

Orthopaedic Connection

Orthopaedic Anatomy Lesson

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Transforming patient information into patient understanding.

Last week I was talking about interesting things about bones. At the end I said there are 230 joints in your body. Remember? Hmm. That got me to thinking that we use a lot of terms in these articles that are common, but how many of you really know what they truly mean.

So after all these articles (classes as I like to consider them), I want to cover some real basic things.

Basic Joint Anatomy

A joint is where two (or more) bones come together to permit movement. I can hear you saying, "I knew that". The covering of the ends of the bones inside the joint is called hyaline cartilage. The term "the cartilage" is a structure in the knee whose real name is meniscus. It's easy to get them confused.

Hyaline cartilage is a marvel of nature's "biomedical engineering". It is super smooth, slippery as wet ice, firm (but it does compress a little, then reshapes) and can last a lifetime.

Hyaline cartilage has no nerves or blood supply. It depends entirely on joint fluid for oxygen and nutrients for its health and maintenance.

Ligaments and capsule are very tough tissues that connect bone to bone around a joint. Tendons and muscles are on top of the ligaments and capsule and make the joint move. A joint. Not so simple is it?

Hyaline Cartilage

This deserves it's own little paragraph.

- Think of it as the shock absorber for your joints.
- It changes shape when it is under pressure.
- In other words it protects the bone it covers and absorbs force on the joint.

- Cartilage is 70% water (really, no kidding).
- Sure there is a lot of other stuff like protein, fibers (collagen) and cells that go into cartilage also.
- If the water content begins to decrease hyaline cartilage begins to break down, but that's a whole other discussion.

Types of Joints

- Fibrous Joint
Very little movement. Example is the tight connection between the two lower leg bones above the ankle.
- Partly Movable Joint
Some movement, but lots of fibrous tissue. Examples are discs in the spine and joining of pelvic bones in front of pelvis.
- Synovial Joints
Freely movable, bone ends covered by hyaline cartilage. There is a joint cavity lined by a synovial membrane. So all of the freely movable joints in the body are synovial joints. Hip, knee, fingers, elbow, shoulder - all of them.

Synovial Fluid

I will close with this. Synovial fluid is clear and slightly thick; it resembles egg albumin in consistency. It lubricates the hyaline cartilage and is a nutrient fluid for the cartilage. There is only a small amount in each joint. Just enough to coat the joint. If more than that is present in the joint something is wrong.

It is made by the synovial membrane cells lining the joint. You can probably imagine it is impossibly complicated in its chemical composition! A good place to stop.

Some will perhaps say, why is he going into all this stuff? The answer is I have to be aware of all of this stuff when I am taking care of you. To be informed patients and families you need to have some grasp of how your body works at least from the standpoint of what I do as an Orthopaedic Surgeon. Is it possible for you to know too much? I don't think so!

Our goal is simple - To help people return to more pain free, functional lives.

Good health. Good life. All the best to you.

Be well.

Dr. Haverbush

