Marquette Sports Law Review

Volume 27
Issue 2 *Spring*

Article 11

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Jessica M. Goldstein

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Jessica M. Goldstein, *Mitchell's Story: A Cautionary Tale of Underlying Cardiovascular Disease and the Call for Increased Pre-participation Sports Physicals at the Intercollegiate Level*, 27 Marq. Sports L. Rev. 495 (2017)
Available at: http://scholarship.law.marquette.edu/sportslaw/vol27/iss2/11

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MITCHELL'S STORY: A CAUTIONARY TALE OF UNDERLYING CARDIOVASCULAR DISEASE AND THE CALL FOR INCREASED PRE-PARTICIPATION SPORTS PHYSICALS AT THE INTERCOLLEGIATE LEVEL

JESSICA M. GOLDSTEIN*

I. INTRODUCTION

Hypertrophic cardiomyopathy (HCM) is a devastating genetic disease that impacts the lives of thousands of people every year. While most of these people do not get media recognition for their untimely deaths, some people who succumb to the disease are high profile athletes in their communities and schools. Many school systems, the National Collegiate Athletic Association (NCAA), and individual colleges and universities do not currently mandate testing for cardiac disorders, other than obvious defects and murmurs found through a doctor's stethoscope. This needs to change. HCM, and other underlying cardiac disorders, kill approximately 380,000 people each year.[1] On average, an athlete dies from sudden cardiac arrest every three days.[2] This can change. Testing for heart ailments at a young age can prevent many of the deaths in young athletes.

This Comment proposes that the NCAA should mandate in-depth cardiac testing for its student-athletes. Colleges and universities must require in-depth testing as part of pre-participation physicals in every athlete, each year. Section II will illustrate how HCM impacted the lives of three individuals. Section III will define HCM, illustrate detection methods, and explain treatments. Section IV will explain the standard of care owed to student-athletes by the NCAA and individual colleges and universities. Section V will describe the claim an

* Jessica M. Goldstein is a third-year law student at Marquette University Law School, an Executive Editor for the *Marquette Sports Law Review*, and a Comment Editor for the *Marquette University Law Review*.

1. *Sudden Cardiac Arrest in Young Athletes: Ricky Rubio Helps Expand Awareness*, HEARTRESCUENOW, http://www.heartrescuenow.com/sudden-cardiac-arrest.html (last visited May 15, 2017).

2. *Id.*

athlete, or an athlete's estate, must bring to show a breach of the duty of care. Section VI will show how implementing testing will satisfy the institution's duty of care. Section VII will detail specific programs currently in place to test athletes.

While it is likely that cost and lack of trained personnel will be issues faced by colleges and universities implementing testing, the lives saved will greatly outweigh these negatives. These negatives are also outside the scope of this Comment. The lives of this country's young athletes are too important not to enact requirements surrounding cardiac examinations during pre-participation physicals.

II. THREE CAUTIONARY TALES

A. Mitchell's Story[3]

April 16, 2011, a day that will live forever in the hearts and minds of the family of a twenty-one year-old boy. While hanging out at a friend's house before heading out for a night of off-roading in the woods, Mitchell was sitting at the computer. When Mitchell stood up, he collapsed. Mitchell stopped breathing and his heart was beginning to fail. Once on scene, first responders immediately began cardiopulmonary resuscitation (CPR) and attached him to a mobile electrocardiogram machine. After administering multiple medications, and using a defibrillator multiple times, the paramedics rushed Mitchell to the hospital. At 9:02 PM, a mere two hours after collapsing, Mitchell was pronounced dead. An autopsy showed that Mitchell suffered from a genetic heart condition, HCM. This diagnosis, while devastating, was not a surprise.

Four years earlier, during a required routine pre-participation physical to join his high school's football team, Mitchell's primary care physician heard what he thought was a heart murmur. Mitchell was sent to a pediatric cardiologist, who conducted a stress test and echocardiogram (echo). Mitchell was diagnosed with HCM that day. During the consultation with the cardiologist, Mitchell was told that sports and other rigorous activity would no longer be part of his routine. That day changed Mitchell's life.

Mitchell grew up an active child. He played a variety of sports including soccer, track, and football. This all changed after his diagnosis at age seventeen. Mitchell's HCM diagnosis slowed him down, limited his opportunity to

3. Mitchell's story is based on a true story of a young man who died of hypertrophic cardiomyopathy (HCM) in 2011. The story was used with permission from his family. While the details of the events are substantially the same, some minor details may be a slight variation to what actually occurred. Mitchell's name was changed to allow the family to retain their privacy surrounding the death of their only son. This author would like to thank Mitchell's family for allowing her to use Mitchell's story to further awareness surrounding HCM.

regularly exercise, and caused him to gain a significant amount of weight. While the diagnosis did not stop Mitchell from hunting, fishing, off-roading, four-wheeling, and working on a farm and in a grocery store, Mitchell could not continue to play the sports he loved.

Hindsight being twenty-twenty, Mitchell's mother realized that Mitchell could have succumbed to the disease much earlier in life. During a soccer game, when he was fifteen, Mitchell collapsed on the field. His physician diagnosed him with exercise-induced asthma. He was prescribed an inhaler and sent on his way. After the HCM diagnosis, Mitchell's mother realized that he had

actually had a mild HCM episode on the soccer field, not an asthma attack.

Due to the results of his testing, Mitchell was placed in a low-risk category of the disease. This meant that Mitchell was placed on medication, evaluated by a cardiologist every year, and told not to engage in vigorous exercise or sport. This was supposed to greatly reduce the chances of another episode. After his death, four years later, no explanation could be given for why simply standing up from a computer chair would spark that fatal episode.

Although Mitchell did not die from an episode related to sport, a similar version of his story is one that is all too frequently in the news now.[4] Mitchell's diagnosis most likely gave him four more years of life. Had his physician not *thought* he heard something, during his routine physical, Mitchell could have died playing football or soccer his senior year in high school.

B. Athletes Affected by HCM

While Mitchell's story is tragic, it does not illustrate the heartbreaking consequences that HCM has on athletes still playing sports. HCM is not a condition that only impacts the lives of high school athletes; it also sneaks up on players at the collegiate and professional levels.[5] Two of the most famous

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4. *See, e.g.*, Nadia Kounang, *Could This Test Help Prevent High School Football Deaths?*, CNN (Nov. 12, 2015), http://www.cnn.com/2015/10/23/health/preventing-football-deaths/; Moses Leos III, *Hays High Alum, Texas State Football Player Died of Enlarged Heart*, HAYS FREE PRESS (Feb. 25, 2016), http://haysfreepress.com/2016/02/25/hays-high-alum-texas-state-football-player-died-of-enlarged-heart/; Sarah Vander Schaaff, *Why This Young Boy Could Have Dropped Dead on the Playing Field*, WASH. POST (Feb. 22, 2016), https://www.washingtonpost.com/national/health-science/why-this-young-boy-could-have-dropped-dead-on-the-playing-field/2016/02/22/f45efcb6-cf65-11e5-88cd-753e80cd29ad_story.html.

5. *See* Simon Austin, *Marc-Vivien Foe Death: His Legacy 10 Years After Collapsing on Pitch*, BBC SPORT (June 26, 2013), http://www.bbc.com/sport/0/football/23052120; Myron Medcalf, *Remembering Hank Gathers on 25th Anniversary of His Death*, ESPN (Mar. 4, 2015), http://espn.go.com/mens-college-basketball/story/_/id/12408850/remembering-hank-gathers-25th-anniversary-death; Myron Medcalf, *When the Hearts of Young Athletes Fail*, ESPN (Aug. 29, 2012), http://www.espn.com/mens-college-basketball/story/_/id/8313100/when-hearts-young-athletes-fail-

athletes to have had episodes related to HCM are Eddie Curry and Hank Gathers. One's life ending way too soon, while the other's career was cut short.

i. Eddy Curry

To attempt to prevent the death of one of its players, the Chicago Bulls, of the National Basketball Association (NBA), insisted that Eddy Curry take a DNA test to confirm or negate a diagnosis of HCM.[6] Curry missed the final thirteen games, and the playoffs, of the 2005–2006 season due to an arrhythmia.[7] The demanding of the DNA test came after world-renowned HCM specialist, Dr. Barry Maron, suggested Curry take one.[8] Curry refused, citing privacy issues.[9] A statement from the Bulls suggested that the team respected Curry's privacy concerns, but had no hidden agenda in the test.[10] The team ultimately wanted to avoid a situation with Curry that was similar to the tragic deaths of Reggie Lewis, a former Boston Celtics player,[11] and Hank Gathers, a former standout at Loyola Marymount University.[12] The team even offered to pay Curry $400,000 a year for the next fifty years if the DNA test revealed an HCM diagnosis.[13] Curry ultimately refused the DNA test and was traded to the New York Knicks.[14] Curry continued to play in the NBA until the 2011–2012 season[15] and then played the 2012–2013 season in China with the Zhejiang Golden Bulls.[16] Curry did not suffer another reported incident during his career.

Due to the situation with Curry, coupled with the four cardiac-related incidents in the 2005 offseason, the NBA announced the adoption of

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college-basketball.

6. Michael A. McCann, *The Reckless Pursuit of Dominion: A Situational Analysis of the NBA and Diminishing Player Authority*, 8 U. PA. J. LAB. & EMP. L. 819, 819 (2006).

7. *Bulls Deal Curry After DNA Test Refusal*, ESPN (Oct. 4, 2005), http://espn.go.com/nba/news/story?id=2180298.

8. *Id.*

9. *Id.*

10. *Id.*

11. Jackie MacMullan, *Remembering Reggie Lewis, 20 Years After His Tragic Death*, ESPN (July 27, 2013), http://www.espn.com/boston/nba/story/_/id/9510589/remembering-reggie-lewis-20-years-tragic-death.

12. *Bulls Deal Curry After DNA Test Refusal*, *supra* note 7.

13. *Id.*

14. McCann, *supra* note 6, at 820.

15. *Eddy Curry Stats*, BASKETBALL-REFERENCE, http://www.basketball-reference.com/players/c/curryed01.html (last visited May 15, 2017).

16. *Eddy Curry Basketball Profile*, ASIA-BASKET, http://basketball.asia-basket.com/player/Eddy_Curry/China/Zhejiang_Chouzhou_Bank/32655 (last visited May 15, 2017).

electrocardiograms (ECGs) as a mandatory part of team physicals.[17] If the ECG results were abnormal, a player would then be put through a battery of other tests, including an echo.[18] An NBA spokesperson said, "The hearts of large, elite athletes differ from so-called 'normal hearts,' and the panel felt that having a standardized protocol—informed by the most up-to-date learning—for
examining these hearts is the best thing for the health and safety of our players."[19] The NBA and the National Basketball Players Association (NBPA) agreed to the cardiac protocols in their collective bargaining agreement.[20]
Section six of the 2011 agreement imposes a duty on the players to submit themselves to the NBA cardiac protocol, as well as concussion protocol, and to answer all health questions related to those protocols.[21] It is safe to assume that if the NBA is worried about its athletes, then the NCAA and member institutions should be worried about theirs. While Eddie Curry's story has a relatively happy ending, not all athletes are quite so lucky.

ii. Eric "Hank" Gathers

Hank Gathers was a standout player for the Loyola Marymount University men's basketball team during the 1989–1990 season.[22] The team was well on its way to a high seed in the NCAA tournament and featured one of the best scoring duos in college basketball—Gathers and his close friend, Bo Kimble.[23] The course of college basketball and the lives of the Loyola Marymount team changed during the West Coast Conference tournament on March 4, 1990.[24] During the first half of the game against Portland State, Gathers suddenly collapsed on the court.[25] He attempted to get up, but could not.[26] By the time

17. Darren Rovell, *Sources: NBA to Standardize Physicals*, ESPN (Feb. 27, 2006), http://espn.go.com/nba/news/story?id=2340042.

18. *Id.*

19. *Id.*

20. NBA COLLECTIVE BARGAINING AGREEMENT art. XXII, § 6 (2011).

21. *Id.*

22. Reid Forgrave, *25 Years Ago, Hank Gathers Died, but His Memory Hasn't Left Those Close to Him*, FOX SPORTS (Mar. 2, 2015), http://www.foxsports.com/college-basketball/story/hank-gathers-died-25-years-ago-loyola-marymount-030215.

23. *Id.*

24. *Id.*

25. Rick Weinberg, *62: Hank Gathers Collapses, Dies of a Heart Condition*, ESPN (July 8, 2004), http://www.espn.com/espn/espn25/story?page=moments/62.

26. *Id.*

the trainers got to him, Gathers was convulsing.[27] The trainer shocked Gathers three times with a defibrillator and administered CPR.[28] Gathers arrived at the hospital approximately twenty-four minutes after collapsing; however, doctors pronounced Gathers dead after frantically working on him for an hour.[29]

Hank Gathers' death has been described as "one of the most public tragedies in American sports history," and "one of those moments in American sports a fan can't erase from his brain[,] . . . like Dale Earnhardt's fatal crash at
Daytona . . . ."[30] What some fans do not realize: Hank Gathers had warning. During a game four months earlier, Gathers collapsed at the free throw line.[31] He was prescribed a beta blocker, but did not like its side effects.[32] After complaining about the drug, he asked if he could stop taking it and was told no.[33] Gathers began to gradually take himself off the drug and also skipped some of the required cardiac testing.[34] Gathers knew that a heart condition would hurt his draft chances, but instead of doing everything he could to play the game with caution, Gathers threw that caution to the wind.[35] This risk-taking helped to take his life.

The story of the Gathers family does not end with Hank. Three years later, Hank's cousin, Joseph Marable, while at his own basketball practice, collapsed and later died at the hospital.[36] The genetic connection of the two players
illustrates that HCM is a genetic condition, and should warn families to monitor all members, not just those that may exude warning signs.

III. WHAT IS HCM?

Pre-participation physicals usually do not include in-depth cardiac screenings.[37] In-depth screenings, which are not invasive, would be beneficial

27. *Id.*

28. *Id.*

29. *Id.*

30. Forgrave, *supra* note 22.

31. Weinberg, *supra* note 25.

32. *Id.*

33. *Id.*

34. *Id.*

35. *Id.*

36. *Gathers' Cousin, 17, Dies After Collapsing at Basketball Practice*, L.A. TIMES (Dec. 1, 1993), http://articles.latimes.com/1993-12-01/sports/sp-62882_1_basketball-practice.

37. *See* Am. Acad. of Family Physicians et al., *Preparticipation Physical Evaluation: Physical Examination Form*, AM. ACAD. OF PEDIATRICS (2010), https://www.aap.org/en-us/about-the-aap/Committees-Councils-Sections/Council-on-sports-medicine-and-fitness/Documents/PPE-

because they would catch heart diseases or defects that a routine examination with a stethoscope would not catch. Many of these diseases or defects cause sudden cardiac death in athletes.[38] HCM is the number one killer on that list.[39]

HCM, a disease first described over fifty-three years ago,[40] is a deadly genetic heart condition that can cause sudden death.[41] HCM is something that people can live with and not know about until it is too late.[42] This section looks at (1) exactly what the disease does to a person's heart, how the symptoms of the disease manifest, and the major risk groups; (2) the procedure used to detect and diagnose HCM; and (3) the different treatments determined by the
associated risk group.

A. What Are the Symptoms of HCM?

One of the key reasons that pre-participation cardiac screenings are so important is that HCM is usually asymptomatic.[43] This means that a person will never have symptoms until an episode occurs. One author even says that "[s]udden death due to HCM typically occurs without prior symptoms."[44] If given the choice, this is not the way to be diagnosed with the condition.

Symptoms of the condition are random and not present in all cases. As previously stated, the most severe symptom of HCM is sudden cardiac death. Other severe symptoms include: arrhythmias, obstructed blood flow, mitral valve issues, other cardiomyopathies, and heart failure.[45] The sudden onset of these symptoms can also lead to death if not treated right away.

Physical-Exam-form-single-page.pdf [hereinafter PPE:Form].

38. OXFORD AMERICAN HANDBOOK OF SPORTS MEDICINE 408 (Jeffrey R. Bytomski, et al. eds., 2010) [hereinafter HANDBOOK OF SPORTS MED].

39. *Id.*

40. Barry J. Maron, Win-Kuang Shen & Paolo Spirito, *Implantable Defibrillator for Prevention of Sudden Death in Hypertrophic Cardiomyopathy, in* DIAGNOSIS AND MANAGEMENT OF HYPERTROPHIC CARDIOMYOPATHY 327 (Barry J. Maron ed., 2004).

41. *See* OXFORD AMERICAN HANDBOOK OF CARDIOLOGY 291 (Jeffrey R. Bender et al. eds., 2011) [hereinafter HANDBOOK OF CARDIOLOGY]. HCM, an inherited genetic mutation, is illustrated by
maladaptive left ventricular hypertrophy that is incompatible with the degree of afterload. *Id.* In other words, HCM causes the heart muscle in the walls around the left ventricle to grow too thick.

42. *See* HANDBOOK OF SPORTS MED, *supra* note 38, at 413.

43. HANDBOOK OF CARDIOLOGY, *supra* note 41, at 290.

44. HANDBOOK OF SPORTS MED, *supra* note 38, at 413.

45. *Symptoms and Causes–Hypertrophic Cardiomyopathy*, MAYO CLINIC (Oct. 26, 2016), http://www.mayoclinic.org/diseases-conditions/hypertrophic-cardiomyopathy/symptoms-causes/dxc-20122103 [hereinafter MAYO CLINIC].

Less severe symptoms can mirror those of a heart attack.[46] Fatigue and breathlessness, chest pain, and minor arrhythmias are also symptoms of HCM.[47] Other less severe symptoms include: murmurs, fluttering sensations, and rapid heartbeats.[48] The appearance of less severe symptoms usually points to a diagnosis of non-obstructive HCM.[49] Many of the listed symptoms occur during and after exercise or vigorous activity,[50] while others can occur during more sedate activities or even during sleep.[51] Sudden death can also occur during rest or with mild exertion.[52] Since HCM symptoms can occur at any time without warning, knowing about the condition is one's best defense.

B. What Are the Risk Factors Associated with HCM?

There are many diseases and disorders that show up more frequently in one sex or another,[53] one race or another,[54] or one ethnic background or another.[55] HCM is not like that.[56] HCM affects males and females, all races, and all ethnic backgrounds.[57] While it has been shown that HCM typically is not diagnosed in females or African-Americans until later in life, this does not diminish the probability of these groups developing the disease.[58]

Many of the factors that a physician looks for to place a patient in a particular risk group category deal with genetics and after effects of exercise.[59]

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46. *See* HANDBOOK OF CARDIOLOGY, *supra* note 41, at 290–91; MAYO CLINIC, *supra* note 45.

47. HANDBOOK OF CARDIOLOGY, *supra* note 41, at 290–91.

48. *See id.*; MAYO CLINIC, *supra* note 45.

49. MAYO CLINIC, *supra* note 45.

50. *Id.*

51. HANDBOOK OF SPORTS MED, *supra* note 38, at 413.

52. *Id.*

53. *Hemophilia – Genetics Home Reference*, U.S. NAT'L LIBRARY OF MED. (Feb. 21, 2017), http://ghr.nlm.nih.gov/condition/hemophilia (explaining that hemophilia is more common in males).

54. JAMIE D. BROOKS & MEREDITH L. KING, GENETICIZING DISEASE: IMPLICATIONS FOR RACIAL HEALTH DISPARITIES 3 (2008), https://cdn.americanprogress.org/wp-content/uploads/issues/2008/01/pdf/geneticizing_disease.pdf (explaining that Sickle Cell Anemia is more common in African-Americans).

55. *Id.* (explaining that Tay-Sachs Disease is more common in people of Jewish and Eastern European descent).

56. Daniel L. Jacoby et al., *Hypertrophic Cardiomyopathy: Diagnosis, Risk Stratification and Treatment*, 185 CANADIAN MED. ASS'N J. 127 (2013).

57. *Id.*

58. Barry J. Maron & Martin S. Maron, *Hypertrophic Cardiomyopathy*, 381 LANCET 242, 242 (2013) [hereinafter Maron & Maron, *HCM*].

59. HANDBOOK OF CARDIOLOGY, *supra* note 41, at 291.

While there are no pre-determined risk groups associated with HCM, one can figuratively be placed in high- or low-risk categories. The categories are hypothetically based on the risk factors present within the patient. The biggest risk factor is a family history of the disease.[60] Because HCM is an inherited genetic condition, it is more than likely that others in a patient's family have the condition as well.[61] If it is discovered that a parent has HCM, each child has a fifty percent chance of also having the condition.[62] Having a family history—those with parents, children, or siblings with HCM—of the condition can also help in diagnosis.[63]

While family history does not necessarily increase the risk of sudden death from HCM, many other risk factors do.[64] These factors include: being diagnosed at an early age, having a history of unexplained syncope, having a left ventricular wall thickness of greater than thirty millimeters, hypotension after exertion, and non-sustained ventricular tachycardia when on an ambulatory electrocardiogram monitor.[65] The more risk factors present, the more likely one is to have an episode.[66] However, even those with no risk factors can succumb to the condition.

C. How Is HCM Detected and Diagnosed?

HCM can be easily detected through echoes, physical examinations, and ECGs.[67] These, in conjunction with genetic testing, are the best ways to diagnose someone with the disease.[68] Outside of these individual options, one can be diagnosed through genetics.[69] A genetic diagnosis can be made in people with a definite family history of HCM.[70] Although having genetic heterogeneity, an HCM genetic diagnosis can be established in approximately seventy percent of patients who have inherited the disease.[71] This allows for accurate screenings and diagnosis of other family members.[72]

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60. *See id.*; HANDBOOK OF SPORTS MED, *supra* note 38, at 413; MAYO CLINIC, *supra* note 45.

61. MAYO CLINIC, *supra* note 45.

62. *Id.*

63. *Id.*

64. HANDBOOK OF CARDIOLOGY, *supra* note 41, at 291.

65. *Id.*

66. *Id.*

67. *Id.*

68. *Id.*

69. *Id.*

70. *Id.*

71. *Id.*

72. *Id.* With genetic testing, diagnosis can be done at birth, and allow for a family to take all the necessary steps to prevent an episode from occurring in the future. *See id.*

i. Echocardiogram

As described earlier, Mitchell was diagnosed with HCM through an echo. He was ordered to take this test when his primary care physician thought he heard a murmur during a routine sports physical. When a cardiologist did not hear the murmur, but did see an abnormality on a stress test, an echo was performed and HCM was the diagnosis. Because of this diagnosis, the rest of Mitchell's family attempts to have regular echoes to monitor the development of HCM in others.

An echo is the best and most recommended way to detect HCM. It is a non-invasive test that uses sound waves to create a detailed picture of the heart.[73] Echoes give the cardiologist a more detailed picture than an x-ray and do not expose a patient to radiation.[74] The type of echo that most people have is called a transthoracic echo.[75] A transducer is placed on a patient's ribs and is directed toward the heart.[76] The high frequency sound waves that are emitted help create an image of the patient's heart.[77] The transducer will then be moved to other parts of the chest to get pictures of the heart from various angles.[78]

The cardiologist will look at the moving and still pictures taken from the scan to evaluate the patient's condition.[79] The moving pictures will allow the cardiologist to see the heart beat and see the blood flowing through the heart's chambers.[80] In a few cases, the lungs, ribs, or body tissue can prevent the sound waves from giving a clear picture.[81] If this occurs, then, to get a better picture, a small amount of liquid is injected into the patient through an IV.[82]

During an echo, patients with HCM can show a multitude of different things. The echo can feature reduced left ventricular cavity dimensions, abnormalities of papillary muscles and mitral valve anatomy, hyperdynamic indices of systolic function, and abnormal indices of diastolic function with atrial enlargement.[83] An enlargement of the septum, most commonly on the

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73. *Echocardiogram: MedlinePlus Medical Encyclopedia*, U.S. NAT'L LIBRARY OF MED., https://www.nlm.nih.gov/medlineplus/ency/article/003869.htm (last updated Apr. 1, 2013).

74. *Id.*

75. *Id.*

76. *Id.*

77. *Id.*

78. *Id.*

79. *Id.*

80. *Id.*

81. *Id.*

82. *Id.*

83. Jacoby et al., *supra* note 56, at 128.

left ventricle side, is what usually makes the cavity dimensions smaller.[84] Any of these abnormalities on an echo is a red flag for a physician, and HCM is highly considered as a cause.[85] The patient is then told to stop participating in vigorous activity and more testing is completed.[86]

ii. Genetic Testing

Mitchell's family was recently thrown another punch to the gut concerning HCM. Mitchell's uncle, Brent, had an episode on New Year's Eve in 2015. After collapsing in the checkout line of a corner store, first responders discovered Brent did not have a pulse. Brent was taken to the hospital and put through cardiac arrest protocol. Brent was given a heart catheterization and told that there was no blockage that caused his sudden cardiac arrest. This led the doctors to conclude that he had an almost fatal episode of HCM. The doctors were insistent that Brent not be discharged from the hospital until an internal
defibrillator was implanted. The doctors are now hopeful that Brent will continue to live a healthy and long life with the aid of the defibrillator. Doctors have also recommended that Mitchell's family go through genetic testing to
pinpoint others that are inflicted with the disease.[87]

Genetic testing for HCM has come a long way since the 1990s.[88] Unfortunately, HCM has been found to be a heterogeneous disease.[89] This means that the mutations that cause the disease are as varied as the people who have it.[90] HCM comes from a sarcomere gene mutation, but researchers have found two thousand individual mutations in over eleven genes.[91] Contempo-

84. MAYO CLINIC, *supra* note 45.

85. *See generally id.*

86. *See generally id.*

87. Mitchell and Brent's family gave the author permission to update this piece with Brent's 2015 HCM episode and hospital stay.

88. Barry J. Maron & Martin S. Maron, *The 20 Advances That Have Defined Contemporary Hypertrophic Cardiomyopathy*, 25 TRENDS IN CARDIOVASCULAR MED. 54, 60 (2015) [hereinafter Maron & Maron, *20 Advances*].

89. *Id.*

90. *See id.*

91. *Id.* Mitchell's family has decided to submit genetic samples, from Brent, for genetic testing. The initial testing, which was completed by Duke University, has come back without showing a genetic mutation. This could be because the mutation in Mitchell's family is not one of the more common mutations. The genetic samples have been sent to another institution, Harvard University, for further testing and evaluation. The family hopes that this further testing will show a mutation that the next generation of family members can be tested for. As of October 2016, Harvard University has been unable to isolate the familial genetic mutation.

rary genetic testing has led to the identification of two subgroups of HCM patients.[92] First are the patients found to have "a pathogenic mutation, but without [left ventricle] hypertrophy, and at risk for developing disease,"[93] and second are the patients with "delayed phenotypic penetrance with the development of [left ventricle] hypertrophy after adolescence and into adulthood."[94]

This heterogeneity is what makes genetic testing for HCM so expensive. An inflicted family member must have their genes mapped and the individual family's mutation must be found.[95] After this initial genetic mapping, other family members can be easily screened with a simple cheek swab to determine whether they are at risk to develop the disease.[96]

D. How Is HCM Treated?

Treating HCM is harder than just giving a patient a pill. Because most patients are unaware they have the disease until a catastrophic incident occurs, treatment could realistically be an autopsy showing HCM as the cause of death.[97] If a patient is aware of a family history of HCM, or is diagnosed through an echo, treatment options are available.[98] The options range from pharmaceutical remedies to implantation of an internal defibrillator.[99]

Pharmacological treatments are usually directed toward outward symptoms of HCM and not HCM itself.[100] In the 1960s, beta blockers, propranolol at first, were used to help HCM patients control the onset of symptoms of exercise intolerance.[101] Verapamil in the 1970s, for non-obstructive patients, and more recently disopyramide, for obstructive patients, have been added as treatments.[102] While all of these drugs have had success in lowering and controlling heart failure symptoms, there has been no evidence of a reduction in the likelihood of sudden death.[103]

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92. Maron & Maron, *20 Advances*, *supra* note 88, at 60.

93. *Id.*

94. *Id.*

95. *See id.*

96. *See id.*

97. *See* Maron & Maron, *HCM*, *supra* note 58, at 246.

98. Maron & Maron, *20 Advances*, *supra* note 88, at 55–59.

99. *Id.*

100. Maron & Maron, *HCM*, *supra* note 58, at 248.

101. Maron & Maron, *20 Advances*, *supra* note 88, at 55.

102. *Id.*

103. *Id.*

Implantation of an internal defibrillator is a viable option for the most high-risk HCM patients.[104] These are the patients that display more than one of the risk factors previously discussed or patients that displayed no risk factors other than a sudden onset of cardiac arrest without another cause.[105] Sudden cardiac arrest patients and patients with a distinct family history, preferably in the nuclear or immediate family, of HCM are the ideal candidates.[106] Internal defibrillators are seen as possibly the only treatment for sudden death in HCM patients.[107] Internal defibrillators do come with their own set of complications, but have been seen to work in preventing death, and stabilizing the heart into a normal sinus rhythm, in over twenty percent of patients.[108]

IV. STANDARD OF CARE OWED TO ATHLETES

In tort law, a defined standard of care is the backbone of determining liability for negligence actions.[109] "A person is negligent when he fails to exercise ordinary care. Ordinary care is the care which a reasonable person would use in similar circumstances."[110] A reasonable person is defined as "a person who exercises the degree of attention, knowledge, intelligence, and judgment that society requires of its members. . . . [He] acts sensibly, does things without serious delay, and takes proper but not excessive precautions."[111]

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104. Maron & Maron, *HCM*, *supra* note 58, at 248.

105. *Id.*

106. *Id.* The nuclear family includes parents, siblings, children, and grandparents of the HCM patient. *See id.*

107. *See id.* There are three major groups of risk factors that come along with ICDs. *What Are the Risks of Having an Implantable Cardioverter Defibrillator?*, NHLBI, NIH, https://www.nhlbi.nih.gov/health/health-topics/topics/icd/risks (last updated Nov. 9, 2011). (1) Unnecessary Electrical Pulses: ICDs can sometimes give electrical pulses or shocks that aren't needed, due to a damaged wire, fast heart rate from exercise, or if a patient forgets to take medication. *Id.* These occur more frequently in children, as children tend to be more physically active than adults. *Id.* These pulses can cause heart damage or trigger irregular and dangerous heartbeats. *Id.* (2) Risks Related to Surgery: These risks include swelling, bruising, or infection around the area of placement; bleeding from the placement site; nerve damage; blood vessel and heart damage; a collapsed lung; and bad reactions to anesthesia. *Id.* (3) Assorted Other Risks: Some patients are at a higher risk for heart failure, but this could be due to the ICD or because people with ICDs tend to have an increased risk of heart failure, experts are unsure. *Id.* Sometimes the ICD itself may not work properly, which would mean the device would fail to correct irregular heartbeats. *Id.* Also, the longer a patient has the ICD, the more likely the patient will have some risks related to it. *Id.* This is something that patients implanted at a young age need to be cognizant of and vigilant about. *See id.*

108. Maron & Maron, *HCM*, *supra* note 58, at 248.

109. *See* RESTATEMENT (SECOND) OF TORTS §§ 282–83 (1965).

110. Wis. Civ. Jury Instruction § 1005 Negligence: Defined (2009).

111. *Reasonable Person*, BLACK'S LAW DICTIONARY (9th ed. 2009).

Coaches, athletic departments, and schools are not immune to negligence actions. The California Supreme Court determined that the standard of care owed to an athlete in the high school setting is that a coach owes a duty of care not to increase the inherent risk of a particular sport.[112] While this duty is articulated in the sense of teaching and supervising a sport,[113] it would not be a stretch to include ensuring an athlete's physical health prior to engaging in the sport. A student-athlete's health and safety also falls under the standard of care that is owed by state high school athletic associations.[114] Because these governing bodies make rules within their jurisdictions, they must use reasonable care while doing so.[115] This is where pre-participation physicals come into play.

A pre-participation physical is concerned with the health and safety of athletes during competition and training.[116] The evaluation includes a survey of the athlete's medical history and the athlete's family history.[117] The physical evaluation is a comprehensive examination of the athlete's body, both internal and external.[118] One box on the standard form includes minimal heart evaluation.[119] Pre-participation physicals require a duty of care on both the physician and athlete, or athlete's parent.[120]

A. The NCAA's Duty to the Athlete

The NCAA does not have a special relationship with student-athletes at the institutions under its umbrella. While student-athletes represent NCAA member schools, play in NCAA sanctioned events, and follow NCAA rules and regulations, there is no relationship between the student-athlete and the NCAA. The NCAA has a contractual relationship with the member institutions, who in turn have the special relationship with recruited student-athletes.[121] Due to the lack of special relationship and direct control of the student-athletes at member universities, the NCAA does not owe student-

112. Kahn v. E. Side Union High Sch. Dist., 75 P.3d 30, 40 (Cal. 2003).

113. *Id.*

114. MATTHEW J. MITTEN ET AL., SPORTS LAW AND REGULATION: CASES, MATERIALS, AND PROBLEMS 908 (3d ed. 2013).

115. *Id.*

116. *Preparticipation Physical Evaluation*, AM. ACAD. OF PEDIATRICS, https://www.aap.org/en-us/about-the-aap/Committees-Councils-Sections/Council-on-sports-medicine-and-fitness/Pages/PPE.aspx (last visited May 15, 2017).

117. *Id.*

118. *See generally* PPE:Form, *supra* note 37.

119. *See id.*

120. Magee v. Covington Cty. Sch. Dist., 96 So. 3d 742, 748–50 (Miss. Ct. App. 2012).

121. *See* discussion *infra* Section IV.B.

athletes a duty of care.[122]

While the NCAA does not owe a direct duty of care, it does publish and enforce rules and regulations that member institutions, and in turn student-athletes, must follow. The NCAA has some rules in place that evaluate student-athletes at different points in their collegiate careers, and it has implemented rules that dictate someone at each member institution be able to effectively operate an automatic external defibrillator.[123] The NCAA works with the Sport Science Institute to study ailments in student-athletes, and provides information about sudden cardiac arrest.[124]

The NCAA is taking steps forward to investigate and implement screenings for sudden cardiac arrest,[125] however, current NCAA policy is lacking in this area.[126] Currently, the NCAA "does not . . . require: 1) that the institution's team physician conduct the medical evaluation; 2) that the institution's team physician and/or director of medical services review pre-participation evaluations performed by outside physicians; or 3) that pre-participation evaluations fulfill established criteria."[127] In order for the NCAA to really make a difference, it must not just take a step forward, but it must require that the recommendations it has made be put in place at all member institutions.

B. An Institution's Duty to the Athlete

In many situations at the intercollegiate level, a school will owe a duty of care to its student-athletes because of the special relationship that exists between them.[128] If a school actively recruits a student to attend its university, with the direct intent that he play a varsity sport, the student-athlete and university have created a special relationship.[129] This relationship automatically means that the university owes the student-athlete a duty of care related to his

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122. Lanni v. NCAA, 42 N.E.3d 542, 549–50 (Ind. Ct. App. 2015).

123. NAT'L COLLEGIATE ATHLETIC ASS'N, 2014-15 NCAA SPORTS MEDICINE HANDBOOK 125 (25th ed. Aug. 2014) http://www.ncaapublications.com/productdownloads/MD15.pdf [hereinafter NCAA SPORTS MED] ("An institutional staff member with current certification in first aid, cardiopulmonary resuscitation (CPR) and automatic external defibrillator (AED) use must be present any time a student-athlete participates in a physical, countable athletically related activity.").

124. *Sport Science Institute*, NCAA.ORG, http://www.ncaa.org/health-and-safety/sport-science-institute (last visited May 15, 2017).

125. *See* discussion *infra* Section VII.C.

126. *See generally* NCAA SPORTS MED, *supra* note 123.

127. Brian Hainline et al., *Interassociation Consensus Statement on Cardiovascular Care of College Student-Athletes*, 67 J. AM. COLL. CARDIOLOGY 2981, 2985 (2016). *See* NCAA SPORTS MED, *supra* note 123.

128. Kleinknecht v. Gettysburg Coll., 989 F.2d 1360 (3d Cir. 1993).

129. *Id.*

health and safety.[130] In almost all circumstances, a university has the legal duty to use reasonable care to protect the health and safety of student-athletes.[131]

The special relationship between a student-athlete and college is created when the college recruits that athlete specifically to play a varsity sport. A varsity lacrosse player at Gettysburg College was participating in sanctioned, off-season practice when he collapsed on the field.[132] According to other players on the team, he stepped away from a drill and fell.[133] No other player or object hit him prior to his collapse.[134] After running to the player's side, two of the other players ran to a separate facility to get a trainer and to call for an ambulance.[135] Due to practice being in the off-season, no trainers were present for the activity.[136] A student trainer was the first to render aid to the player, but was only able to monitor his condition prior to more help arriving.[137] Once an athletic trainer arrived at the practice site, CPR was administered until an
ambulance arrived.[138] Despite repeated attempts to resuscitate the player, he was pronounced dead at the hospital.[139] An autopsy showed the player died from a fatal attack of cardiac arrhythmia.[140] The player's family asserted that the college failed in its duty of care owed to the player.[141] The court concluded that the college did owe the player "a duty of care in his capacity as an intercollegiate athlete engaged in school-sponsored intercollegiate athletic activity for which he had been recruited."[142]

Currently athletic programs create and implement their own pre-participation physical process. Some universities use the standard physical form published by the American Academy of Pediatrics,[143] but most have

130. *Id.*

131. Searles v. Trs. of St. Joseph's Coll., 1997 ME 128, ¶ 5, 695 A.2d 1206, 1209.

132. *Kleinknecht*, 989 F.2d at 1363.

133. *Id.*

134. *Id.*

135. *Id.*

136. *Id.*

137. *Id.* at 1364.

138. *Id.*

139. *Id.*

140. *Id.* at 1365.

141. *Id.*

142. *Id.* at 1369.

143. The University of Wisconsin-Madison furnishes a version of the standard physical form to its athletes; however, the link does not specify if the form is for new or returning athletes, or both. Am. Acad. of Family Physicians et al., *Preparticipation Physical Evaluation*, UW BADGERS (2010), http://sidearm.sites.s3.amazonaws.com/uwbadgers.com/documents/2015/10/15/physical_packet_sportsmed.pdf. The form is found on a quick link from the sports medicine page on the athletics website.

their own forms for student-athletes to get filled out by a doctor.[144] These forms are not in-depth and do not require cardiac testing beyond a doctor's stethoscope. Colleges and universities are not required to have in-depth testing, but implementing better testing will help institutions to meet their duty of care.

C. No Right to Participate and the Institution's Right to Disqualify

Student-athletes do not have a constitutionally protected right to participate in athletics at any level.[145] One court reasoned: "Clearly, since the Supreme Court has held that there is no fundamental right to public education, there is no fundamental right to participate in intercollegiate athletics, a component of education."[146] Even though participation is not a right, once a player is recruited, given a place on the team, and begins to practice, the duty of care owed to the player by the institution is created. An institution also has the right to disqualify the player from participation, which would satisfy its duty of care when protecting the player from future injury.[147]

The Seventh Circuit Court of Appeals issued an opinion on whether institutions are qualified to make medical disqualification decisions.[148] The court held that if substantial evidence supports the institution as a decision-maker, then the decision must be respected.[149] In the case, the court reviewed whether an intercollegiate basketball player was disqualified from playing or practicing with the Northwestern University basketball team.[150] The player was given a scholarship after his junior year in high school, but

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Sports Medicine, WIS. ATHLETICS, http://www.uwbadgers.com/sports/2015/8/21/GEN_20140101126.aspx (last visited May 15, 2017).

144. Marquette University has a packet of information it gives to both incoming and returning athletes. *Student Athlete Info*, MARQ. SPORTS MED., http://www.gomarquette.com/sports/sports-med/spec-rel/072710aac.html (last visited May 15, 2017). The University of North Carolina publishes a health form that needs to be filled out by athletes that want to try out for any varsity team. UNC Campus Health Services, *Try-Out Physical*, GOHEELS, http://www.goheels.com/fls/3350/pdf/TRY-OUT-PHYSICAL.pdf?SPID=108097&DB_OEM_ID=3350 (last visited May 15, 2017).

145. *See* Equity in Athletics, Inc. v. Dep't of Educ., 675 F. Supp. 2d 660, 680–81 (W.D. Va. 2009); Hysaw v. Washburn Univ. of Topeka, 690 F. Supp. 940, 944–45 (D. Kan. 1987); Hart v. NCAA, 550 S.E.2d 79, 85–86 (W. Va. 2001).

146. Bowers v. NCAA, 475 F.3d 524, 553 (3d Cir. 2007) (citing San Antonio Indep. Sch. Dist. v. Rodriguez, 411 U.S. 1, 35 (1973)).

147. *Kleinknecht*, 989 F.2d at 1369.

148. Knapp v. Nw. Univ., 101 F.3d 473 (7th Cir. 1996).

149. *Id.* at 485.

150. *Id.* at 476.

during his senior year he suffered a sudden cardiac arrest while playing.[151] After recovering and having an internal defibrillator implanted, the player and his parents decided that the risk of a recurrence was low enough to let him play in college.[152] Northwestern honored the promised scholarship, but declared him ineligible to play.[153] After the initial season, Northwestern and the Big Ten Conference declared him permanently ineligible.[154] The player then sued, under the Rehabilitation Act of 1973, to regain his eligibility.[155] The district court sided with the player and granted an injunction, putting the player's ineligibility on hold.[156] Northwestern appealed and the Seventh Circuit reversed the injunction, which allowed Northwestern to declare the player ineligible.[157] The Seventh Circuit held that a university can make medical eligibility decisions based on a player's health if there is sufficient evidence to support that decision, as there was in this case.[158]

The Seventh Circuit's holding puts a duty on the university to research all medical histories of players, to make decisions based on reliable evidence, and to make reasonable accommodations for disqualified players.[159]

V. HOW AN ATHLETE PROVES A BREACH OF THE INSTITUTION'S DUTY OF CARE

In order for an student-athlete, or a student-athlete's estate, to win a lawsuit against an institution due to the death or incapacitation of a student-athlete, he must show that the institution breached its duty of care. In order to show breach, the student-athlete must first show that the institution owed him a duty of care to begin with.

As discussed earlier, the student-athlete needs to show that the institution created a special relationship with him by recruiting him to play a varsity sport. This element would not be hard for most college student-athletes because there is a paper trail from the university through the recruitment process. The

151. *Id.*
152. *Id.*
153. *Id.* at 476–77.
154. *Id.* at 477.
155. *Id.*
156. *Id.* at 478.
157. *Id.* at 478–86.
158. *Id.* at 485.
159. *See generally id.* at 473–86. *See also* Bowers v. NCAA, 475 F.3d 524 (3d Cir. 2007).

student-athlete must then show that the injury, which could be death, was endured during a sanctioned sports activity. This activity can be either a game or practice, but the activity must be school-sponsored and sanctioned. This element would also not be hard to prove because many sports require student-athletes to practice every day, including some offseason time periods, and game schedules are easily obtainable. As long as the injury, or death, occurred during one of these time periods, the student-athlete has met this element.

The last thing that the student-athlete must prove is that the institution did not have the requisite measures in place to protect the student-athlete from harm during school-sponsored events. The institution must use reasonable measures to protect the health and safety of its student-athletes.[160] Arguing that
"reasonable measures" includes in-depth pre-participation cardiac testing is not out of the question. Protecting the health and safety of student-athletes starts with detecting any issues before they can be a problem.

Part of this in-depth testing would be researching student-athletes' medical histories. This is part of the duty that institutions owe,[161] and if a student-athlete, or his or her estate, can prove that the institution did not test for underlying cardiac disease or ask about past medical history of both the student-athlete and his or her family, the student-athlete can show that the institution breached its duty of care.

VI. TESTING TO SATISFY THE INSTITUTION'S DUTY OF CARE

Including cardiovascular screenings in pre-participation screenings that already exist would not be a hardship, and would satisfy an institution's duty of care owed to its student-athletes. As most screenings take place in a physician's office, the equipment needed is already in place. There would need to be the addition of a few boxes on the standard form, and many lives could be saved.

The screening process that this author proposes would be similar to that implemented by some communities in the United States.[162] The screenings would have student-athletes complete a medical history, including questions about any known family members that have suddenly died without warning. The next step would be the average sports physical that is detailed by the American Academy of Family Physician's "Pre[-]participation Physical

160. Searles v. Trs. of St. Joseph's Coll., 1997 ME 128, ¶ 6, 695 A.2d 1206, 1209.

161. *See Bowers*, 475 F.3d 524; *Knapp*, 101 F.3d 473.

162. *See* discussion *infra* Section VII.B.

Evaluation: Physical Examination Form."[163] Next, the student-athlete would undergo a non-invasive ECG. Due to the results of ECGs being abnormal in a high percentage of patients with HCM,[164] this step will show which student-athletes should be subjected to further testing.

If the student-athlete's ECG results show an abnormality, then the student-athlete would then have another non-invasive procedure done, an echo. Once the echo is completed, the results will be sent to a cardiologist for review, prior to the student-athlete being cleared for participation. Once the cardiologist looks at the echo, the student-athlete will either be given a diagnosis and a recommendation for disqualification; a diagnosis and a recommendation for treatment; or told that there was nothing of note on the echo and be cleared to participate.

These echoes are the key to finding HCM in student-athletes. If this proposed screening could save even one life, then it has done its job. While no screening system is going to catch all cases, and might subject some student-athletes to more testing than needed, being able to save the lives of those student-athletes that are diagnosed with a cardiovascular disease, more specifically HCM, would make the extra steps worthwhile. The goal of the proposed screenings would be to save lives, but more importantly the screenings would help to educate members of the community about HCM and other diseases that may not be well-known. These screenings would also help institutions protect the health and safety of their student-athletes, and allow each institution to make decisions on disqualification on a case-by-case basis; thereby satisfying the duty owed to their student-athletes.

However, institutions should not stop at screenings. Implementing emergency action plans to respond to situations involving sudden cardiac arrest in student-athletes would also protect the health and safety of student-athletes. As has been discussed, not all cases of HCM—or other types of cardiac conditions that cause sudden death—are detected through the screening process. Emergency action plans, trained faculty, and on-hand AEDs would also satisfy the institution's duty of care.

VII. EXISTING POLICY, COMMUNITY TESTING, AND EXPERT RECOMMENDATIONS

Widespread cable news coverage, social media, the internet, and a faster

163. PPE:Form, *supra* note 37.

164. Shamil Mahmood et al., *Screening for Sudden Cardiac Death Before Participation in High School and Collegiate Sports*, 45 AM. J. PREVENTIVE MED. 130, 132 (2013).

communication system in the United States has brought sudden cardiac death in young people to the minds of Americans more and more in recent years. It is not unusual to hear about a young athlete collapsing on the field, pitch, or diamond and ultimately succumbing to a genetic heart condition that had been previously undiagnosed. A silver lining of sorts is that because of this uptick in coverage, awareness of HCM has also gone up. Many communities are beginning to look at how to protect young athletes and prevent future deaths.[165]

The International Olympic Committee (IOC) is in the forefront of requiring cardiac examinations before an athlete is eligible to compete.[166] This type of required examination is being debated in many states, cities, counties, and school districts across the United States. This section examines the policy proposed by the IOC to screen elite athletes, a program created and implemented in Charlotte, North Carolina,[167] in conjunction with a few surrounding school districts, and proposed legislation moving through the governments of multiple states.

A. The IOC's Policy

In 2009, the IOC published a consensus statement on periodic health evaluations for elite athletes.[168] The statement included proposed health conditions to be mindful for when athletes undergo such evaluations.[169] These conditions include: (1) cardiovascular conditions that could lead to sudden death,[170] (2) a variety of non-cardiac conditions,[171] (3) concussions,[172] (4) den-

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165. *See, e.g.*, Morgan Willett, *Austin-Area Athletes Provided Free Heart Screenings*, KXAN (Jan. 31, 2016), http://kxan.com/2016/01/31/austin-area-athletes-provided-free-heart-screenings/; *Cousino High to Host Beaumont's Free 'Student Heart Check' Screenings*, MACOMB DAILY HEALTH (Mar. 2, 2016), http://www.macombdaily.com/health/20160302/cousino-high-to-host-beaumonts-free-student-heart-check-screenings; *Free Heart Screenings Offered to Athletes*, LONGVIEW NEWS-JOURNAL (Feb. 24, 2016), http://www.news-journal.com/news/2016/feb/24/free-heart-screenings-offered-to-athletes/.

166. ARNE LJUNGQVIST ET AL., THE INTERNATIONAL OLYMPIC COMMITTEE (IOC) CONSENSUS STATEMENT ON PERIODIC HEALTH EVALUATION OF ELITE ATHLETES, INT'L OLYMPIC COMM. (Mar. 2009), https://stillmed.olympic.org/media/Document%20Library/OlympicOrg/News/20090716-The-IOC-Consensus-Statement-on-Periodic-Health-Evaluation-of-Elite-Athletes/EN-Health-Evaluation-of-Elite-Athletes-2009-report-1448.pdf#_ga=1.212552788.154371940.1488151062.

167. *Health Screenings for Student Athletes*, CAROLINAS HEALTHCARE SYS., http://www.carolinashealthcare.org/medical-services/specialty-care/heart-care/heart-of-a-champion (last visited May, 15, 2017).

168. LJUNGQVIST ET AL., *supra* note 166, at 4.

169. *See id.* at 6–21.

170. *Id.* at 6.

171. *Id.* at 11.

172. *Id.* at 17.

tal injuries,[173] (5) eating disorders,[174] and (6) musculoskeletal injuries.[175] The section of the IOC's statement dealing with cardiovascular conditions is what is particularly interesting and relevant to this Comment.

The IOC proposes that each elite athlete undergo a periodic health evaluation that screens for conditions that may put an athlete at risk.[176] The IOC gives a list of general requirements for the evaluation. These requirements include basing the evaluation on sound scientific and medical criteria; performing the evaluation in the primary interest of the athlete; measuring the scope of the evaluation, which should take into account factors individual to the athlete; performing the evaluation with the free and informed consent of the athlete; and discouraging participation in continued training if the athlete is found to be suffering from a serious condition.[177]

In making its proposal, the IOC provides that athletes have a 2.8 times higher risk for sudden cardiac death than their non-athlete counterparts.[178] This takes into consideration the intense physical activity combined with underlying diseases, such as HCM.[179] The purpose of the cardiac evaluation is underlined by the fact that a lot of athletes that experience sudden death do not have prior symptoms.[180] The evaluation will help to prevent sudden death in some athletes by recommending disqualification from competition, implantation of a defibrillator, or other remedies.[181]

The cardiac screenings will begin with a twelve-lead ECG.[182] The results of an ECG are abnormal in up to ninety percent of patients with HCM, thus starting with an ECG will determine a group of athletes that should go through further testing.[183] Combining the ECG with a proper family history and physical examination will help some athletes become aware of a number of underlying possibly fatal conditions, including HCM.[184]

The proposed screenings will include a family history with detailed

173. *Id.* at 19.
174. *Id.* at 22.
175. *Id.* at 20.
176. *Id.* at 4.
177. *Id.* at 5.
178. *Id.* at 6.
179. *Id.* at 6–7.
180. *Id.* at 7.
181. *Id.*
182. *Id.*
183. *Id.*
184. *Id.*

information about sudden death or cardiac conditions in an athlete's immediate family;[185] a personal history with detailed information about past syncope, out of proportion shortness of breath, or irregular heartbeat;[186] and a physical examination including heart sounds and bilateral blood pressure readings.[187] The evaluation would then move to the ECG.[188] If these tests show a possible abnormality, then the athlete could move into another phase of evaluation that includes an echo.[189]

To the end goal of preventing sudden death, the athlete would then be given a recommendation of how to proceed depending on what condition was detected.[190] If HCM is detected, the athlete will be told to hold off on continued training until a specialist can evaluate the athlete and the best course of action can be planned out.[191] This consensus statement shows the IOC's dedication to protecting its athletes, and puts the IOC out on the forefront of possibly
implementing screenings for fatal cardiac disorders. This statement is akin to what this Comment is proposing all school districts across the United States implement to protect their athletes.

B. The Heart of a Champion Day Program

In Charlotte, North Carolina, there is a program called Heart of a Champion.[192] Heart of a Champion is a program started in 2006 that offered eighty screenings to student-athletes in the Charlotte area.[193] The program partnered with surrounding school districts in 2013, and was able to screen approximately 2,400 student-athletes in one day.[194] Of these screenings, 127 student-athletes were notified of abnormalities in their screenings.[195] Not all of the abnormalities related to cardiovascular conditions, but many did.[196] The

185. *Id.*

186. *Id.* at 8.

187. *Id.*

188. *Id.*

189. *Id.*

190. *Id.* at 9.

191. *Id.*

192. *About Heart of a Champion*, CAROLINAS HEALTHCARE SYS., http://www.carolinashealthcare.org/service.cfm?id=11861&fr=true (last visited May 15, 2017).

193. *Id.*

194. *Id.* In 2017, Heart of a Champion Day will take place on June 3rd. *Heart of a Champion Day*, CMS: CHARLOTTE-MECKLENBURG SCH., http://www.cmsathleticzone.com/page/show/539977-heart-of-a-champion-day (last visited May 15, 2017).

195. *About Heart of a Champion*, *supra* note 192.

196. *Id.*

program is held with the help of over 650 volunteers from the many healthcare organizations in and around Charlotte.[197]

The screenings given to each student-athlete include: a medical history review; a general sports screening; an electrocardiogram; an echocardiogram, if needed; an orthopedic screening; a vision exam; and a meeting with a registered dietician, if the student-athlete chooses.[198] One pediatric cardiologist who runs the program, Dr. Nicholas Sliz, said,

> I participate in the Heart of a Champion screening because I feel it is an important way to diagnose cardiac conditions in the young athlete that might otherwise not be identified with a typical examination. By identifying these conditions, we can recommend the appropriate treatments and lifestyle modifications to ensure that they can continue to participate in athletics safely and to live normal lives.[199]

Dr. Sliz eloquently reiterated the purpose of Heart of a Champion Day.[200] The purpose of the program is to reduce the tragic statistics surrounding death in young athletes at the mercy of unknown cardiac conditions.[201] The program does this by providing free screenings that meet the most up-to-date recommendations of the American Heart Association.[202] The goal of the program is to detect the underlying conditions, give recommendations that may save the lives of student-athletes, and educate families on any genetic conditions that may also be present in other family members.[203]

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197. *Id.* The event in 2015 was held in a "partnership between CMS and Levine Children's Hospital, Carolinas Medical Center (CMC), Carolinas HealthCare System's Sports Medicine, Sanger Heart & Vascular Institute and OrthoCarolina." *Heart of a Champion Day, June 4*, CMS: CHARLOTTE-MECKLENBURG SCHS. (June 2, 2016), http://www.cms.k12.nc.us/News/Pages/Heart-of-a-Champion-Day,-June-4.aspx. The day also included the help of over 300 volunteers. *Id.*

198. *About Heart of a Champion*, *supra* note 192.

199. *Id.*

200. *Health Screenings for Student Athletes*, *supra* note 167.

201. *Id.*

202. *Id.* The American Heart Association is the nation's oldest and largest non-profit organization dedicated to the prevention of heart disease and stroke. *About Us*, AM. HEART ASS'N, http://www.heart.org/HEARTORG/General/About-Us---American-Heart-Association_UCM_305422_SubHomePage.jsp (last visited May 15, 2017). The mission of the American Heart Association "is to build healthier lives, free of cardiovascular diseases and stroke. That single purpose drives all we do. The need for our work is beyond question." *Id.*

203. *Health Screenings for Student Athletes*, *supra* note 167.

C. The NCAA Taskforce

The NCAA has taken a good first step in making cardiac screenings mandatory for all its student-athletes. In 2014, the NCAA "convened a multidisciplinary task force . . . to address cardiovascular care in the collegiate student-athlete."[204] The taskforce focused on sudden cardiac death in student-athletes, and gave a recommendation of how to handle screenings moving forward.[205] The taskforce recommends that "[c]ardiovascular screening in athletes should include a standardized personal and family history and a physical examination."[206] It also says that ECG screenings would be helpful in detecting lethal cardiac conditions, and should be interpreted by experts to distinguish "physiological changes from findings associated with pathological cardiac disorders."[207] The taskforce also recommends that all NCAA institutions have AEDs available in all facilities and have emergency action plans in place to respond to cardiac emergencies.[208]

It is obvious that the NCAA is concerned about sudden cardiac death in student-athletes from the convening of the taskforce. The next step for the NCAA is to adopt the taskforce's recommendations as bylaws, requiring that all institutions screen for cardiac conditions, and be prepared to aid student-athletes suffering from sudden cardiac arrest during sanctioned events and practices.

VIII. CONCLUSION

Sudden death in young athletes is unfortunately the most common detection method of HCM in pediatric patients. Knowing about the disease and following doctor recommendations are not overly helpful in preventing possible sudden death, as Mitchell's family found out. While genetic testing could help Mitchell's family conclude who else is at risk to succumb from the disease, it is expensive and not covered by many insurance plans.

Pre-participation examinations are already a big part of sports in America. Pre-participation physicals are required prior to playing sports in almost every school district in the United States.[209] These physicals are either required by

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204. Hainline et al., *supra* note 127, at 2984.

205. *Id.*

206. *Id.* at 2993.

207. *Id.*

208. *Id.*

209. The author looked at the state high school athletic association websites for all fifty states, and was able to find requirements for pre-participation evaluations and the forms needed for forty-nine states. The author was unable to find any mention of health and safety, pre-participation evaluations, or find any downloadable forms on the state athletic association website for Hawaii. The author does

the state high school athletic associations,[210] or in some cases, by state law.[211] There is already a standard of care owed to the student-athlete by his institution.[212] Adding a more in-depth cardiac examination to the already in-place pre-participation screenings will not add to the standard that already exists, but will help institutions satisfy their duty with greater accuracy.

Mandatory screenings for cardiovascular diseases in student-athletes would help save numerous lives around the country. Implementing ECGs, and possibly echoes, into already mandatory pre-participation examinations could, and more importantly actually would, pinpoint student-athletes in danger of sudden cardiac death. It is evident that the NCAA already knows this fact and is taking steps to determine whether a bylaw is necessary; however, every day a bylaw is not instated, is one more day student-athletes' lives are at risk.

A pre-participation physical was the starting point for Mitchell and his family to learn about HCM. While an ECG nor an echo were part of that physical, the primary care physician would not give Mitchell clearance to play until a follow-up with a cardiologist was completed due to a possible murmur. Even though Mitchell was disqualified from playing sports after his diagnosis, his unfortunate death at the hands of HCM is a cautionary tale of how he could

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not have firsthand knowledge as to whether an evaluation is required, but was unable to find this information on the website.

210. For example, the California Interscholastic Federation requires each student to have a pre-participation physical using a form created by a collaboration of American Academy of Family Physicians, American Academy of Pediatrics, American College of Sports Medicine, American Medical Society for Sports Medicine, American Orthopaedic Society for Sports Medicine, and American Osteopathic Academy of Sports Medicine. *Preparticipation Physical Evaluation*, CAL. INTERSCHOLASTIC FED'N, http://www.cifstate.org/sports-medicine/physical_forms/Physical_Froms.pdf (last visited May 15, 2017). North Carolina's high school athletic association provides information for participants, coaches, and athletic departments about sudden cardiac arrest and death, and also provides a pre-participation evaluation form for all students to use prior to trying out for a place on a team. *Health and Safety*, NCHSAA, http://www.nchsaa.org/health-and-safety (last visited May 15, 2017).

211. *See* FLA. STAT. ANN. § 1006.20(5)(c) (LexisNexis through 2016 Legis. Sess.) (requiring each school district to create bylaws that require gathering "a student's medical history and performing . . . a physical assessment of the student's physical capabilities to participate in interscholastic athletic
competition as contained in a uniform preparticipation physical evaluation and history form."). New Jersey state law says each school "shall require that prior to the participation of any student enrolled in grades six to 12 on a school-sponsored interscholastic or intramural athletic team or squad, the student shall have a physical examination using the 'Preparticipation Physical Evaluation.'" N.J. STAT. ANN. § 18A:40–41.7(a) (West through L.2017, c. 28 and J.R. No. 1). Both Georgia and Texas require the state athletic associations to create pre-participation physical forms with help from outside health
organizations, such as the American Academy of Pediatrics. *See* GA. CODE ANN. § 20-2-319.2(a), (d) (West through portion of 2017 Legis. Sess.); TEX. EDUC. CODE ANN. § 33.203 (West through 2015 Legis. Sess.).

212. Kleinknecht v. Gettysburg Coll., 989 F.2d 1360, 1369 (3d Cir. 1993).

have succumbed to the disease much earlier.

While the main purpose of this Comment was to propose cardiac screenings as a part of all pre-participation physical evaluations, the secondary, and maybe more important, purpose was to educate the public about a disease that is not common knowledge. Getting the word out about the silent killer that is HCM is very important to this author, and educating just one person would be a

success. If one person gets a pre-participation—and preventative—screening, one family learns of a genetic disorder that it previously did not know it carried, or one life is saved, then the purpose of this Comment was achieved and this author will have been successful.