

Orthopaedic Connection

Stem Cells – Brief Overview

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Transforming patient information into patient understanding.

There have been articles about Stem Cells in Orthopaedic Connection before, but it is time to cover it again. Why, because as time goes by you will hear more and more about them. Stem cells are not ever going away. So please just keep reading for a short time. Here goes.

Two Types

Scientists work with two main types of stem cells: adult stem cells and embryonic stem cells.

Adult stem cells are used mainly in research for orthopaedic conditions and are obtained from living human tissue.

Embryonic stem cells are removed from human embryos and then grown in culture. For this discussion we will consider only adult stem cells.

Where Do They Come From?

The most common source for adult stem cells is the bone marrow. They are obtained from a part of the pelvis called the iliac crest. A needle is inserted into the inner or “soft” part of the bone where the marrow is located. Several samples can be withdrawn by aspirating through a needle.

The stem cells are separated from the other marrow cells and then can be grown in a culture in the laboratory. It takes 7 to 21 days.

Then What?

These young cells are then activated in specialized ways to form specific musculoskeletal tissues such as bone, tendon and cartilage.

Where?

Musculoskeletal experiments using stem cells are performed at research centers as part of very controlled studies to determine if they are as effective as we hope.

Sometimes I read in the paper about clinics that claim to inject stem cells into a knee to treat arthritis. These clinics are not part of the universities such as University of Michigan and other centers doing the cutting edge research. Let the buyer beware is a phrase that comes to mind.

On The Horizon

For those of us in practice we look forward eagerly to many new ways to repair all the injuries and arthritis problems we face almost every day.

Bone Fractures

Stem cells will stimulate bone growth and promote healing of injured bone.

Ligaments and Tendons

Stem cells can be developed to form connective tissue that can be used to allow faster healing of damaged ligaments and tendons. For example a ruptured Achilles tendon.

Articular Cartilage

Articular cartilage is what covers the end of a bone in a joint. It keeps the bones from rubbing together. Wearing away of the cushion articular cartilage surface in the joint is ARTHRITIS. Stem cells we hope will be able to restore the normal joint surface.

The Future

It will come, there is no doubt. Hmm. Total Joint Replacements may go the way of the public telephone or phone booth. Anybody see one of those lately? Have a good week.

My patients put their trust in me and what I do improves the quality of their lives.

Gratiot County Herald Archive and Office Website

I hope what you have read has raised questions. No problem!

Please log onto www.orthopodsurgeon.com. It has a huge amount of musculoskeletal information in the Website and the Archive of all previous GCH articles.

Check it out and be amazed what you can learn.

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

Dr. Haverbush