

FOR THOSE CONSIDERING DOING STEM CELL THERAPY ABROAD

By

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If you do a Google search using “stem cell clinic”, you’ll come up with 371,000 websites (This and other searches done on January 10, 2012)

“stem cell treatment” -- 142,000 websites

"adult stem cell therapy" – 8,050,000 websites

Only a fraction of these listings are actual facilities offering some form of stem cell therapy, but even so how does one figure out who is on the up-and-up? That is, who is offering legitimate, safe forms of stem cell therapy, *if any*? And for which diseases or conditions do the various kinds of stem cells being offered actually work, *if any*?

Critics, skeptics, and many others are often quite strident in their denunciation of just about every private, commercial outfit that offers stem cell treatments – be it fetal cell, umbilical cord, or other adult stem cells. Many academicians and university-based stem cell researchers in the US dismiss reports of stellar clinical benefits in patients treated by private foreign stem cell clinics or hospitals as being “scams”, “frauds” or the like. Most argue that no one should be seeking out such treatments, at least not outside of formal, government sanctioned clinical trials.

With regard to the “scam” aspect, I would ask readers to keep this in mind (This is a quote from an article by “yours truly” that concerns the almost knee-jerk negative reaction of many stem cell experts to the cord blood stem cell work of Fernando Ramirez Del Rio, M.D. in Mexico. The entire article can be accessed by clicking this link: [Is Something Amiss?](#))

In the world of biomedicine, the question of whether a particular drug or procedure is effective or not is settled in the arena of science – namely, well designed and executed clinical studies. One doesn’t dismiss a treatment or procedure that has a rational foundation (i.e., doesn’t violate established scientific laws or principles) *a priori* – which is to say, before conducting tests. But this has been exactly what many experts in stem cell biology have done when it comes to the observations and data collected and reported by SRI. Rather than suggest the need for controlled studies to determine whether or not the clinically significant improvements reported in scores of patients treated with purified cord blood stem cells in Mexico for non-blood maladies pan out, many of these scientists have dismissed the entire treatment as “a scam”.

This is not the kind or degree of informed open-mindedness one would expect of highly placed researchers in major institutes and universities.

Of course, people with conditions or health challenges that can be managed, ameliorated or such using extant standard medicines or therapies should steer clear of exotic, experimental or unproved treatments, drugs, therapies or such. But what about those wrestling with an intractable or terminal condition like ALS (Lou Gehrig's), metastatic cancer, end stage kidney disease, Alzheimer's, or the like? People for whom waiting to participate in future clinical trials or to be treated with stem cell therapies approved in the wake of such trials is not reasonable, as some will die long before their particular malady has a scientifically proven method of treatment that will slow or abort their descent? And while many of the intractably ill may not die, they may be faced with a narrow biological window of opportunity for improvement that will close if something isn't done in the near-term. To wait might mean that what could have been improved today, will be beyond remediation in a few months or years. Is it unreasonable or irrational for them to reach out and embrace an experimental treatment or therapy (Provided it has a rational basis – which is to say doesn't violate known laws of physics or chemistry, has already been disproved, or carries more risk than benefit)?

I think not.

This creates a perplexing, sometimes gut-retching situation in which the medical consumer – the patient – or his caregivers – must sort through treatments and clinics and come up with “a safe, best bet”. Even highly intelligent, educated professionals who are artful in the use of logic and critical thinking can wind up uncertain, confused, or even overwhelmed.

Are there any guidelines that can help determine which stem cell therapy providers are offering safe, substantively effective or at least promising treatments?

There are.

Disclosure

I am not a stem cell expert or biologist, but rather a theoretician and writer. In short, I spin hypotheses and create inventions geared to improve human health or otherwise benefit folks. But this said I have been involved in stem cell therapy as an observer, a gatherer of patient responses, and a communicator of what I've learned along the way. From March 2003 to June 2007, I was resident biomedical theorist and senior science writer with the non-profit Steenblock Research Institute located in southern California. I left SRI at the end of June 2007 and spent 3 years with Weller Health Institute. Since July 2010 I have been working as a consultant to a number of companies and institutions that call on me to help with nutraceutical

development and promotion, creation of new health-related technologies and products, and generation of hypotheses concerning novel ways to advance the human condition.

With this background in mind – which yes, surely means I am not free of biases or blind spots – I will now offer some of the ways medical consumers in need of stem cell therapy can go about whether a particular facility or treatment provides safe and effective (or at least suitably promising) stem cell treatments. Mind you, this set of guidelines and pointers is not slanted towards any particular clinic, hospital, research center, doctor or group. In fact, I will not list a single facility or stem cell provider by name. Instead, I will try to provide readers with a fairly sturdy fishing pole and leave it to you to do the fishing.

Most of what I have to share is informed by simple, good sense, critical thinking principles widely articulated and embraced by skeptics and consumer advocate groups everywhere on the Internet. A few of my pointers are derived from my own experiences and insights gained from “being in the trenches” and are thus unique to having “insider knowledge.”

Sorting Wheat from Chaff

Stem Cell Types Used by Most Private Stem Cell Treatment Facilities

Private stem cell clinics around the world by-and-large offer treatments involving adult stem cells - typically fetal, umbilical cord stem cells, or various progenitor or other adult stem cells taken from the patient’s peripheral circulation or various tissues. If you are uncertain as to what is meant by the term “stem cells” or are unacquainted with the different types, click this link: [Stem Cell Basics](#)

Some stem cell clinics and treatment centers provide autologous bone marrow stem cell therapy, which in this context means bone marrow is removed from a patient and either immediately re-infused with or without growth factors, hormones or such, or else BM mesenchymal stem cells are separated from a patient’s own marrow sample, are cultured and possibly treated to differentiate (transform them into) special cell types, and then infused.

And there are also clinics that take a person’s own stem cells from fat or other body tissues, manipulate them in some instances so as to favor their becoming specific cell types, and inject or infuse them for therapeutic or cosmetic purposes (Some foreign clinics are using an automated stem cell removal system such as the [Celution® 800/CRS system](#) developed by [Cytori](#) and manufactured by General Electric, or the [Bioheart TGI 1200 Cell Isolation system](#)).

I have not mentioned use of embryonic stem cells because, to my knowledge, no private stem cell clinic or center anywhere in the world offers genuine embryonic stem cell therapy. Why?

Embryonic stem cells can cause cancer when implanted. For example, if you give embryonic stem cells to 10 rats, 1 of these rats will develop a tumor called a [teratoma](#).

Critics point out that most of these adult stem cells are limited as to what they will become, meaning that (for example) a cord blood stem cell is not likely to become a functional neuron (Unless manipulated in the lab and then infused into the patient). However, there is evidence that some adult stem cells take cues from the tissue milieu they engraft in and begin to assume characteristics of their cellular neighbors. For instance, stem cell researcher, [Dr. Paul R. Sanberg](#) and his team at the University of South Florida found that a specific type of hematopoietic cell from umbilical cord blood “expressed nestin and doublecortin, markers of endogenous neural progenitors” when transplanted into the brains of rats” [PMID 15048922](#) This finding gels with those of other animal studies.

However, it is not even necessary for an adult stem cell that migrates (or is directly implanted) into a diseased or injured organ to behave like the surrounding cells in order to have a salutary effect. Many studies have shown that at least some adult stem cells produce specific cytokines and growth factors that can promote local repair or otherwise foster improved function [PMID: 16730351](#).

Evidence of Efficacy

People looking into stem cell therapy tend (in my experience) to have an intractable condition or an incurable one or else are a caregiver or relative or friend of someone in that boat. This can lend folks to jump; to make decisions based on hunches or hope informed by “Well, if that guy got better then maybe I will too”. Desperation is surely the father of gullibility, something that has transformed P.T. Barnum’s (or was it Joseph "Paper Collar Joe" Bessimer’s?) famous observation that “[There's a sucker born every minute](#)” into both gospel and prophecy.

It’s understandable that people find solace and hope in testimonials. Most of the leading private stem cell clinics and treatment centers maintain websites that “runneth over” with patient testimonials. If you have non-familial ALS – and there are 4 case histories posted that were written by people with non-familial ALS who did stem treatment y and saw improvements – then isn’t that reason enough to believe you will too?

No it isn’t.

Consider: How many people with non-familial ALS did the treatment and saw no response? And of those with a positive response, to what degree were they improved and how long did it last on average? If 4 patients out of 100 saw minor improvements that lasted only a few months – and the treatment cost (say) \$20K – would you say the balance sheet tallies up in favor of forging ahead and doing it?

Well, maybe I'll be one of the lucky four? But what if 2 of the 4 were using a novel drug or regimen prior and/or following their treatment (Something not picked up by the treating clinic and reported)? Or these 4 happen to have a genetic variant of ALS that lends them to experience remissions of a sort – minor improvements that last a short time? Yes, the treatment would be credited for improvements it would likely have not played a role in effecting. Indeed, some therapies and drugs kick in even after being discontinued.

Keep in mind that in the world of science, testimonials are the *weakest* kind of evidence. At best they may point to something happening or working, which might justify doing a formal evaluation (Controlled studies). I am not arguing that they be discounted totally, only scrutinized. Resist lending them too much credence. And ask your stem cell clinic contact to provide some figures on their failure rate (number & type) of treated patients with your disease or condition. If they don't have this information or state that there are very few or no failures, they are likely either dishonest, mistaken or prone to filter out failures or narrowly define them (An all too human failing that can only be overcome by well designed studies that minimize human failings).

In my dealings with various stem cell operations throughout the world, I have found most providers to be genuinely and sincerely devoted to helping people get well or better. Most are not scientists, but typically clinicians who feel that their particular cell therapy approach is producing tangible healing responses with respect to certain kinds of diseases or conditions. I have heard of, but yet to chat with or meet any stem cell clinic administrator, provider or clinician who makes claims that are genuinely extraordinary. They appear to be few in number. Most I've interacted with admit they have "their fair share of successes and failures."

Many of the stem cell therapists I've informally surveyed define clinical success in nebulous terms, but at the same time appear to have a genuine dilemma when it comes to quantifying some kinds of improvement. For example, in some patients with neurologic issues, a single improvement – say, slightly moving a left pinky finger that didn't move previously – is a substantial gain; and this even if other paralyzed limbs or body parts remain as "dead as a doornail".

In light of this, yes, there is a subjective element to patient responses that makes quantification in some instances problematic. Especially if patients with specific conditions like chronic stroke show responses that are clinically but not statistically significant (And then, too many can show an improvement that is difficult to measure – say, being able to make a vowel sound they couldn't prior to treatment – and for which no objective changes are detected on brain scans or such).

But, and this is a big but, stem cell providers should be willing and able to articulate not only their failures, but also communicate some idea of *general trends*. For example, were most of the motor skill improvements in children with cerebral palsy treated with “stem cell z” minor (in the judgment of their parents and physical therapists or pediatricians back home)? Or major? Both? (And if both, what was the major improvement trends overall – as well as the minor?)

Also, ideally the stem cell provider will maintain not just a roster of “good responders” who are willing to phone or e-mail chat with inquirers, but also a list of “poor or non-responders” who are willing to share their experiences or lack of same. This isn’t an unreasonable thing to expect of clinic operators, though granted some will not have been in operation long enough to accrue this kind of information or (in the case of those that have) may not have many “poor or non-responders” willing to step up to the plate. There is an element here of weighing all considerations – being skeptical – but not necessarily to the point of tossing the baby out with the dirty bathwater.

One other way to get a handle on any downside of a clinic’s treatment is to search blogs maintained by patients, consumer advocates, specific disease associations and foundations and such. I have seen patients, for example, with ALS treated at various clinics in China post their thoughts – pro and con – on various ALS foundation blog sites.

Does this sound like a lot of digging, investigating, analyzing, comparing and thinking? Well, it is. But you’d probably do no less when it comes to buying a new or pre-owned car, right? You’d kick the tires, check under the hood, make sure it’s mechanically sound, check out online reviews and comments from folks who own a similar machine, and do some price comparison shopping to boot. So would want to put less effort into evaluating a foreign stem cell operation than they would the purchase of an automobile?

So we’ve considered the issue of evidence (or lack thereof) of efficacy. And yes, again, while a consensus derived from many randomized controlled clinical studies is what is needed to reliably determine efficacy, this kind of proof simply does not exist yet when it comes to private stem cell operations. The best we typically see is a pilot study or clinical experiment such as [Fetal Cells Given in Ecuador Helps Mend Hearts - 2005](#) that may justify further, more formal investigation by scientists. What we see by-and-large are patient testimonials in written and video form. There is no surefire way to reliably determine effectiveness of a particular stem treatment for condition x from these, but with some “due diligence” (careful research and digging and such), it is possible to detect whether that white stuff you think you see is smoke or dust caught in a wind gust.

Issues Related to Safety

The first issue with respect to safety and any kind of stem cell treatment is disease screening. Of course, this is not an issue when it comes to use of autologous (A patient's own) stem cells. But for allogenic cells or those that come from a donor, screening for major infectious disease-causing microorganisms such as HIV, Hepatitis A, B & C, cytomegalovirus, and so forth is imperative.

Most of the private stem cell clinics I have surveyed (since 2003) are careful to provide only cells that have been rigorously screened by a reputable independent laboratory. Some clinics that rely on cells from an affiliated hospital get their testing done in-house – in a lab that utilizes the very latest & best disease screening technology.

For medical consumers, nothing can be taken for granted. Ask for a copy of the specific lab test results for the batch of cells you are slated to receive. You should see a lot # that corresponds to the vial(s) or IV bags that are to be used for your treatment. There should also be a company or department name and phone number. Call the lab and check things out. Look up the lab or department online or in a business or phone directory to make sure the address and/or phone # on your lab results matches that of the contact information in the directory listing.

Keep in mind that some foreign stem cell clinics get their cells from an in-house lab or independent one that imports cord blood or fetal material that was disease screened in the exporting country. For example, clinic X in Mexico gets their cord blood stem cells from disease-screened cord blood that's imported into Mexico from America and processed in an in-house, but FDA standards compliant lab. In this instance, the clinic or its affiliated lab should be able to show the US disease screening certification that accompanied the UC blood that was used to produce the cells that will be used to treat a given patient.

Naturally, legitimate stem cell clinics and treatment centers are concerned about the quality of care they provide their patients. In this day of ultra-quick dissemination of information on the Internet, it doesn't take long for a lousy clinic or provider to be exposed, cussed and discussed. This is good for patients and their caregivers, and also for the stem cell treatment providers too – for it helps to keep them honest. If they fall off in terms of the quality of their therapies or care, word gets around fast and their revenue suffers (which, in turn, would tend to get their attention and motivate them to remedy their deficiencies). Many clinics that refuse to provide disease screening proof to their patients wind up having this show up on Internet web & blog sites – making it easy for browsers to learn about their recalcitrance with a simple Google search. This alone can save time and effort when checking out a clinic or treatment provider.

Disease screening is one major issue. The chance of rejection (Host vs. Graft or HvG) is another – at least with respect to allogenic (non-self) cell treatments.

When it comes to matching donor and recipient in terms of HLA compatibility, this is a must when it comes to a cord blood transfusion. However, this said it must be pointed out that mismatched blood given intentionally to children with leukemia had a salutary effect, as it is reported to have had in off-label use on ALS patients.

But what about pure cord blood stem cells? Well, some scientists have noted that pure cord blood stem cells have a very low immunoreactivity, which is to say they do not appear to set off notable adverse immune reactions in recipient animals and humans.

For example, in one animal experiment researchers found that when human cord blood stem cells were surgically implanted into rats with induced spinal cord injuries, no signs of rejection cropped up.

And so far as I can tell from the world scientific literature, pure cord blood stem cells seem to seldom trigger Host v. Graft reactions. This gels with my own experience in which I tracked over 500 patients treated with cord blood stem therapy by Fernando Ramirez Del Rio, M.D. from March 2003 to June 2007 and saw virtually no adverse reactions (Not even many, many months after treatment). This was true of both low dose infusions (1.5 million cells), as well as high doses (40 million cells+). Those that were seen -- mostly mild rashes -- were found to be due to a failure to remove the stem cells from the growth factor-rich media they had been cultured in. Once the cord stem cells used by Dr. Ramirez were removed from the growth media prior to final processing, all such reactions ceased.

This said, it is possible that very low level immunoreactivity goes on and that this conceivably inhibits the activity of the stem cells or even prompts their gradual elimination (Possibly within days or week of infusion). A prudent precaution against this might be for stem cell therapists to place their patients on an immunosuppressant drug such as [Cyclosporine](#) short-term. So far as I can tell, few if any private stem cell clinics do this.

Fetal cells taken from early stage aborted fetuses also appear to have a very low probability of causing a Host vs. Graft reaction. This said, the disease screening and documentation discussed above with respect to UC-derived stem cells applies to any sort of fetal cell therapy as well, as do precautionary use of immunosuppressants.

NOTE: Thanks to modern computers and image-manipulation software it is relatively easy for people to alter or create documents (This is adroitly illustrated in the comedic movie "[Accepted](#)"). It stands to reason that some clinics abroad may concoct certificates of analysis (CofA) with respect to the stem cells they offer or the like. In light of this possibility, I

recommend that folks considering going to a specific stem cell clinic (1) contact the Department or Ministry of Health governing same and request verification of the clinics license to operate, verification of theCofA issuing lab's existence and certifications, etc. (2) Send a copy of any and all certificates of analysis to the issuing lab and request verification (Provided the lab is an independent one and not an in-house operation).

Issues Related to the Treatment Provider or Chief Physician + Medical Emergencies

In some foreign countries that allow stem cell clinics to operate legally, it is difficult to verify practitioner credentials or standing. It is difficult, but not impossible. When asked for a copy of their degree and license, most foreign doctors engaged in legitimate stem cell work willing provide this by mail, FAX or such. Some post it to their website. And when it comes to documents in an unfamiliar foreign language, this possesses no problem as they can be readily translated to English using any number of free online or commercially available translation software programs.

Schools can be checked out using UNESCO's list of accredited institutions of higher learning throughout the world [UNESCO Worldwide School Database](#) Mind you, this list is not necessarily complete. If a school doesn't appear, check with the appropriate accreditation agency or authority in the country in which the degree in question was issued.

Once one is satisfied that the treating physician is indeed a duly credentialed and licensed physician, there is the question of qualifications to do stem cell therapy. Now, while it isn't necessary that a physician giving fetal or cord blood stem cells to patients be a stem cell biology expert or hematologist or such, a background that includes training in these areas or in cell or tissue transplantation is obviously a plus. More importantly, a treating physician should be trained and adept at spotting problematic reactions or side effects and dealing with them using the appropriate, standard medical drugs or other forms of intervention. If he or she is not versed in this area of medicine, then certainly a physician should be on-hand or on call that is. This is a legitimate concern and should not pose a problem for the treating clinic in terms of providing evidence that satisfies the patient and his or her caregivers and/or family.

Seriously ill folks traveling to a foreign country for any kind of stem cell therapy also need to ask about and look into the availability of local emergency hospital services. While the odds of getting hit by a sudden medical crisis may be low in most instances, it is reassuring and prudent to know there is a well equipped ER in the vicinity should (God forbid) an existing health challenge head south or a new one arise unexpectedly. The availability of English fluent or near fluent doctors is a big plus.

Issues Related to Patient Pre-Treatment Conditioning -- “To Prep or Not To Prep”

Among the general trends that emerged from my own involvement in tracking cord blood stem cell recipients and in the exploration & development of pre- and post- treatment support protocols were these: (1) The younger the patient, the better the healing response tends to be (overall); (2) Adult patients with acute conditions treated early on have more vigorous responses than those with longstanding (chronic) conditions, injuries or health challenges; and (3) Older patients, especially elderly, often showed the least impressive responses. This appeared to be especially true of those patients who had abused their bodies and looked and had [age-related biomarkers](#) indicating they were much older than their chronological age.

The impact of aging and self-abuse on physiologic responses to cell therapy isn't really surprising. If one is planting seeds in a field, fertile soil will always produce a better yield than soil depleted of specific nutrients or laden with high levels of toxic compounds or substances. In terms of older candidates for stem cell therapy, this comes down to identifying remediable factors that might compromise stem cell integrity or activity and reducing or eliminating as many of them as possible (I say “remediable” because there are some antiproliferative or cytotoxic compounds that accumulate in tissues over time that appear difficult if not impossible to liberate and safely remove).

This perspective informed the development of screening recommendations and dietary & lifestyle specific for older neurologic and non-neurologic patients by staff members including myself at SRI during 2003-5. These included bringing patient's diet into conformity with our evolved nature ([PALEODIET](#)), as well as testing for heavy metals toxicity, e.g., lead, mercury, cadmium, etc. and having the patient's doctor deal with this.

Older patients who religiously adhered to these protocols did, on a whole, fare better in terms of responses to cord blood stem cell therapy than those who didn't. However, the difference was oftentimes marginal or weak. This was disappointing and frustrating, of course. Something more was – and is – needed; some factor or factors that will help systemically rejuvenate the tissue milieu so that existing (or native) stem cells can thrive as well as any stem cells introduced exogenously.

Or were my colleagues and I at SRI wrong altogether? After all, many stem cell clinics and center state that no special dietary changes, lifestyle adjustments or other bodily prepping is needed to help bolster post-treatment response.

While it is too early to say for sure which point-of-view is right, there is now published research that seems to favor prepping the tissue milieu. Here are two:

Microenvironment and stem cell properties for bone-marrow derived mesenchymals

“We discuss here how the microenvironmental cues, and the growth factors that physiologically govern commitment and subsequent differentiation, influence the properties of bone marrow stromal cells and modulate their engraftment into host tissues.”

Scientists determine stem cells' 'age'

“Researchers at the Salk Institute for Biological Studies said a stem cell's immediate neighborhood -- a specialized environment also known as the stem cell niche -- provides crucial support needed for stem cell maintenance. But scientists discovered that level of support diminishes during aging, thereby affecting stem cells' ability to indefinitely self-renew.

You can manipulate stem cells and propagate them in a dish but many recipients of stem cell replacement therapies will be older individuals. If the stem cell niche has aged, it might not be capable of supporting the transplanted stem cells" (Assistant Professor Leanne Jones)

Of course, even if the stem cell niche is compromised in older folks, how does one rejuvenate it or otherwise create a more stem cell favorable environment? The dietary measures and such cited above appear to confer some marginal benefits – perhaps “rejuvenating” to some small degree the stem cell niche – but this alone is insufficient. Barring development of a time machine, de-aging a person’s bodily tissues looks to be an almost Herculean challenge. But it isn’t insurmountable. There is, in fact, experiments in-progress at several private and public research centers in various countries that may pave the way for systemically “de-aging” tissues in older adults such that the stem cell niche will indeed become more youthful.

In the meantime, the issue of prepping or conditioning older patients using techniques and lifestyle modifications like special diets, heavy metals testing and treatment of those found to have a heavy metal burden (toxicity), and such boils down to a judgment call on the part of physicians doing stem cell therapy. To prep or condition patients prior to stem cell therapy seems a logical, straightforward, prudent measure, but this doesn’t mean that doctors and stem cell treatment facilities that eschew this are wrong. Those interested in doing stem cell therapy are certainly encouraged to learn more and discuss this with those who will provide their particular form of stem cell therapy.

Issues Related to Mode of Administering or Implanting Stem Cells

According to a survey I made during 2005, most private stem cell clinics or centers treat their stem cell patients – regardless of whether they are utilizing bone marrow or cord blood stem cells or fetal cells – by IV drip. This places the cells into the body’s circulatory system where they presumably travel about until they either lodge in a tissue or organ or migrate to same in

response to specific signals generated by diseased, injured or dysfunction tissues or organs (such as stromal derived factor-1). Dr. Paul Sanberg's animal studies involving cord blood stem cells indicate that these cells tend to migrate to newly damaged tissue, whether introduced in the peripheral vascular system or directly into the afflicted organ (His studies focused on CNS damage such as induce strokes).

Cells administered by IV would not, however, necessary breach the [blood-brain barrier](#) that keeps most chemicals with a molecular weight higher than 500 [daltons](#) out of the brain. One way to circumvent is to open up the BBB by use of a drug such as [mannitol](#), which is what some stem cell clinics do. Another and most likely surer way to insure delivery of cells to the CNS is by direct catheter infusion or direct surgical implant. The catheter infusion method typically involves introducing a catheter into the femoral artery in the leg and snaking it up through the circulatory system into the brain. Cells can also be implanted in the brain by [stereotactic surgery](#), a process in which a patient's head is locked in a special apparatus, very small holes are drilled in the patient's skull very thin needles are scanner guided to target, and stem cells are injected. Cells can be introduced into certain spinal regions by direct surgical implant and [intrathecal injection](#).

As the saying goes, "the right tool for the right job". For patients, say, with a specific brain injury, this may mean foregoing an IV approach – as this would probably result in few cells reaching their injured tissues – and having a catheter or direct implant done.

So far as I have been able to ascertain, only a handful of private stem cell clinics and centers in the world have the personnel, equipment and experience to safely perform catheter infusion and direct implant procedures. If you happen to find yourself or a loved one faced with needing this type of intervention, look for a clinic that has qualified, experienced medical personnel and the proper surgical room equipment. For example, the surgical team needed for doing a catheter infusion typically consists of an [interventional radiologist](#), an [anesthesiologist](#), possibly a neurosurgeon, and an OR (operating room) nurse and sometimes several other techs or nurses. The operating room should have suitable surgical scanning equipment for guiding the catheter through the circulatory system, a proper anesthesia set-up, vital signs monitoring devices, and equipment for resuscitation and other emergency intervention should a medical glitch or problem arise.

Concluding Remarks

This look into the issues and concerns that confront those seeking treatment with adult stem cells abroad is obviously far from exhaustive. It is hoped, however, that it will ably serve as a basic template or framework readers can use to help shape their own queries into this fascinating and controversial subject.

Nota Bene: Readers are encouraged to share their findings with me by e-mail. Those who have gone abroad for any kind of stem, progenitor and other forms of cell therapy are also welcome to send me their accounts – responses (if any), impressions of their treating facility and doctor or doctors, any problems or side effects that cropped up, and so forth. My e-mail address is biotheoretician@gmail.com

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Accreditation (Educational): [Accreditation Issues - Wikipedia Entry](#)

“Despite the widely recognized benefits and accountability of accreditation, some institutions choose, for various reasons, not to participate in an accreditation process. According to the United States Department of Education, it is possible for postsecondary educational institutions and programs to elect not to seek accreditation but nevertheless provide a quality postsecondary education.”

Anti-rejection drugs: [Anti-rejection drugs](#)

Biomarkers of aging: [Biomarkers of Aging - abstracts \(Commerical Site\)](#)

Critical Thinking:

[Carl Sagan's "The Demon Haunted World"](#) [DR. CARL SAGAN - Wikipedia entry](#)

[Operation Clambake presents: Baloney Detection Kit](#)

[The Critical Thinking Community](#)

[Free online Critical Thinking Test](#)

Dr. Paul R. Sanberg's Cord Blood-Related Papers – Selected Sample (from PubMed)

[Shytle RD, Ehrhart J, Tan J, Vila J, Cole M, Sanberg CD, Sanberg PR, Bickford PC.](#)

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Stem Cells

[Stem Cell Basics - Clearly Explained.com](#)

The Paleodiet:

["The Paleodiet: Lose Weight and Get Healthy by Eating Food You Were Designed To Eat" by Loren Cordain, Ph.D.](#)

“According to author Loren Cordain, modern health and diet problems didn't start with the advent of packaged snack food, but much earlier--back at the dawn of the agricultural age many thousands of years ago. As humans became less nomadic and more dependent on high-carbohydrate diets, we left behind the diet we had evolved with, which is based on low-fat proteins and plenty of fruits and vegetables. Sugars, fats, and carbs were rare, if they were present at all, and survival required a steady, if low-key, level of activity.

Cordain's book *The Paleo Diet* blends medical research with a healthy sprinkle of individual anecdotes, practical tips, and recipes designed to make his suggestions into a sustainable lifestyle, rather than a simple month-long diet; he even includes cooking recommendations and nationwide sources for wild game.” (Amazon.com Review)

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