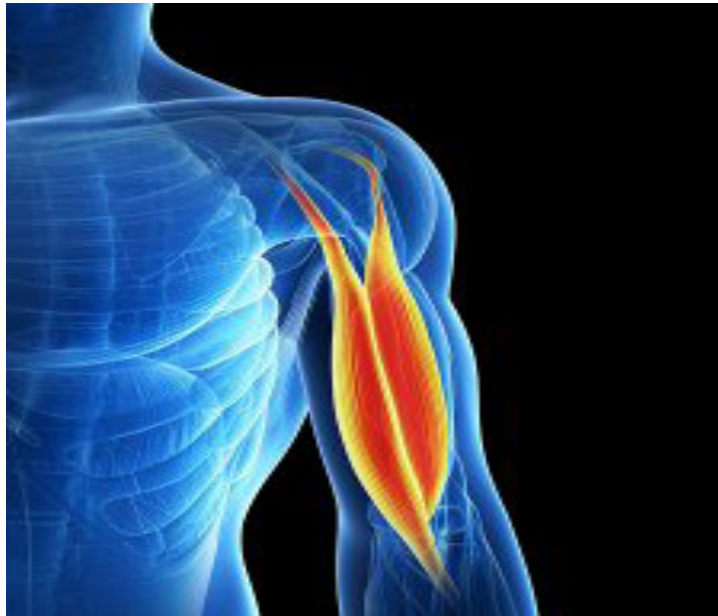


DISTAL BICEPS REPAIR



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WHAT IS THE BICEPS MUSCLE?

Biceps Brachii muscle is the muscle in front of the upper arm extending from the shoulder to the elbow. The biceps muscle in the upper arm splits near the shoulder into a long head and a short head, attaching at different spots. At the other end of the muscle, the **distal biceps tendon** connects to the smaller bone (radius) in the lower arm.

The biceps muscle helps stabilize the shoulder, rotate the lower arm, turn the palm up (screwing/twisting activities), and bend the elbow.

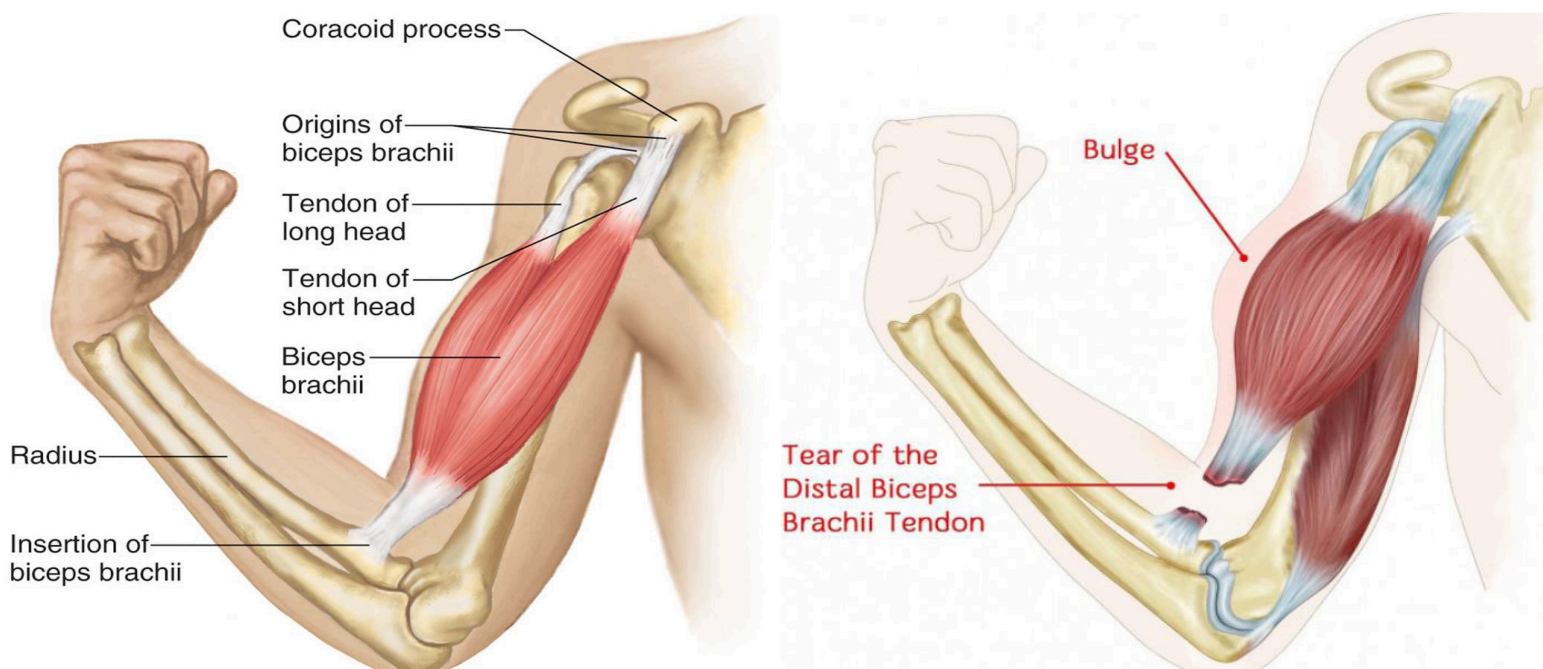
WHAT IS A DISTAL BICEPS RUPTURE?

Tears can be either partial or complete. A tear is a detachment of the biceps tendon from its insertion near the elbow joint.

Typically, distal biceps tendon ruptures are caused by a sudden injury when lifting a heavy load. Patients often report a sudden “pop”, have immediate pain, deformity, and develop bruising and weakness.

Risk Factors:

- Males (95%)
- Dominant arm (86%)
- Smoking, high BMI (body mass index), smoking, use of anabolic steroids, certain antibiotics (1)



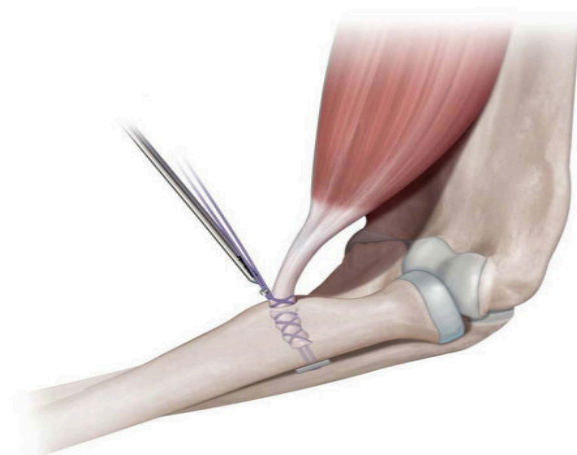
HOW CAN A DISTAL BICEPS RUPTURE BE TREATED?

The majority of significant distal biceps tendon injuries are recommended to be surgically repaired. In more rare cases, non-surgical treatment may be considered. Elderly and inactive patients may choose not repair the tear.

An exam is typically diagnostic, but xrays and MRI are often used to confirm diagnosis. Reattaching the distal biceps tendon should be done sooner rather than later. If you wait, the tissue may scar in and it will be harder to fix.

WHAT IS DONE DURING SURGERY

The distal tendon is reattached surgically to the upper end of the radius bone. The ruptured distal biceps tendon is reattached to the radial tuberosity with an Endobutton. Incision is closed. It is about 2 inches in length on your forearm. In some cases, there may be 2 small incisions.



REPAIR RESULTS

Most patients recover fully and restore power and strength of the biceps. There is a chance that an allograft (tissue graft from a donor) may be used to support the repair. This is commonly needed if repair is not done in the first month after the injury.

RISKS WITH SURGERY

With any surgery there are potential risks involved. These include those associated with anesthesia (respiratory distress/failure, heart attack, stroke).

Risks of distal biceps repair:

- Numbness or tingling of the outer forearm, extending from elbow to wrist. This is associated with the Lateral Antecubital Cutaneous Nerve (LACN), which provides sensation to the skin, strength is not affected. Typically, this improves with time, weeks- months (9.2%). In rare cases, it can be permanent.
- Numbness, tingling, and/or decreased strength of the wrist extension and ability to straighten fingers. This is associated with the Posterior Interosseous Nerve (PIN). Again, this is typically transient and improves with time, weeks-months (2.3%).
- Elbow stiffness (1%), vascular injury (0.06%), surgical site numbness (2.2%), hypertrophic scar (0.2%).
- Re-rupture of the tendon (1.4%). This is uncommon and is associated with advanced age and noncompliance with the rehab plan.
- Call Dr. Norberg immediately if you have any signs of infection: redness, warmth, fever, discolored drainage (2)

QUITTING SMOKING

Studies have shown significantly higher failure rates in people who smoke. Smoking or using any form of nicotine or tobacco products (including cessation products with nicotine), can delay your body's healing process. Smoking makes your blood vessels constrict (become smaller), which reduces the amount of oxygen-rich blood delivered to healing tissues. Smoking can cause your blood to clot faster, which can lead to heart and blood flow problems. If you are going to stop smoking around the time of your surgery, you should not use a nicotine based program or cessation products.

BEFORE SURGERY:

Distal biceps repair is performed on a same day basis. You will return home several hours after the surgery. You shouldn't take anti-inflammatories (i.e. Ibuprofen or Aleve) or aspirin for 4-7 days prior to surgery and do not resume NSAIDs for 1 week after surgery. Arrange for a ride to and from the hospital. Let all medical providers know of any allergies you may have and medications you are taking. Please bring a list of current medications.

AFTER SURGERY:

You will be placed in a sling to be worn at all times for 4 weeks. You should wear the sling to sleep. You may remove your sling for a shower or bathe.

In some cases, you may be placed in a plaster splint to be worn for 1 week. If you are placed in a splint, you may shower but you should keep the splint clean and dry. You will be given pain medication. You will have 4 follow up visits. All visits can be scheduled prior to surgery if needed. Your first appointment after surgery will be approximately 7 - 10 days after surgery with Kayla Mork, a Physician Assistant with Dr. Norberg.

INCISION CARE:

- Keep the dressings dry and do not remove until day 2 after surgery. If you any have drainage you may replace with a new bandage. Small tape strips (steri-strips) will be placed over all incisions. Leave in place until they fall off. Usually this is 10-14 days.
- Do not apply lotion, cream or powder to your incision. Do not poke anything into your dressings.
- You can shower safely 3 days after surgery, without covering the incision. The incision may get wet, but should not be submerged in water for at least 2 weeks after the surgery.
- Do not soak or scrub the incisions until fully healed.
- Watch for signs of infection. Increased redness or drainage from the incisions Fever and or chills
- Wash twice a day under your affected arm and dry that area well. Do not raise your arm after surgery. Place your hand on a counter and take a small side step away to give access to your underarm without lifting your operative arm.
- Put a washcloth under your arm to help with sweating and to keep your skin from getting irritated.
- When you get dressed, put your shirt on the arm that had the surgery first.
- No sutures will need to be removed at your first post-operative visit. They will dissolve in 2-3 weeks and remain under the skin.
- In some cases, a plaster splint will be applied after surgery. This should be kept dry and in place until follow-up visit (1 week).

RECOVERY TIME:

You will begin a rehabilitation physical therapy program, starting 1 week after surgery. You will schedule your physical therapy appointments prior to having surgery.

You will be in a sling for 4 weeks and in some cases a plaster splint for the first week. It will take about 3 months before you are unrestricted with lifting activities. Patients can continue to make progress up to 12 months before reaching their end result of the surgery.

RESTRICTIONS FOLLOWING SURGERY:

Following a distal biceps repair, we recommend all patients take at least 1-2 weeks off of work to rest and manage pain efficiently. All patients will be released to work with restrictions following the 2 weeks. The restrictions will include restricted lifting for 3 months. While in the sling you will only be able to lift 1-2lbs with the elbow at your side. If your job does not require lifting and is mainly office work (keyboard, paperwork, mouse) then it is likely you can return to work in 1-2 weeks. Jobs that require lifting will determine if they have the appropriate accommodations

DISTAL BICEPS ACTIVITY TIMELINE:

0-4 weeks- Elbow remains at side in sling, lifting only 1-2lbs. Start hand therapy at 1 week after surgery.

1-2 months- Discontinue sling, working on range of motion and progress into light strengthening with physical therapy

3-4 months- Typically unrestricted and ease back into baseline lifting

6-12 months- Ongoing progress before reaching their end result

PAIN RELIEF:

- Most patients will have a nerve block that will last 8-24 hours, but typically last 12 hours. The block involves an injection of a local anesthetic (Ropivacaine) similar to novocaine. It is injected where the shoulder and neck meet. The block allows the surgery to be performed using much less anesthetic drugs. The block also provides excellent pain relief after surgery. You may experience a numbness, tingling sensation while block is wearing off up to 24 hours after surgery. This sensation is normal.
- You should take some pain medication approximately 8-10 hours after your block is performed, even if you have no pain.
- Narcotic medications will be prescribed to help manage your pain after surgery. We only prescribe short acting narcotic medications following surgery. Recent studies have shown poorer outcomes and increased addiction and death with long acting narcotics. The pain medications will make your pain manageable but will not necessarily take away all of your pain.
- Typically, Oxycodone 5 mg will be prescribed. You may take 1-2 tablets every 4-6 hours as needed. Dr. Norberg recommends taking them as written the first day and then spacing them out and taking them only if needed.
- Tylenol (acetaminophen) can be taken with Percocet and Norco. However, these medications also contain Tylenol (acetaminophen). Whether you are taking Oxycodone, Norco (hydrocodone), or Tylenol (acetaminophen). Dr. Norberg recommends extra-strength/arthritis strength, extended release (8-hour) 650 mg tablets of Tylenol. You may take 2 tablets every 8 hours for pain management. Be careful not to exceed 4,000 mg of Tylenol in a 24 hour period. Take Tylenol every 8 hours for the first 4 days then as needed.
- Do not take Advil (ibuprofen) or Aleve (naproxen) for the first week after surgery. This may slow healing and weaken healing tissue. However, after 1 week (Advil, Aleve) did not show decreased healing are shown to be more effective in managing pain than narcotic medication. Do not take these medications if on blood thinners (warfarin, lovenox), have hx of reflux disease, or have another contraindication.
- If the pain is still not controlled increase frequency of icing elbow. You may do gentle range of motion of wrist and hand. It is normal to have some swelling after surgery. You may re-wrap or loosen ACE bandage if it feels too tight. Leave the cotton padding under the ACE for 2 days.
- Exceeding the recommended dose or taking medication with alcohol may result in liver damage. If you see that you are running out of pain medication, you must call the office number 952-456-7107 during regular clinic hours (8:30-4:00). Pain medications are not filled after hours or on weekends.
- Take pain medication with food. They may also cause cognitive impairment so you are not to drive or operate heavy machinery. Another common side effect is constipation. You may use over the counter stool softeners (i.e. Colace or Dulcolax) to help with this. See packages for recommended dosages.

- Ice continuously for first 2-3 days. Attempt to use ice as much as you need to control pain and swelling.

CALL IF:

- Your temperature is 101.5 degrees Fahrenheit or more that does not go down with medication like Tylenol or Advil.
- You see a large amount of new bleeding or drainage from the incision area. Some drainage the first day after surgery is expected.
- Notice increased or unusual redness, swelling or warmth in the surgery area.
- Have a lot of discomfort that doesn't get better with pain medicine, ice and rest.
- Notice a big change in color, movement or feeling to the fingers or hand
- Have any questions or concerns

FREQUENTLY ASKED QUESTIONS:

Do I have to go to physical therapy?

Yes! You will have to do the exercises that we and the physical therapist instruct you to do to get the best result of your surgery. You will start physical therapy 1 week after your surgery. Dr. Norberg and his staff will adjust your therapy as you continue to heal.

Work Status?

You will be off of work until your follow-up appointment in about 7-14 days and then will adjust your work restrictions accordingly. Most patients return to work without restrictions at 3 months out from surgery. Although, maximum improvement may take up to 12 months after surgery.

Are there possible complications from surgery?

Yes, but they are very rare. Some include but are not limited to: your repair not healing, infection, stiffness, loss of motion, and nerve injury

How can I use my arm after removal of sling?

After 4 weeks in the sling, you may transition to using the arm without the sling to perform light personal care duties, do not push through pain. You should not lift more than 1-2lbs with the surgical arm. Your activity level will be adjusted at your next appointment.

What are the signs of an infection?

Fever over 101.5 degrees, the incision becomes red or swollen, or any foul drainage. If these symptoms occur, call Dr. Norberg's office right away (952-428-5639).

Is swelling and pain normal?

Yes. It is normal to experience some swelling and pain after your surgery. The pain should be manageable with the prescription pain medication given to you after your surgery.

Can I shower?

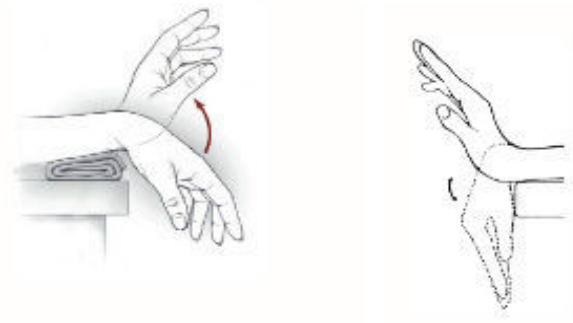
Yes, after removing dressing. Leave steri-strips in place. You may shower 3 days after your surgery. Do not scrub your incisions. Do not submerge your incision for 2 weeks. If you are placed in a plaster splint. You may shower, but you should keep the splint clean and dry.

What happens if I choose not to repair by distal biceps tendon?

Without a repair there is typically a 40% loss of flexion strength (biceps curl) and 50% loss of supination (twisting) strength.

IMMEDIATE POST OPERATIVE EXERCISES - START THE DAY AFTER SURGERY

- Wrist range of motion. Bend your wrist forward and backwards as far as your can. Repeat 10 times. Do 3 sets for 2-3 times per day.
- Elbow range of motion. Gently bring your palm up towards your shoulder and bend your elbow as far as you can. Then straighten your elbow out as far as you can. Repeat 10-15 times for 2-3 times per day.



REFERENCES

1. Kelly, M. P., Perkinson, S. G., Ablove, R. H., & Tueting, J. L. (2015). Distal Biceps Tendon Ruptures: An Epidemiological Analysis Using a Large Population Database. *The American journal of sports medicine*, 43(8), 2012–2017. <https://doi.org/10.1177/0363546515587738>
2. Amarasooriya, M., Bain, G. I., Roper, T., Bryant, K., Iqbal, K., & Phadnis, J. (2020). Complications After Distal Biceps Tendon Repair: A Systematic Review. *The American journal of sports medicine*, 48(12), 3103–3111. <https://doi.org/10.1177/0363546519899933>