

“FILLING” YOU IN

Stem Cells: How Teeth Can Save Your Life

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Stem cells are unique in that they are the only cells in our body that can regenerate. Thus, they can replace damaged tissue caused by aging, disease, and injury. Stem cells have the ability to differentiate or change into more specialized cells which enables them to regenerate organs, tissues, and bones. Studies are showing that stem cells found in teeth may be beneficial for treatments of nerve, muscle, and other structural injuries.



Newsletter Spotlight

- Stem Cells from Teeth may save a life.
- The economy is leading to more dental problems due to cracked teeth.
- From Our Family To Yours.

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Life Stressors = Tooth Stressors

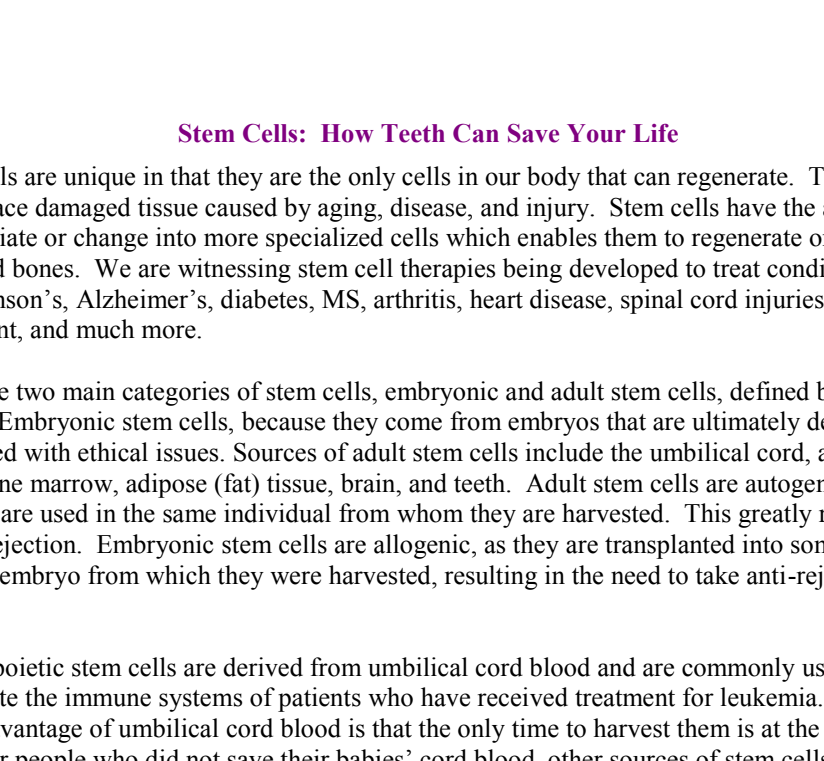
The recession is a grind on people's pocketbooks as well as their teeth. Cracked and worn teeth, jaw pain, and headaches are becoming more common – and stress may be at the root of the problem.

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From Our Family to Yours

See what our staff is up to these days!

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Stem Cells: How Teeth Can Save Your Life

Stem cells are unique in that they are the only cells in our body that can regenerate. Thus, they can replace damaged tissue caused by aging, disease, and injury. Stem cells have the ability to differentiate or change into more specialized cells which enables them to regenerate organs, tissues, and bones. We are witnessing stem cell therapies being developed to treat conditions such as Parkinson's, Alzheimer's, diabetes, MS, arthritis, heart disease, spinal cord injuries, joint replacement, and much more.

There are two main categories of stem cells, embryonic and adult stem cells, defined by their source. Embryonic stem cells, because they come from embryos that are ultimately destroyed, are associated with ethical issues. Sources of adult stem cells include the umbilical cord, amniotic fluid, bone marrow, adipose (fat) tissue, brain, and teeth. Adult stem cells are autogenous, meaning they are used in the same individual from whom they are harvested. This greatly reduces the risk of rejection. Embryonic stem cells are allogenic, as they are transplanted into someone other than the embryo from which they were harvested, resulting in the need to take anti-rejection medication.

Hematopoietic stem cells are derived from umbilical cord blood and are commonly used today to regenerate the immune systems of patients who have received treatment for leukemia. The greatest disadvantage of umbilical cord blood is that the only time to harvest them is at the time of birth. For people who did not save their babies' cord blood, other sources of stem cells *could* potentially provide a form of "health insurance" should their child develop a life-threatening illness down the road. Baby teeth, supernumerary (extra) teeth, or wisdom teeth *may* just be that source of stem cells.

The stem cells found in teeth may be beneficial for the treatment of neurodegenerative diseases and the repair of motor nerves following stroke or injury. This exciting research will lead to future treatment options that allow muscles to repair themselves following injury, such as the muscle damage that occurs after a heart attack, or the structural damage that occurs following a knee injury.

There is potential for stem cells extracted from the dental pulp of teeth to be harvested to correct dental disease as well. Dental stem cells directly implanted into the pulp chamber of a severely injured tooth could regenerate the nerve and blood supply inside the damaged tooth, preventing the need for a root canal. There is similar promise for regenerating the periodontal ligament destroyed by gum disease, and tissue engineered bone grafts will possibly be used to reconstruct damaged temporomandibular joints (TMJ's) and other cranial structures.

The great hope is that suitable stem cells produced in large quantities through cell culture methods and injected into failing tissues and organs, will produce fresh replacement cells to take over for lost or damaged ones. Harvesting and storing stem cells now, particularly from a dental origin, will ensure their availability for future regenerative therapies.

The catch: To bank stem cells from teeth in a storage lab, there is an enrollment fee and an annual service fee. And, the therapies that would use stem cells from teeth have not yet been developed. Because cells extracted from the pulp of teeth are different than those extracted from umbilical cords, doctors are not CURRENTLY able to use these cells in the life-saving procedures most common to stem cell therapy today.

But many believe that having one's own cells available for personalized medicine is so important for the future of our children. Maybe this is what The Tooth Fairy has been thinking all along!

Life Stressors = Tooth Stressors

The recession is a grind on people's pocketbooks as well as their teeth. Cracked and worn teeth, jaw pain, and headaches are becoming more common – and stress may be at the root of the problem. There is no official data, no tooth-based economic indicator, but there are more and more reports suggesting stress from home foreclosures and layoffs may be the driving force behind the increase in these dental problems. People who are under stress burn that excess energy off somewhere; some do it at night by clenching or grinding their teeth.

Clenching and grinding, also called "bruxism," puts hundreds of pounds of pressure on tooth surfaces. Typical chewing exerts 20-40 psi on the teeth, but the pressure from grinding can be 250psi or more. Broken and chipped teeth, gum recession, and sensitivity can occur as a result of these excess forces.

Breaking the bruxism habit isn't easy. Stress management techniques can help some patients, but a night guard may be indicated for others. Some patients have success with an inexpensive, over-the-counter guard. Other patients will find these one-size-fits-all devices often make the problem worse. A tooth fractured from these habits may need to be pulled or could require a root canal or crown, both costly dental procedures. Thus, preventing clenching and grinding may be worth the cost of a more expensive custom-made night guard.

From Our Family to Yours

Hygienist, Janet Luther, returned from maternity leave in early March. Her new daughter, Mia Grace, is growing by leaps and bounds.

In addition to her full time work schedule, hygienist Amy Scott is obtaining a BS degree in Health Promotion at Appalachian State University. Her project is being presented at the Salvation Army Boys and Girls Clubs targeting the consequences of smokeless tobacco, specifically oral cancer and the effects on teeth and gums.

Dr. Szott wishes to thank her awesome staff for the wonderful job they do each day taking care of our patients.