



Highly Commended

Models & Inventions

Year 5-6

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Oliphant Written Report Summary

Model of a Knee with a torn and non-torn ACL

Materials:

- plaster
- brackets
- water
- clear box
- iPad (for time laps)
- iPhone

Method of construction:

First we got the glad wrap and wrapped it over the bone model. Then we got a container and filled it with water. After we dipped the plaster into the water and wrapped it around the bone, (this got a bit messy). After that we let it dry for 10 minutes. Then we got a pair of scissors and cut carefully around the bone. We didn't add in all the ligaments in the knee because we wanted to show what the ACL does and what works with the ACL to keep the bones in place.

Did we need any assistance?

Yes, we did needed a little bit of assistance making the model look realistic, from Sebastian Prince (Allegra P's dad.)

Did we have any problems while completing our knee structure?

Yes, we did have a few problems along the way because at first we were planning to make the knee out of paper mâché, but it didn't look like a knee so we decided to make it out of plaster instead.

What does an ACL do?

The ACL, Anterior Cruciate Ligament, stops the shin bone from sliding forward. It also helps the shin bone from skidding inwards.

What do ligaments do?

Ligaments help hold bones in place.

How does a torn ACL effect the human body?

If you have an ACL tear you don't have full control over the way the shin bone moves. If it is broken the knee is painful and the patient can not walk. It can be torn by a twisting the knee while running or jumping and landing and women tear this more often than men do.

Can ACL'S be replaced?

Most ACL tears are surgically replaced in Australia and the US, and they use part of your hamstring tendon to act as a ligament, in this case an ACL. In another case you can use part of the ligament that attaches to your knee cap as well. In Europe they don't repair as many ACL's as in Australia, as they use rehabilitation exercises to try teach the muscles to work more efficiently to replace an ACL.

By Isabelle, Allegra P, and Allegra N.