

2018

SHOULDER INJURY PREVENTION FOR CLIMBERS - INTERVENTION BOOKLET

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INJURY PREVENTION

Why?

- Shoulder injuries can cause pain, reduced function and prolonged periods away from the training. The shoulder is the most mobile joint in our body. The increased mobility comes with decreased stability. To enhance shoulder stability, the surrounding muscles need progressive training. Climbing needs good strength and endurance of the shoulders.

How?

- **Shoulder blade stability:**
The shoulder blade provides the base and support for the arm. The shoulder blade stabilized by its surrounding muscles. Learning to activate these muscles are important. Pay attention to the stability of the shoulder blades during climbing. Do not hang with elevated shoulder blades.
- **Shoulder stability and mobility:**
Good stability and mobility is the key for healthy function. Optimal mobility can be maintained by stretching the shortened and overworked muscles.
- **Rotator cuff strength:**
The rotator cuff is the muscle group that keeps the shoulder in its socket during movement. Climbing needs good strength and endurance of these muscles. Climbing exercises the internal rotators well but the external rotators stay weaker.
- **Muscle balance:**
To keep healthy muscle balance, train all the big muscle groups equally. Climbing is heavy for the elbow and shoulder flexors. Exercise regularly the extensors as well. (E.g.: dips). Stretching the overactive muscles is also important.

Typical overactive muscles: pectoralis major, pectoralis minor, upper trapezius, latissimus dorsi, deltoid.

Typical weak muscles: serratus anterior, lower trapezius, rotator cuff muscles, rhomboids.

Caution: These exercises are meant to help athletes to prevent shoulder injuries. If you feel pain or instability in the shoulder consult with a health care professional!

When?

- The suggested dosage of the exercises is 3 to 5 times a week.
- They also can be built into the warm up routine.
- This guide contains two phases. Do the first phase 6 to 8 weeks before moving on to the second phase. Move to the second phase only when the first phase exercises are without compensatory movements.
- To enhance muscle performance the muscles needs progressive training.

SHOULDER BLADE MOVEMENTS

Target: Posture, stabilization of the shoulder blades: rhomboids, serratus anterior; supraspinatus
Phase 1



Wall slides

Movement: Elbows, shoulders and head are against the wall at the starting position. Keep the back in a neutral position. Slide the hands up and down slowly. Keep the shoulders down. Focus on the shoulder blades. If the arms are not able to be overhead in this position, do it below shoulder level. The aim is activating the muscles around the shoulder blade.

Dosage: 10-12 repetitions/ 2 sets/ 3-4 days



Arm elevation

Movement: Start the practice with a light stick. Keep the back in a neutral position. Lean with the upper body slightly forward. Keep the shoulders down during the movement. Lift the stick slowly up, but not more than shoulder level. Focus on the shoulder blades and gently squeeze them together during movement.

When the movement is controlled, and the stick feels too light, improve the movement gradually with weighted stick/bar.

Dosage: 10-12 repetitions/ 2 sets/ 3-4 days



Phase 2



Alternative shoulder press

Movement: Start this move with a light stick. Keep the back and neck in neutral position and lift the stick up. Keep the shoulders down during the movement and focus on the shoulder blades. When the movement is controlled, and the stick feels too light, improve the movement gradually with weighted stick/bar.

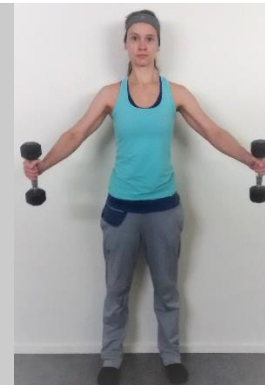
Dosage: 10-12 repetitions/ 3 sets/ 3-5 days



Full can

Movement: Keep the arms straight and 30 degrees in front of the body. Lift the weight slowly up a little or keep the weights in place for 10 seconds. Let the arm down between repetitions. This exercise will activate the supraspinatus in the rotator cuff. Start with light weight (1-2 kg) or with an elastic band placed under the foot.

Dosage: 8-10 repetitions/ 2 sets/ 3-4 days



STABILITY OF THE SHOULDER BLADES

Target: Stabilizers of the shoulder blade: rhomboids, serratus anterior; low- and mid-trapezius
Phase 1



Protraction/ retraction

Movement: Keep your core tight and the back in neutral position. During movement keep the elbows bent and slowly squeeze the shoulder blades together against the resistance of the elastic band. Then slowly release the shoulder blades and slightly round your upper back by moving the shoulder blades away from each other. This movement is small and slow, the focus is on the shoulder blades and not the elbow movement.

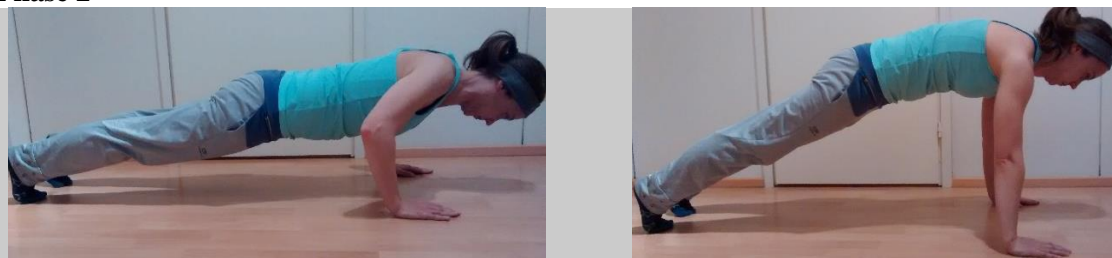
Dosage: 8-10 repetitions/ 3 sets/ 3-5 days

Arm extension

Movement: The movement is similar to the previous one but keep the arm straight. Focus on the shoulder blades and the position of the arm.

Dosage: 8-10 repetitions/ 3 sets/ 3-5 days

Phase 2



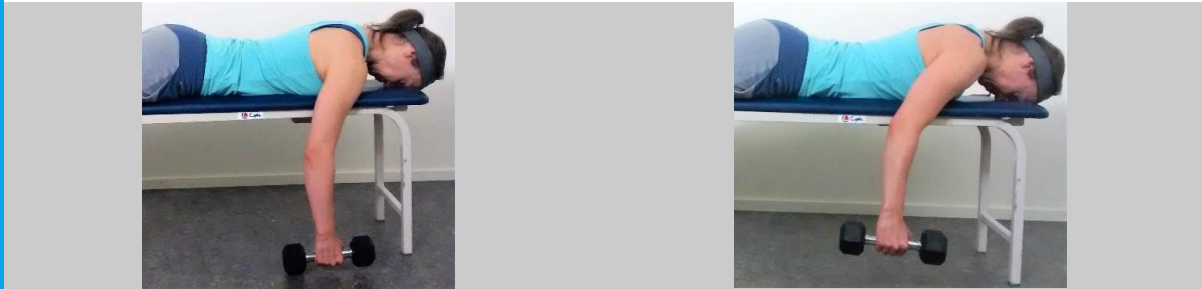
Push up plus

Movement: Perform a push up. Pay attention to the position of the neck, back and hands. The back is in neutral position and the neck is straight. A wide hand position may irritate the anterior part of the shoulder. When the arms are straight, round the upper back slightly by pulling the shoulder blades away from each other.

Dosage: 8-10 repetitions/ 2-3 sets/ 3-5 days

STABILITY OF THE SHOULDER BLADES 2

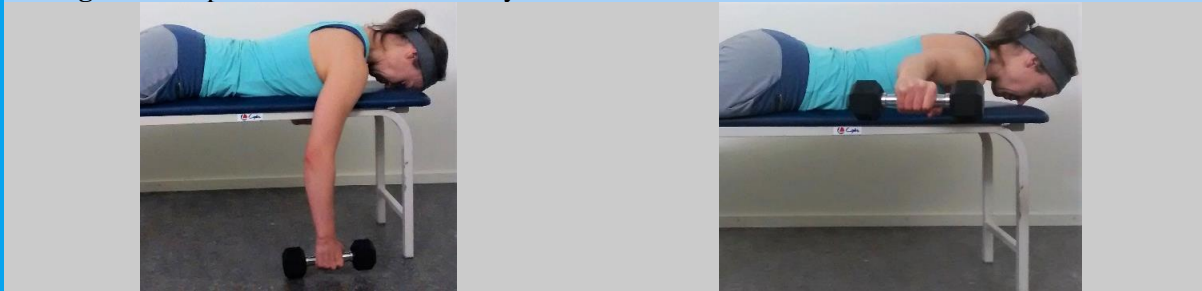
Target: Stabilizers of the shoulder blade, rhomboids, serratus anterior; low- and mid-trapezius
Phase 2



Protraction/ retraction with weight

Movement: On a bench keep a light weight in the hand. The arm hangs next to the bench. Squeeze the shoulder blades together. The exercise can be done by one arm at a time or with both arms together. The weight is appropriate when the last repetitions are challenging but there are no compensatory movements.

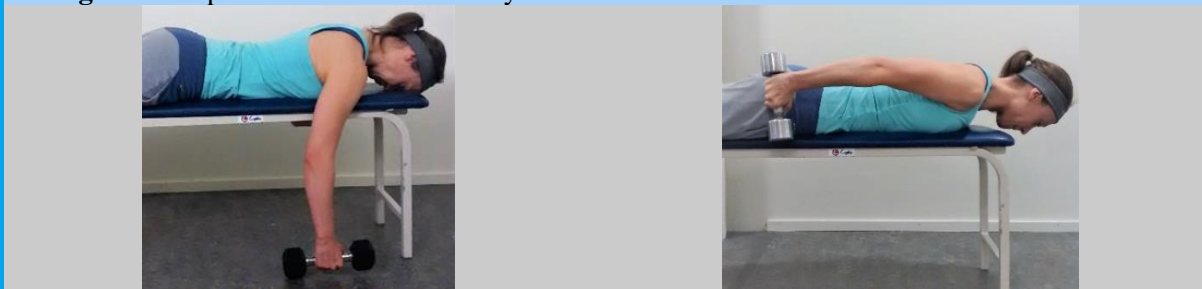
Dosage: 8-10 repetitions/ 2-3 sets/ 3-5 days



Arm abduction

Movement: On a bench keep a light weight in the hand. The arm hangs next to the bench. Squeeze the shoulder blades together and lift the arm slowly to the side. The exercise can be done by one arm at a time or with both arms together. The weight is appropriate when the last repetitions are challenging but there are no compensatory movements.

Dosage: 8-10 repetitions/ 2-3 sets/ 3-5 days



Arm extension

Movement: On a bench keep a light weight in the hand. The arm hangs next to the bench. Lift the arm next to the body. Pay attention to the muscles around the shoulder blades. The exercise can be done by one arm at a time or with both arms together. The weight is appropriate when the last repetitions are challenging but there are no compensatory movements.

Dosage: 8-10 repetitions/ 2-3 sets/ 3-5 days

Variations: For more challenge this exercises can be done in an upright position.

The weight can be substituted with an elastic band.

ROTATOR CUFF STRENGTH

Target: External rotators: infraspinatus and teres minor and internal rotators: subscapularis

Phase 1



External rotation

Movement: Keep the elbow next to the body and 90° bent for the whole time. Rotate the arm away from the body. Squeeze the shoulder blades together during movement. Keep the wrist straight. Keep the position for 3 seconds and return to the starting position.

Dosage: 10-12 repetitions/ 2-3 sets/ 3 days

Internal rotation

Movement: Keep the elbow next to the body and 90° bent for the whole time. Rotate the arm across the body. Keep the wrist straight. Keep the position for 3 seconds and return to the starting position.

Dosage: 10-12 repetitions/ 2-3 sets/ 3 days

Phase 2



External rotation

Movement: The arm horizontal on the side with elbow bent in 90°. Keep the weight in the hand and rotate the arm upward. Keep the wrist straight. The weight is appropriate when the last repetitions are challenging but there are no compensatory movements.

Dosage: 10-12 repetitions/ 2-3 sets/ 3 days

Internal rotation

Movement: The arm horizontal on the side with elbow bent in 90° and rotated upward. Keep the elastic band in the hand and rotate the arm into horizontal position. Keep the wrist straight.

Dosage: 10-12 repetitions/ 2-3 sets/ 3 days

Variation:

If it is challenging to keep the elbow next to the body, a soft ball or rolled towel can be placed between the elbow and the body to stabilize the movement.



Variation:

External rotation can be practiced when the elbow is 5-10 cm away from the body. Use a weighted bar and rotate the arm away from the body. Control the shoulder blades by the muscles.

STRETCHING

Target: Muscle balance, mobility



Target: Latissimus dorsi (Side of the back)

Movement: Place the forearms on the wall above the shoulders. Keep the back straight. Hold the stretch 30 seconds. Repeat it twice.



Target: Latissimus dorsi (Side of the back)

Movement: Raise the arm overhead behind the head, holding with the other arm. Pull the arm gently and bend the trunk until you feel the stretch. Hold the stretch 30 seconds. Repeat it twice.



Target: Pectoralis major (Chest muscle)

Movement: Place the forearm on the wall. Elbow is bent, and the upper arm is horizontal. Turn away gently from the arm, until you feel the stretch. Hold the stretch 30 seconds. Repeat it twice.



Target: Upper trapezius (back of the neck)

Movement: Gently pull the head forward with the chin toward the neck until you feel the stretch. Hold the stretch 30 seconds. Repeat it twice.



Target: Back

Movement: Lean back on a gym ball or foam roller to extend your back. You can feel the stretch more if you straighten the arms overhead.

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