



## CHICAGO ARTHRITIS

# ISSUES YOU SHOULD BE AWARE OF AS A RUNNER PRIOR TO PROCEEDING WITH STEM CELL TREATMENT FOR YOUR KNEE

Get back to doing the things you love, faster  
& without surgery.

**When is the right time for stem cell treatment  
for chronic knee pain in a runner?**

We answer that question and many more inside  
this helpful guide for runners.

It's no secret that runners are prone to knee injuries and pain. It's also well known that runners will search the entire Earth for treatments that will allow them to continue to run. This concise guide is meant for runners, and friends and family of runners, to learn more about what to be aware of prior to proceeding with stem cell treatment for a knee injury or knee pain.

### **#1 When is the right time for stem cell treatment for chronic knee pain in a runner?**



For runners with chronic pain in the knee from arthritis or tendinitis, the first line treatment should always be physical therapy to correct biomechanics, weakness, asymmetry, malalignment, and improve running technique. If that has already been

attempted, and pain persists, then consideration for stem cell treatment for your chronic knee problem is appropriate.

### **#2 When is the right time to consider stem cell treatment for an acute knee injury in a runner?**

There is a range of indications for using bone marrow derived stem cell treatment in the setting of a knee injury. These include injuries to the ACL and MCL ligaments, meniscus injuries, and injuries to tendons around the knee. If you've been diagnosed with any of these acute injuries, or you have an unstable knee based on examination by your healthcare provider, or if you notice instability such as buckling, locking, or giving out symptoms, you should consider treatment at

that time. After an acute injury, early recognition and treatment gives a potential for restoring damaged tissue, reducing pain, and returning to a high level of activity.

### **#3 What sort of physician should I see for stem cell treatment for my knee pain and injuries?**

I strongly recommend for this sort of treatment that you be treated by a physician who is highly experienced and appropriately trained in this field of medicine. That includes formal medical residency and fellowship training in a musculoskeletal discipline. Then ongoing continuous training in nonsurgical orthopedic care with a high level of interventional orthopedic skill acquisition. This essentially means a physician who has a high level of ultrasound and fluoroscopic-guided injection technique skills. Without these high-level image guidance skills, it is unlikely you will receive a good result from treatment. An example of an excellently trained physician in this newer discipline would include someone who has had extensive training from the Interventional Orthopedics Foundation.



Regarding experience in this field of medicine, as with any highly specialized professional field, the more time and experience a physician has with the use of stem cell treatments for knee injuries and pain, the better chance you have for a high level recovery and improvement. That means choose a physician who treats knee pains only with orthobiologic treatments such as bone marrow-derived stem cells and platelet-rich plasma treatments. If your physician also utilizes steroid injections for the sorts of condition, or arthroscopic and knee replacement surgeries, they likely do not have the appropriate training or experience to deliver these treatments correctly.

#### **4. How can I decide whether bone marrow or fat-derived stem cells is best for my knee?**

The overwhelming peer review data published for knee pain treatment with stem cells comes from physicians who have used bone marrow derived stem cell treatments. The medical literature has a tremendous amount of data, and patients who have been treated with bone marrow derived stem cells for knee pain and injuries, but limited published data on the use of fat stem cells for these conditions.

Moreover, the FDA considers bone marrow-derived stem cells to be compliant and acceptable with their regulation. However, fat-derived stem cell treatments are not FDA compliant. All things considered, you are better off utilizing treatments that have significant data showing efficacy and safety, as well as acceptance by the FDA regarding safety in patients.

#### **5. Should I use my own cells or someone else's?**

Without a doubt you should **use your own cells**. There is sufficient data to indicate that regardless of age and degree of damage, your own cells can be adequate to treat pain and improve function. In addition, utilization of someone else's cells has the potential risk of cell/tissue rejection and other potential complications. A guiding principle behind the use of orthobiologic treatments for musculoskeletal conditions includes preferentially utilizing your own cells for your own tissue in place of other people cells or synthetic hardware.

#### **6. What about amniotic and umbilical cord treatments?**

Data from the Interventional Orthopedics Foundation show that there few if any living cells found in amniotic and umbilical cord products that are being offered to patients as stem cell treatments. That's not surprising since these products need to be gamma irradiated and freeze-dried before they can be sold. Complicating matters is also the fact that some of these products have also had infectious issues that we do not see from using your own cells. The bottom line is that you should rely on your own living cells.

***7. When I am receiving treatment, how can I be sure that my own cells have been delivered into the correct area in my knee that requires treatment?***



Standard of care in use of orthobiologic treatments such as stem cells and platelet rich plasma for musculoskeletal conditions such as knee injuries and arthritis includes the use of image guided treatments with ultrasound and x-ray visualization. That means when your physician is treating your knee, he or she should be able to precisely identify your injury and pathology that requires treatments by ultrasound and x-ray. Then in real-time deliver your cells into that area of injury via that image guidance. After treatment, your physician should be able to clearly show you what part of your knee was treated with clear ultrasound and x-ray images. Without this image-guided skill and documentation, you should question whether your treatment was precisely and accurately performed.

**8. I have been told that I have bone-on-bone arthritis and that these treatments will not help.****Is that correct?**

That is incorrect. The data available in the treatment of advanced knee osteoarthritis indicates that significant pain relief and functional improvement are still possible. The key to improvement in this group of people includes comprehensively treating the knee. All tissue that is injured requires attention. In addition, your physician should have a high-level understanding of how to use these treatments in the setting of knee arthritis, meaning he/she should know the research and have extensive practical experience. Also the clinic/facility that does your treatment should have a high-level understanding of how to prepare the cells and optimize your cell count in order to obtain the best possible result for your knee arthritis.

**9. I have an ACL tear and had been told that my only option is ACL reconstruction surgery. Is that correct?**

In the past the only treatment available for ACL tears included physical therapy and ACL reconstruction surgery. However, with precise x-ray delivery of bone marrow-derived stem cells, many ACL tear patients can now be treated non-surgically.

This requires a high level of expertise by the treating physician to be able to precisely inject cells



into the origin and insertion of the ACL. Very few physicians have this skill at this time, and you should confirm before proceeding with this treatment that your physician has been properly trained and sufficient experience injecting ACL tears under x-ray guidance. For individuals with

ACLs that are partially torn or fully torn without evidence of ligament retraction, these injuries can be treated with your own bone marrow-derived stem cells and platelet-rich plasma.

***10. I have already tried steroid and gel injections for my knee pain, can bone marrow derived stem cells and platelet rich plasma provide more relief than these other treatments?***

The short answer is yes. Comparison trials of hyaluronic acid gel injections versus platelet-rich plasma treatment shows that platelet rich plasma offers better pain relief longer term.

***11. Should I expect to get back to running after treatment?***

If you are an active runner, it is understandable your urgency to get back to running after an injury. It is important to understand that after treatment, progression back to running will vary based on your healing response. After bone marrow-derived stem cell treatment or platelet-rich plasma treatment, you should expect to engage in relatively low-impact activity for at least one week after treatment. If you have an ACL tear, that reduction in activity would likely be for 4-6 weeks. Immediately after treatment, you should restart physical therapy to more rapidly improve strength, correct asymmetry, and progressively allow your knee to handle more load and stress. If your goal is to get back to a high level of running, these treatments give you the best chance to get back to that level of activity given that it allows you to maintain your own tissue with limited down time after treatment and with limited risks.

***12. What are the risks associated with stem cell treatment?***

There is extensive data from multiple groups examining risks associated with utilizing your own bone marrow derived stem cell treatments. These treatments are considered to be low risk, and

as with any other needle-based treatment, there is a low but potential risk for infection, tissue damage, bleeding, and more pain. These risks are mitigated by utilizing standard medical protocols regarding safety and injection control. In addition, if your physician utilizes x-ray and ultrasound guidance during treatment, this also limits the risk of accidentally injuring other tissue inadvertently.

***13. I have already received a recommendation for surgery from one physician, should I consider a second opinion?***



As a general rule, second and third opinions when it comes to your health are usually warranted if surgery has been recommended. If your goals are pain relief and return to high-level activity, prior to surgery, I would strongly encourage you to obtain a second opinion. Cutting out tissue or inserting

synthetic hardware during surgery carries additional risks, has the potential to alter biomechanics, and typically requires longer recuperation. Obtaining a second opinion for a treatment modality that gives you a good chance of utilizing your own tissue, restoring damaged tissue, with less recuperation, and less risk, should always be considered prior to a surgical intervention for your knee condition.

***14. I have already had surgery for my knee. Can these treatments still work?***

If you have had arthroscopic knee surgery or another prior surgery that was not a knee replacement, you likely could still benefit from treatment.

Alternatively, if you have already had knee replacement surgery, you should consider whether your current knee pain is related to the existing hardware or whether it could be coming from a pinched nerve in your lower back.

***15. I have already tried platelet-rich plasma or stem cell treatment from another provider but received little benefit. Why is that?***

A major emphasis in the utilization of orthobiologic treatments such as bone marrow-derived stem cells and platelet-rich plasma for knee pain is taking a comprehensive approach to treatment. The pain very rarely comes from only one structure within the knee. There are multiple structures including cartilage, joint, tendons, ligaments, and nerves that can drive pain in the knee. In addition, a pinched nerve in the lower back can also cause knee pain. Your physician after fully evaluating your knee pain via a good history, examination, and imaging review, should be able to determine which structures are causing your pain. If your physician is only treating one structure in your knee, it's likely you have not had a comprehensive evaluation or treatment. Treating all relevant structures that are pain generators and driving instability in the knee will give a better longer term result in regards to pain and functional improvement as opposed to an approach that only treats one structure and ignores all other pain generating structures.

In my experience, many patients can still receive pain relief with a comprehensive approach to treatment, even in patients who have already been treated by other physicians, because they have not previously had all relevant pain structures treated.

**16. Besides my knee, should my physician be looking at any other areas that could be contributing to or connected to my knee issue?**

The old children's song, "The hip bone is connected to the knee bone which in turn is connected to the ankle bone," has significant wisdom. After evaluating your knee, your physician should also consider whether you have instability or other contributing issues that are present in the ankle and hip. Instability in either one of these areas can lead to more stress on the knee, and a comprehensive approach to treating your knee should include evaluating and treating these other areas as well.

In addition, a pinched nerve in the lower back or other lower back conditions can also cause leg/knee pain, and can also make you more prone to knee injuries if you have any degree of numbness or weakness that could affect your gait. Again, if you have lower back issues, treating that along with your knee may give additional benefit for your knee pain as well.



If you would like to learn more about treatment, or would like to pursue a more specific evaluation for your own knee issues, please see [ChicagoArthritis.com](http://ChicagoArthritis.com).



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