

What is a muscle biopsy?

A muscle biopsy is obtaining a sample muscle tissue for diagnostic purposes.

Which muscles are usually biopsied?

It depends on:

- The suspected disease - If the disorder is acute, a weak muscle is selected for a biopsy. If the disease is chronic, a very weak muscle may show replacement of the muscle tissue with fat, and biopsy of that muscle will not be very informative. In these situations, a moderately effected muscle will be chosen. On the other hand, in diseases that affect motor neurons such as Lou Gherig disease, a strong muscle is chosen to demonstrate histological evidence of denervation.

Biceps muscle in the arm and quadriceps muscle in the leg are most commonly used to a muscle biopsy because they are accessible, and their normal histology is well characterized. However, other muscles such as deltoid and gastrocnemius can be used in certain situations, although the deltoid muscle biopsy may be contaminated by artifacts pertinent to the frequent use of that muscle for injections, and the gastrocnemius muscle biopsy may be limited due to the presence of fiber rounding and other minor abnormalities even in normal individuals.

Is there any special preparation needed before a muscle biopsy?

A muscle biopsy is a minor procedure done under local anesthesia. No fasting is required. Anticoagulants, such as Coumadin, should be stopped five days prior to and three days after a muscle biopsy after checking with your referring physician or your cardiologist. Aspirin, Plavix, and other antiplatelet agents are preferably withheld for five days prior and two days after the biopsy, but even with their continuation a muscle biopsy can be done with minimal risk of bleeding.

Patients are encouraged to bring somebody to drive them back home, especially when the quadriceps muscle biopsy is performed.

What does the procedure involve?

After the risks and benefits of the procedure are explained to the patient, the patient will be asked to lie down on his/her back, and the skin overlying the target muscle is exposed and cleaned with Betadine or alcohol if the patient is allergic to Betadine, and the field is covered with sterile towels. The skin overlying the muscle is anesthetized with 1-2% Xylocaine using a fine needle. Two to four injections are used. With each injection, a brief burning sensation is felt.

A 1.5-2.5 inch incision is made through the skin overlying the target muscle in a longitudinal

fashion along the longitudinal axis of that muscle. The incision should be not felt by the patient because the skin is already anesthetized. Obese individuals usually require a larger incision due to the thickness of the fatty layer under the skin. After that, the fatty layer under the skin is dissected, and the covering of the muscle, called fascia, is incised.

The target muscle is exposed and three to five small pieces are cut away with sharp scissors.

How is the wound closed?

Using self-absorbable sutures the wound is closed in two layers. The skin is closed using "subcuticular suturing." That means the sutures will not show up on the skin.

When can I resume my usual activity?

For the first 24 hours, the biopsied limb should not be used. The patient is instructed not to walk if the biopsied muscle is in the leg and should not use the arm to hold anything for the first 24 hours if the biopsy is done on the arm. After 24 hours and for about three to four days, light activities such as combing hair and walking inside of the home are allowed. After a week, full activity can resume if no complications are reported.

Do I need to come back to have stitches removed?

No. These are self-absorbable stitches, however, it may take up to four to six weeks for complete absorption of the sutures. The two ends of the wound may become tender. This should not be alarming unless it is associated with a bloody or purulent discharge or fever. Mild tenderness usually resolves after the sutures are totally absorbed.

What signs should prompt immediate medical attention?

- Discharge of pus or blood from the wound or fever may indicate a wound infection.
- Extensive bruises of the involved limb may indicate internal bleeding.
- Extensive swelling of the involved limb may indicate bleeding or infection of the soft tissue.

Mild local pain and redness around the wound are usual and should not be alarming.

What should I take for pain?

Mild wound pain is expected after the biopsy. Regular or Extra-Strength Tylenol one tablet every four to six hours should be adequate. If the pain is severe, you may need to have stronger pain medications.

What are the possible complications from a muscle biopsy?

The procedure, its complications, and its benefits will be discussed with you by the muscle specialist. Like any other wound, the biopsy wound may get infected. Bleeding, poor healing, and scarring are possible, although not common. Diabetics and patients who take

steroids or other immunosuppressant medications are at a higher risk of bleeding and poor healing.

How can a muscle biopsy help me?

If the indication of a muscle biopsy is well contemplated and if the right muscle is chosen and if the appropriate stains are performed, there is a good possibility that your biopsy will help diagnose your muscle condition.Â If muscle inflammation is noted, the report will be immediately sent to your referring physician so that he/she may start treating your condition promptly.

A muscle biopsy can also help in the diagnosis of hereditary and congenital muscle disorders and may find an explanation for exercise-induced muscle pain and cramps.