Patient Newsletter

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Other News:

Have you ever heard the phrase, "Laughter is the best medicine"? Well, research confirms that laughing is indeed healthy for the human body and mind. Laughter has been clinically shown to increase blood flow, lower blood sugar, regulate the immune system, ease pain—it even burns calories! Statistics show 4 year-olds laugh about every 4 minutes, and adults about once an hour. Perhaps, in our quest to find the fountain of youth, we should begin by seeking out and holding on to the things that make us laugh.

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The Use of Biologics: Where are We?

Many of our patients ask us about injecting various biologic agents into spinal discs and worn-out joints as a means of restoring some of the vivacity and strength they enjoyed in their youth. As the American population matures, the possibility of rejuvenating "seasoned" body parts becomes an increasingly popular topic of interest.

One of the earliest uses of *biologics* (substances derived from natural sources, such as vaccines) in the spine was through a substance called Chymopapain, an enzyme that, in essence, acted as a "meat tenderizer;" it proved to be successful in dissolving some disc herniations and resolving sciatica. Unfortunately, however, the substance's dissolving abilities were not limited to problem areas. Not infrequently, it would spill onto the nerve root itself and dissolve it, along with anything else made of protein. Needless to say, this caused permanent damage and the Chymopapain was consequently pulled from the shelves.

A more recent success in biologic compounds in spine care has been achieved through the use of bone natriuretic peptides (BNP), which are used to enhance bone growth for spinal fusion surgery. This substance can eliminate the need to harvest bone from a separate area of the patient's body (usually the hip), a procedure that can lead to chronic, painful conditions.

The "Holy Grail" of today's fountain of youth research is disc and cartilage regeneration. Researchers are actively trying to use growth factors, genes, and stem cells to regenerate tissue. While the hopes are high for a breakthrough, it will likely be years before we see anything that is considered safe and proven effective for clinical use. Part of the problem is the hostile environment in which the tissues live. A spinal disc has a very low pH level (very acidic) and has little-to-no blood supply for nutrients. Furthermore, cartilage cells are difficult to grow in a test tube, let alone in a joint, and are very slow growing in general. Residing in weight bearing joints, the cells are exposed to tremendous physical loads. Logistical concerns include keeping the biologics in the right place, having it do what it is supposed to do without growing tumors, as well as other possible adverse outcomes. And most recently, with the significant economic downturn, research funding has decreased both from government and industry.

Currently, the closest thing we have to biologics is **Platelet Rich Plasma (PRP)**. In this procedure, we collect blood and concentrate the elements that have growth factors to promote healing. The blood concentrate is then injected into an area of injury or inflammation to promote natural healing. If you would like further information on this procedure, the NY Times wrote an article on February 17, 2009 about PRP: http://www.nytimes.com/2009/02/17/sports/17blood.html