambulation. This guide has been prepared to assist healthcare services personnel in stratifying functional status with rehabilitation recommendations and exercises to facilitate recovery and return to prior level of function.*

LEVEL 1: No impairment from COVID-19 infection. Inmates are independent with all ADLs with minimal to no shortness of breath. Inmates in this category are at or near a level of function prior to contracting COVID-19.

- **RECOMMENDATIONS:** Inmates categorized as Level 1 do not require any additional medical intervention and should be encouraged to stay active.

LEVEL 2: Mild Impairment from COVID-19 infection. Inmates at this level are experiencing some degree of limited mobility or require adaptive medical equipment to be independent with mobility and ADLs. Individuals in this group may require a cane, walker, or wheelchair to independently maneuver the institution. They may experience mild to moderate shortness of breath with extended activity or long distance ambulation.

- **RECOMMENDATIONS:** Inmates categorized as Level 2 should be encouraged to perform light activity and/or light exercise to improve their functional capacity and avoid sedentary behaviors. Inmates should be educated to begin a walking or mobility program and work up to a point of mild to moderate dyspnea and then to rest until symptoms subside. They should also participate in muscle strengthening exercises that are relatively pain free.

LEVEL 3: Moderate Impairment from COVID-19 infection. Inmates at this level are experiencing a moderate degree of impaired mobility and likely can only ambulate or maneuver very short distances before experiencing shortness of breath, fatigue or extreme malaise. Individuals at this level require assistance with ADLs for safety.

- **RECOMMENDATIONS:** Inmates that are categorized as Level 3 require frequent reassessment of the inmate's response to physical activity and exercise, the prescription of the most appropriate durable medical equipment, assistance as needed for ADLs, evaluation for supplemental oxygen needs and collaboration with nursing staff and other healthcare professionals involved in the inmate's care.

LEVEL 4: Severe Impairment from COVID-19 infection. Inmates at this level are likely hospitalized and require no intervention from the BOP until it is time for them to return. Inmates at this level require moderate to maximum assistance with all mobility and ADLs.

- **RECOMMENDATIONS:** Inmates may be severely disabled and/or bedridden from prolonged hospitalization and is unable to stand, transfer, or walk or has other significant impairments that require long term rehab and medical care. They may present with unstable vital signs in response to physical activity. Please reach out to the respective Regional Chief Therapist to discuss the inmate case.

*Recommend utilizing the modified Borg RPE as a tool to use in gauging inmate tolerance to activity.