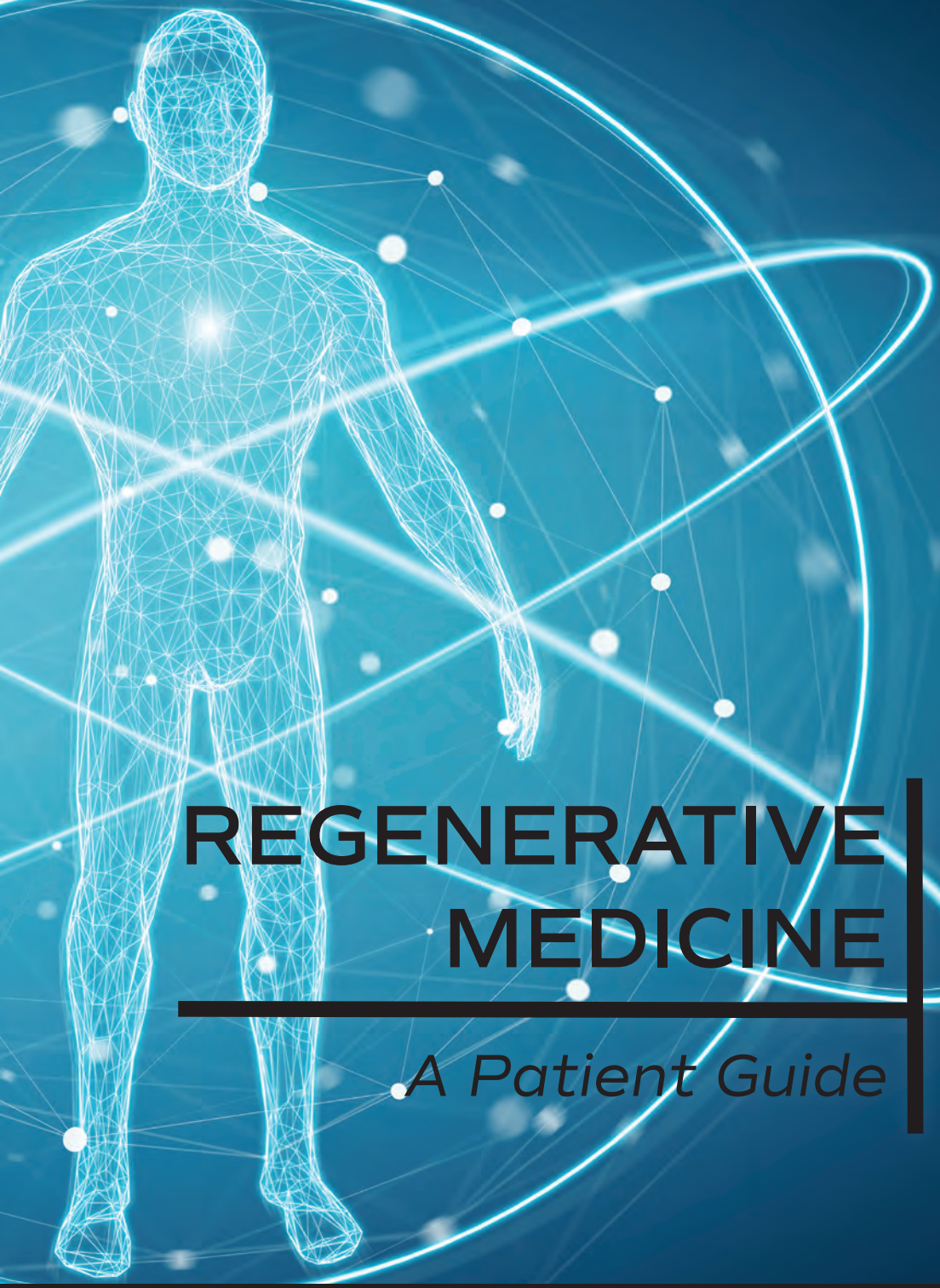


REGENERATIVE MEDICINE

A Patient Guide

An Unbiased Breakdown of All Regenerative Medicine Therapies

SYMMETRIA
INTEGRATIVE MEDICAL
RELIEF | REPAIR | RESTORE

Misson Statement

Here at Symmetria we are an Integrative Medical Clinic, meaning we have an interprofessional team based model that takes into account the whole person. We emphasize evidence-based therapeutic techniques for patient focused care without the use of drugs or surgery. We find the underlying cause of our patients' concerns and create individualized programs that work together to get the best results, so our patients' can get back their quality of life. We believe this approach exemplifies the model for patient centered care to provide Relief, Repair the issues, and Restore health.

About the President

Baljinder S. Gill DC, a Washington native and Marysville Pilchuck High School graduate, returned to the Evergreen State after completing his studies in California. Dr. Gill earned his Bachelor of Science in Biology from University of the Pacific in 2010 and went on to receive his Doctor of Chiropractic from Palmer College of Chiropractic.

Upon licensure, Dr. Gill received advanced training in non-surgical spinal decompression and peripheral neuropathy at the Bellevue Pain Institute. During his tenure in Bellevue he realized a change was needed in our current medical model. He left the Bellevue Pain Institute and co-founded Symmetria Integrative Medical in Marysville, WA.

Dr. Gill's vision is where the patient doesn't have to manage their own care. At Symmetria he created a team of providers who collaborate to come up with the best possible treatment plans for patients. The integrative model allows for true patient centered care. *"Symmetria is place where patients come to heal and restore their health."*
–Dr. Gill

REGENERATIVE MEDICINE

... Sounds impressive but confusing, right? Well in layman's terms it means our bodies were designed to heal themselves! Makes sense... you cut yourself, it heals.

Imagine if pain medication was no longer needed. Imagine if the need for a surgical procedure was prolonged or no longer necessary. Through new technologies in regenerative medicine, there are now treatments available that may enhance your own body's natural ability to heal.

Regenerative medicine is used for the management of pain, sports injuries, to expedite
the healing from surgery, hair loss, sexual health and even to combat the signs of aging.

We know that choosing what type of regenerative medicine treatment best suited for you may be confusing. For that reason, we have created this unbiased booklet to help you make that decision.

Our goal is to provide you with the information needed when discussing regenerative medicine options with your physician.

It is important to make an educated investment in your health care so you may live your life the way it was meant to be lived.

REGENERATIVE MEDICINE

From the young model to the aging retiree, from the elite athlete to the weekend warrior, clinicians continue to search for ways to control pain and accelerate the healing process. Regenerative medicine treatments have many profound benefits with, in most cases, superior outcomes.

Regenerative medicine may treat many conditions that could otherwise require risky treatment avenues. There are alternatives to that narcotic you took to get through the pain in your knees. There are other options to conquer your hair loss without undergoing painful surgery. Regenerative medicine treatments harness the power and versatility of the human body to regenerate damaged skin, accelerate healing, reactivate hair follicles, heal wounds and alleviate pain.

The regenerative medicine healing process replaces, creates and regenerates human cells and tissues to maintain normal function, meaning these treatments kickstart the body’s ability to build diminished tissue, improve damaged tissue and restore function that has otherwise deteriorated. When injured or invaded by disease, our bodies have the innate response to heal and defend. Harnessing and enhancing the body's own healing powers with the utilization of regenerative medicine is the new frontier of medicine, with results that may be miraculous.

Treatments being utilized, as a stand-alone or combined, include birth tissues from amniotic fluid/membrane, umbilical cord tissue, umbilical cord blood, exosomes, platelet-rich plasma (PRP), adipose-derived stem cells (ADSC) and bone marrow aspirate (BMA). (Figure 2)

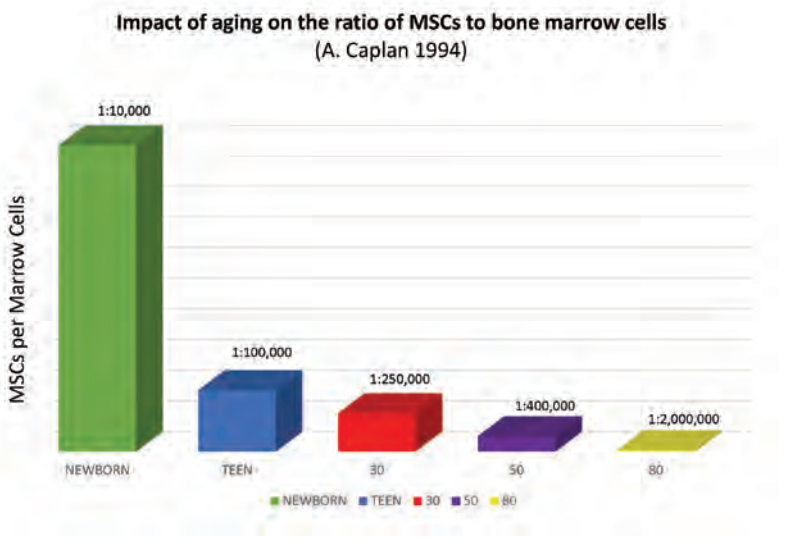


FIGURE 1

	Amnion Fluid	Platelet Rich Plasma (PRP)	Umbilical Cord Tissue	Adipose Derived Stem Cells	Bone Marrow Derived Stem Cells	Steroid	Hyaluronic Acid
Source	Amniotic Tissue	Platelets	Birth Tissue	Adipose Tissue	Bone Marrow Aspirate	Synthetic	Synthetic
Anti-Inflammatory	●	●	●	●	●	●	
Anti-Microbial	●	●	●	●	●		
Growth Factors	●	●	●	●	●		
Non-Toxic	●	●	●	●	●		●
Pluripotent	●		●	●	●		
Mesenchymal Stem Cells			●	●	●		

FIGURE 2

WHAT IS REGENERATIVE MEDICINE?

When people think of regenerative medicine, it is often associated with stem cells. Stem cell therapy is taking the regenerative medicine world by storm... but should stem cells get all the credit? It's a common misconception that stem cells are the only component needed in regenerative medicine to kick-start the healing and regenerative.

One of the most valuable aspects of regenerative medicine is that our understanding evolves with science. We once bought into the same "stem cell-based therapy" model that everyone else touts, but as scientists scrutinized the data, they came to embrace a view shared by hundreds of other leading regenerative medicine researchers – including the father of the mesenchymal stem cell,
Dr. Arnold Caplan.

In June 2017 Dr. Caplan published an article: Mesenchymal Stem Cells: Time to Change the Name. In this article, Dr. Caplan refers to these cells as "medicinal signaling cells", capable of influencing function in the body. These factors recruit the patient's stem cells, which reside throughout all the tissues of our bodies, and affect the responses of our immune system.

So, if these factors are so effective, why is so much attention paid to stem cells? The answer lies in the fact that the old textbooks remain on the shelves and those who have read them continue to preach their teachings. In addition, alternative regenerative options have only recently become available on the marketplace.

However, it is the patient's own stem cells that do the work, not the stem cells contained in products; these cells serve as a vehicle to deliver messages to our other cells. While we agree that cells are an important part of regenerative medicine, equally important, if not more important, are the "dream team" components of regenerative medicine, comprised of growth factors and cytokines, that enhance the body's natural ability to heal and regenerate. Also, collagens, proteins, hyaluronic acids, and peptides assist in harnessing the body's power of true healing. (Figure 3- CREATE)

Many companies are utilizing procedures that extract the patient's own stem cells via adipose (belly fat) or bone marrow aspirate (a small plug of bone usually taken from the ilium (hip bone). These procedures are considered invasive, have a higher risk of infection and may cause additional pain to the patient.

What many "stem cell" companies fail to mention is that your cells are as old as you are. (Figure 1) As we age, the number of cells and the quality of our cells drastically diminish. With a decrease in cell quality, a person of advanced age will not heal and regenerate like a young child would.
New Life Regenerative Medicine products are derived from birth tissues, which means the components in these products are at day one strength.

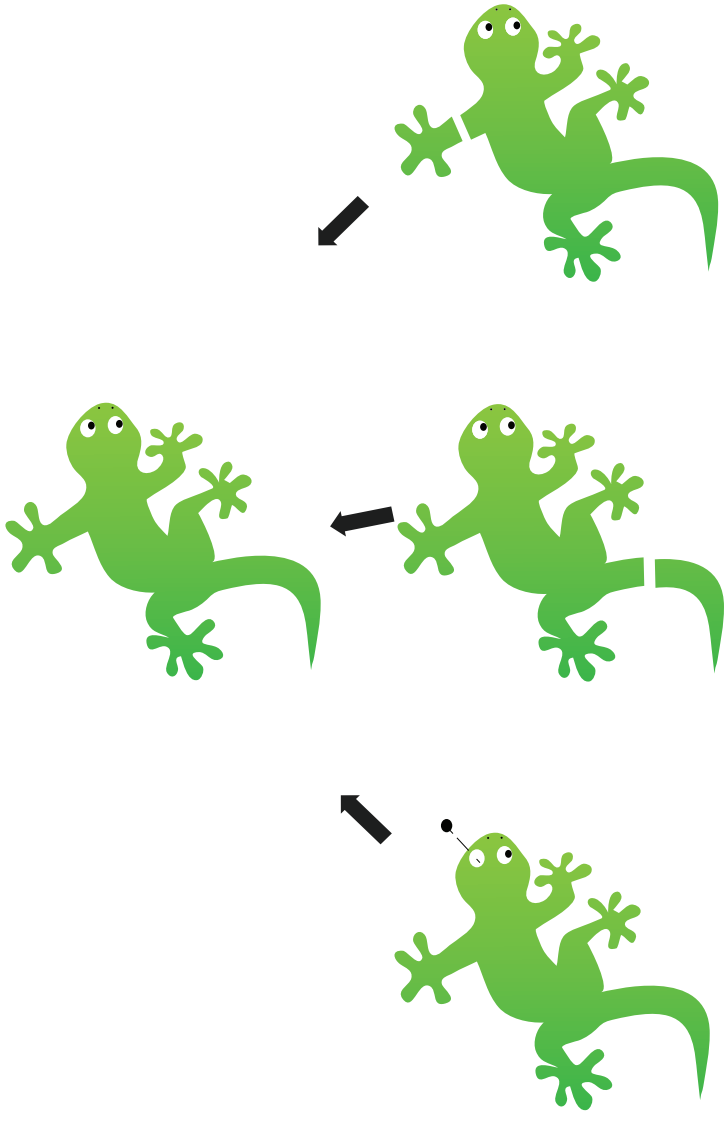
HOW DOES REGENERATIVE MEDICINE WORK?

Cells are the building blocks of tissue, and tissues are the basic unit of function in the body.

Wait... what? To put it simply, cells build tissue and tissue allows our bodies to function and maneuver.

Generally, when cells group together, they make and secrete their own support structures. These structures are called the extracellular matrix. This matrix does more than just support the cells; it also acts as a relay station. These cells receive messages from many sources that become available from the local environment. Each message can start a chain of responses that determine what happens to the cell.

Through medical technology we can now understand how individual cells respond, interact with their environment and organize themselves into a healing process. The extracellular matrix created utilizes various regenerative medicine treatments allowing the tissue to " self-assemble".



Epimorphosis is defined as the regeneration of a specific part of an organism caused by cell growth, reverse of cells to create structural change, and reformation. Like with a lizard and its tail, epimorphosis restores the anatomy of an organism that existed before the destruction of tissue or structure occurred. This process is similar to utilizing regenerative medicine treatments for joint degeneration, hair loss, and more.

WHAT CAN REGENERATIVE MEDICINE BE USED FOR?

PAIN MANAGEMENT

Pain for most of us comes and goes; some stays and you live with it day in and day out. Imagine a life where pain is constant, taking control of your life and, in some ways, the life of those close to you. Imagine having to rely on a narcotic to somewhat lessen the pain just to make it through the day. The Institute of Medicine of The National Academies state that over 116 million Americans suffer from chronic pain, 1.5 billion worldwide. Pain that is caused by trauma, aging, sports injuries, work-related injuries, diseases, the list goes on and on.

Drugs are the "first line" of treatment for most forms of pain. To date, the goal of successful pain management is to effectively control patient pain without causing side effects from the medication prescribed. However, only 58% of those who took prescription pain medicine received any form of pain relief and only 41% of those taking over-the-counter pain medication reported relief. The incident of unintentional (and preventable) drug overdose-related deaths are growing exponentially. Of all drug-related deaths in the U.S., 43% are due to pain relief medication.

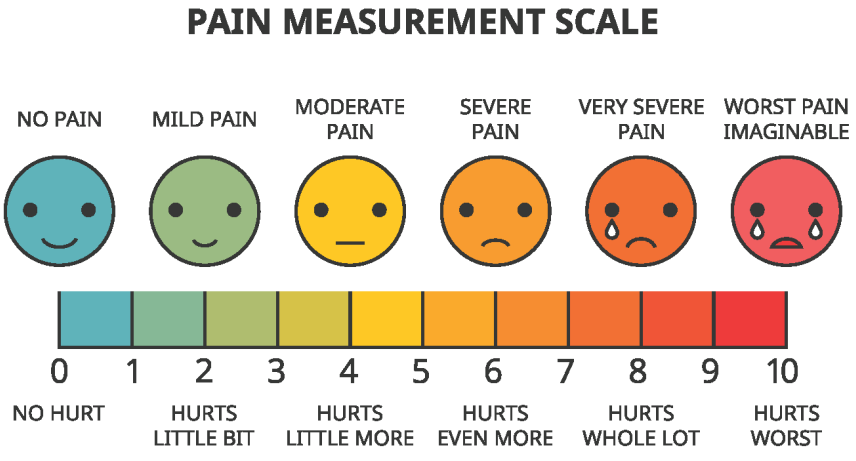


FIGURE 3

Doctors know that approximately 50% of all patients undergoing pain management will not receive adequate relief (Figure 3) at first dosing and/or are at a higher risk of experiencing adverse, potentially life-threatening events.

80% of all pain management drugs are prescribed by the general practitioner or the internist. With the epidemic of opioid abuse so prevalent, clinicians are looking for other methods to treat pain and injuries through alternative treatments and patients, in turn, are looking for non-invasive options to avoid any type of surgical procedure. With the advancement of medical technology, regenerative medicine is now a popular and successful alternative to treat the management of pain.

SPORTS INJURIES

Sports for professional and recreational purposes are mainstays in American society, but unfortunately so are sports-related injuries. As recent studies increasingly prove the inefficiency and harm of commonly-used treatments like anti-inflammatory medications and corticosteroid injections, more injured athletes are seeking regenerative medicine therapies to heal.

Regenerative medicine is now at the forefront of offering such treatments to help athletes overcome injuries without surgery or invasive measures.

Sports injuries are most often musculoskeletal conditions that occur in the hip, knee, elbow, ankle, shoulder and foot. (Figure 4) Since tendons, ligaments, cartilage, and bones in that area of the body don't receive a great deal of blood flow, the body can't always heal and regenerate itself effectively. Regenerative medicine treatments offer a new and efficient treatment option that can augment the body's natural healing process and rebuild damaged tissue.

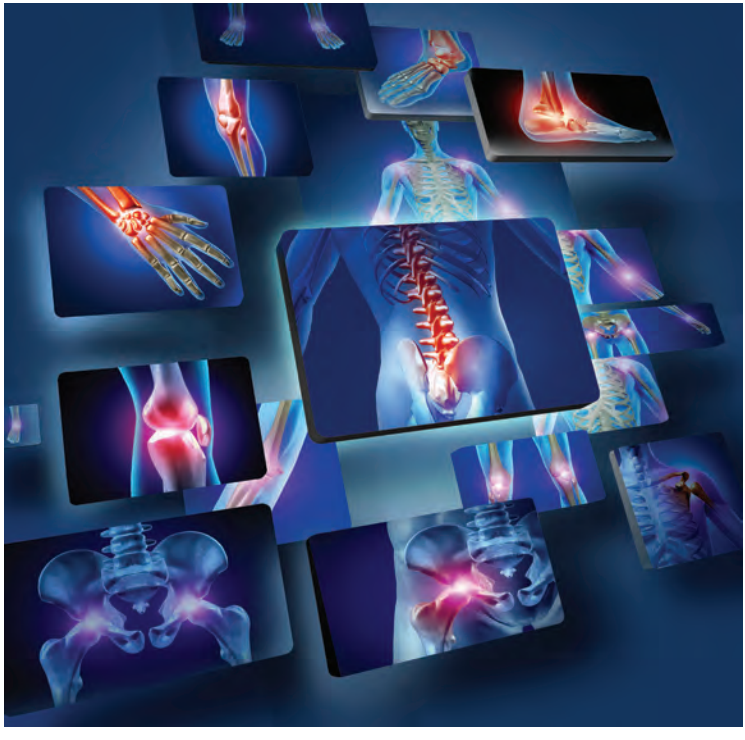


FIGURE 4

When treating articular cartilage injuries, for example, regenerative medicine therapies can both overcome the limited ability of the cartilage to self-repair by providing either new cells or growth factors needed to repair the existing cells. Studies indicate that such techniques can improve the efficacy and consistency of treatment and reduce the potential for future injuries in the same location. Professional and recreational athletes now have a safe and efficient alternative to surgery that not only resolves pain but also thoroughly heals difficult injuries.

ANTI-AGING

In addition to baby boomers, now being an average age of sixty-four, the younger generation is feeling the pressures of today's society which has placed a tremendous focus on personal appearance. As recent as ten years ago, the average age for a woman having some type of anti-aging procedure was forty-seven; today that average age is thirty-five. Patients, both men and women, are having cosmetic treatments prior to the aging process becoming apparent in their appearance.

Regenerative medicine is gaining popularity in the fight against aging. Anti-aging procedures are becoming the fastest growing treatments in cosmetics. Treatments being utilized include platelet-rich plasma, also known as the Vampire Face Lift, bone marrow aspirate, amnion liquid, and umbilical cord tissues and blood, all being marketed as "stem cell therapy." (Figure 5)

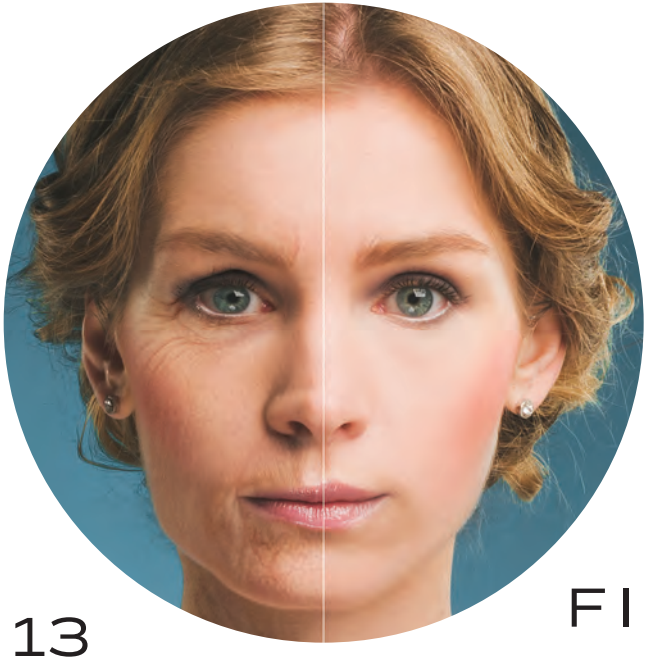


FIGURE 5

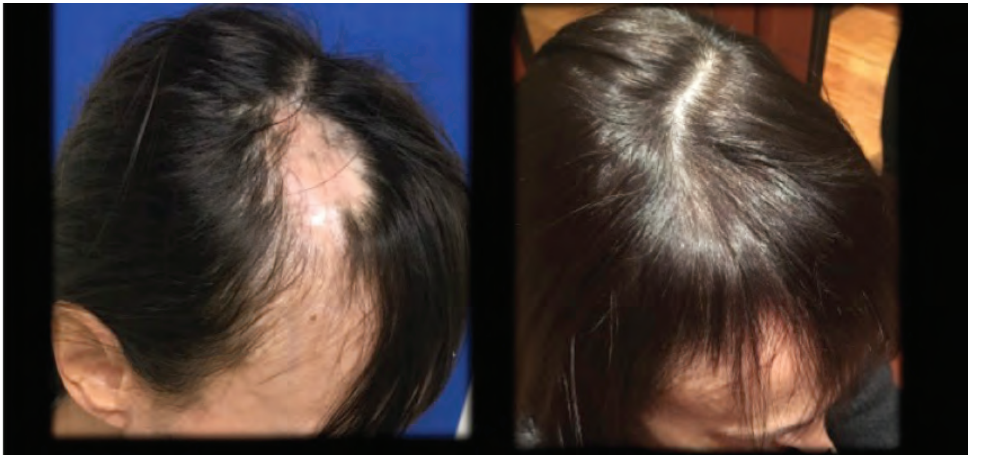
"Approaching the age of 60 I noticed the signs of aging were catching up to me, especially in the lip area. Over the past decade, I have had Botox and facial fillers, but none seemed to last more than a couple of months and I tended to bruise and swell substantially. During a consult with my plastic surgeon, he suggested I try regenerative medicine, along with a facial filler comprised of hyaluronic acid. To my surprise, I experienced no swelling or bruising post-treatment. I am delighted with the results and, after several months, I see no signs of the effects diminishing."
Vicki, C.E.O, Age 61

HAIR RESTORATION

According to the American Hair Loss Association, two- thirds of men will experience hair loss by the age of 35. But women are also affected, making up 40% of all hair loss sufferers. Hair loss around the face affects 90% of all males and females during the aging process and is one of the strongest contributing factors to low self-esteem. In addition, the psychological damage caused by hair loss and feeling unattractive can be just as devastating as any serious disease, and in fact, can take an emotional toll that directly affects physical health.

The most common cause of hair loss is a hereditary condition called male-pattern baldness or Female-pattern baldness. It usually occurs gradually and in predictable patterns- a receding hairline and bald spots in men and thinning hair
in women. Alopecia Areata is also a major cause of hair loss.

During the last ten years or so, there has
been great promise for being able to treat hair loss by using regenerative medicine therapies. Regenerative medicine may work in numerous ways to improve and regenerate hair by providing nutrition and promoting new blood supply to the follicle; increasing hair shaft size for additional growth. Additionally, studies show growth factors contained within regenerative medicine reduce inflammation in the scalp and turn on follicular stem cells to promote hair growth.



PATIENT TREATED WITH
UMBILICAL CORD TISSUE AND PRP

PATIENT TREATED WITH
WHARTON'S JELLY AND PRP

WHAT THERAPIES ARE AVAILABLE?

BIRTH TISSUES

Birth tissue is donated by healthy mothers at the time of a scheduled cesarean section. Through an informed consent process, expectant mothers submit their past medical and social history which is prescreened through an extensive and complete medical review and pre-natal evaluation. This process is performed before delivery utilizing the protocols established by various regulatory agencies. Additionally, prior to delivery, the mother is tested for communicable diseases following the requirements of the Food and Drug Administration (FDA), Center for Disease Control (CDC), and the American Association of Tissue Banks (AATB). (Figure 6) The recovery is performed by specifically trained technicians at the time of the delivery.

TESTING	PURPOSE
HIV I/II Ab	Antibody to HIV Virus Type 1
HBsAG	Hepatitis B Surface Antigen
HBcAb	Hepatitis B Core Antibody
HCV Ab	Hepatitis C Antibody
HIV I/II NAT	HIV and HCV Nucleic Assay Testing
RPR	Syphilis Detection Test
WNV	West Nile Virus

Birth tissue has been used for over 100 years for a broad range of therapeutic applications.
However, it is only recently that birth tissue was discovered to have great clinical benefit when cryopreserved to protect its residual cells. Since the discovery of birth tissue as a viable regenerative treatment in 2005, there have been no reports of disease transmission. Additionally, birth tissue is considered immune-privileged, meaning there is little risk of rejection.

Finally, Birth Tissue products are easy to use as it can be applied directly to the injured site. To date, tens of thousands of patients have been treated with these types of products.

Some people may hesitate at the idea of birth tissue. Be assured that the tissue is obtained from healthy, carefully screened mothers at the time of a scheduled cesarean section and causes no harm to her or her newborn.

AMNIOTIC FLUID THERAPY

Patients considering invasive stem cell injection treatment to aid in pain management, recovery, or healing may want to consider the rejuvenating qualities provided by amniotic fluid. This all-natural regenerative therapy is a liquid amnion allograft composed of amniotic fluid and features many components that enhance the body's natural healing process. (Figure 7)

Just as the amnion (innermost layer of the placenta) protects the fetus during development, it can also provide the same protection to injured or traumatized tissue. Amnion contains collagen substrates, a full range of growth factors, amino acids, carbohydrates, cytokines, hyaluronic acid, fibroblasts, epithelial cells, and extracellular matrix. Amniotic fluid has proven to be multipotent and capable of differentiating into many different types of cells contained within the body.

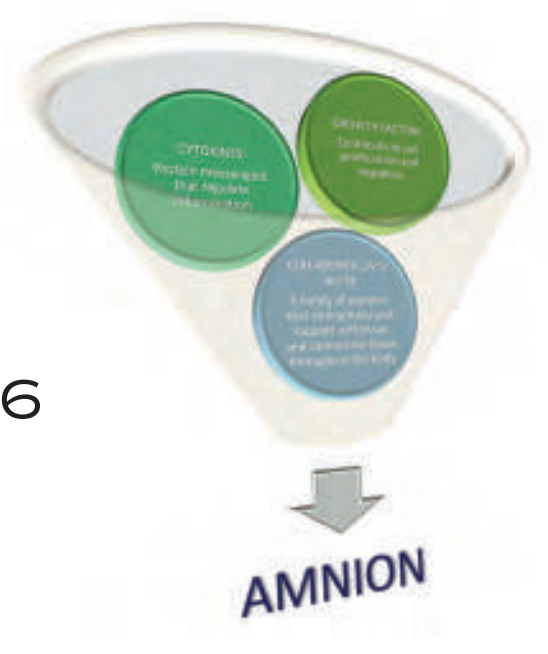


FIGURE 6

Amnion membrane is rich with the basic components necessary for tissue regeneration. It also contains anti-inflammatory characteristics with the capability to reduce scarring internally and externally. To remove the risk of graft-host reaction*, the chorion* are removed. This will maximize the potential benefits of amniotic membrane in a variety of medical specialties. Additionally, the immunologically privileged nature of amnion membrane has been shown in a multitude of research papers.

**Graft-versus-host reactions occur when the patient's healthy cells view the newly implanted cells as foreign objects. The patient's healthy cells then attack and damage the new cells.*

**Chorion is the outermost layer of the amniotic sac.*

UMBILICAL CORD TISSUE

Also derived from birth tissue within the umbilical cord is the Wharton's Jelly. Wharton's Jelly is the tissue surrounding the umbilical
vein and vessels in the cord. (Figure 8)

Cellular Wharton's Jelly
When the vessels are removed closer to the fetal side of the cord, you have remaining tissue which contains stem cells termed mesenchymal stem cells or MSCs. MSCs are undifferentiated cells (not changed) that can change into any specific cell type in the body. These cells, once deployed to any area of injury or disease, can readily change into the cell type that is needed to repair. Moreover, MSCs are directed to the body's cell signals that recruit them to the site of the injury. Once they reach this area, they dock and begin repairing by releasing cytokines, growth factors and other components that are needed in the healing process.

Acellular Wharton's Jelly
Derived from the maternal side of the umbilical cord, this tissue contains up to 50 times more growth factors and other components than the amniotic fluid. Wharton's Jelly products are especially beneficial for patients over forty that, due to the aging process, have less viable cells than a younger patient would have. (Figure 9)

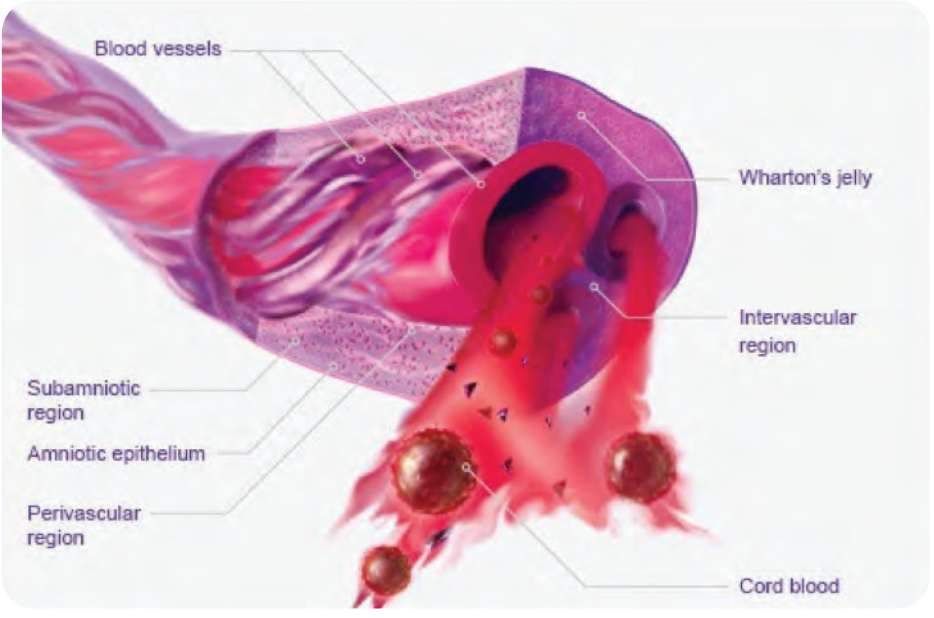


FIGURE 7

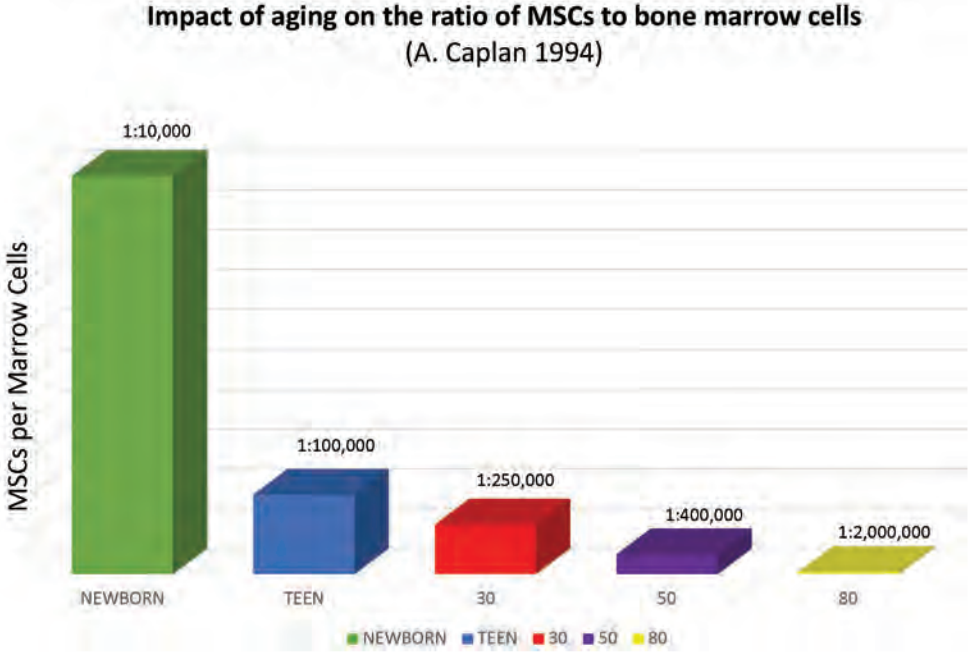
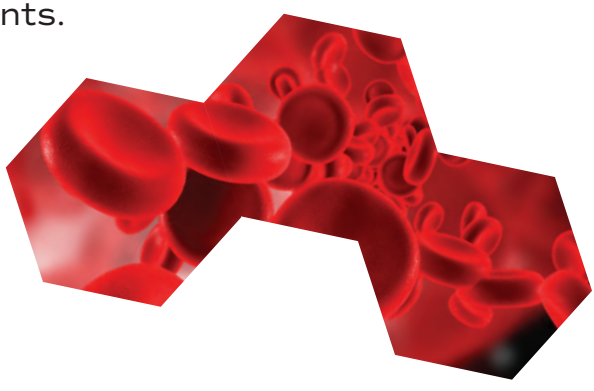


FIGURE 8

UMBILICAL CORD BLOOD

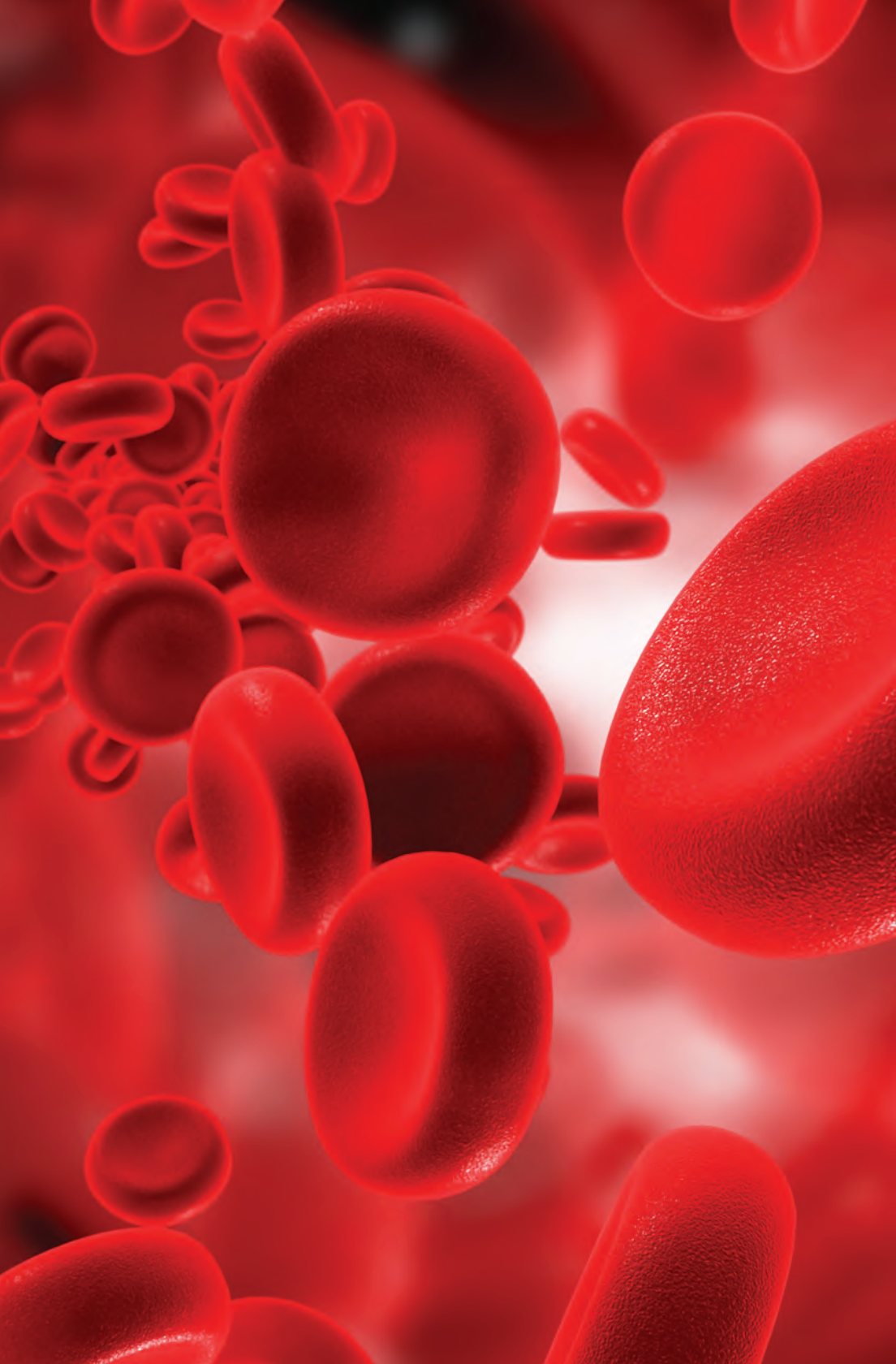
Umbilical cord blood is blood that remains in the placenta and the attached umbilical cord after childbirth. Umbilical cord blood contains two types of stem cells, primarily hematopoietic stem cells* and a small number of mesenchymal stem cells*. These stem cells have the capacity to self-renewal, release growth factors and cytokines, as well as change into more mature cells.

As an extension of fetal cells, umbilical cord blood cells exhibit high plasticity. Umbilical cord stem cells have been used for over twenty years for hematopoietic stem cell reconstitution as a substitution for bone marrow reconstitution. Additionally, due to the high plasticity of umbilical cord cells, there is a significantly decreased risk of
graft-versus-host disease (GVHD) and if GVHD does occur it is less severe than most other types of transplants.



**Hematopoietic Stem Cell: immature cells that can develop into all types of blood cells, including white blood cells, red blood cells, and platelets.*

**Mesenchymal Stem Cell: plays an important role in many regeneration processes in the human body.*

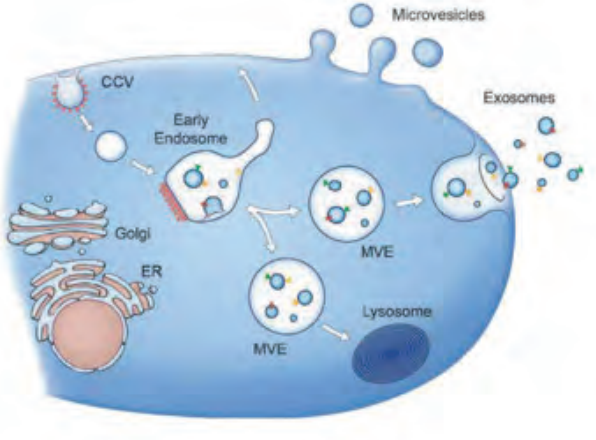


EXOSOMES

Older cells are less robust in the production of components necessary for healing. One option for older patients seeking regenerative medicine treatments is exosomes. Exosomes provide many therapeutic benefits by exhibiting regenerative and immune responses that assist the cells contained within the body to heal and correct.

Not all stem cells in the body are active. Some lie dormant, not working to complete the needs of the body. This population of cells are particularly versatile and once activated penetrate or travel to the sites of injury where they can develop specific characteristics to repair and remodel. Exosomes possess the capability to activate these dormant cells.

Exosomes derived from healthy connective tissue cells do not contain DNA. This means that there is no risk of cells developing cancerous characteristics. Additionally, as the cells contained within do not come from the patient's own body, the number of cells is not limited by the patient's age.



"As a long sufferer from degenerative knee pain, I have tried multiple products to maintain my healthy, active lifestyle. My goal every year is to enjoy a skiing season without having to take days off for knee pain and swelling. As a physician, I keep up with medical developments and was excited to hear about the latest regenerative efforts. The science is solid and credible and supports what I have discovered in my own wound healing research. I had an injection of umbilical cord tissue into each knee 4 months before the first ski trip of this year. I was cautiously optimistic after six weeks when my knees had less daily discomfort and made less 'noise' when I flexed them. I am thrilled to report that I could ski six full days in a row without my usual swelling and pain. I didn't use any anti-inflammatory medications and didn't need to ice my knees one time, even after a day of 30,000 vertical feet. The results exceeded expectation. I am recommending this revolutionary regenerative product to my friends and to my patients."

Dan, M.D.
Plastic Surgeon,
Age 60

PLATELET RICH PLASMA (PRP)

Often misrepresented as stem cell therapy, PRP is created by drawing blood from a patient with an anti-coagulant, injecting it in a special tube and placing the tube in a centrifuge. The high speed of the centrifuge separates the platelets (Figure 10) from the red blood cells.

The product is then re-coagulated and sometimes mixed with calcium chloride* to induce the release of growth factors. The PRP is then ready to be used as an autologous tissue* injection or introduced to a surgical site.

Platelets are normally known for their responsibility to clot blood, but they also contain proteins known as growth factors that play a vital role in healing injuries. Since the location of most sports injuries does not receive an abundant flow of blood, the injuries are deprived of the platelets and growth factors needed to regenerate damaged tissue. Studies show that PRP treatment can resolve that problem by delivering the injured part of the body with the platelets necessary to support healing.

While not as "potent" as other therapies, PRP does contain growth factors and other cytokines that are said to recruit cells to an area of injury to coordinate a repair response. Additionally, PRP activates tenocytes to proliferate quickly and produce collagen to repair tissue.

PRP is said to begin working in a few weeks but, alone, can take 6-9 months to its full effect. However, PRP mixed with New Life Regenerative Medicine products may enhance the healing process and cut the time down by more than eighty percent.

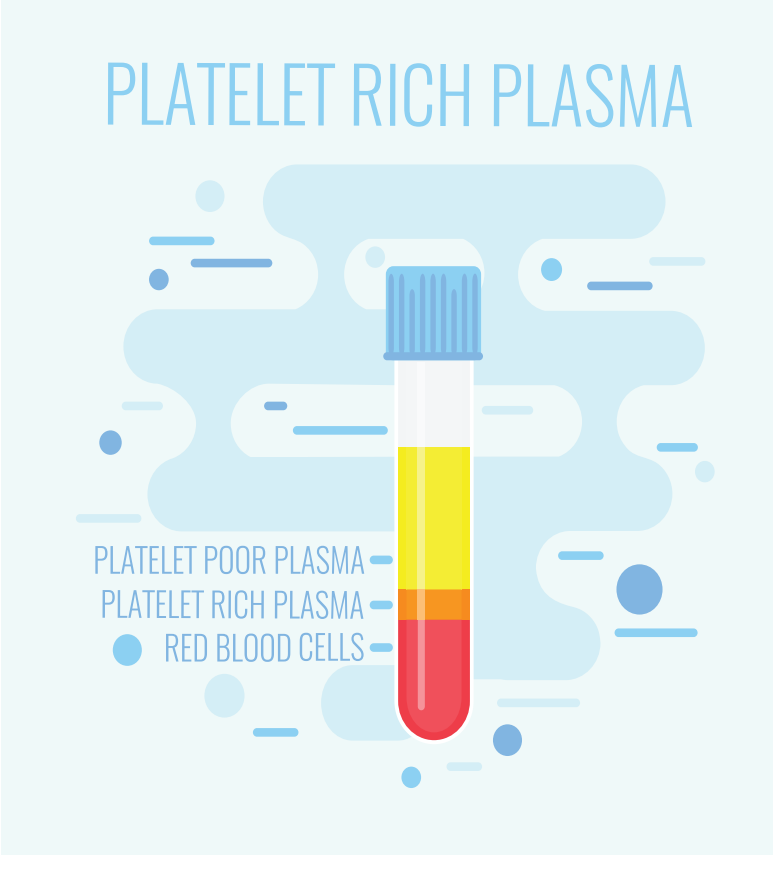


FIGURE 9

*Calcium chloride is a calcium salt and an inorganic chloride

*Autologous: Cells or tissues obtained from the same individual

ADIPOSE DERIVED STEM CELLS

Adipose (fat) is collected from the patient via mini-liposuction. This procedure should be performed by a licensed physician in a hospital setting under light general anesthesia. The physician will determine the most appropriate location(s) to perform the incision(s) for the
required fat tissue extraction. One of the most frequently used areas is commonly referred to as "love handles." The procedure typically takes about an hour. After the procedure, patients are observed for one hour in the post-op recovery room and then an additional one to two hours
in another recovery room. Pain medication is prescribed for those who need it although most patients require very little medication

While recovering, your stem cells will be separated from your fat tissue and the doctor will then inject those cells (just like getting a shot or an IV) back into your body. (Figure 11) The entire procedure normally takes four to five hours and the number of viable cells obtained is greatly dependent on the age of the patient.

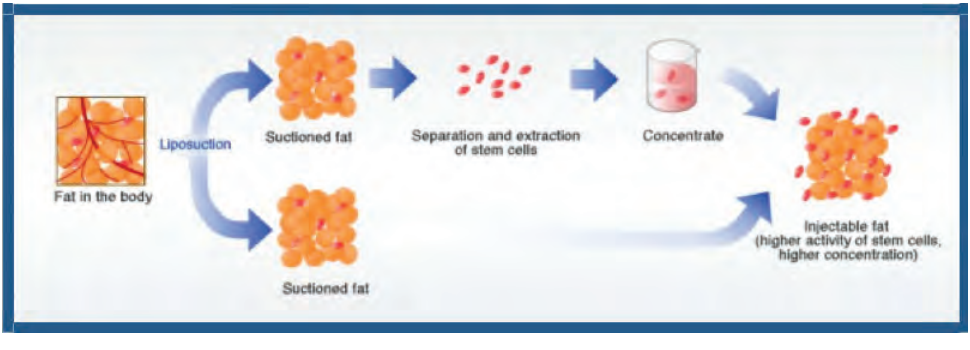


FIGURE 10

BONE MARROW ASPIRATE STEM CELLS

Bone marrow aspirate concentrate is made from fluid taken from bone marrow. A needle is used to remove bone marrow from within the bone. This is typically done under sedation or general anesthesia. Marrow is commonly taken from the pelvis but may be taken from other sites. The pelvis is marked and prepped to keep the site sterile. A hollow needle is inserted into the bone and a syringe is used to withdraw fluid from the bone marrow. (Figure 12) After enough fluid has been collected, the needle is removed. Pressure is applied to the needle site to stop the bleeding. A small dressing is then applied. After aspiration, there usually is pain at the pelvis that goes away within several days. A small dressing or bandage is kept at the aspiration site until it has healed.

The sample of bone marrow is removed and then spun down in a centrifuge to separate the cells. A liquid is produced that has a high concentration of stem cells. The physician injects the stem cells directly into the surgical site. This method is avoided in patients who have an infection or cancer. Complications may include pain, bleeding,
infection and nerve injury. An intra-abdominal injury may occur because of the needle. The success of bone marrow aspirate stem cells is dependent on the age of the patient

FIGURE 11

TESTIMONIALS

"Playing in the NFL for twenty-one years as a quarterback has taken a toll on my body leaving me with chronic pain in my shoulder. Although retired from the NFL, I continue to lead an active lifestyle by working out and playing golf. When the pain in my shoulder became too much to enjoy these activities, I went to my good friend, Dr. Mic McClimans who suggested I try regenerative medicine therapy, including birth tissue stem cells, provided by New Life Regenerative Medicine. It has now been two months since my treatment and the improvement is substantial; I am sleeping better; my golf game has improved, and the pain has substantially subsided. Overall, I would say that the New Life Regenerative Medicine products administered by Dr. McClimans have improved my quality of life."

Vinny Testaverde
Retired NFL Quaterback
Age 54

"I am pleased to be one of the recipients of Regenerative Medicine through a knee injection. My knee was injured 45 years ago (patella
dislocation resulting in traumatic shearing of meniscus cartilage). Prior to injection, I couldn't play golf without a cart. Playing multiple days in a row routinely resulted in minor swelling. I had the injection in late August. At the end of September, I spent a week in the Hamptons and played multiple rounds of golf. More impressively, I could play tennis and some basketball. Although my athletic prowess was far short of noteworthy, my knee was exceptional; I had no swelling. Clearly, this has been a very positive result for me."

Jim
Businessman
Age 73

"Truly, the most important investment we can make, with the greatest return, is in the health and duration of our lives, so that we may fully enjoy our family, friends and fruits of our labor."

SYMMETRIA
INTEGRATIVE MEDICAL

RELIEF | REPAIR | RESTORE

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