


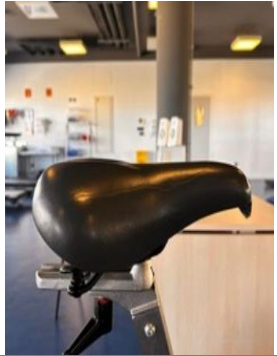



Anexo 8.2.Exercise technique description.



1. Aerobic condition (Condition A)

The aerobic exercise session will last 30 minutes of continuous moderate intensity aerobic exercise on a bike. The intensity target will be 60%-70% of the maximal heart rate (HRMax).


Preparation of the bike

Step	Graphical presentation	Instruction
1		Adjust the saddle height so that your extended leg has a slight bend at the knee while pedaling.
2		Ensure the saddle is horizontal to prevent discomfort; adjust the angle to make it parallel to the ground.
3		Adjust the handlebars to a height that allows you to maintain an upright and comfortable posture.




4		Check the distance between the saddle and the handlebars; it should allow you to reach them without overstretching or being too cramped.
5		Before starting, verify that all adjustments are secure and tight, avoiding any looseness or unexpected movements.

Warm-up (4 minutes)

Exercise	Target muscle	Graphical presentation	Instruction
Bike	Quadriceps, hamstrings, glutes, calf, hip muscles, abdominal muscles, and lower back muscles		The participant should reach the 60% of the maximal heart rate (HRMax)







Main part (26 minutes)

Exercise	Target muscle	Graphical presentation	Instruction
Bike	Quadriceps, hamstrings, glutes, calf, hip muscles, abdominal muscles, and lower back muscles		A continuous aerobic exercise is performed on a stationary bike, which will be within the 60%-70% of the maximal heart rate (HRMax)

2. Resistance exercise condition (Condition B)

Below are the descriptions of the exercises to be implemented in the flADeX project. The resistance exercise session will last 30 minutes and participants will try to reach the 4-6 RPE target. There are variants of the main exercises in case of injuries or pain.



Warm-up (4 minutes)

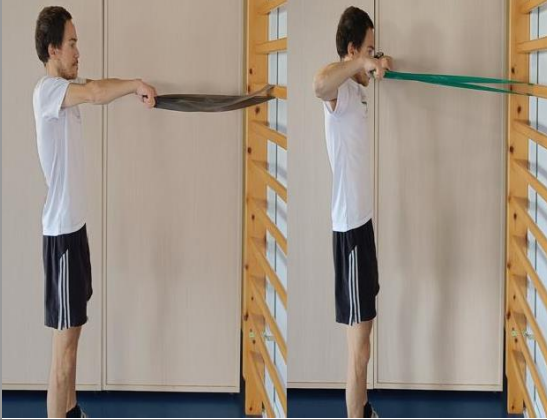
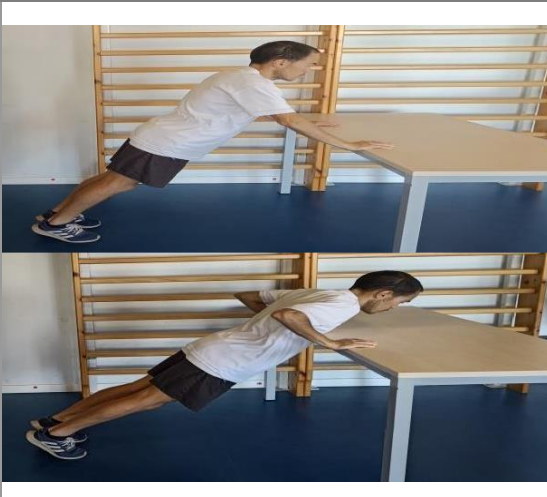

Exercise	Target muscle	Graphical presentation	Instruction
Cat-camel	Lumbar, thoracic, and cervical muscles	 	<p>Starting position: Begin standing with hands on the wall, forming a 90° angle, and make sure to stand straight.</p> <p>Execution: Move from a position of lumbar, thoracic, and cervical neutrality to maximum positions of flexion (kyphosis and retroversion), raising the spine. Continue with the extension (lordosis and anteversion), moving the spine downward.</p>
Thoracic mobility	Extensor of the vertebral column	 	<p>Starting position: Begin standing with one leg forward. Keep the arms extended, facing forward. One hand remains fixed (the same as the forward leg), while the other moves to the opposite side, opening the chest.</p> <p>Execution: Rotate the thorax as much as possible, keeping the body straight.</p>



<p>Hip and knee mobility</p>	<p>Hip flexors and extensors, dorsiflexors and plantar flexors.</p>		<p>Starting position: Stand up. Hands are placed on the hips, and the foot you want to mobilize is positioned forward over the other, pointing towards the wall.</p> <p>Execution: Flex the knee and ankle as much as possible, trying to touch the wall with the knee. Move the forward foot backward to increase the difficulty.</p>
<p>Shoulder and hip mobility</p>	<p>Shoulder, spinal and hip flexors and extensors</p>		<p>Starting position: Standing position.</p> <p>Elastic band position: The elastic band is stretched to the maximum without exerting tension with straight arms.</p> <p>Execution: Move the straight arms from the hips to above the head. Abducting the arms to generate tension in the elastic band. When the arms are above the head, perform a squat.</p>



Exercise training (26 minutes)

Training session			
Exercise	Target muscle	Graphical presentation	Instruction
Glute bridge for hamstring	Hamstring and gluteus		<p>Starting position: Supine position with bent knees and feet at hip-width, heels on the mat and toes pointing at the ceiling.</p> <p>Execution: Move the hip towards the ceiling, keep the spine neutral and the scapulas flat against the floor. Lift the hips as high as possible. Then, lower the hip in a controlled manner to the starting position.</p> <p>Key points: Perform pelvic retroversion and squeeze the gluteus muscles when hip is high. Push the feet and hands against the floor.</p>
Front plank	Lumbopelvic musculature		<p>Starting position: Prone position with the forearms on the mat supporting the body and elbows at 90°. The knees and feet are at hip-width.</p> <p>Execution: Raise the hip and knees until the trunk is parallel to the mat. Hold the position for 10 seconds and return to the starting position.</p> <p>Key points: Contract the gluteus muscles and abdomen, keep the lumbopelvic neutrality and exhale during the concentric phase.</p>



<p>Standing face pull *</p>	<p>Trapezius</p>		<p>Starting position: Standing position with the feet at hip-width and grab the elastic band with straight arms in pronation with maximum elongation but without tension.</p> <p>Elastic band position: Nose height.</p> <p>Execution: Pull the elbows towards the face and bend the elbows to 90°. Keep the elbows on shoulder-height.</p> <p>Key points: Keep the elbows at shoulder-height, and the shoulders down.</p>
<p>Incline push up</p>	<p>Pectoral</p>		<p>Starting position: Standing position one meter in front of the object (e.g., a table). Place the hands on the edge of the table slightly wider than shoulder-width. Arms are straight.</p> <p>Execution: Bend the arms, so that the chest approaches the object as much as possible. Hold for a second, extend the arms and return to starting position.</p> <p>Key points: Maintain a plank position, push with the hands, and align the gluteus muscles and the trunk.</p>
<p>Squat</p>	<p>Quadriceps and gluteus</p>		<p>Starting position: Standing position with the legs hip-width.</p> <p>Execution: Lower into a squatting position and keep the lumbar in a neutral position. During this movement, the hip, knee and ankle are bent. After this, extend the legs and return to starting position.</p> <p>Key points: Push with the legs to get up and keep the knees aligned with the legs during the whole exercise.</p>

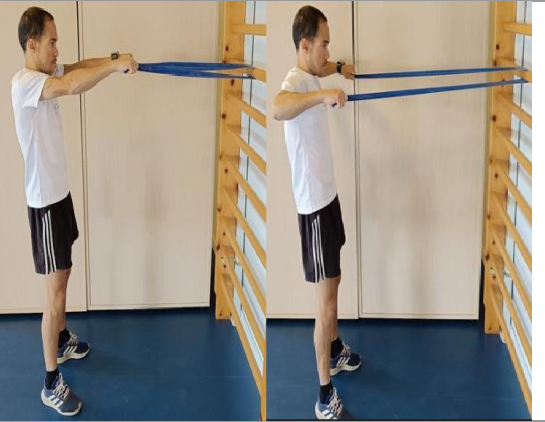

<p>Press pallof *</p>	<p>Lumbopelvic musculature</p>		<p>Starting position: Standing position with the elbows bent at 90° and the feet at hip-width. Grab the elastic band on the side at the maximum elongation without tension.</p> <p>Elastic band position: Chest level.</p> <p>Execution: Exhale, stretch the arms and hold for 3 seconds. Return to the starting position while inhaling. Focus on breathing when stretching the arms. Perform 20'' continuously to each side.</p> <p>Key points: Control the breathing, move slowly, and controlled during the eccentric phase.</p>
<p>Lunge</p>	<p>Quadriceps and gluteus</p>		<p>Starting position: Standing position, with one leg in front of the other and with approximately 0.6m. Back leg stands on the toes and the hands are placed on the hips.</p> <p>Execution: Bend both knees to 90°. Stand back up and lift the back foot from the ground. Swing the back foot forward and step forward.</p> <p>Key points: Align the front knee and leg, push the foot against the floor, and push with the front leg.</p>







UNIVERSIDAD
DE GRANADA

Seated shoulder press *	Deltoid		<p>Starting position: Sitting position and pass the elastic band under the seat of the chair. Grab the elastic band neutrally.</p> <p>Elastic band position: Underneath the seat of the chair.</p> <p>Execution: Push the arms above the head until the arms are straight. Align the wrists with the arm during the movement.</p> <p>Key points: Push from the feet to the shoulder.</p>
--------------------------------	---------	--	--

Variant of session 1			
Exercise	Target muscle	Graphical presentation	Instructions
Glute bridge for hamstring	Hamstring and gluteus		<p>Starting position: Supine position with bent knees and feet at hip-width, heels on the mat and toes pointing at the ceiling.</p> <p>Execution: Move the hip towards the ceiling, keep the spine neutral and the scapulas flat against the floor. Lift the hips as high as possible. Then, lower the hip in a controlled manner to the starting position.</p> <p>Key points: Perform pelvic retroversion and squeeze the gluteus muscles when hip is high. Push the feet and hands against the floor.</p>
Kneeling plank	Lumbopelvic musculature		<p>Starting position: Prone position with the forearms supported on the mat. The knees and feet are at hip-width on the mat.</p> <p>Execution: Raise the hip and keep the knees and feet on the mat. The trunk is parallel position with the mat and the elbows are bent at 90°. Hold the position for 10 seconds and return to the starting position.</p> <p>Key points: Strengthen the gluteus muscles and core and maintain the lumbopelvic in a neutral position. Exhale during the concentric phase.</p>

<p>Standing face pull *</p>	<p>Trapezius</p>		<p>Starting position: Standing position with the feet at hip-width and arms straight. Grab the elastic band in pronation with maximum elongation but without tension.</p> <p>Elastic band position: Nose height.</p> <p>Execution: Pull the elbows towards the face and bend the elbows at 90°. Keep the elbows on shoulder-height.</p> <p>Key points: Keep the elbows at shoulder-height and the shoulders down.</p>
<p>Wall push up</p>	<p>Pectoral</p>		<p>Starting position: Standing position one meter in front of the wall. The hands are placed at the wall on shoulder height and width.</p> <p>Execution: Bend the arms, so that the face approaches the wall as much as possible.</p> <p>Key points: Maintain the plank position, push with the hands, and align the gluteus muscles with the trunk.</p>

<p>Squat with crossed arms</p>	<p>Quadriceps and gluteus</p>		<p>Starting position: Standing position in front of the chair with the legs at hip-width and the hands crossed on the chest.</p> <p>Execution: Lower into a squatting position and lightly touch the chair, then get up from the chair.</p> <p>Key points: Push with the legs to get up from the chair, keep the knees aligned with the legs during the whole exercise.</p>
<p>Press pallof *</p>	<p>Lumbopelvic musculature</p>		<p>Starting position: Standing position with the elbows bent at 90° and the feet at hip-width. Grab the elastic band on the side at the maximum elongation without tension.</p> <p>Elastic band position: Chest level.</p> <p>Execution: Exhale, stretch the arms and hold for 3 seconds. Return to the starting position while inhaling. Focus on breathing when stretching the arms. Perform 20" continuously to each side.</p> <p>Key points: Control the breathing, move slowly, and controlled during the eccentric phase.</p>

<p>Lunge</p>	<p>Quadriceps and gluteus</p>		<p>Starting position: Standing position with one foot in front of the other with the distance of approximately 0.6 m. Place the hands on the hips.</p> <p>Execution: Bend both knees to approximately 90°. With this movement, the back knee is hovering just of the floor and the front knee and ankle are aligned. Return to the starting position by extending the knees. Perform 20” continuously with each leg</p> <p>Key points: Align the front knee and the foot and push the feet against the floor.</p>
<p>Seated shoulder press *</p>	<p>Deltoid</p>		<p>Starting position: Sitting position with legs fully supported. Pass the elastic band under the seat of the chair and grab it neutrally.</p> <p>Elastic band position: Under the chair seat.</p> <p>Execution: Push the arms up until elbows are straight. Align the wrists with the arm during the exercise.</p> <p>Key points: Push from the feet to the shoulder.</p>

