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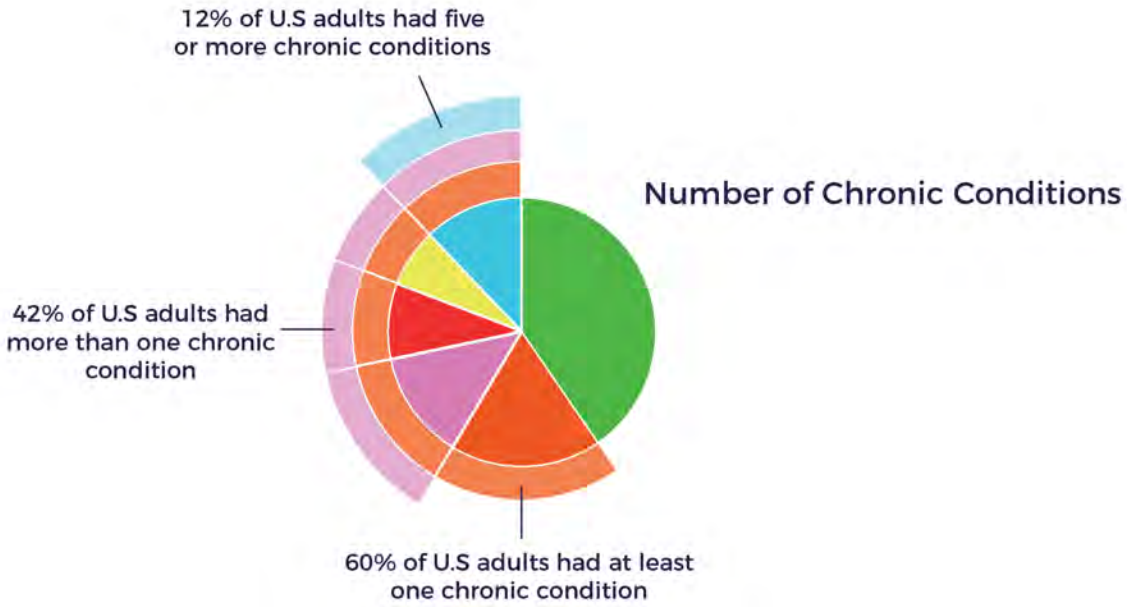
AMBROSE Cell Therapy was founded in 2018 by Matthew Feshbach, with the vision that something could be done about the most vexing problem in healthcare: The prevalence of adults with one or more chronic diseases. In point of fact, 42% (98.2 million) of adults in the United States have two or more chronic diseases and cost the US healthcare system over $2 trillion per year.[1]



Buttorff, Christine, Teague Ruder, and Melissa Bauman. Multiple Chronic Conditions in the United States. Santa Monica, CA: RAND Corporation, 2017. https://www.rand.org/pubs/tools/TL221.html.

AMBROSE

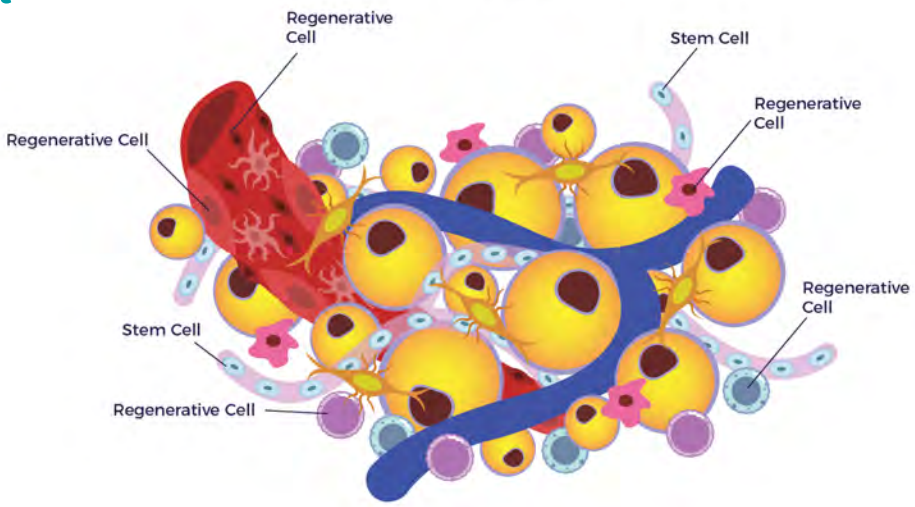
/ AM-broz /

From Latin Ambrosius, Greek Ambrosios, meaning "immortal, belonging to the immortals."

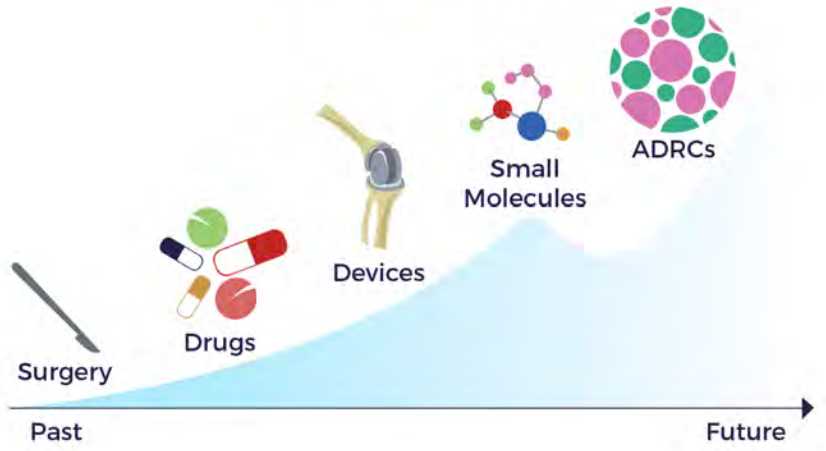
The story began in 2009, when Matt learned about the adult stem cells that reside in our fat (adipose tissue) from an investment colleague. Since that first conversation, he has done thousands of hours of research into the science, technology and unmet needs that could be addressed by adult stem cell therapy. As a result, Matt came to believe that the power of the mixed population of cells in our adipose tissue could improve symptoms, function and quality of life for a high percentage of patients with one or more chronic degenerative diseases. When these cells are clinical grade, they are called adipose-derived stem and regenerative cells (ADRCs).

Hence AMBROSE Cell Therapy's mission, which is **to bring a new standard of safety and care for patients with complex chronic degenerative diseases.**

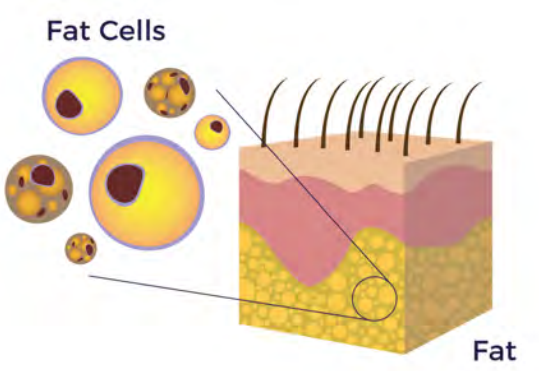
Adipose Tissue



New Standard of Care



Why Adipose? The Skinny on Fat



The medical term for fat is “adipose tissue.” Adipose comes from Latin from adeps, adip- ‘fat.’ Adipose is a loose connective tissue composed of fat cells (adipocytes). Connective tissue does just what its name implies—it connects things in our body together.

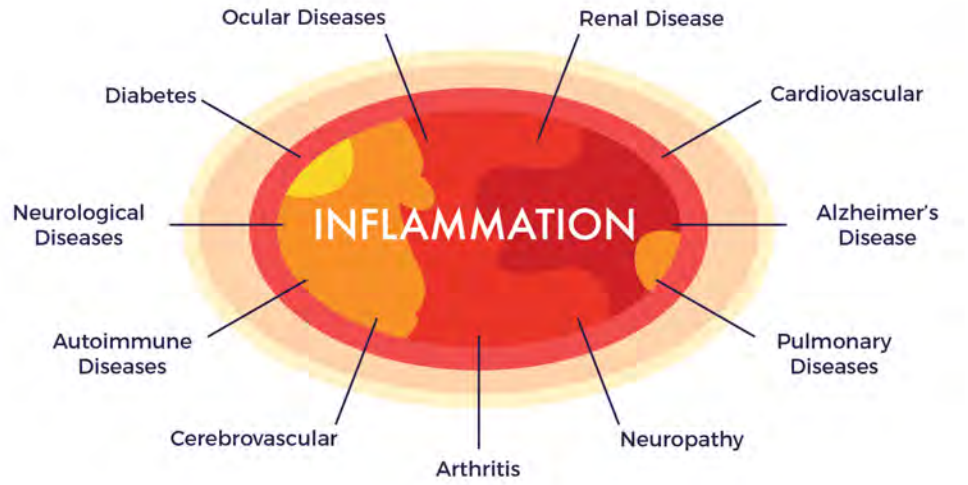
In 2001, Patricia Zuk PhD, Dr. Marc Hedrick and others working in the labs of UCLA published research in Tissue Engineering discussing their discovery that adult stem cells called mesenchymal stem cells (MSCs) reside along with other regenerative cells in our fat.[2] Since that seminal paper first appeared in the literature, over 11,000 scientific papers on adipose-derived stem cells (ADSCs) have been published. Several of the researchers in that lab went on to develop the Celution™ Cell Processing System, a closed sterile system that liberates clinical grade ADRCs from fat that has been harvested by a liposuction (lipoaspirate).

ADRC Processing

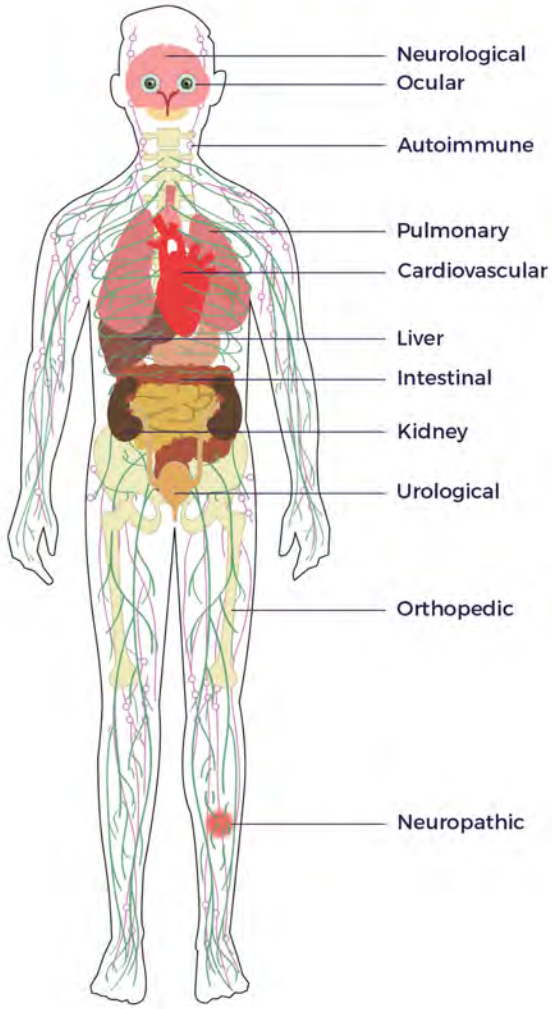
Hundreds of studies using ADRCs—from mice to large animals to humans—across a broad spectrum of conditions have reported safety and signals of effectiveness in improving symptoms, function and quality of life for patients with chronic degenerative diseases.[3, 4, 5]

Chronic Inflammatory Diseases

Egyptian papyri from almost 5,000 years ago refer to heat and redness as naturally associated with disease. In the 1st century, Aulus Cornelius Celsus defined the tell-tale signs of inflammation: redness, swelling, heat, and pain.



Addressable Conditions

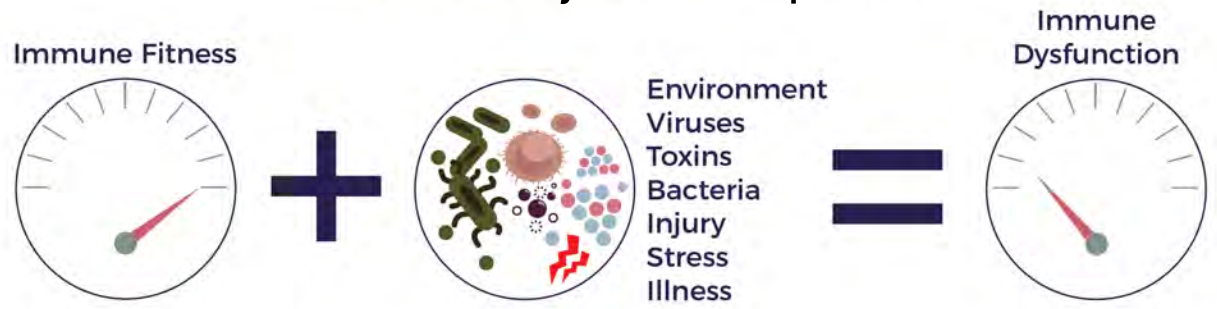


Today, there are many thousands of published medical papers on common chronic conditions such as heart disease, diabetes, kidney failure, osteoarthritis, rheumatoid arthritis as well as degenerative disc disease, pulmonary, neurologic, urologic and ocular diseases—to name some of the most prevalent—discussing the role of inflammation in the degenerative process.

The Hazards of Widespread Inflammation

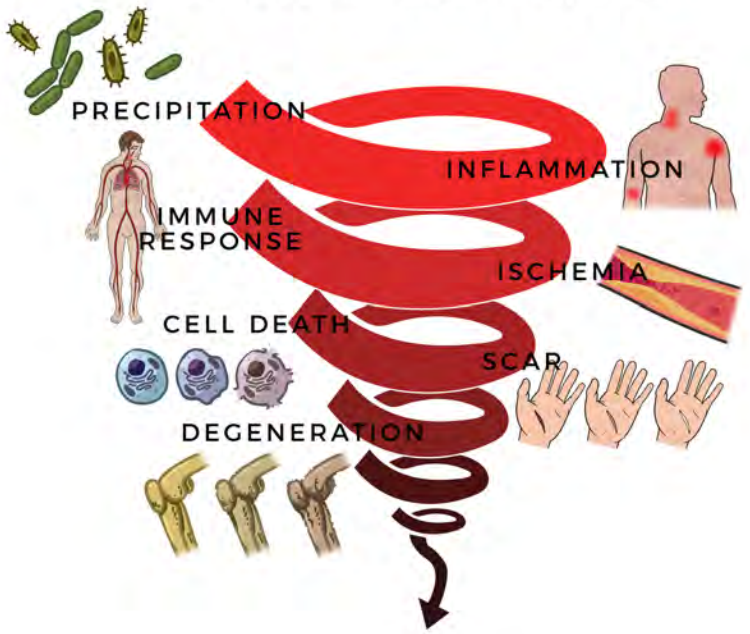
Chronic systemic inflammation (inflammaging) is a common factor in diseases of aging, covering a broad spectrum of severe, debilitating and often life-threatening conditions.[6, 7]

Inflammatory-immune Response



In the case of degenerative diseases, inflammation begins a vicious process by first recruiting the immune system, whose usual job it is to fight infections and other disease processes so as to assist healing. When the cells in the immune system (immune cells) sense the inflammation, they send out troops of anti-inflammatory “cytokines” (bioactive molecules) to fight them off. In situations when this process goes out of control, it is called an inflammatory-immune response.

Spiral of Degeneration



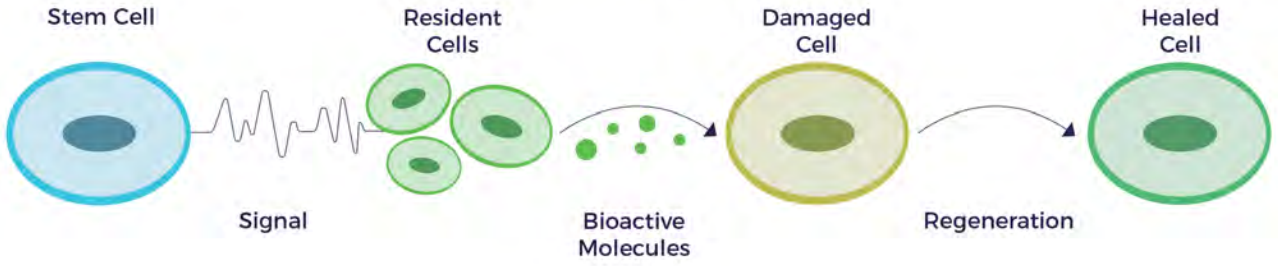
This type of abnormal immune response is tantamount to having a backseat driver who is chronically overreacting while "helping" you drive your car. It then leads to reduced blood flow (ischemia).

Without good circulation, cells die off, scars form, tissues, nerves and organs degenerate. We call this the Spiral of Degeneration.

The Process of Repair

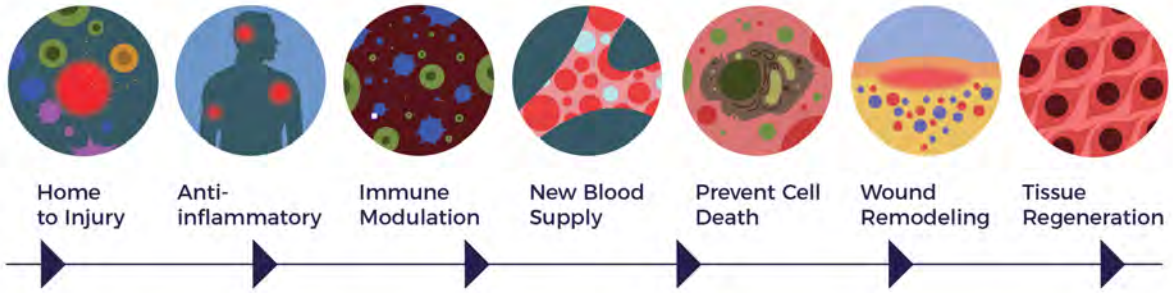
Because the factors involved in the Spiral of Degeneration are evident in nearly all chronic degenerative diseases, a wide range of serious conditions can potentially benefit from AMBROSE Cell Therapy and the use of ADRCs. Through cell-to cell communication, ADRCs work to mobilize nearby cells to work more efficiently. This is called the paracrine effect.

Paracrine Effect



ADRCs first decrease inflammation and the overactive immune responses. Once the backseat driving diminishes, they increase circulation with new blood vessel growth, prevent further programmed cell death (apoptosis), remodel wounds by decreasing scar size and regenerate the diseased tissue and nerves as well as help to restore function in our vascular, endocrine and immune systems. We call this the Process of Repair.

The Process of Repair



Multiple Cells, Multiple Mechanisms

Who We Are

The AMBROSE team consists of MDs, board certified plastic surgeons, interventional pain management physicians and anesthesiologists as well as a clinical support staff of nurses and technicians. Our multi-specialty medical team takes special care to consult with each patient in developing safe, thoughtful and personalized treatment plans.

Why Texas?

House Bill 810, also known as "Charlie's Law," allows the use of investigational adult stem cell treatments in Texas for patients that have been diagnosed with a terminal illness or severe chronic disease. Under this legislation, which is known as a “Right to Try” Law, patients suffering from terminal illness or severe chronic disease have the opportunity to utilize experimental stem cell therapy within the state of Texas.

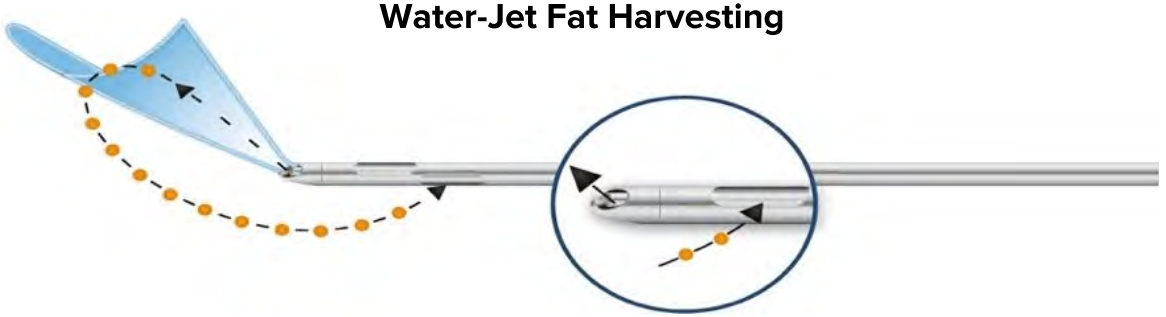
The Patient Experience

Your AMBROSE procedure is delivered out-patient at Legent Hospital in Plano, Texas, and takes approximately 5-6 hours from start to finish, depending on your treatment plan. Recognized for world-class, compassionate care, Legent features a highly-trained medical team committed to providing a warm, welcoming environment within their technologically advanced facility.

Step 1

All AMBROSE patient treatment plans begin with a mini-liposuction (approximately 20 ounces), using an innovative water-jet fat harvesting technology. Fat cells are gently detached from the connective tissue by means of a fan-shaped pulsating water jet and simultaneous aspiration.

Water-Jet Fat Harvesting



Thanks to the gentle effect of the water-jet, the surrounding tissue, nerves and vascular structures remain virtually undamaged. This minimizes the risks involved with liposuction, improves the result and shortens the patient's recovery.

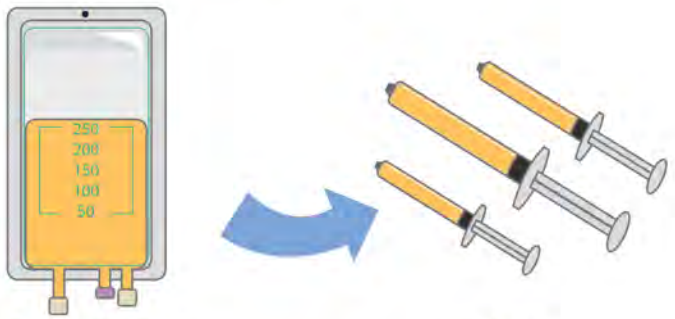
Step 2

Approximately 15 ounces of lipoaspirate are processed in the Celution™ System in a little over two hours. Celution is approved in over 40 countries internationally as well as for 9 on-going or completed FDA-approved trials. Over 25 human studies using Celution-processed ADRCs have been reported in the medical literature for a variety of conditions including chronic wounds, post-cancer treatment side effects, congestive heart failure (CHF), cirrhosis of the liver, erectile dysfunction and others.

Step 3

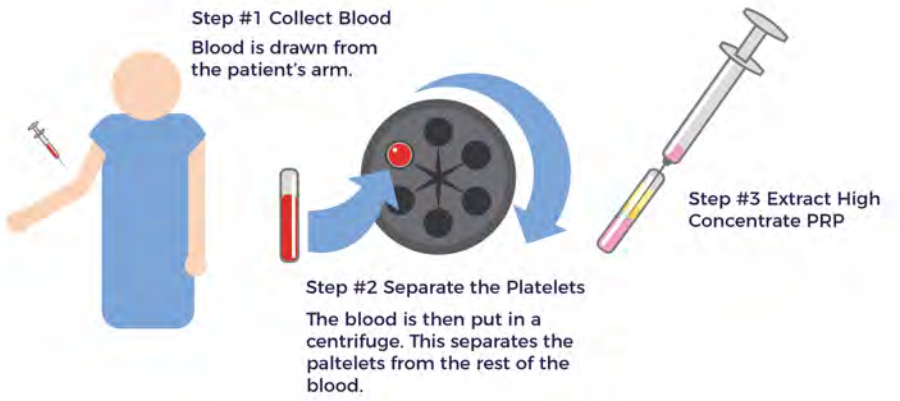
The remaining lipoaspirate (approximately 5 ounces), is "purified" through the PureGraft™ filtration system. PureGraft removes red blood cells, lipids from damaged adipocytes and debris from the lipoaspirate.

Pure Fat



PureGraft™ Bag Syringes

Pure PRP™ Processing

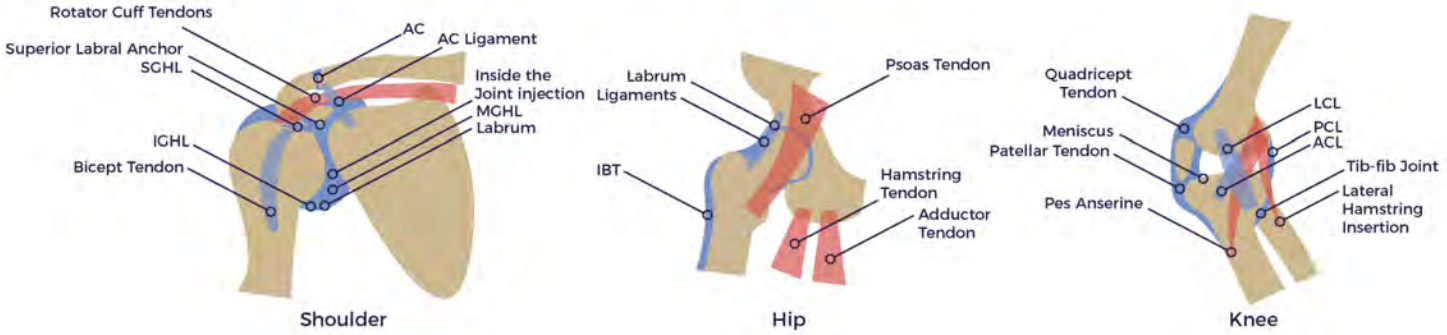


Next, 120 ccs of blood are drawn and spun in the Emcyte Pure PRP™ system, a high concentration platelet rich plasma (PRP). Due to its stimulating effect on stem cells, PRP is mixed with the purified fat before direct injections. The primary goal of enriching the purified fat with PRP is to get these powerful cells to work harder and faster.[8]

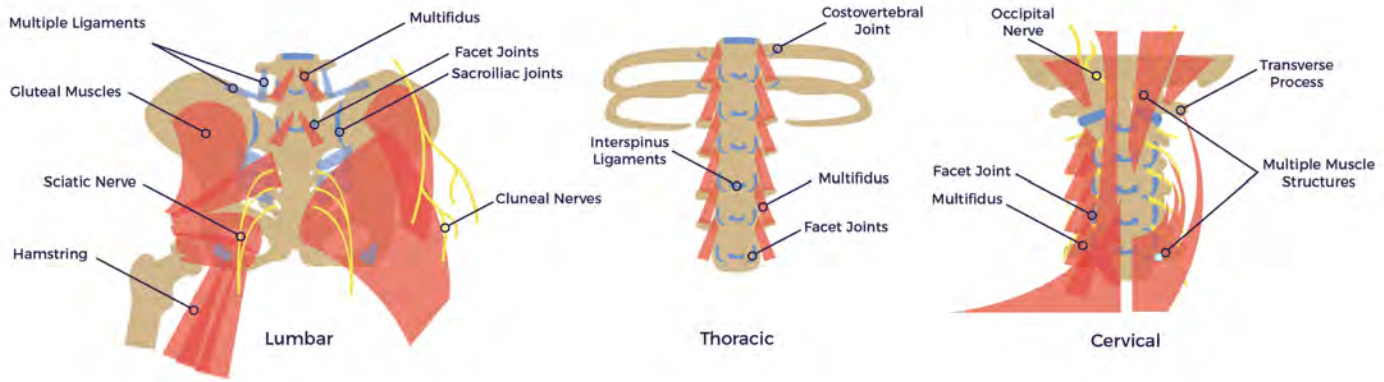
Step 4

While the Celution system liberates the ADRCs from the lipoaspirate, the PRP-enriched Pure Fat is injected under real-time ultrasound (US) guidance into the Functional Spine Unit (FSU) and/or the Functional Joint Unit (FJU). The FSU is a complex anatomy including the bones, discs, joints, muscles, tendons, nerves, ligaments and vasculature that comprise and support our spine. Likewise, the FJU includes the bones, cartilage, muscles, ligaments, tendons, vasculature etc. of the joint.

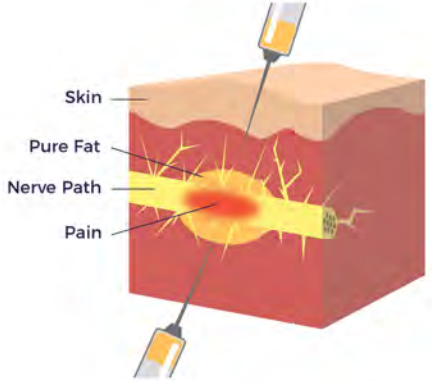
AMBROSE Guided Joint Injections



AMBROSE Guided Spinal Injections



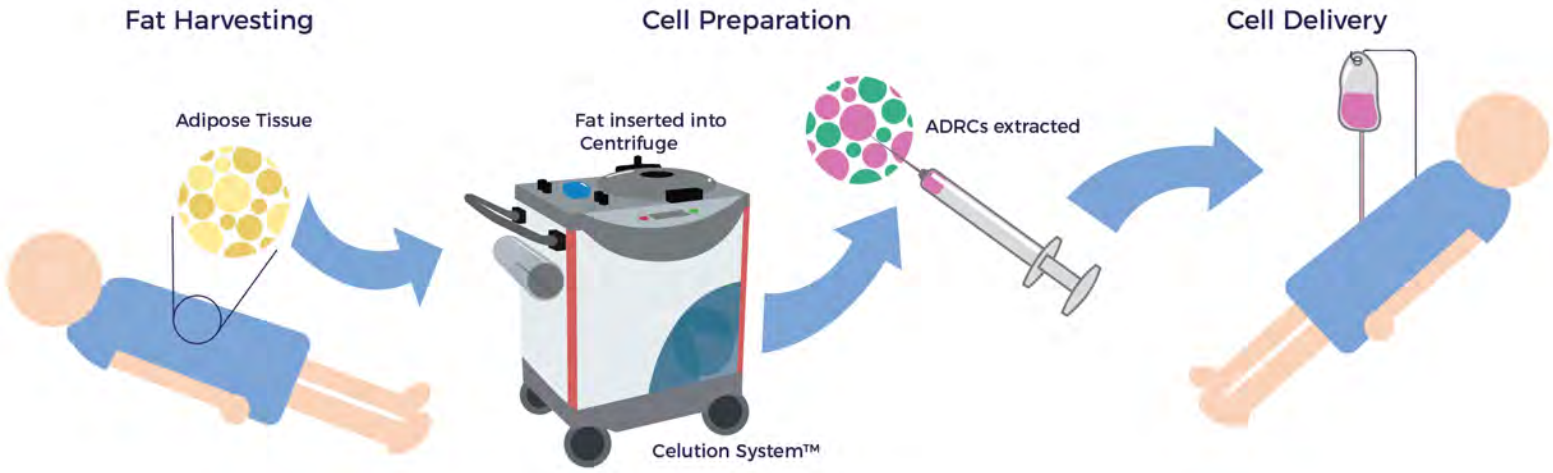
Local nerve pain (neuropathy) is also addressed by injecting on the sides of the neurovascular bundles (perineural) under ultrasound guidance.



Perineural Injections

Step 5

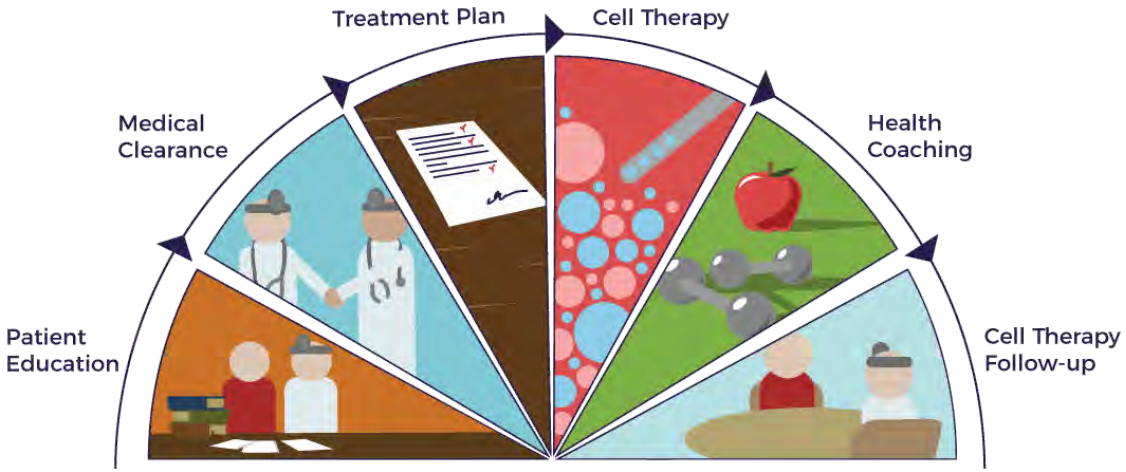
Finally, your ADRCs are delivered at the bedside via intravenous (IV) infusion. When a patient has a neurologic complaint, a low dose of mannitol (a sugar alcohol) is delivered IV prior to the stem cell infusion. Mannitol temporarily opens up the blood brain barrier so that a significantly higher percentage of cells can safely migrate into the brain to address the neuroinflammation and cascade of degenerative effects that can result from it.[9]



Biodistribution and anatomical studies have also established the lymphatics vessels—which parallel the vascular system—as a route that stem cells may migrate through to bypass the blood-brain-barrier. [10,11]

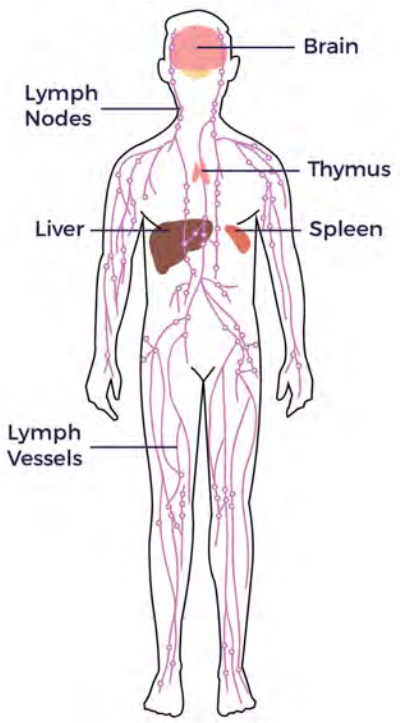
Cycle of Care

Following a period of observation and recovery, patients return home to rest with a caregiver or family member. In the weeks and months that follow, the AMBROSE cycle of care continues with regular follow-up and health coaching geared towards helping our patients optimize lifestyle habits which support maximum benefit from cell therapy.



Cycle of Care

Lymphatic System



To learn more about AMBROSE Cell Therapy, call +1 800.520.1746 to speak to a Patient Educator.

References

1 AK Parekh & MB Barton The Challenge of Multiple Comorbidity for the US Health Care System JAMA. 2010;303(13):1303-1304

2 PA Zuk et al Multilineage cells from human adipose tissue: implications for cell-based therapies. Tissue Eng 2001

3 JK Fraser PhD and S. Kesten MD Autologous Adipose Derived Regenerative Cells: A platform for therapeutic applications Advanced Wound Healing Surgical Technology International XXIX

4 A Nguyen, A et al Stromal vascular fraction: A regenerative reality? Part 1: Current concepts and review of the literature Journal of Plastic, Reconstructive & Aesthetic Surgery (2016) 69, 170e179

5 Guo et al Stromal vascular fraction: A regenerative reality? Part 2: Current concepts and review of the literature Journal of Plastic, Reconstructive & Aesthetic Surgery (2016) 69, 180e188

6 S. Amor Inflammation in neurodegenerative diseases Immunology, 129, 154–169

7 C. Franceschi and J. Campisi Chronic Inflammation (Inflammaging) and Its Potential Contribution to Age-Associated Diseases J Gerontol A Biol Sci Med Sci 2014 June;69(S1): S4–S9

8 M Tobita et al Adipose tissue-derived mesenchymal stem cells and platelet-rich plasma: stem cell transplantation methods that enhance stemness Stem Cell Research & Therapy (2015) 6:215

9 C.V. Borlongan et al Permeating the Blood Brain Barrier and Abrogating the Inflammation in Stroke: Implications for Stroke Therapy Curr Pharm Des. 2012; 18(25): 3670–3676.

10 J. Leibacher and R. Henschler Biodistribution, migration and homing of systemically applied mesenchymal stem/stromal cells Stem Cell Therapy and Research 2016; 7: 7.

11 M. Absthina et al Human and nonhuman primate meninges harbor lymphatic vessels that can be visualized noninvasively by MRI eLife 2017;6: e 29738.