



**10 WAYS THAT MAY IMPROVE YOUR
STEM CELLS PRIOR TO TREATMENT**

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Patients often ask us how they can improve the quality or quantity of their stem cells before a procedure. As the most advanced stem cell clinic in the United States, we have used over a decade of orthopedic stem cell experience and research to address 10 ways to improve your stem cells prior to treatment. Action plans conclude each section to help you get started.

1. Cut Your Sugar

Americans consume entirely too much sugar. What do we consider sugar? Any food that converts to glucose in the blood. Obvious sugars would be the white table sugar we put in coffee and sprinkle on our food, super-sweet fruits and fruit juices, and so on. Other, less obvious, sugars would include starches, such as breads and pastas. [When combined with too little activity, all of this sugar produces too much insulin, causing a metabolic syndrome](#), which can lead to weight gain, insulin resistance, high blood pressure, and so on. According to one study, [adult stem cells lived longer in cell culture when glucose was reduced](#). Other studies have shown that [high blood sugar can decrease the regenerative potential of stem cells](#).

[Sugar is also cancer's power food](#). Add to this the fact cancer risk is increased by being obese or overweight, and you have a one-two punch-out with sugar. Since we know cancer thrives on sugar, it's important to eliminate sugars. Of particular concern now are processed, added sugars as more and more research continues to show that these feed not only cancer but a wide variety of chronic diseases. Saying no to sugar will accomplish a number of things: it will improve your quality of life, help you manage your weight, and improve your stem cells.

It's important to note here that [switching to artificial sugars, such as sucralose \(e.g., Splenda—yellow packets\) and aspartame \(e.g., NutraSweet—blue packets\), isn't the answer to weaning yourself off sugar](#). These artificial sugars act like real sugar in your body as they activate the same toxic chemicals sugar produces in the body. [In this case, they cause your body to release insulin, which drops your blood sugar, which then causes excessive insulin production](#)—the main cause of a metabolic syndrome. In addition, [artificial sweeteners really mess up your gut](#), and [artificial sweeteners are also associated with a greater risk of stroke and dementia](#).

Action Plan 1

First, a strict [Atkins](#), [Zone](#), or [South Beach](#) diet is a good idea. These are low-glycemic diets. A low-glycemic diet is beneficial because it helps control insulin release and blood sugar. The glycemic load in carbohydrates can be measured on a high to low scale: high meaning a quick spike in blood sugar, and low meaning sugars slowly digest. Comparing one end of the spectrum to the other, fruit juices have a high-glycemic index, and [they hit your bloodstream very fast. This will cause a heavy spike in insulin, and maintaining weight and burning fat will be extremely difficult if fruit juice and other high-glycemic foods are consumed regularly.](#) On the other hand, some whole grains, such as rye, are on the lower-glycemic end of the scale, and they won't spike blood sugar and insulin.

Second, try my chocolate-bar test to see if you have an addiction to sugar and to follow your progress as you address this issue.

The Chocolate-Bar Test

1. Purchase three chocolate bars—70%, 80%, and 90%.
2. Taste the 70% bar. Is it sweet or bitter? If it is sweet, move on to step 3. If it is bitter, there is a major sugar addiction that needs to be addressed. Stop here and work on eliminating your sugars. Then move on to step 3.
3. Taste the 80% bar. Is it sweet or bitter? If it is sweet, move on to step 4. If it is bitter, then you haven't quite conquered the sugar addiction yet, but you're getting close. Stop here and eliminate more sugars, then move on to step 4.
4. Taste the 90% bar. Is it sweet or bitter? If it tastes sweet or even a little bitter, you're doing pretty good, so keep at it.

Finally, you'll want to eliminate sugar and be on an Atkins-type of diet for a few months before your stem cell procedure, checking your hemoglobin A1C (HBA1C) before and after meals (it may take six months for this to fall). The HBA1C you're aiming for is 5.1.

2. Reduce Your Calories

[Even short-term calorie restriction can improve stem cell function.](#) Americans continue to gain weight at an alarming rate, and obesity percentages continue to rise.

[One study](#) showed that when you calorie restrict mice, their muscle stem cells have improved function. This extends all the way down to the cellular level, as mitochondria (the little "power plants" of the cell) are also more plentiful in these mice. Also, this effect worked well in both young and old mice. Finally, you don't have to restrict calories for a long time; even short-term reduction in calories will still improve stem cells. This isn't the only paper to show this phenomenon, as it's also been seen in [mesenchymal stem cells](#).

Now, both of these studies were in mice, so this effect may or may not extend to humans. However, [at least one human study has shown that losing weight](#) via a low-calorie diet helped increase the number of circulating stem cells in the blood.

Action Plan 2

In addition to cutting sugar and eating a low-glycemic diet (see action plan number 1), reduce your calorie intake by 20% during the two weeks before you get your stem cells taken.

3. Reduce Your Triglycerides

There is a storage system in our blood for unused carbohydrates: this storage system is our triglycerides (TRGs). Our body burns our carbohydrates for energy, and when there are too many to burn, they are stored as triglycerides for later use. Our triglycerides can become extremely high if we regularly consume more carbohydrates than we can burn. This increases heart disease risk and high blood pressure. It's also related to metabolic syndrome and weight gain, especially when compounded by an excess intake of sugar and calories.

Additionally, after years of culturing stem cells for our patients, it has been our observation that in patients who have high triglycerides or obesity issues, stem cells grow poorly.

Action Plan 3

Get your triglycerides measured, and reduce your sugar, carbohydrate, and calorie (see action plans 1 and 2) intake to bring triglycerides down to normal before you have your stem cells drawn. [A very high-quality fish oil supplement, not the cheap stuff you get at the grocery store, may help reduce triglyceride levels as well.](#)

4. Lift Heavy Weights, and Stay Aerobically Active

Research shows that [older animals that are more active have better stem cells, and these stem cells create more bone](#). It also shows that [stem cells in muscles are increased by exercise](#) and, further, that [weight lifters have better stem cells in their muscles](#). We like to use different descriptives in our clinic to label the activity levels of our patients: “Boulder Active,” “American Active,” and “Coach Potato.”

Boulder Active is named after America's most physically fit city—Boulder, Colorado. The following indicators describe a Boulder Active person: exercise 8-12 hours a week and exercise intensity in which normal conversation would be difficult. Examples follow:

- Bike riding—50- to 100-mile clips (with mountains and at altitude)
- Running a mountain trail—two hours duration with an elevation gain of at least 1,000 feet
- Scaling a rock wall—at least 200 feet

American Active would be the typical active American and is mostly defined by regular visits to the health club. Examples follow:

- Elliptical
- Treadmill
- Weight-lifting machines at high reps and until a set number is reached.

Couch Potato is exactly what it sounds like. Exercise is not part of a Couch Potato's lifestyle

Action Plan 4

Try to get your activity level somewhere between Boulder and American Active. This means that if you are a Couch Potato, if you are physically able, push toward American Active; if you are American Active, push toward Boulder Active. Do what you need to do to push yourself: go to a gym, get a personal trainer, lift weights at 5-8 reps at a weight that will cause the muscle to fail (meaning you can't physically continue). If you bike or run, push it farther, faster, longer. Give CrossFit a try, routines like Insanity or P90X. [Adding that high-quality fish oil supplement may also make your exercise more effective.](#)

If you have injuries or health issues that make these workouts impossible, just focus on what you can do. Try light activities in the pool to start, and then just increase your activity as you are able.

Becoming an elite, professional athlete is not the goal in this case. You just want improve your stem cells so we can harvest the best stem cells for your treatments.

5. Take Your Supplements

There are some common nutritional supplements that may be beneficial to stem cells or cartilage. These include the following:

- Vitamin D3
- Vitamin C
- Curcumin
- Glucosamine
- Chondroitin
- Resveratrol

Along with vitamins D and C, we use curcumin, glucosamine, chondroitin, and resveratrol as main ingredients in our [Regenexx Advanced Stem Cell Support Formula](#).^{*} We picked these ingredients because there was a lot of clinical research confirming their benefits, but we also based our selection of these ingredients on their effects on stem cells reflected in our own lab data.

Vitamins C and D

D3, and other D vitamins, can help our stem cells in a number of ways. Studies have shown they can reduce the aging of our stem cells; help our stem cells differentiate, or turn into other types of cells; and make our stem cells healthier. Vitamin C helps our bone marrow stem cells, specifically, by promoting their proliferation, or increase in numbers.

Curcumin

[Curcumin has been shown to upregulate bone formation and suppress oxidative stress, alleviating bone loss.](#) In addition, [curcumin has strong anti-inflammatory properties, and, in our lab, it performed very well, helping mesenchymal stem cells.](#)

Incidentally, curcumin is the active ingredient in the spice turmeric, a major spice used in Indian cuisine. A study on a compound found in the whole turmeric root concluded that the compound [caused brain stem cells to grow and proliferate](#). This could mean that people with neurodegenerative diseases, like Alzheimer's, may do better when given turmeric or its derivatives. Regrettably, while this study showed promising results in rats, there isn't a lot a data on humans at this point; however, you may still want to consider taking the whole turmeric for brain health.

Glucosamine and Chondroitin

[Studies show glucosamine and chondroitin protect cartilage and reduce cartilage loss](#), and they make up 2 of the 8 supplements (out of 18) that passed our own laboratory tests when creating our stem cell formula.

Resveratrol

[Several studies have shown that resveratrol protects cartilage and helps stem cells differentiate and proliferate](#). In addition, resveratrol helps control blood sugar, which fits in with the metabolic syndrome discussion in number 1 of this list. Another good way to get resveratrol is through healthy foods like red and purple grapes and blueberries, though it's nearly impossible to get the amount you would need in order to mine its health benefits to cartilage through food alone, especially if you've already experienced some cartilage loss or damage. Resveratrol also performed very well in our lab tests when we were creating our stem cell formula.

Action Plan 5

Add a supplement that contains all of the ingredients above, such as our patented [Regenexx Advanced Stem Cell Support Formula](#), to your daily diet to start improving your stem cells now and to give you the best chance at success with your treatment.

6. Avoid Quinolone Antibiotics

There are many prescription drugs that hurt stem cells; we base this on our experience with growing stem cells for over a decade. We have seen, over and over, patients whose stem cells we are unable to grow due to a certain medication the patient is taking. Taking the patient off the medication reverses the problem. We cover four big problem medications in numbers 6–9 on this list, but the list is much longer, so talk to your Regenexx doctor about what you need to restrict and which medication is likely OK.

[Quinolone antibiotics](#), such as Cipro and Levaquin, hurt not only stem cells but also tendon cells. Quinolone antibiotics are given for infections such as urinary tract infections and some orthopedic infections. [Quinolones have been associated with serious tendon ruptures](#). Ligaments have their own stem cells, so when medications damage those cells, these ligaments or tendons can eventually weaken or fail. This can lead to tendinopathy or tendon rupture.

Action Plan 6

If you are taking a quinolone antibiotic, talk with your physician. After clearing it with your physician, stay off of quinolones starting at least one to two weeks prior to your procedure. It would also be a good idea to supplement with [vitamin E, which has been shown to protect cartilage cells from the negative effects of quinolones](#).

7. Avoid Statin Medications

In addition, [they have been shown not to work well at protecting patients from heart attacks](#) and are associated with fatigue, memory issues, [diabetes risk](#), and [muscle damage](#).

Action Plan 7

If you are taking a statin medication, talk with your physician about an alternative. After clearing it with your physician, stay off of statins starting at least one to two weeks prior to your procedure. [CoQ10 might be a good alternative to statin drugs](#).

8. Avoid Nonsteroidal Anti-inflammatory Drugs (NSAIDS)

Prescription [NSAIDS, such as Motrin and Advil \(ibuprofen\)](#). They also come with a [hefty label warning from the FDA](#) and a [whole host of risks, such as gastrointestinal bleeding, fatal strokes, and sudden-death heart attacks](#). W

Action Plan 8

If you are taking an NSAID, it's a good idea to stop taking these high-risk drugs anyway, but starting at least one to two weeks prior to your procedure, you definitely want to be off NSAIDs. [Glucosamine and chondroitin](#) as well curcumin, under our supplements (number 5) section above, might be good alternatives to NSAID drugs.

9. Avoid Steroids!

[High-dose steroids are used for so many things, from asthma to knee pain to herniated discs, but the problem is that they are horrible and toxic drugs to stem cells](#). They may be powerful anti-inflammatories, but I've mentioned before that they are a "bull in the china shop" pharmaceutical. Meaning their untamed power results in their raging-bull side effects. [I shared a study that concluded that steroids "flipped a switch" on mesenchymal stem cells and made them not want to turn into bone](#).

Action Plan 9

In the months leading up to your stem cell treatment, [if you are taking steroids \(oral or epidural\), wean yourself off these terrible drugs](#). Talk with your physician about an alternative that is safe for your stem cells.

10. Low Oxygen Is Better...Sometimes

Have you heard of low-oxygen conditioning tents? Many elite athletes sleep in these to reap the benefits of low oxygen. Stem cells, for example, grow and stay more viable at low oxygen levels, so is low oxygen better? Sometimes. Stem cells actually differentiate better when the oxygen level is normal. So when growing stem cells, low oxygen is better; when differentiating, or turning them into other tissues, normal oxygen is the way to go.

Action Plan 10

Before your stem cell procedure, take a little vacation to a high-altitude location.

Summary

The following is a snapshot of the 10 action plans we suggest to help maximize your odds that your stem cell procedure will be effective.

1. Adopt a low-glycemic diet.
2. Cut calories by 20%.
3. Get your triglycerides to a normal level.
4. Increase exercise and activity.
5. Take a high-quality supplement* that contains vitamins C and D, curcumin, glucosamine, chondroitin, and resveratrol.
6. Avoid quinolone antibiotics (and other prescription medications, especially those that have been shown to be toxic to stem cells).
7. Avoid statin medications.
8. Avoid NSAIDs.
9. Wean yourself off high-dose steroids.
10. Visit a high-altitude location.

You can read more about all of this in [Dr. Pitts's book Nutrition 2.0](#). In the meantime, realize that your stem cell procedure will only ever be as effective as your stem cells are healthy—so focus on these 10 ways to improve your stem cells to get the best possible results!

* These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

Regenexx® is VERY Different - Why Regenexx Stem Cell Treatments are Superior to Other Solutions





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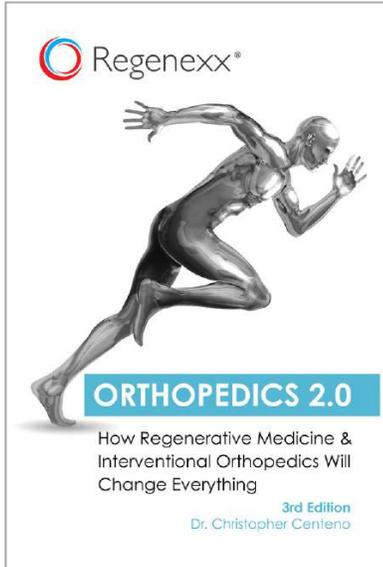
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Advanced Stem Cell Support Formula, Turmeric Curcumin Complex and Concentrated Pro Omega 3 Fish Oil.

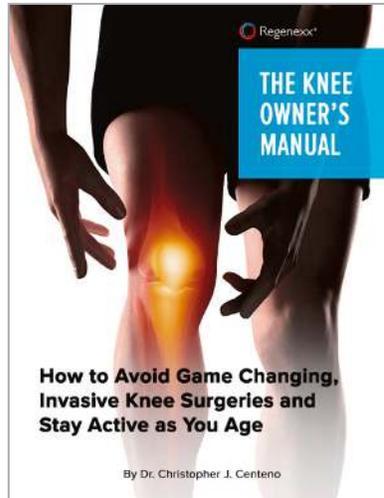


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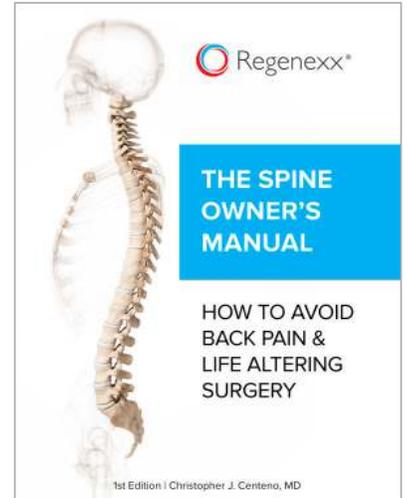
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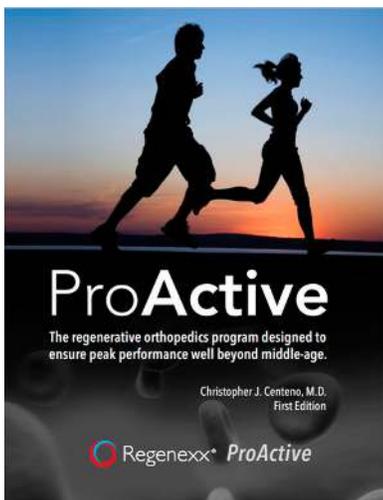
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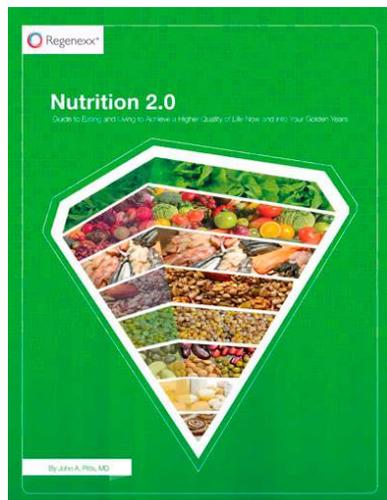
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