



FOR THE HEART

CARDIAC HEALTH AND SAFETY ARE THE FOCUS OF A NEW SCREENING PROTOCOL DESIGNED TO PROTECT ALL DARTMOUTH STUDENT-ATHLETES.

by Getty Images

IN A PERFECT WORLD, DR. TIM BEAVER WOULD HAVE THE BEST SEAT IN THE HOUSE AND NOTHING TO DO BUT CHEER DARTMOUTH TEAMS ON TO VICTORY.

“If I am on the sideline, I should just be there, never doing anything,” said Beaver, Associate Director of Echocardiography and Staff Cardiologist at Dartmouth Hitchcock Medical Center. “Charlie Carr (Dartmouth’s director of sports medicine and an orthopaedic surgeon) is on the sideline because if somebody breaks something or blows out their knee, he needs to be there immediately.

“What we are trying to do is prevent anything from ever happening.”

It’s not a perfect world, of course, which is why Beaver and Dr. Jack Turco, director of the Dartmouth College Health Service, have teamed up with DP2 to add another layer of safety for the college’s athletes.

In the fall of 2013, the two doctors were instrumental in Dartmouth implementing a cardiac screening protocol for all incoming athletes that for the first time includes an on-campus electrocardiogram. Originally intended to be phased in over four years by conducting EKGs with each successive class until all athletes had been screened, the program has been expanded to include all athletes competing on all Dartmouth varsity teams.

Although the cardiac screening program began before cross country skier Torin Tucker and classmate Blaine Steinberg died last winter from extremely rare heart conditions, those tragedies played a part in Dartmouth deciding that every varsity athlete should be tested. While Beaver and Turco agree it is highly doubtful an EKG performed when they were freshmen would have saved either member of the Class of ’15, they know such testing might help prevent the next tragedy should an athlete

have a more readily identifiable condition.

“The bottom line is that Dartmouth, above all else, is interested in safe participation,” said Beaver. “That’s what we’re trying to do.”

Dartmouth ski coach Ruff Patterson applauds the implementation of the EKG testing.

“From the point of view of the athlete and their family, and all of us as coaches, the more safety protocols that we can put into place the better, with cardiac screening being one that is very important,” he said. “The more pre-checking we can do for any number of things the better off we are going to be.”

Men’s track coach Barry Harwick feels the same way.

“I have been a college coach for over 35 years and I have never had a situation like that happen to one of my athletes,” he said. “But I’m certainly glad that the testing is in place just to find the rare anomalies that happen sometimes. The EKG is a very important, valid service.”

Historically, Turco explained, all Dartmouth athletes were required to submit two forms to assure they were medically fit to compete in varsity athletics. One was the general history that all students fill out. The second was an Athletic History and Physical Exam form that the student-athlete’s health care provider would complete.

The latter form touched on 12 cardiac-related risk factors that different sports organizations in the United States and cardiac sports organizations recommend be addressed. Among the dozen risk factors the athlete’s health care provider back home reviewed was whether the student-athlete had a close relative die before age 50 due



to heart disease, whether a close relative under the age of 50 had disability from heart disease, and whether there had been prior recognition of a heart murmur.

The focused physical exam section included checking the bilateral femoral pulses and the brachial artery blood pressure in both arms while the student-athlete was seated.

“We’ve had those questions incorporated for years,” explained Turco of the old protocol. “That would be evaluated through our office. Anything that was answered yes would come to my desk and then we would make a decision whether we should do more.

“In the past, you only had an EKG if you had an abnormality in your questions. And I would say with young, healthy people like this, probably only one in 20 would need to get an EKG.”

The implementation of the new cardiac protocol that includes an on campus physical exam as well as the EKG traces back to a talk given at the Ivy League sports medicine meeting by Dr. Aaron Baggish, the associate director for the Cardiovascular Performance Program at the Massachusetts General Hospital Heart Center who was having all Harvard athletes undergo EKGs in his role as the university’s team physician and cardiologist.

What Turco and Beaver heard when they met with Baggish in Boston led them to suggest Dartmouth consider the new cardiac protocol both for the safety of Big Green athletes as well as to contribute data to the study of sudden death in athletes.

Although issues like those that affected Tucker and Steinberg might be undetectable and the incidence of any significant abnormality would be slight, “There are some things you definitely can pick up,” Turco said. “And the more numbers you get the better. We said that maybe we can team up with Harvard, and if Princeton does it, pool all of the data.”

“Everybody at the college has gone into this with the right attitude,” said Beaver. “It is, we are trying to make sure everyone is safe and also contribute to the greater good overall. It is a way to help shape the future.

“Jack and I, the trainers and everyone involved has spent a lot of time having meetings and talking about this

and how we are going to do it.”

This year’s freshmen underwent EKG testing at Dick’s House during several sessions in late August and early September. In addition to the EKG, the 12 cardiac-related areas that have historically been addressed by the home medical provider were checked locally.

Those athletes with an abnormal EKG quickly underwent an on-site echocardiogram.

“There are some well-known abnormalities that you can pick up on echo like hypertrophic obstructive cardiomyopathy,” Turco explained. “That’s what a lot of people can die suddenly from, and you can pick it up on echo.”

Beaver was at Dick’s House helping oversee the testing and reading the results in real time.

“We had portable echocardiogram in one of the rooms here,” Turco said in his Dick’s House office. “So the two or three people that needed them got them that same night.”

That offered two real benefits. One was that the student-athletes could be cleared right away to return to practice.

“The other thing is when you tell someone you have an abnormal EKG they are anxious and their family is anxious,” Turco explained. “We wanted to be appreciative of that and try to get things done quickly.”

The echocardiogram and its on-site reading gave all of the tested athletes the OK to return to action.

“We haven’t picked up anything that would prevent someone from playing,” said Turco. “It certainly is possible that we could have found an abnormality that would have, but those, fortunately, are few and far between.”

Even if there had been findings that were borderline concerning it wouldn’t necessarily have meant the end of an athlete’s career.

“What Dartmouth is about is an informed participation,” Beaver said. “So if you find something, it doesn’t necessarily always exclude someone from participating, but it will help the athlete and their family understand what the consequences and the risks are of participating, even if it is not a high risk.”

Having an expert like Beaver who knows how to read an athlete’s echo – which can appear abnormal to the someone unfamiliar with an athlete’s heart – reduced the

100%
OF VARSITY ATHLETES
COMPLETED 12-POINT
EXAM AND EKG



THE MORE PEOPLE THAT UNDERSTAND THE WARNING SIGNS, WHETHER IT IS FACULTY, TRAINERS, COACHES OR OTHER STUDENTS, THE BETTER

risk of false diagnoses, one of the reasons why EKG testing isn't universally embraced.

Another reason: the incidence of abnormalities is so rare.

"What we hope to do, and it will be very interesting to see five years from now when more data is in and it's really looked at, is determine whether this is cost effective," said Turco. "That's always a difficult thing to say when you're talking about a death, but ultimately it's whether it is cost effective to screen everybody with an EKG."

Another benefit to Dartmouth doing the cardiac protocol is that it will afford the opportunity to study how the results sent in by the student-athlete's medical provider at home hold up against the results found locally.

"Is there evidence that when you ask people to do it at home it doesn't get done as well?" asked Turco. "Or is it better to have a dedicated group doing them over and over again? It would be interesting to tease that out."

"What you might find is something like 20 percent of people don't get pulses done in the groin on both sides, which is important."

Conducting the on-site EKG and the entire cardiac protocol benefits not just the student-athletes who have been tested at Dick's House but those who will come after them, which is why Patterson, the cross country ski coach who lost an athlete last year, applauds the effort.

"These things are being put in place and in Torin's case it may or may not have made a difference," he said. "But it is going to make a difference, if it hasn't already. When tragedies happen we can not only mourn, but learn from them."

That's a key component of the Dartmouth protocol according to Beaver.

"The NCAA and the American College of Cardiology three years ago created a sports and exercise council,"

he explained. "They are trying to get cardiologists of the future to understand the athlete better, which is important because the majority of our population from a cardiology standpoint is Medicare-age people."

"We do have younger patients, but they have more traditional diseases, so understanding athletes and the screening test that you do on them is important. That's why having the Cardiology Fellows involved in this process is an important educational piece for them."

Also important, according to Beaver, is the next step in making participation safer not only for the athletes, but for everyone around them. Basketball's Hank Gathers and Pete Maravich collapsed and died. The NHL's Rich Peverly, 15-year-old local basketball player Chris Roberge, and a parent at a local high school basketball game last year survived incidents.

"What did the ones who lived have in common?" Beaver asked. "They got defibrillated. There was a defibrillator on the sideline and people who knew how to use it."

"The more people that understand the warning signs, whether it is faculty, trainers or other students, the better. Schools are now starting to enlist the other athletes in defibrillator training. You don't want the coach to be the only one who is trained because what happens if the coach isn't there?"

"These events, although horrible, have allowed us to revisit where we are and how to make things safer for everyone on our campus. The important thing is to do as much prevention as you can. We want to make our athletes as safe as we possibly can, and then if something happens, to be ready for it." **DP**