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Strength Training Anatomy



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Frédéric Delavier

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STRENGTH TRAINING ANATOMY

SECOND EDITION



HUMAN KINETICS

For my father

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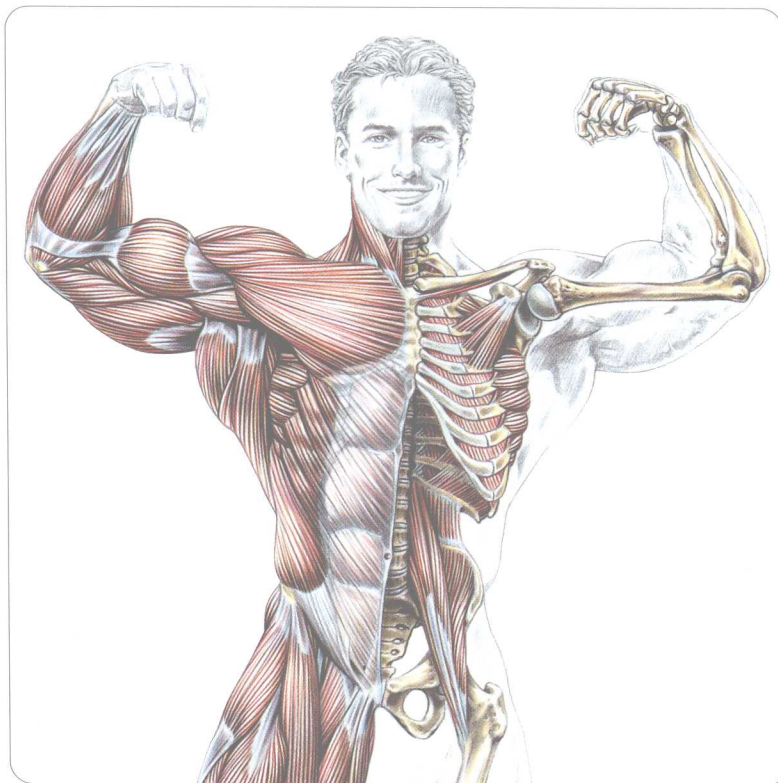
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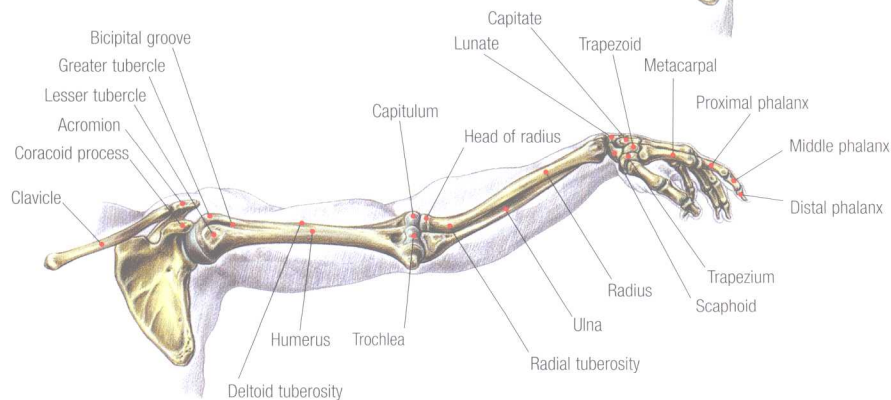
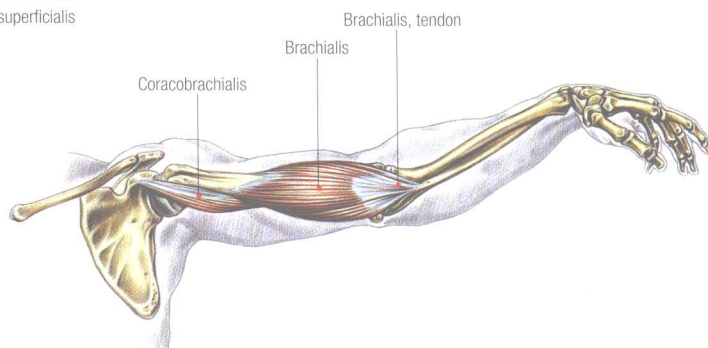
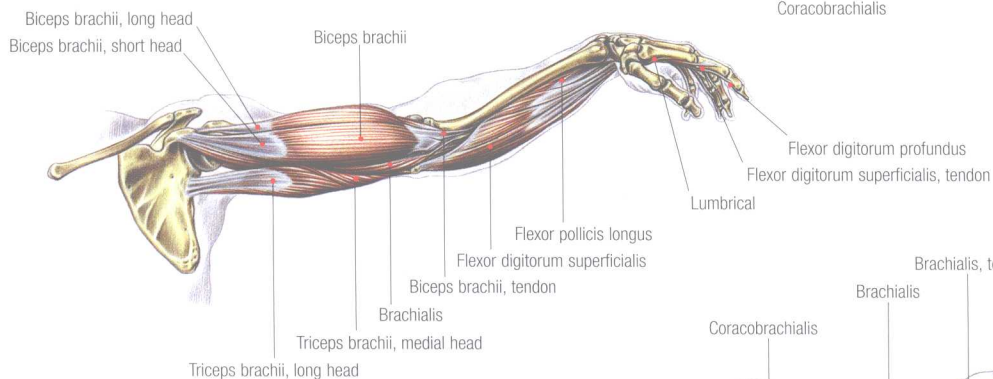
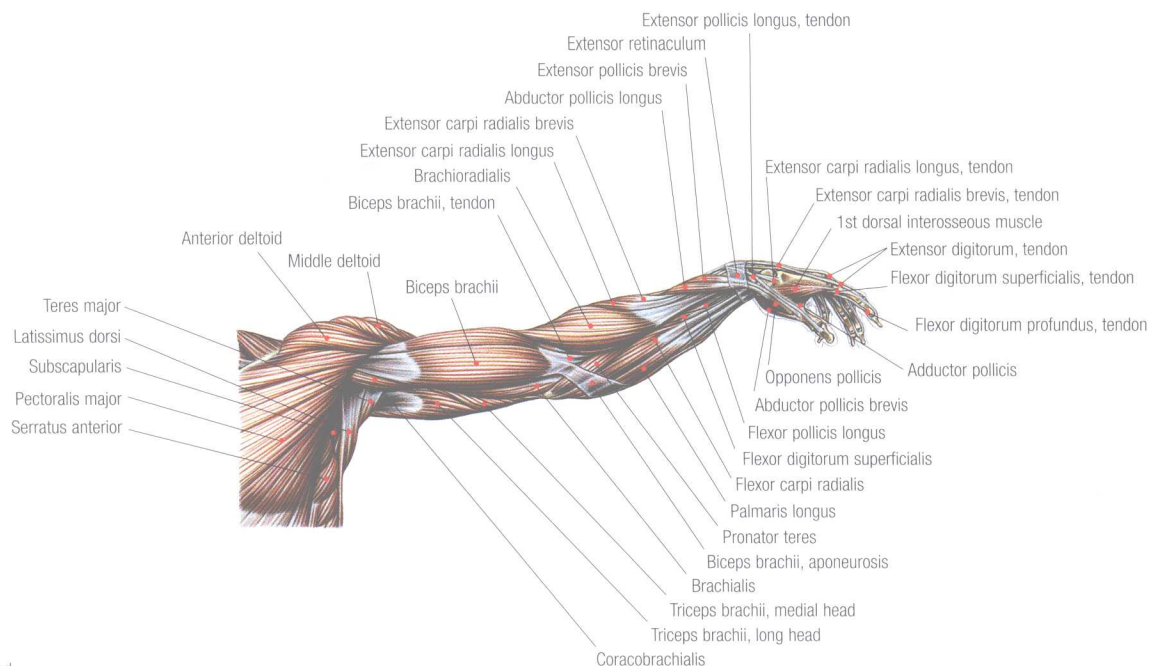
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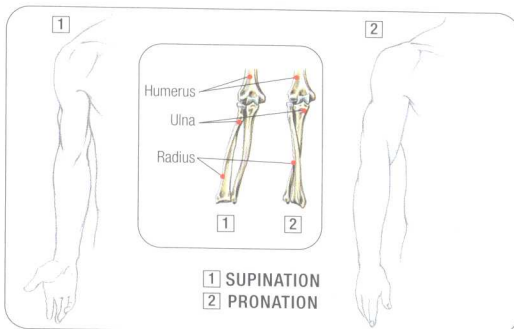
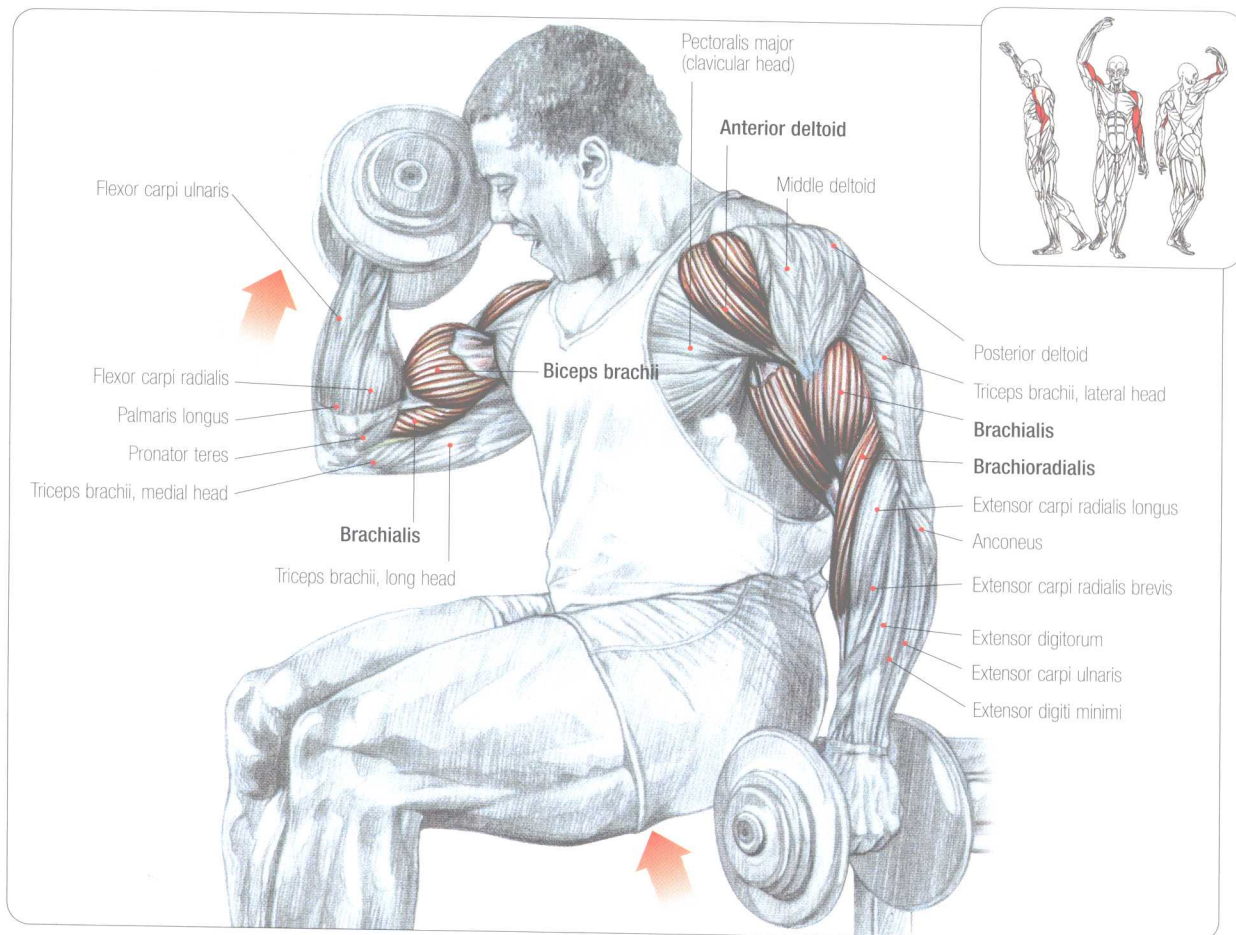
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1 CURLS



COMMENT: This exercise takes the biceps through its complete range of motion, which includes flexion, protraction, and supination.

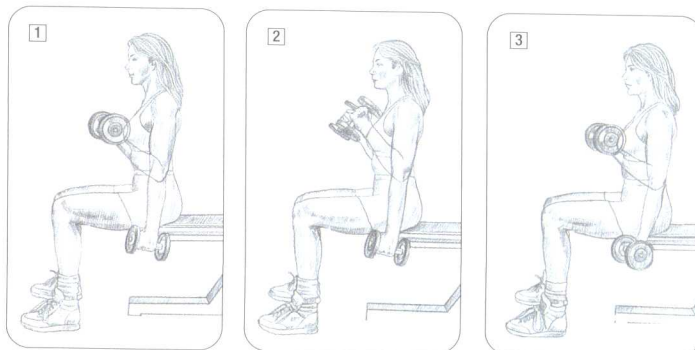
THREE WAYS TO EXECUTE CURLS

- 1 EMPHASIZE BICEPS
- 2 WORK BRACHIORADIALIS INTENSELY
- 3 WORK MAINLY BICEPS AND BRACHIALIS

Sit holding a dumbbell in each hand with arms hanging down and the palms of the hands facing the body:

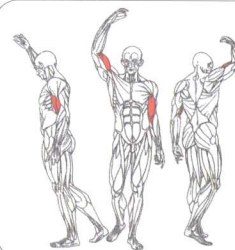
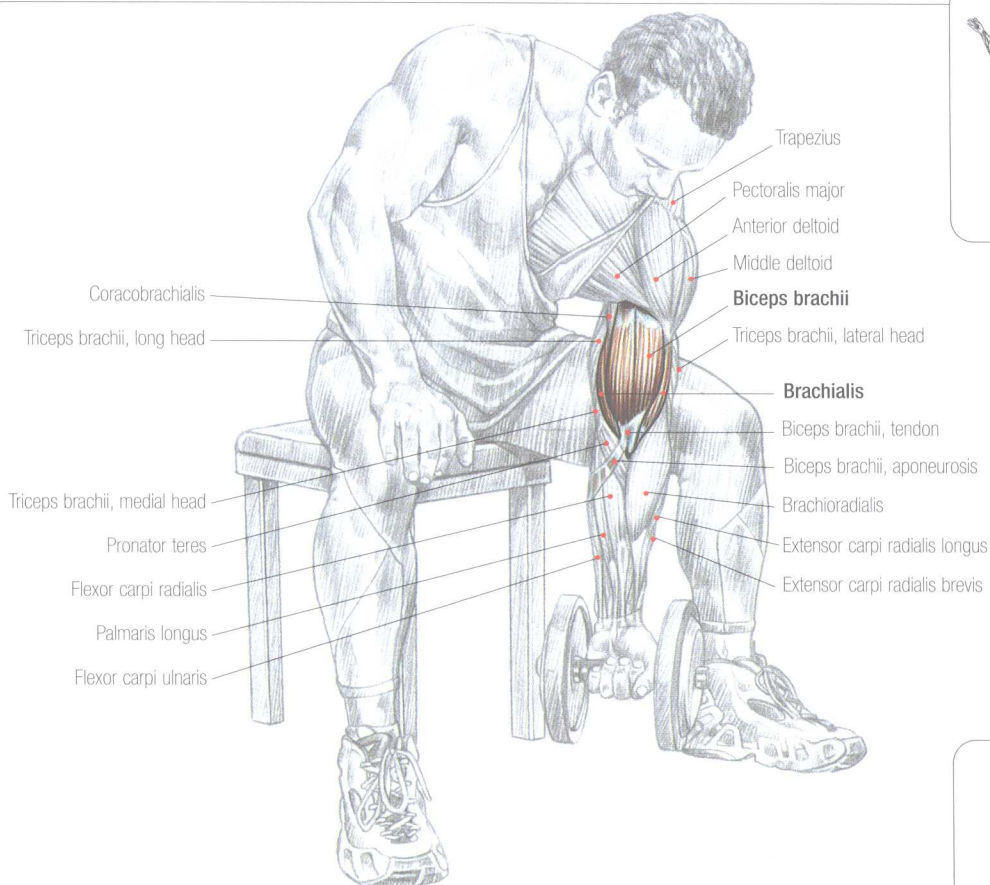
- Inhale and bend the the elbow, rotating the palm up before the forearm reaches horizontal.
- Continue by raising the elbows at the end of the movement.

This exercise primarily uses the brachioradialis (long supinator), brachialis, biceps brachii, and anterior deltoid and, to a lesser extent, the coracobrachialis and clavicular head of the pectoralis major.



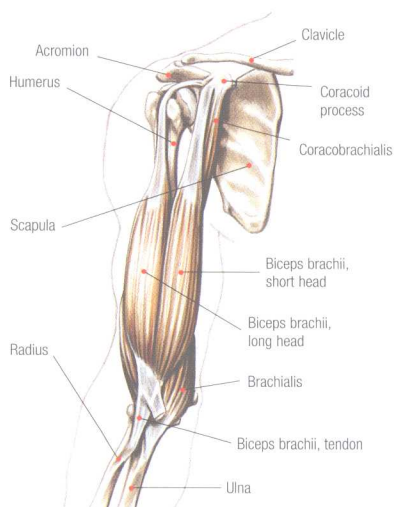
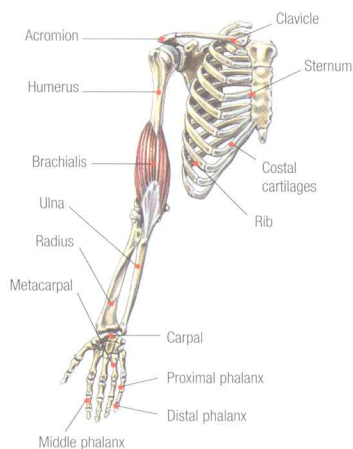
CONCENTRATION CURLS

2



FINAL POSITION

BRACHIALIS MUSCLE



Sit holding a dumbbell with the palm facing forward and the elbow positioned against the inner thigh:

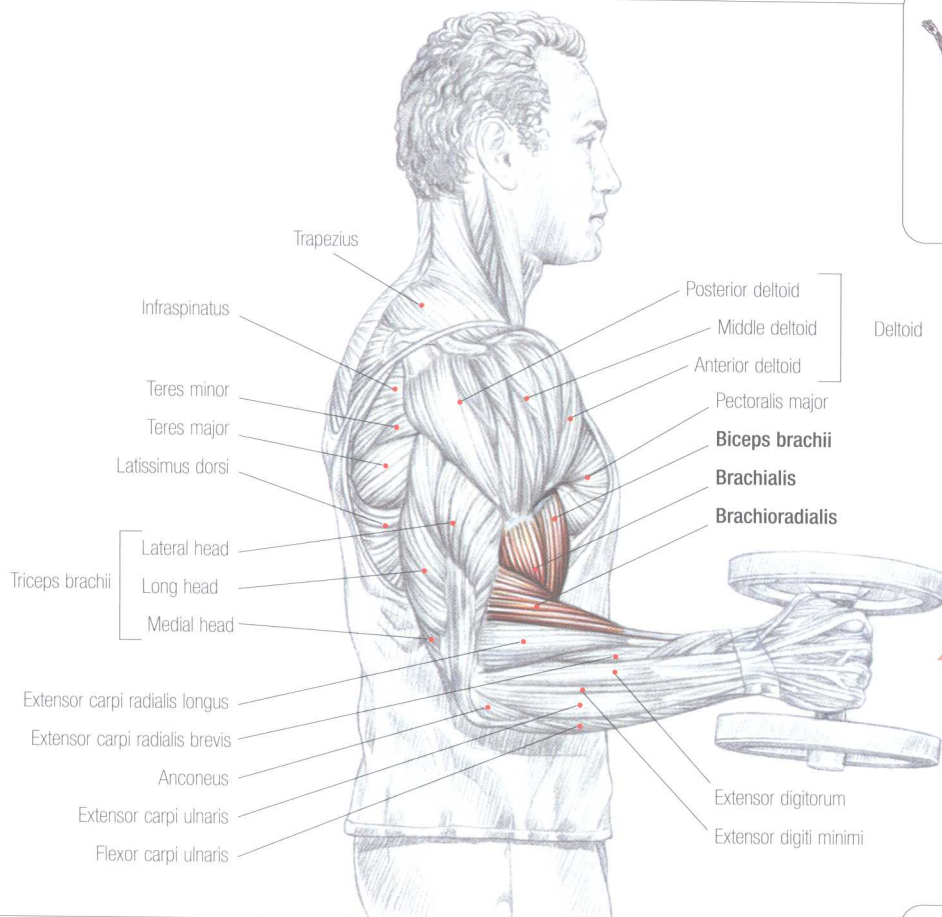
- Inhale and lift the forearm by bending the elbow.
- Exhale at the end of the effort.

This isolation exercise allows you to control the range of motion, speed, and form of the movement.

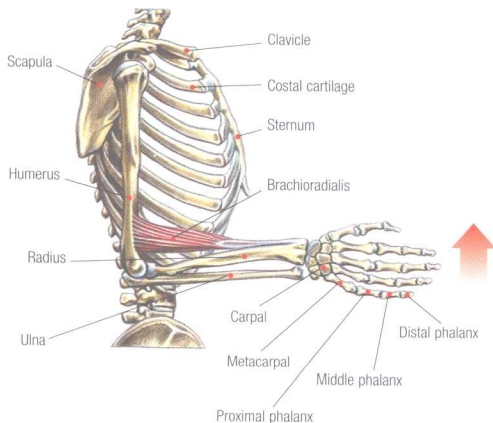
It mainly works the biceps brachii and brachialis.

3

HAMMER CURLS



BRACHIORADIALIS MUSCLE

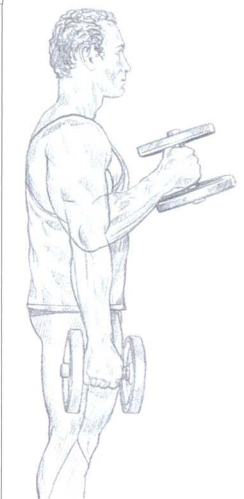


Stand or sit gripping a dumbbell in each hand with the palms facing each other:

- Inhale and raise the forearms together or alternately.
- Exhale at the end of the movement.

This is the best exercise for developing the brachioradialis.

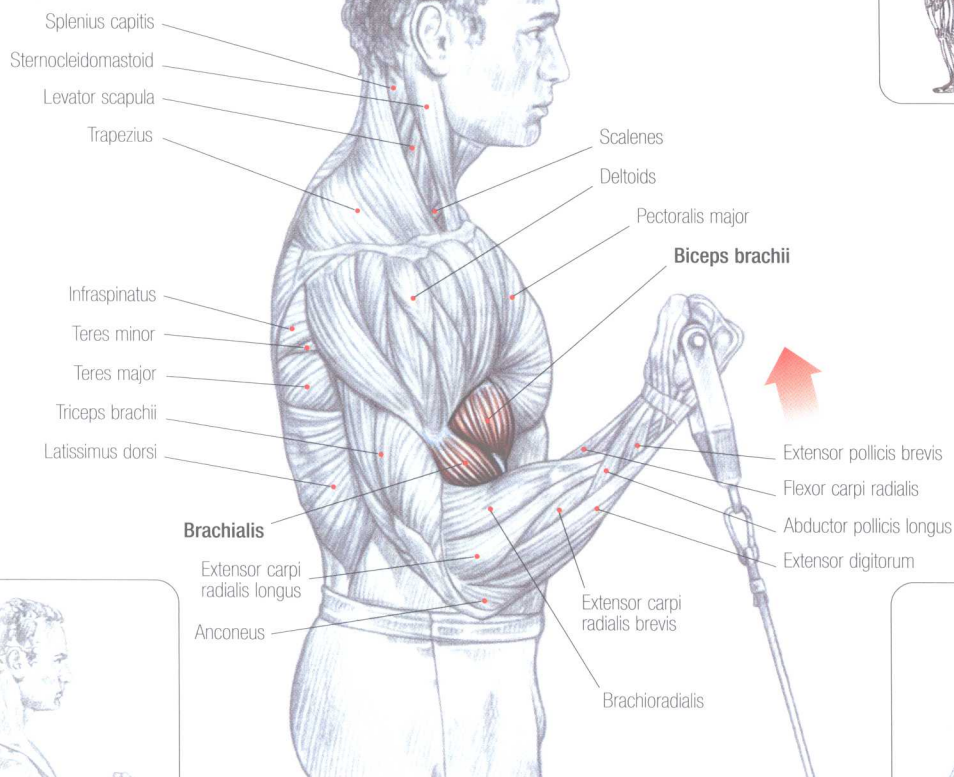
It also develops the biceps brachii, brachialis, and, to a lesser degree, the extensor carpi radialis brevis and longus.



THE MOVEMENT

LOW-PULLEY CURLS

4

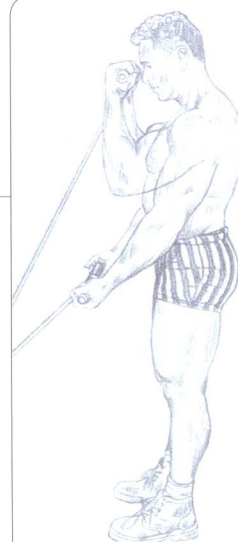


THE MOVEMENT

Stand facing the machine, grasping the handles with an underhand grip (thumbs facing away from each other):

- Inhale and bend the elbows to raise the forearms.
- Exhale at the end of the movement.

This exercise focuses the effort on the biceps brachii and works the muscle intensely.

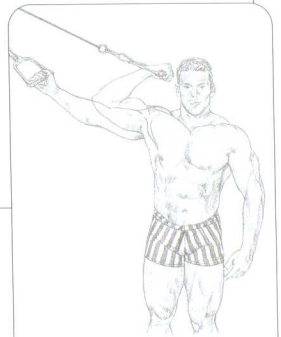
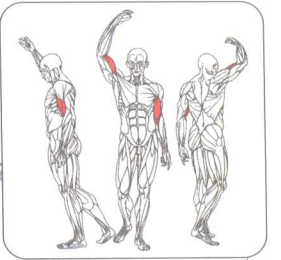
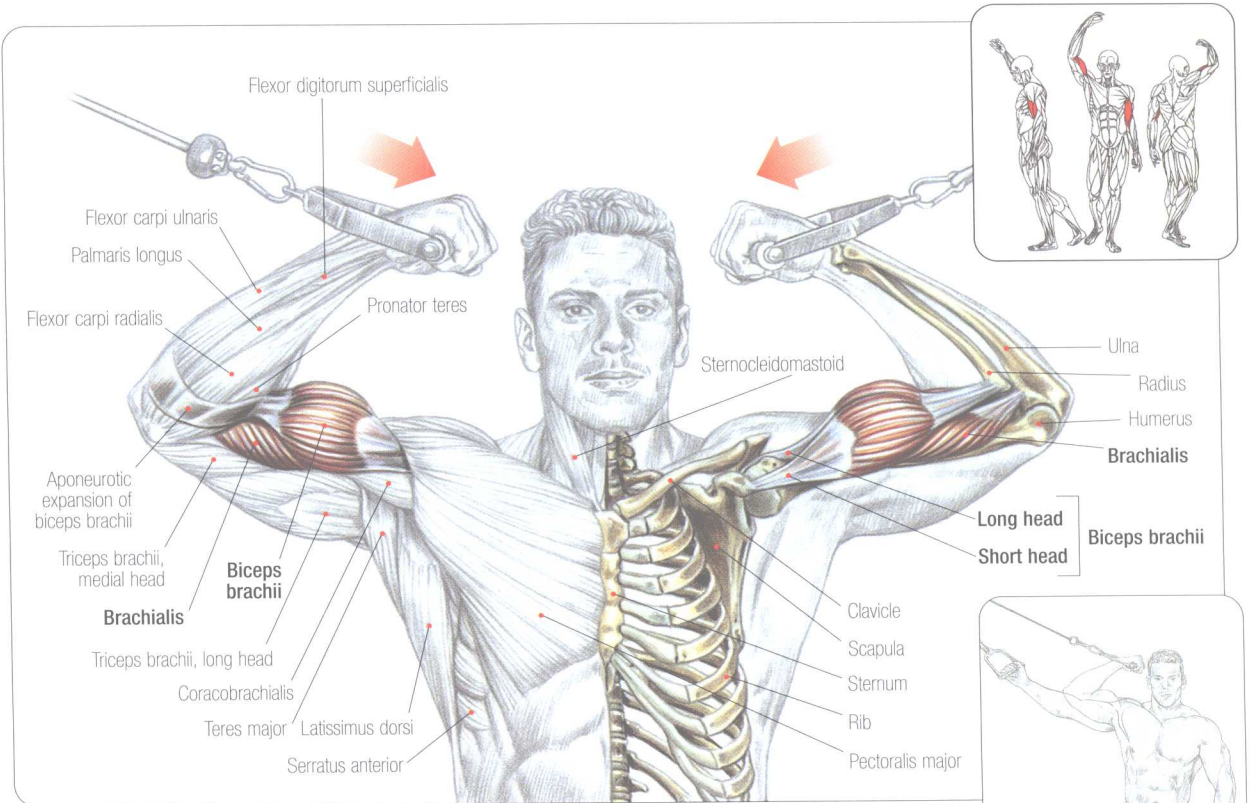


VARIATION

Two-handed low-pulley curls

5

HIGH-PULLEY CURLS



VARIATION
One-handed execution

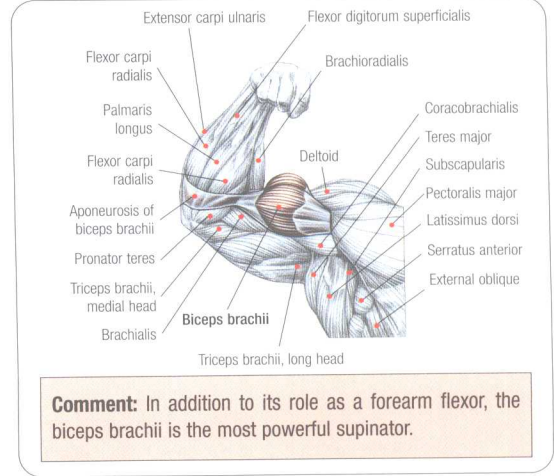
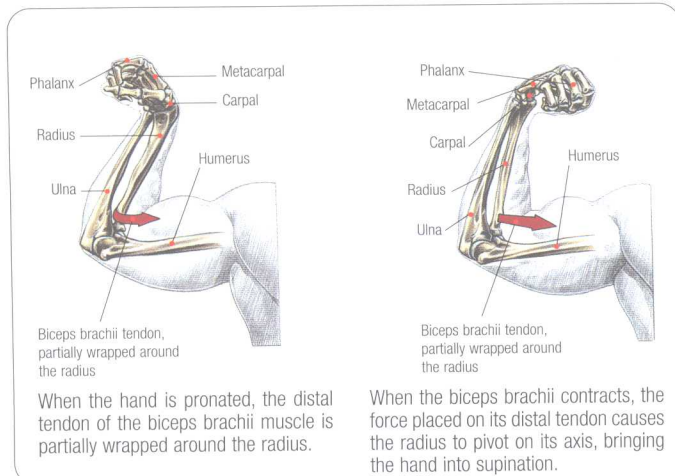
Stand between the pulleys with the arms outstretched in a "cross" and grasp the handles of the high pulleys with an underhand grip:

- Inhale and bend the elbows to bring the hands toward the body. Exhale at the end of the movement.

This exercise, which is most often performed as a cool-down at the end of an arm session, focuses the work on the short head of the biceps brachii, which has been stretched and put under tension in the "cross" start-up position.

This exercise also contracts the monoarticular brachialis elbow flexor.

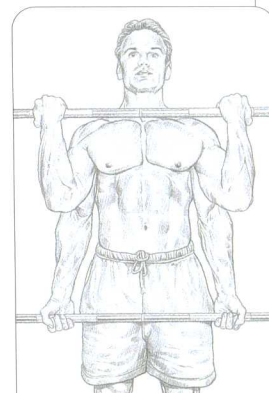
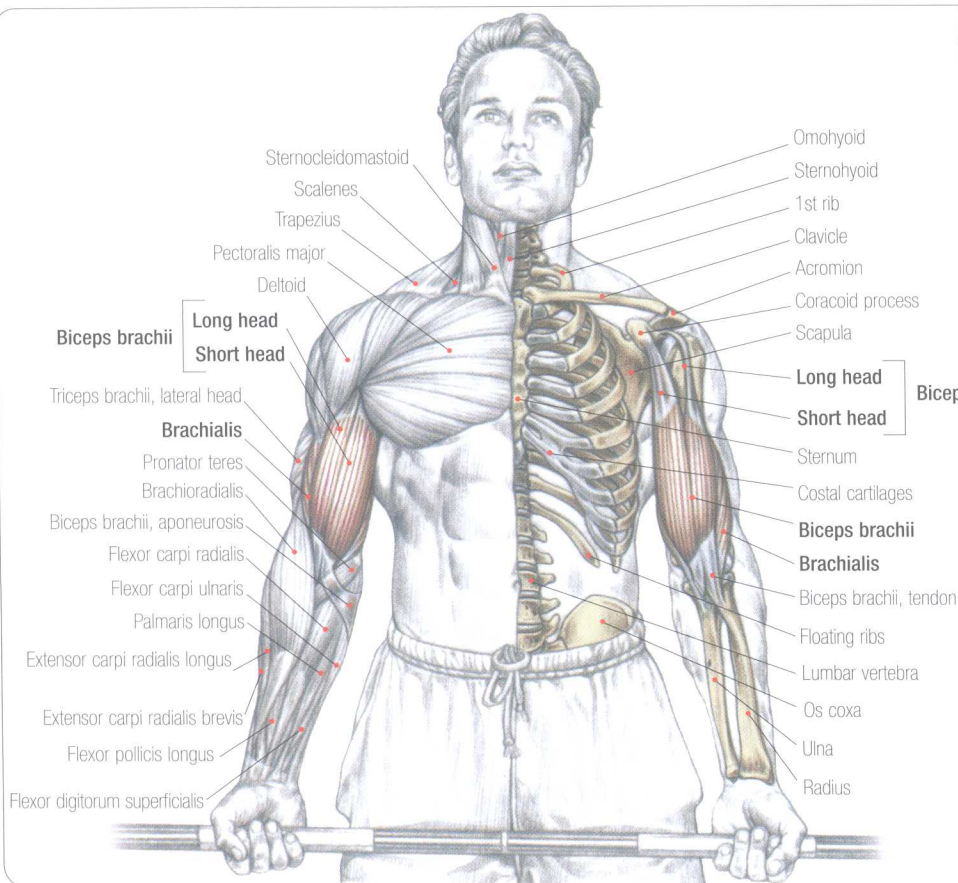
Perform this exercise with light weights so that you can concentrate and feel the contraction at the inside of the biceps brachii. Sets of high reps provide the best results.



Comment: In addition to its role as a forearm flexor, the biceps brachii is the most powerful supinator.

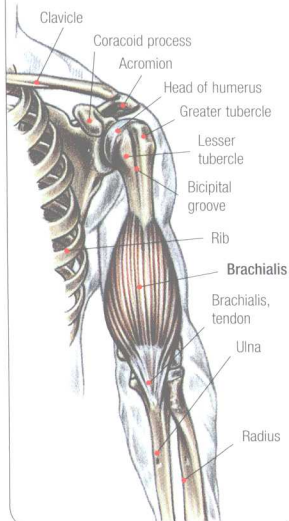
BARBELL CURLS

6



THE MOVEMENT

BRACHIALIS MUSCLE



Stand with the back straight, grasping the barbell with an underhand grip and hands slightly wider than shoulder-width apart:

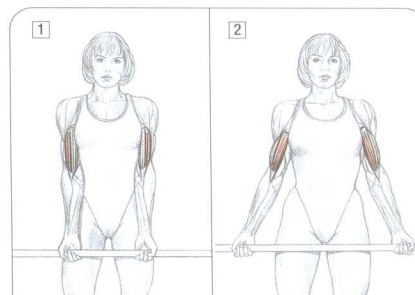
- Inhale and raise the barbell by bending the elbows, taking care to stabilize the torso and spine by isometrically contracting the gluteal muscles, abdominal muscles, and spinal muscles.
- Exhale at the end of the movement.

This exercise mainly contracts the biceps brachii, brachialis, and, to a lesser degree, the brachioradialis, pronator teres, and the wrist flexor group.

Variations: Vary the width of the grip to work different parts of the muscle more intensely:

- Placing the hands farther apart isolates the short head of the biceps brachii.
- Placing the hands closer together isolates the long head of the biceps brachii.

Raising both elbows after they are flexed increases the contraction of the biceps brachii and contracts the anterior deltoid. To make the exercise more difficult, perform the movement with the back against a wall so that the shoulder blades don't move. You can lift more weight and gain strength by leaning the torso back while lifting the bar; however, to prevent injury, this requires good technique and well-developed abdominal and lumbar muscles.



BARBELL CURLS

1 Narrow grip

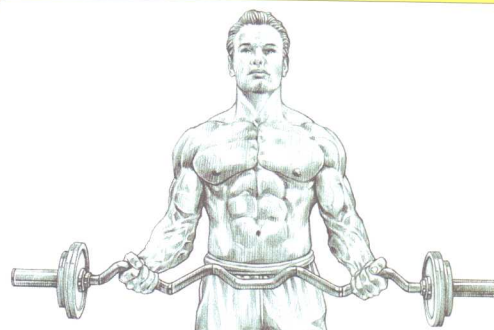
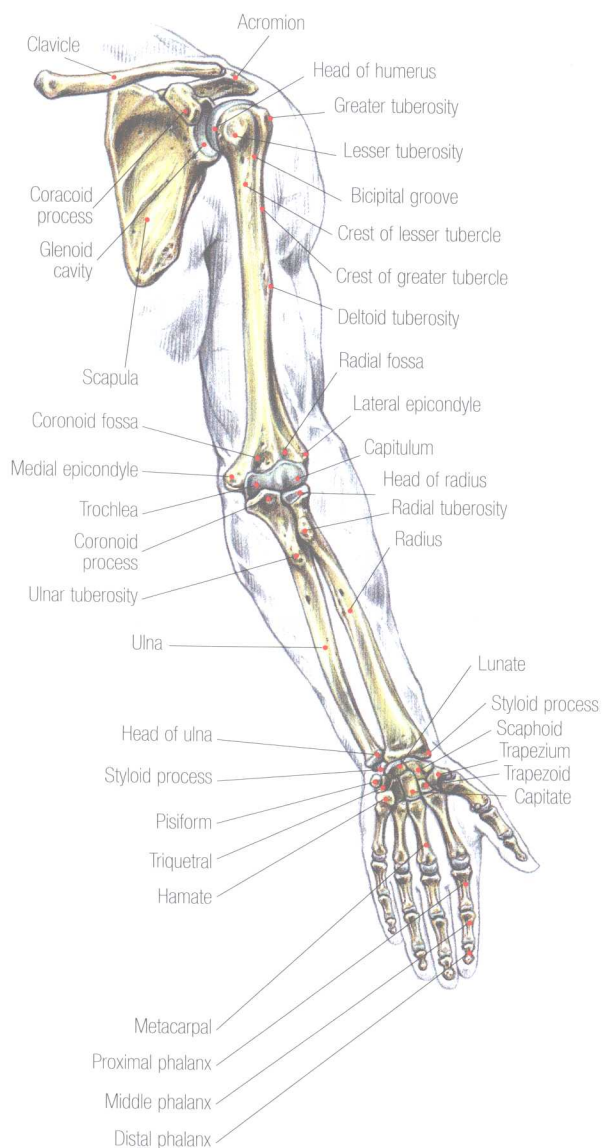
Mainly works the long head of the biceps brachii.

2 Wide grip

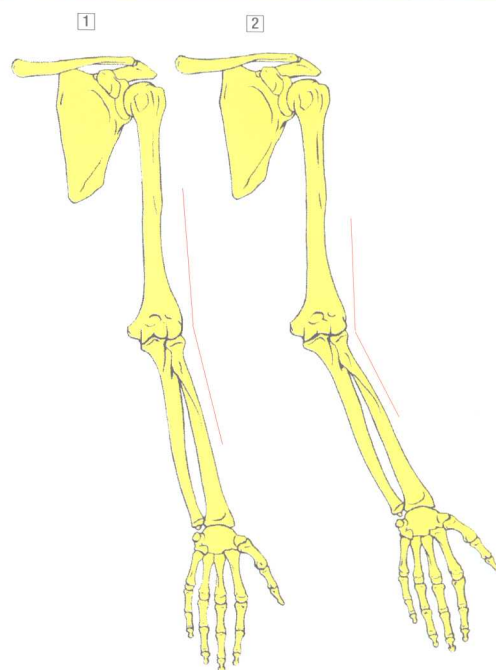
Mainly works the short head of the biceps brachii.



ELBOW STRUCTURE AND ITS EFFECT ON TRAINING



Biceps training with an E-Z bar eases excessive wrist tension.



When training the biceps brachii using a barbell, take into account variations in each person's physical structure.

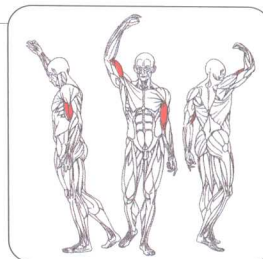
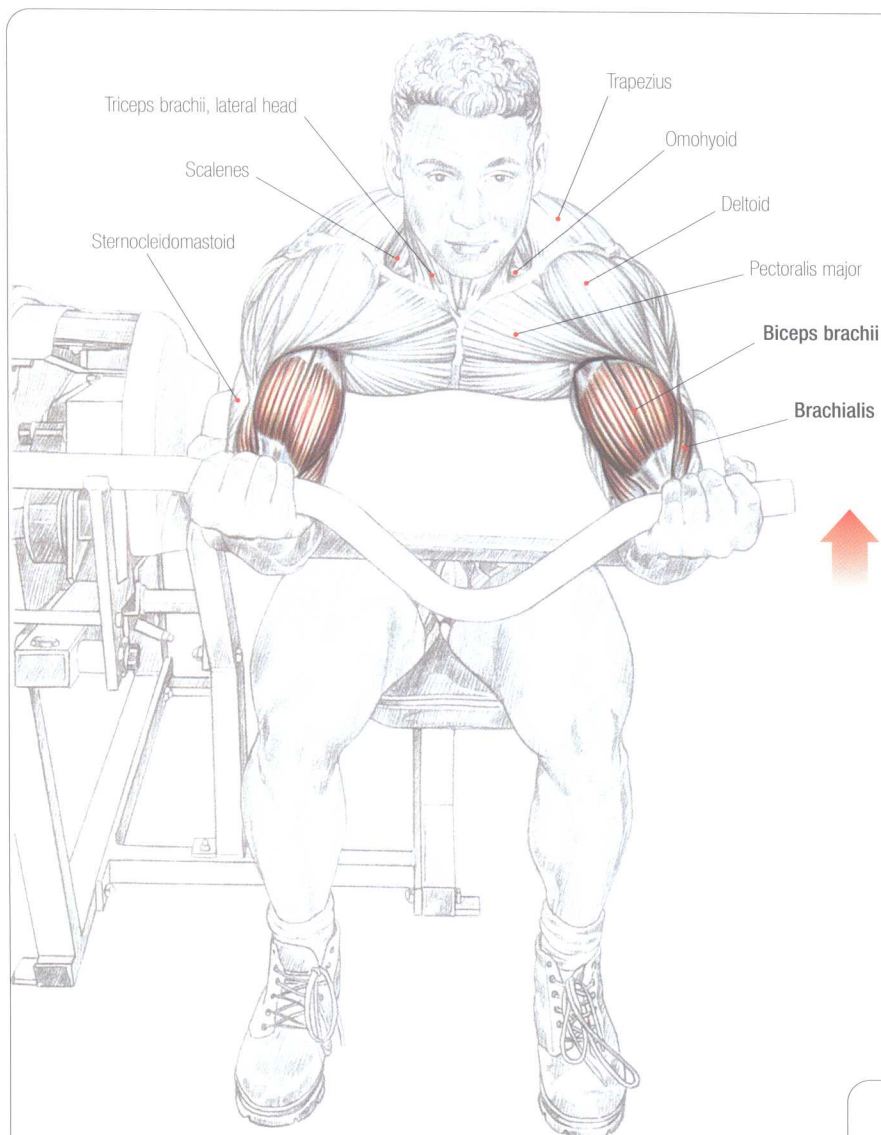
In the anatomical position (arms hanging alongside the body, palms facing forward, and thumbs pointing laterally), the angle at the elbow between the upper

arm and the forearm varies from person to person. Someone whose forearm hangs distinctly away from the body in a valgus position must break excessively at the wrist when performing a curl with a straight bar, which is painful. Therefore, these people should work with an E-Z bar to spare their wrists.

Comment: Valgus of the elbow is usually more pronounced in women.

MACHINE CURLS

7



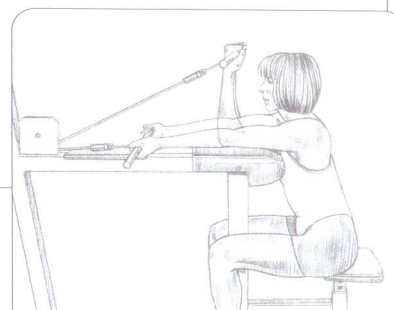
Sit at the machine and grasp the bar with an underhand grip, arms extended, and resting on the support:

- Inhale and raise the forearms.
- Exhale at the end of the movement.

This is one of the best exercises for working the biceps brachii. Fixing the arms against the support makes it impossible to "cheat."

At the beginning, the muscle tension is intense, so be sure to warm up properly using light weights. To avoid the risk of tendonitis, do not completely extend the arm.

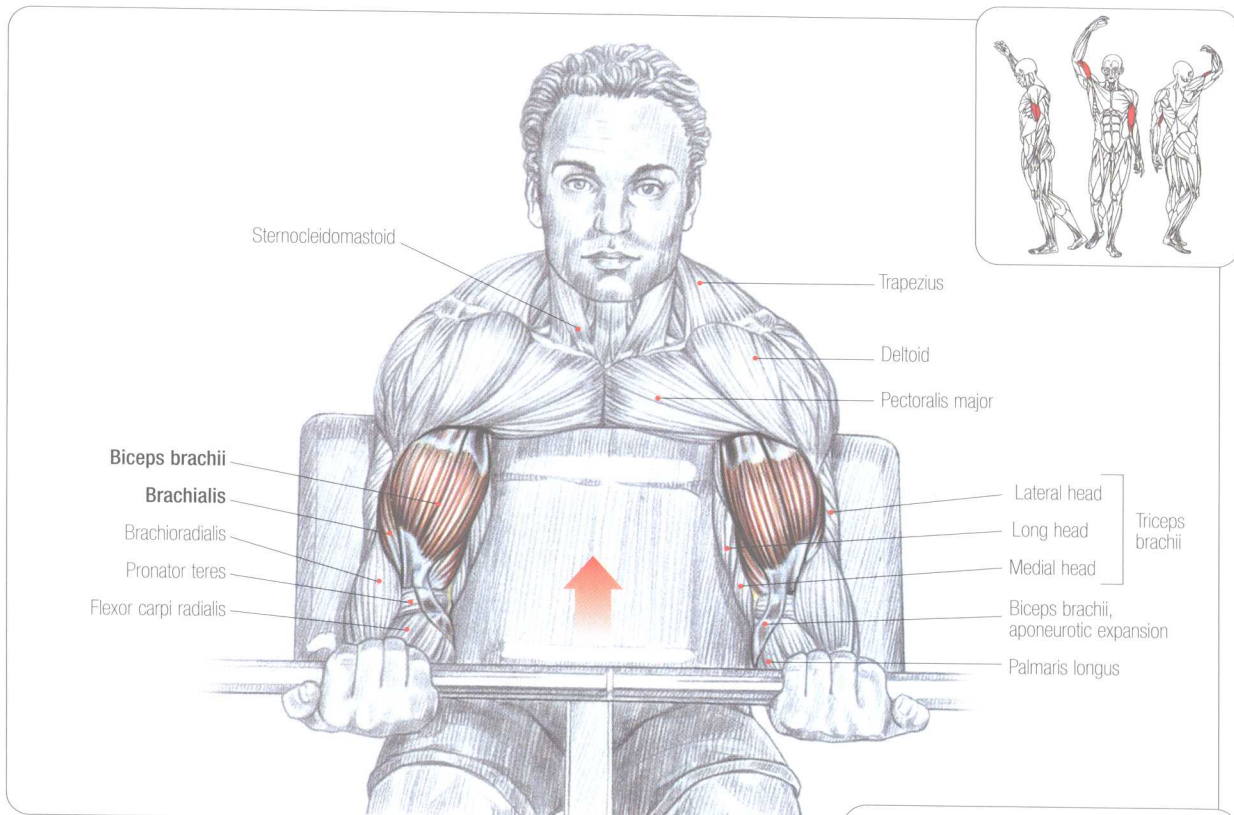
This movement also works the brachialis and, to a lesser extent, the brachioradialis and pronator teres.



Performing the curl with an Atlas pulley is a great way to pump up the muscle.

8

PREACHER CURLS



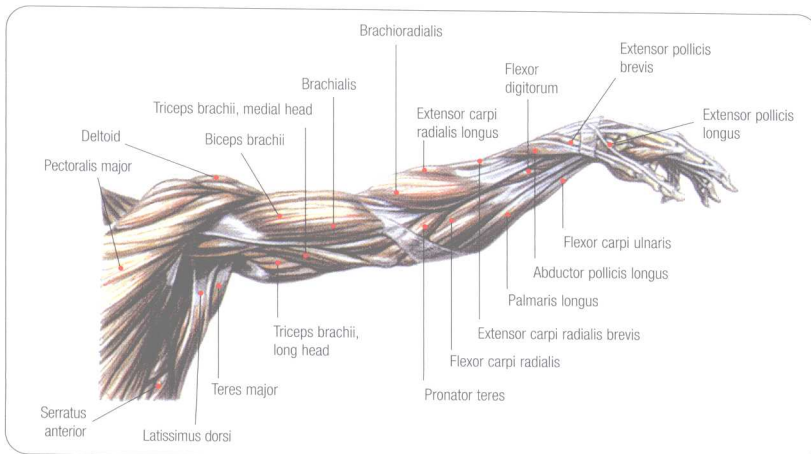
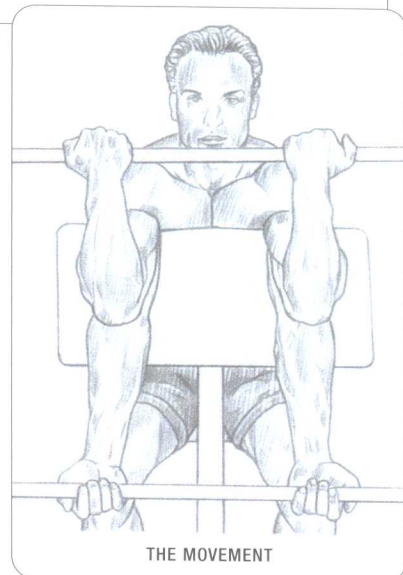
Sit or stand with the arms resting on the support pad and grasp the bar with an underhand grip:

- Inhale and raise the forearms by bending the elbows. Exhale at the end of the effort.

This is one of the best exercises for isolating the biceps.

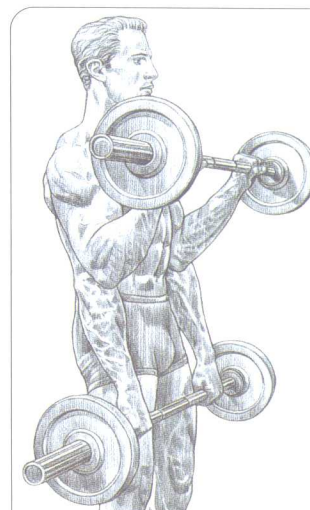
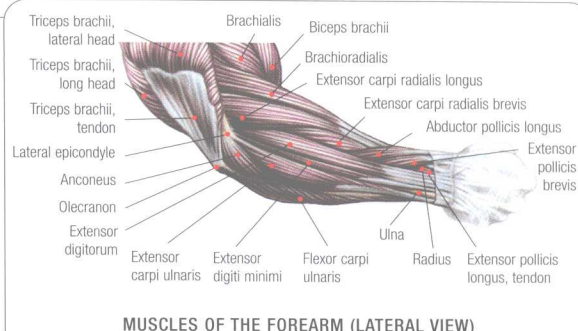
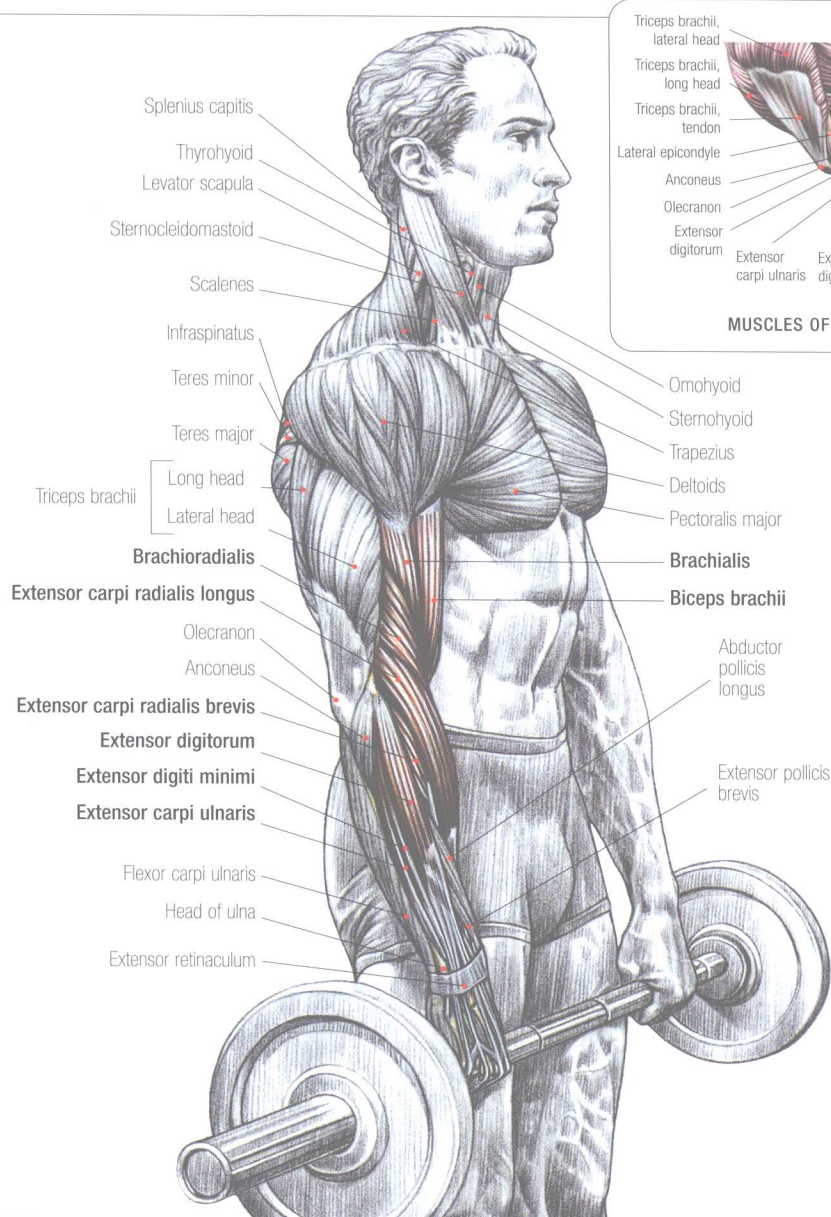


Attention: The angle of the support pad places significant tension on the forearms when the arm is completely extended. Therefore, warm up the muscles properly and begin with lighter weights.



REVERSE CURLS

9



THE MOVEMENT



Stand with the legs slightly apart and arms extended and grasp the bar with an overhand grip (with the thumbs facing each other):

- Inhale and raise the forearms by bending the elbows.
- Exhale at the end of the movement.

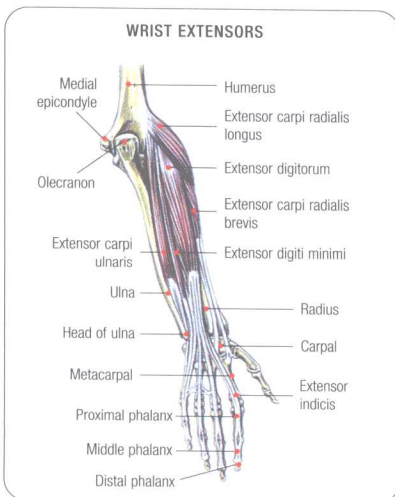
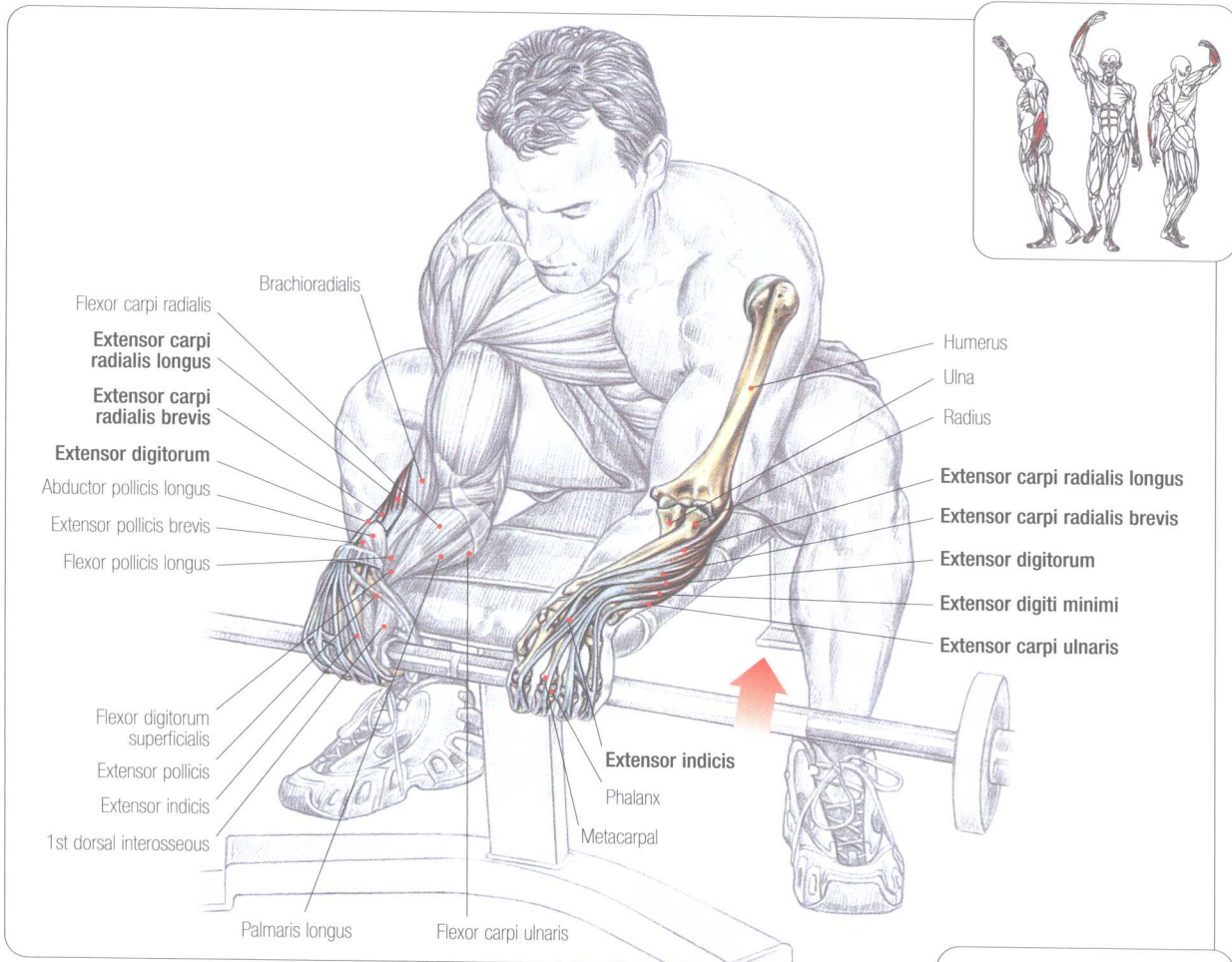
This exercise works the extensor muscles of the wrist: extensor carpi radialis longus, extensor carpi radialis brevis, extensor digitorum, extensor digiti minimi, and extensor carpi ulnaris.

It also acts on the brachioradialis, brachialis, and, to a lesser degree, the biceps brachii.

Comment: This is an excellent exercise for strengthening the wrist, which is often weak because of an imbalance caused by using the wrist flexors rather than the wrist extensors. For this reason, many boxers include it in their training. Many bench press champions use it to keep their wrists from trembling under extreme weights.

10

REVERSE WRIST CURLS

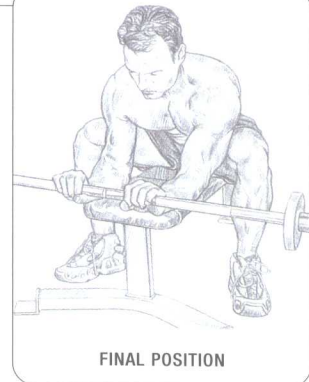


Sit with the forearms resting on the thighs or on a bench and grasp the bar with an overhand grip and keep the wrists relaxed:

- Raise the hands by extending at the wrists.

This exercise contracts the extensor carpi radialis longus and brevis, extensor digitorum, extensor digiti minimi, as well as the extensor carpi ulnaris.

Comment: This exercise strengthens the wrists, which are often vulnerable because of weak wrist extensors.



FINAL POSITION