

Stem Cell Therapy: The Athlete's Illegal  
Destination

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I. INTRODUCTION

What do Peyton Manning, Bartolo Colon, and Rick Perry all have in common?<sup>1</sup> They are medical tourists.<sup>2</sup> Medical tourism is when people travel outside their country for medical treatment.<sup>3</sup> Stem cell therapy is not offered in the United States, so Americans must travel abroad in order to get the treatment.<sup>4</sup> This article will focus on autologous stem cell transplants that allow individuals, such as athletes, to use their own stem cells to grow bigger and stronger muscles that improve the recovery time.<sup>5</sup> This type of therapy is becoming an ethical concern because some view it as a perfor-

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1. Peyton Manning is a quarterback in the NFL. Bartolo Colon is a professional baseball player. Rick Perry is the governor of Texas.

2. Stacy Pyre, *Peyton Manning & Bartolo Colon: Stem Cell Therapy in Sports*, STEM CELL THERAPY REV. J., [stemcelltherapyreviewjournal.com/peyton-manning-bartolo-colon-stem-cell-therapyinsports/](http://stemcelltherapyreviewjournal.com/peyton-manning-bartolo-colon-stem-cell-therapyinsports/) (last accessed Mar. 31 2014); Marilyn Marchione, *Doctors Question Perry's Stem Cell Back Treatment*, ASSOC. PRESS, (Aug. 19, 2011 10:21 AM), <http://news.yahoo.com/doctors-perrys-stem-cell-back-treatment-072921392.html>.

3. C. Virginia Lee and Victor Balaban, *Medical Tourism*, CTRS. FOR DISEASE CONTROL AND PREVENTION, <http://wwwnc.cdc.gov/travel/yellowbook/2014/chapter-2-the-pre-travel-consultation/medical-tourism> (last accessed May 6, 2014). In the United States, the term generally refers to people traveling to less-developed countries for medical care.

4. Rebecca Taylor, *Why do Peyton Manning, Americans Leave U.S. for Stem Cell Treatment?*, LIFE NEWS, Sept. 21, 2011, <http://www.lifenews.com/2011/09/21/why-do-peyton-manning-americans-leave-u-s-for-stem-cell-treatment/>. Rebecca Taylor is a clinical laboratory specialist in molecular biology. *Id.* Taylor has a B.S. in Biochemistry from the University of San Francisco with a national certification in clinical Molecular Biology MB. *Id.*

5. Helen Zachary, *Stem Cells, Sports Ethics, & Cheating Super-Athletes?*, HEALTH CARE ZONE (Mar. 05 2013), <http://healthcarenewsblog.com/stem-cells-sports-ethics-cheating-super-athletes/>.

mance enhancer,<sup>6</sup> while others consider it a valid type of therapy.<sup>7</sup>

This article argues that there is no difference because stem cell therapy should be considered a form of genetic doping.<sup>8</sup> Professional sports leagues should treat athletes who partake in medical tourism for stem cell therapy like those who use any other illegal performance enhancer.

Part II of this article discusses background information about stem cells and the procedures that athletes receive. Part III discusses the current laws regarding this type of therapy. Part IV examines the ethical issues of using stem cell therapy. Part V concludes that athletes should be punished for going abroad and receiving this treatment.

## II. STEM CELL THERAPY

Stem cells are a type of cell that have the capability of creating new cells for an indefinite period of time.<sup>9</sup> Stem cell therapy is used to regenerate or re-grow tissue in a person's body to its original state.<sup>10</sup> Prior to stem cell therapy the only way doctors were able to treat torn cartilage in the knee required that doctors would have to cut tissue out arthroscopically, or temporarily numb the area with cortisone injections.<sup>11</sup> However, stem cell therapy avoids major surgery and reduces the recovery time.<sup>12</sup> Stem cell harvesting

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6. See Mark S. Frankel and Cristina J. Kapustij, *Enhancing Humans*, THE HASTINGS CTR., <http://www.thehastingscenter.org/Publications/BriefingBook/Detail.aspx?id=2162> (last accessed May 6, 2014). The President's council on Bioethics defines human enhancement as going "beyond therapy" rather than returning an individual to a normal state. *Id.* From this definition, a performance enhancer can be defined as artificially enabling a person to exceed a normal state. *See id.*

7. Pyre, *supra* note 2.

8. See Frankel and Kapustij, *supra* note 6. Gene doping is defined as the use of genetic interventions in a nontherapeutic manner. *Id.*

9. Kathleen Doody, *Comment: The Moral, Ethical, and Legal Controversy Surrounding Pluripotent Stem Cell Research*, 48 LOY. L. REV. 267, 270 (2002).

10. *Id.*

11. Taylor Bloom, *New Stem Cell Therapy Procedure Could Have a Major Impact on Sports Injuries*, SPORTTECHIE (Nov. 21, 2013), <http://www.sporttechie.com/2013/11/21/new-stem-cell-therapy-procedure-could-have-a-major-impact-on-sports-injuries/>. Dr. Rajagopalan is an orthopedic surgeon who specialized in sports and fitness procedures. He describes the

12. *Id.* The avoidance of surgery and long recovery times is valuable to athletes because it saves them time and money. *Id.*

is a type of stem cell therapy that many athletes undergo.<sup>13</sup> In this therapy stem cells are harvested from the bone marrow.<sup>14</sup> Next, the bone marrow is put in a centrifuge, which separates the mesenchymal stem cells from the platelets and blood.<sup>15</sup> Finally, the stem cells are injected into the damaged joint tissue.<sup>16</sup>

Mesenchymal stem cells have can turn into cartilage, ligament, tendon, bone, nerve tissue, blood vessels, or muscle tissue.<sup>17</sup> The cells find the damaged area, attach to the DNA, and read the code that tells them what to reproduce.<sup>18</sup>

### III. CURRENT LAW AND REGULATIONS

Athletes must go abroad for this procedure because the United States lags behind the world in stem cell research and technology.<sup>19</sup> In 2005, Congress passed the Stem Cell Therapeutic and Research Act.<sup>20</sup> However, President George W. Bush restricted the funding of stem cell research.<sup>21</sup> Five years later, Congress passed the Stem Cell Therapeutic and Research Reauthorization Act.<sup>22</sup> This act again created funding for stem cell research.<sup>23</sup> The delay in funding limited the amount of research.<sup>24</sup> Four years later, the research conducted in the United States is still in the early stages of devel-

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13. *Id.* Many athletes choose to get this procedure because it is relatively quick and painless. *Id.*

14. *Id.*

15. *Id.*

16. *Id.*

17. *Id.*

18. *Id.* The human body's genetic code is preprogrammed. *Id.* Thus, when the stem cells attach they determine what is missing, and turn into that tissue. *Id.*

19. *Id.* The lack of funding made it difficult for the United States to keep up with other countries. *Id.*

20. *See* Stem Cell Therapeutic and Research Act of 2005, Pub. L. No. 109-29, § 119 Stat. 2550 (2005). This act created funding for stem cell research. *Id.*

21. *See* Bloom, *supra* note 11.

22. *See* Stem Cell Therapeutic and Research Reauthorization Act of 2010, Pub. L. No. 111-264, 124 Stat. 2789. President Obama granted funding in December 2010. *Id.* The act grants \$23,000,000 a year from 2011-2014 and \$20,000,000 for 2015. *Id.*

23. *Id.*

24. *See* Taylor, *supra* note 4.

opment.<sup>25</sup>

The United States Food and Drug Administration (FDA) has not approved any treatment of orthopedic injuries using stem cells.<sup>26</sup> The FDA categorized stem cell transplant as it would a pharmaceutical drug, and stem cells transplants must go through the same phases of clinical trials that a new drug would before receiving approval.<sup>27</sup> Public Health Safety Act, Section 351, governs the use of stem cells, regulates the use of biologic products, and requires that they follow the new drug application to the FDA before being released to the public.<sup>28</sup> This type of stem cell therapy is not legal in the United States.<sup>29</sup> Thus, professional athletes become medical tourists.<sup>30</sup>

The World Anti-Doping Agency prohibits stem cell injections.<sup>31</sup> The International Olympic Committee also bans this type of therapy.<sup>32</sup> However, professional sports leagues, including the National Football League (NFL), National Basketball Association (NBA), and Major League Baseball (MLB), do not ban stem cell therapy.<sup>33</sup> The discrepancy between United States and professional sports rules on stem cell therapy creates a grey area

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25. See Nat'l Pub. Radio, *Can Stem Cell Treatments Help Athletes?*, HOSP. FOR SPECIAL SURGERY (June 17, 2011), <http://www.npr.org/2011/06/17/137250823/can-stem-cell-treatments-help-athletes>. Scott Rodeo is an orthopedic surgeon and co-chief of sports medicine and shoulder service at Hospital for Special Surgery. *Id.* This source is from a transcript from a radio interview. *Id.*

26. Pyre, *supra* note 2.

27. See Dina Gould Halme and David A. Kessler, *FDA Regulation of Stem Cell Based Therapies*, 355 N ENGL J MED, 1730, 1735 (2006).

28. *Id.*

29. See Eric Adelson, *Undetectable Stem Cell Treatment Could be the Wave of the Performance-Enhancement Future*, YAHOO SPORTS, (Aug. 24, 2012), <http://sports.yahoo.com/news/undetectable-stem-cell-treatment-could-be-the-wave-of-the-performance-enhancement-future.html>.

30. *Id.*

31. *Gene Doping Test for Athletes in the Works*, CBC NEWS (June 6, 2013), <http://www.cbc.ca/news/health/gene-doping-test-for-athletes-in-the-works-1.1410525>

32. *Id.*

33. See David Epstein, *Stem Cell Procedure Nothing New*, SPORTS ILLUSTRATED (May 12, 2011), [http://sportsillustrated.cnn.com/2011/writers/david\\_epstein/05/12/colon.stem.cells/](http://sportsillustrated.cnn.com/2011/writers/david_epstein/05/12/colon.stem.cells/). Bartolo Colon and Grady Sizemore are professional baseball players that used stem cell therapy and were not reprimanded. *Id.* Professional football player Darren Sharper was not punished by the league for undergoing stem cell therapy. *Id.* Jason Kidd and Tracy McGrady are a few of the professional basketball players who received stem cell therapy. *Id.*

as to which law applies.<sup>34</sup> Therefore, to remove this grey area, professional sports leagues need to follow suit with the international sporting committees and properly classify this procedure as illegal.<sup>35</sup>

#### IV. ETHICS

There are two main reasons that stem cell therapy should be banned in professional sports in the United States. First, the therapy can negatively affect an athlete's health.<sup>36</sup> Second, the use of stem cell therapy in this manner is a performance enhancer, and thus it is cheating.<sup>37</sup>

##### A. Effects on Health

The stem cell therapy that many athletes receive is a relatively new treatment.<sup>38</sup> Although it has been tested on animals, there is little data with humans.<sup>39</sup> The FDA and the International Society for Stem Cell Research warn that no rigorous studies demonstrate that the treatments are safe and effective.<sup>40</sup> As stated above, the United States only researched stem cell therapy extensively for four years.<sup>41</sup> This lack of experience raises serious concerns because in the United States' scientists are not yet able to suggest if the treatment is safe or effective.<sup>42</sup>

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34. See Andy Miah, *Rethinking Enhancement in Sport*, 1093 N.Y. ACAD. SCI. 201, 320 (2006). It is unclear whether professional athletes violate the law or regulations of their sports when they travel abroad to receive stem cell therapy. *Id.* Similar to steroids in baseball, the United States intervened to govern the issue. *Id.*

35. *Id.*

36. Deborah Franklin, *A Dangerous Game: Some Athletes Risk Untested Stem Cell Treatments*, SCI. AM. (Jan. 15, 2013), <http://www.scientificamerican.com/article/a-dangerous-game-athletes-risk-unttested-stem-cell-treatments/>.

37. See Frankel and Kapstij, *supra* note 6. Stem cell therapy should be considered a form of gene doping. *Id.*

38. Nat'l Pub. Radio, *supra* note 25. It is relatively new based off of research conducted in the United States. *Id.*

39. Franklin, *supra* note 36.

40. *Id.*

41. See Stem Cell Therapeutic and Research Reauthorization Act of 2010, Pub. L. No. 111-264, 124 Stat. 2789.

42. See James Fell, *Stem Cells May Aid in Sports Injuries*, CHICAGO TRIBUNE, (May 1, 2013), [http://articles.chicagotribune.com/2013-05-01/health/sc-health-0501-fitness-stem-cells-20130501\\_1\\_stem-cells-sports-injuries-injections](http://articles.chicagotribune.com/2013-05-01/health/sc-health-0501-fitness-stem-cells-20130501_1_stem-cells-sports-injuries-injections).

Even though the potential risks of stem cell therapy are unknown, some athletes are willing to undergo this treatment, which will allow them to slow down the effects of time.<sup>43</sup> For example, Bartolo Colon, a pitcher in Major League Baseball, won the Cy Young Award 2005.<sup>44</sup> He then suffered a string of injuries and in 2009 he was almost out of baseball.<sup>45</sup> Instead of retiring, Colon underwent this stem cell therapy, and in 2010, the thirty-seven year old was playing for the New York Yankees.<sup>46</sup> In 2013, and at the age of forty, Colon had one of his best seasons of his career.<sup>47</sup> Peyton Manning credits his return to the game to the stem cell therapy he received in Germany.<sup>48</sup> There is a lot of anecdotal evidence, such as Colon's story, but the fact whether this is safe, effective, and ethical procedure is still unknown.<sup>49</sup> The potential health effects that Colon and other athletes may suffer in the future is a mystery.<sup>50</sup>

Stem cell therapy is not proven by scientists to work or to even be safe.<sup>51</sup> Athletes willing to risk their own health to play a game is serious issue.<sup>52</sup> They have always sought ways to enhance their performance.<sup>53</sup> One survey conducted in the 1980s asked elite athletes whether they would take an enhancement, which guaranteed them gold medals, but would eventually kill them within five years.<sup>54</sup> Surprisingly, the results revealed that more than

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43. Frankel and Kapustij, *supra* note 6.

44. Franklin, *supra* note 36. The Cy Young award is an annual award given to the best pitcher in baseball in their respective league. *Id.*

45. Franklin, *supra* note 36.

46. *Id.*

47. Record was 18-6, with a 2.65 ERA.

48. Fell, *supra* note 42.

49. *Id.* David Hart, a professor of microbiology at the University of Calgary notes that there is a lot of anecdotal evidence, but very few controlled studies. *Id.*

50. *Id.*

51. *Id.*

52. See Kate Kelland, *Genetically Modified Olympians: Could Future Athletes Cheat Without Being Detected?*, REUTERS (Aug. 7, 2012), [http://www.huffingtonpost.com/2012/08/07/genetically-modified-athletes-olympians\\_n\\_1751952.html](http://www.huffingtonpost.com/2012/08/07/genetically-modified-athletes-olympians_n_1751952.html).

53. See Frankel and Kapustij, *supra* note 6. Ancient Olympians ate mushrooms to improve their performance. *Id.*

54. Kelland, *supra* note 52. The study was conducted by Bob Goldman, a doctor and

half of the participants answered in the affirmative.<sup>55</sup> This survey was conducted every two years for the next decade, and the results were always the same: about half of the athletes were ready to die for gold.<sup>56</sup> The miracle stories of the athletes bolster the hype behind the treatment, while overshadowing the ethics behind the therapy.<sup>57</sup> Many athletes would do anything for success in their sport.<sup>58</sup> Professional sports leagues enact rules that safeguard players' safety and regulate the sport.<sup>59</sup> Therefore, these organizations must intervene and ban this therapy to protect players' health and guard the integrity of the respective sport.

Professional sports organizations reform the rules to increase player safety.<sup>60</sup> For example, the NFL implemented new rules about helmet-to-helmet contact to reduce concussions and other serious injuries.<sup>61</sup> The new rules not only look out for the players' current health status, but they seek to protect them later in life.<sup>62</sup> Likewise, stem cell therapy may be dangerous to athletes later down the road, so rules should be implemented now to protect athletes from potentially serious ailments caused by the therapy.<sup>63</sup> Until evidence is produced that shows the safety of stem cell therapy, professional sports should ban this type of therapy.

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founder of the U.S. National Academy of Sports. *Id.*

55. *Id.*

56. *Id.*

57. *See* Franklin, *supra* note 36. Many people will see the success and undergo the surgery even with unknown risks. Also, the hype from the surgery may encourage people to follow suit. *Id.* This could be alarming if a teen wants to follow in their favorite athletes footsteps. *Id.*

58. *See* Kelland, *supra* note 52. Bob Goldman's study showed that athletes would be willing to die to be successful. *Id.*

59. *See* Mark Maske, *NFL Pushes Forward In Rule Changes Designed to Reduce Brain Injuries, Make Game Safer*, WASHINGTON POST (Mar. 24 2013), [http://www.washingtonpost.com/sports/redskins/nfl-pushes-forward-in-rule-changes-designed-to-reduce-brain-injuries-make-game-safer/2013/03/24/8de37782-9309-11e2-8e33-9cc6c739d012\\_story.html](http://www.washingtonpost.com/sports/redskins/nfl-pushes-forward-in-rule-changes-designed-to-reduce-brain-injuries-make-game-safer/2013/03/24/8de37782-9309-11e2-8e33-9cc6c739d012_story.html).

60. *Id.*

61. *Id.* The NFL banned helmet-to-helmet contact which occurs when a player tackles another and the first point of contact is the players' helmets. *Id.*

62. *Id.*

63. Franklin, *supra* note 36.

*B. Stem Cell Therapy is a Performance Enhancer*

In addition, stem cell therapy could be used to unfairly enhance a player's performance.<sup>64</sup> Many athletes have used medical advances, such as pharmaceuticals, to gain an edge in competition.<sup>65</sup> Thus, athletes may be tempted to use stem cell therapy to accomplish the same result.<sup>66</sup> Stem cell therapy also raises the issue of fairness in sports.<sup>67</sup> Injuries are part of the game and threaten professional athletes' careers.<sup>68</sup> However, athletes can use stem cell therapy as a means to reverse or slow down the effects of time.<sup>69</sup> An athlete that uses stem cell therapy will recover much faster than normal.<sup>70</sup> This unfair advantage is what separates the use of stem cell therapy from medical use to performance.<sup>71</sup> For instance, an individual who suffers from muscular dystrophy may use this procedure to increase their muscle-building hormones to improve his/her quality of life.<sup>72</sup> Athletes without a muscle disorder could use the same procedure to increase their muscle mass and improve their performance. Similar to steroids or other performance enhancers, athletes can abuse stem cell therapy.<sup>73</sup>

Furthermore, athletes who are relatively healthy individuals could use and potentially abuse stem cell therapy.<sup>74</sup> Allowing stem cell therapy can

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64. See Frankel and Kapustij, *supra* note 6.

65. Garry R. Gaffney & Robin Parisotto, *Gene Doping: A Review of Performance-Enhancing Genetics*, 54 PEDIATRIC CLINICS OF N. AM. 807, 820 (2007).

66. *Id.*

67. See Zachary, *supra* note 5.

68. See Epstein, *supra* note 33. The athletes mentioned in the article used stem cell therapy to overcome injuries. *Id.*

69. See Frankel and Kapustij, *supra* note 6. The purpose of stem cell therapy is not to prolong an athlete's career. *Id.*

70. See Zachary, *supra* note 5. As people age, it takes longer for their body to recover. *Id.* Older athletes can use stem cell therapy to aid in recovery and make them still competitive. *Id.*

71. See Frankel and Kapustij, *supra* note 6. Athletes are relatively healthy and do not need stem cell therapy to survive. *Id.*

72. *Id.*

73. *Id.* Steroids are banned because they allow an athlete to augment their natural abilities with a performance enhancing drug. *Id.*

74. *Id.*

lead to a slippery slope of abuse.<sup>75</sup> Stem cell therapy can provide athletes with the capability of grow bigger and stronger muscles.<sup>76</sup> However, there is no regulation or laws guiding this in professional sports in the United States.<sup>77</sup> In other words, there is nothing stopping these athletes from receiving stem cell therapy.<sup>78</sup> They will essentially become genetically modified athletes.<sup>79</sup> Athletes that choose to do this therapy will have a significant competitive advantage from players who abstain from it.<sup>80</sup> Therefore, professional sports leagues should ban this therapy now to prevent this unfair advantage along with other unforeseen consequences.

## V. CONCLUSION

There was a time when prescribed steroids were permissible for the rehabilitation of injuries.<sup>81</sup> Now, their use is prohibited by all major sports because they were abused and their effects became well known.<sup>82</sup> Likewise, stem cell therapy should be banned because it is a form of cheating and its health effects are unknown.<sup>83</sup> Professional sports leagues should implement the same penalties that punish those who are guilty of cheating or caught using performance enhancers. Regardless of its legality in other countries, professional sports leagues should ban its players from going overseas to receive it.

Athletes who get stem cell therapy overseas receive an unfair advantage, while putting their health at risk.<sup>84</sup> In order to protect the integrity of the

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75. See Adelson, *supra* note 29. It is difficult to draw the line between restoration and enhancement or between healing and doping. *Id.*

76. Zachary, *supra* note 5.

77. See Epstein, *supra* note 33.

78. See Epstein, *supra* note 33.

79. Kelland, *supra* note 52.

80. See Frankel and Kapustij, *supra* note 6. As mentioned throughout the article, stem cell therapy can shorten recovery time, and allow athletes to become faster and stronger. *Id.*

81. See Gaffney, *supra* note 66.

82. *Id.* The use of these drugs posed significant health risks. *Id.*

83. *Id.*

84. Franklin, *supra* note 36.

sport and the health of players, professional sports leagues in the United States should ban this therapy. A few extra years of playing a sport is not worth taking a gamble on an athlete's life.