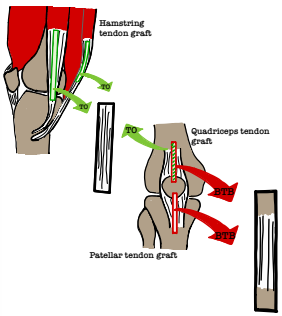
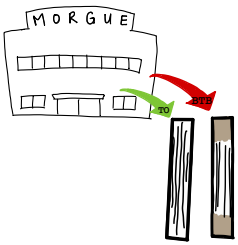
18 year old student athlete from UAF, with knee injury

You tore a ligament in your knee called the ACL. Here are your surgery options...

Autograft



Allograft

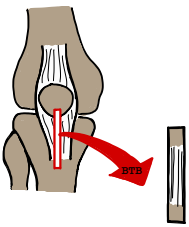


→ BTB: Bone-tendon-bone
→ TO: Tendon Only

Young patient.

Athlete plans to return to sport.

Based on these factors, the patella tendon graft will be the right choice!



Patellar Tendon Graft is the best choice:

- Lowest rate of re-injury
- Highest rate of stability
- Bone-Bone: Efficient healing
- Great for younger patients looking to return to sport.

Thank you Doc!

Recovery will take 6-9months post op, with extensive PT. We'll follow up soon.

Cartoon by Lillian Holmberg

URL to humanap.community.uaf.edu post

Project Objective:

In my project, I addressed an objective from unit 4; “know the structure of the knee joint and compare this joint type to other 5 joint types”. I spoke about the ACL, and what different ACL reconstructions would look like in reference to structure/function of the knee joint. Key terms mentioned would include hamstring, quadriceps, patellar tendon, and of course the ACL.

Cartoon Overview:

An 18 year old student athlete from UAF, goes to an orthopedic doctor to present an acute knee injury that resulted from a championship hockey game against the Seawolves! After the doctor examines the patient and runs various tests (X-Ray & MRI & ultrasound), it is concluded that the patient has completely torn her Anterior Cruciate Ligament (ACL); a key ligament in the knee. The doctor communicates the option of surgery, given that the patient wants to return to sport at full function. The doctor explains the differences between the grafts, and why the patellar tendon graft is the right choice for the patient. The doctor concludes the appointment by establishing surgery and recovery expectations, in relation to the patient returning to sport. The patient is in agreement.

Information:

The patient tore a ligament called the anterior cruciate ligament (ACL); a crucial ligament in the knee acting as a stabilizer ([1]Emory Healthcare). Common **mechanisms** of an ACL tear include activities such as planting & twisting, sudden stops/changes in direction, and jumping &landing ([2]Mayo Clinic). Sports like soccer or basketball are observed to be the most susceptible to this injury. **Symptoms** commonly involve a popping sensation and sound, along with persistent pain, instability, and swelling (2). An ACL tear can be determined through imaging tests such as an MRI, ultrasound, and Xray (2).

The doctor communicates the option of surgery, given that the patient wants to return to sport at full function. ACL reconstructions require the implementation of grafts, assuming the ACL is fully torn. **Grafts** are the implementation of tissue, surgically ([3]Merriam Webster, 2025). There are two types of ACL grafts; autograft vs. allograft. Graft choice is ultimately based on the patient's desired outcomes, and the surgeon's comfortability ([4]Widner et al., 2019). Factors that are necessary when considering graft types include age, lifestyle, activity level, and overall surgical goals (5).

An **autograft** is a type of graft obtained from the patient's own tissue ([5]Hartford Hospital). Common autografts include patellar tendon, hamstring tendon, and quadriceps tendon (4). Autografts are typically the preferred graft for younger patients (younger than 35), considering that the graft has a low risk of failure. Autografts ultimately are stronger, and allow

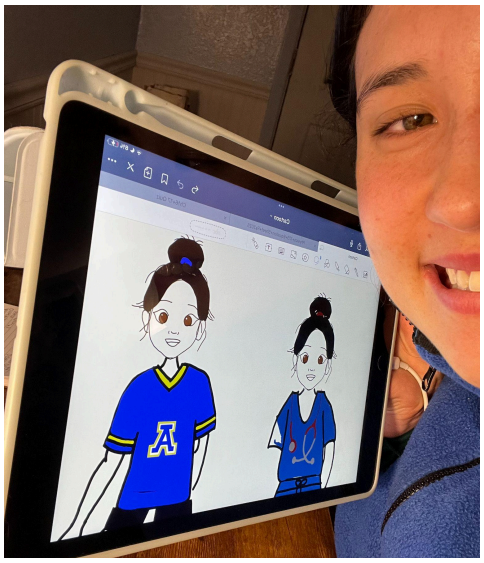
prioritization of an active lifestyle. Some drawbacks to autografts would include a second surgical site, some possible pain/discomfort from the graft origin, and longer/challenging recovery ([6]Paul et al., 2025). According to a study done by Grassi, autografts were observed to have a higher success in comparison to allografts, when observing laxity post op, complications, and reoperation ([7]Grassi et al., 2017).

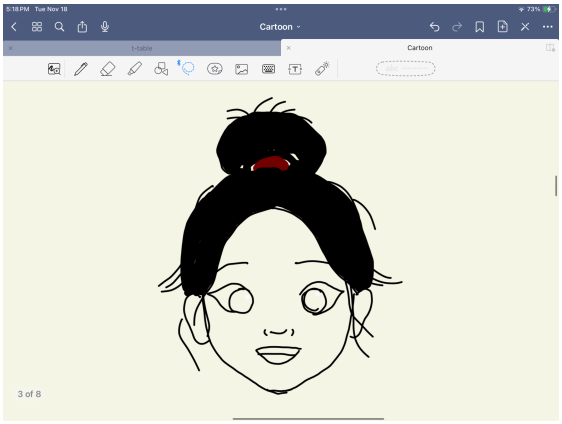
An **Allograft** is a type of graft obtained from someone else's tissue, which can be the ACL itself, or other structures such as hamstring, quadricep, and patellar tendon (4). This graft choice is reserved for older patients (above age 35), where strength of the ACL is not crucial for their specific lifestyle (4). This can especially be seen when the surgery requires fewer surgical sites, along with a quicker recovery. Drawbacks to this graft include weaker ACL graft in comparison to autograft, leading to higher rates of reinjury (4,6).

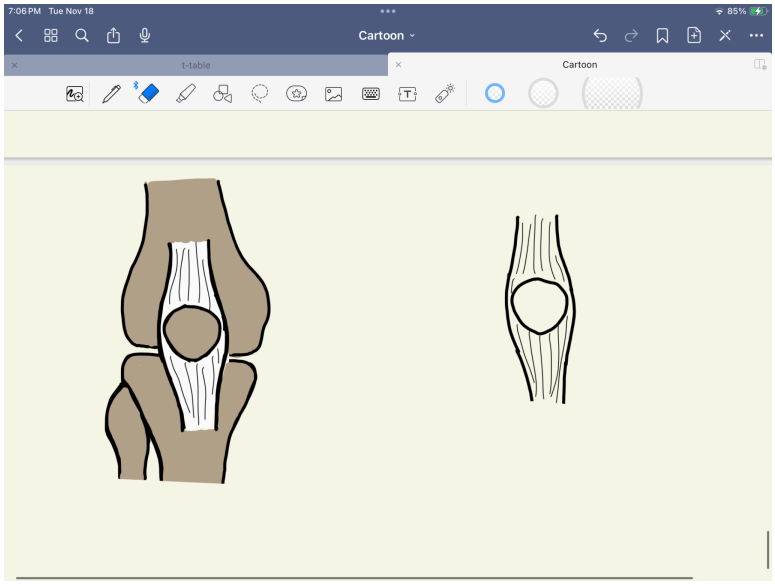
The doctor explains the differences between the grafts, and why the patellar tendon graft is the right choice for the patient. This patient is young, leading a very active lifestyle. The patient would like to return to sport. Patellar tendon graft is the optimal graft within the autograft choices, given that there is a higher rate of success in addition to high satisfaction ([8]Dhammi et al., 2025).

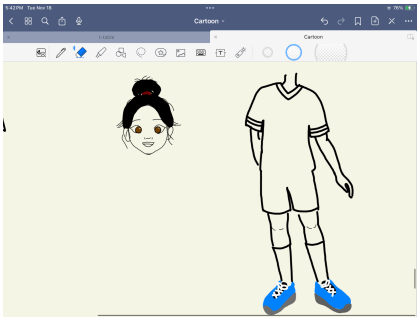
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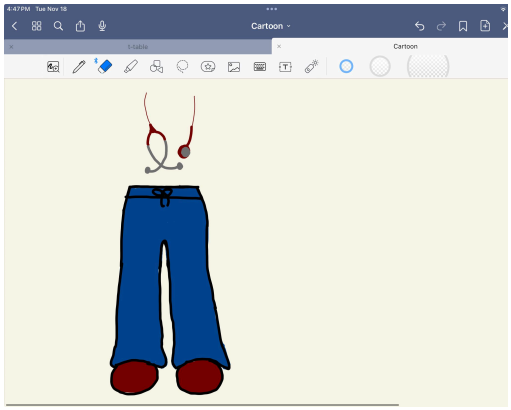
Pictures mid project:













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