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Concerns about Staph/MRSA

Recently sports trainers and coaches of all levels have had a growing concern about outbreaks of an antibiotic-resistant staph bacterium that some people have associated with synthetic turf fields. But as the truth continues to surface and the hysteria continues to settle, it is clear that there is nothing to worry about underfoot.



Should there be concern about Staph/MRSA? Absolutely. In fact, a federal report this week found up to 90,000 people a year in U.S. get the drug-resistant bug and 19,000 die.

Staphylococcus aureus is a common bacterium that often lives harmlessly on the skin or in the nose. When introduced into the body through a cut or medical incision, it can cause anything from minor skin lesions to life-threatening bloodstream infections, pneumonia, or organ damage. A strain of the bacterium, MRSA (methicillin-resistant staphylococcus aureus), has developed a resistance to the antibiotic typically used to treat it — synthetic penicillin — and is becoming a major concern for sports teams with synthetic turf fields. The strain has also become one of the most common causes of skin infections requiring emergency room treatment nationally.

Most recently there was a Staph outbreak at Mt. Lebanon High School in Pennsylvania. Health officials agreed to test Mt. Lebanon High facilities after a meeting with concerned parents. Methicillin-resistant Staphylococcus aureus bacteria, or MRSA, infections have afflicted 11 student-athletes since Sept. 13

The headlines in the papers read "Mt. Lebanon's turf, facilities test clean for bacteria".

The Allegheny County Health Department collected 13 test samples from the school's facilities on Thursday, October 18, 2007 and learned the results less than 24 hours later, spokesman Guillermo Cole said.

"This confirms what we thought all along," Cole said. "The speed with which we obtained the results is a testament to how clean things are there."

The case at Mt. Lebanon is not an isolated one. Lakewood City Schools (OH) also had an outbreak on campus and tested their athletic field (Astroturf) for Staph. They found no staph and very little bacteria at all on the field.

A study by researchers at Penn State's College of Agricultural Sciences should help put those concerns to rest.

Conducted by the university's Center for Turfgrass Science, the study found no trace of staphylococcus aureus bacterium in any of the 20 infilled synthetic turf fields tested in various locations in Pennsylvania.

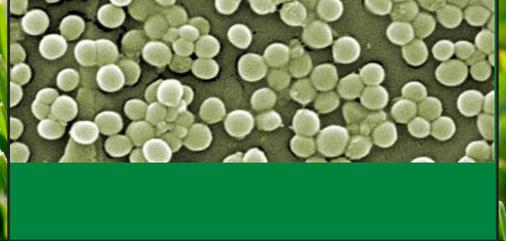
"These infilled systems are not a hospitable environment for microbial activity," says study author Andy McNitt, Associate Professor of Soil Science. "They tend to be dry and exposed to outdoor temperatures, which fluctuate rapidly. Plus, the infill media itself (ground-up tires) contains zinc and sulfur, both of which are known to inhibit microbial growth. Considering the temperature range for growth of s. aureus is 7 to 48 degrees Celsius, we didn't expect to find this bacterium in fields exposed to sunlight, since the temperatures on these fields frequently exceed 48 degrees."

The Penn State study also found low overall microbial populations in the synthetic turf systems. "The microbe population of natural turf grass far exceeds anything we've found in the infill systems," McNitt says. "In fact, a number of the infill systems had zero living microbes in the sample at the time of testing."

The researchers did find s. aureus on other surfaces (blocking pads, weight equipment, stretching tables, and used towels), as well as on the hands of five randomly tested passersby. The bottom line, McNitt says, is that while everyone should be concerned about the spread of bacteria and the cleanliness of equipment and other surfaces that players contact, infilled synthetic turf systems do not appear to be breeding grounds for microbes generally.

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“Some other studies indicate that a player playing on synthetic turf may acquire more skin abrasions due to the abrasiveness of the surface,” McNitt says. “Thus, they have more entry points for the staph, but they’re not getting it from the field — they’re picking it up in the locker room or somewhere else. One study shows that players who shave their ankles prior to taping up, for instance, also have a greater incidence of staph because the shaving creates little nicks for infection to enter.”



Even though temperatures of indoor fields are not expected to fluctuate nearly as much as outdoor fields, he says, the microbe population of the indoor fields tended to be lower than outdoor fields. “That was unexpected,” he says. “We really expected to see higher microbe populations indoors and purposely tested the fields during periods of high use and humidity. While we are unsure as to why the indoor fields had lower microbe counts, it could be due to the almost complete lack of moisture.”

Jeff Hageman of the CDC (Centers for Disease Control) did significant environmental sampling of the St. Louis Rams’ home field, the team’s training facility which had both natural grass and synthetic turf (Astroturf), as well as other environmental surfaces: saunas, whirlpools, steam rooms, athletic training tables, and benches.

Both the CDC and the NCAA concur that MRSA has yet to be found in synthetic turf and that McNitt’s study is conclusive in its findings.

“I’m not aware of any studies, even from companies that produce these [microbial] products, finding MRSA in turf. In the Penn State study, one of the manufacturers of one of these products sent out a message where they said that the [artificial] turf had the highest bacterial counts. Actually, that’s not true. When you look at the Penn State data, the natural grass had the highest levels” Hageman continued “Actually, in [McNitt’s] study, if you look at his results, the non-artificial turf, the natural grass, had the highest material counts, of almost 300,000 colony forming units. So more than three times the amount found on artificial turf was found in natural grass. And they didn’t find any staph in the turf or the natural grass. He stated that no colonies isolated from any crumb rubber or fiber sample tested positive for Staph aureus.”

Hageman concluded that “There is no data to suggest that turf will never spread MRSA. We sampled the turf for the Rams’ investigation and didn’t find it. We actually observed the game. We mapped where the contact on the turf occurred. We sampled those areas where the players were tackled. And then we sampled areas where there wasn’t any direct contact to the turf. We didn’t find any Staph or MRSA.”

“We have an injury reporting tracking system and it’s limited by sample size, but we haven’t had any linkage to turf,” said the NCAA’s David Klossner. “I know there have been some reports in the media. The CDC continues to tell us that the turf is not a harbor for this MRSA/staph infection. And if things are handled appropriately as far as hygiene practices, common sense, and wound cleaning and coverage, then a lot of these things can be prevented.

We just allow the medical experts to guide us in that direction. Now the Penn State study kind of reinforces what the CDC has been telling us all along. A lot of people were anxious to jump to conclusions.”

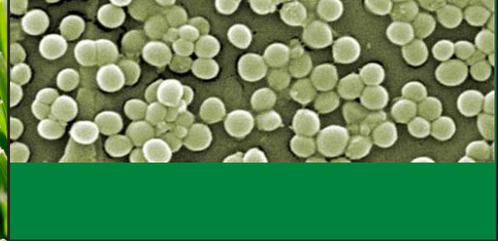
Do you need an Anti-Microbial?

There is no scientific evidence that supports the scare tactic being used by companies offering “anti-microbial” products. Many of them are fear mongers, attempting to capitalize and make a quick buck. However, when the tough questions are asked of them they typically have a difficult time answering them. Questions like:

- How effective are these anti-microbials?
- How long will it last on a field?
- How often should it be re-applied?
- What guarantee is there that the product will eliminate staph?

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What does the CDC think?

"When it comes to turf, we do not know if that will prevent infection," said Hageman. "There's just no data to support that it prevents infection."

Ron Courson, head trainer at Georgia, thinks the possibility exists that MRSA can live on playing fields. But, from every indication he's gotten, that's the least of the problems.

"In talking with Jeff Hageman at the CDC, the big picture is that's not our most immediate concern," said Courson. "Sure, one thing that's been corroborated is the high index of MRSA with athletes that have turf burns. But I don't think you can necessarily say that they got the infection from the turf. All we know is that they got a break in their skin from the turf. And now they have an entry point for those bacteria to get in. But honestly, I think they are much more likely to get it from the locker room, from their own environment, or from sharing towels and other equipment, to whirlpool baths. I think it's definitely an issue but I personally don't think it's as big an issue as it has been made out to be."

Consider This...

There are a number of facts concerning MRSA which needs to be discussed since this is becoming a poorly understood media topic:

1) MRSA is an organism that has developed a resistance to conventional anti-microbials due to the excessive use of these antibiotics in the community, i.e. the over-subscription of these drugs for minor ailments such as colds.

2) Is it possible that a new breed of multi-drug resistant organisms will emerge with the excessive use of these anti-microbial products in the general community?

3) MRSA in hospitals, particularly the ICU's, is a much greater health risk to patients than to young, other-wise healthy athletes. Why aren't the medical personnel working in the ICU's not bathed in these anti-microbial solutions to prevent MRSA prior to entering the ICU's?

What is the procedure in hospital ICU's? Simply, hand-washing techniques are highly emphasized and facilitated by having alcohol-based solutions on the walls next to patient rooms. Only when MRSA has been specifically identified in a wound, secretion, blood, etc. do hospitals employ specific isolation techniques. The question is - why are athletic directors being held to a higher standard to prevent MRSA than hospital ICU's.

What Can Be Done?

If Anti-microbials aren't the answer – then, what is?

Well, according to Ron Courson the Director of Sports Medicine at the University of Georgia "Personally, I think the biggest thing we need to do to be proactive about MRSA is emphasize prevention and education. It goes back to Ben Franklin. He said an ounce of prevention is worth a pound of cure. We can prevent through proper hygiene and teaching people through basic tips. Hopefully we can keep this from happening. It is a problem nationally. Not just in athletics, but in the regular population."



WHAT THE NATIONAL ATHLETIC TRAINERS ASSOCIATION RECOMMENDS...

Most recently the National Athletic Trainers Association (NATA) put forth its recommendation for preventing Staph Infections. They include:

- Keep hands clean by washing thoroughly with soap and warm water or using an alcohol-based hand sanitizer routinely.
- Encourage immediate showering following activity.
- Avoid use of whirlpools or common tubs.
- Discourage sharing of towels, razors, and daily athletic gear.
- Properly wash athletic gear and towels after each use.
- Maintain clean facilities and equipment.
- Administer or seek proper first aid.
- Clean and cover skin lesions appropriately before participation.
- Inform or refer to appropriate healthcare personnel for all active skin lesions and lesions that do not respond to initial therapy.
- Encourage healthcare personnel to seek bacterial cultures to establish a diagnosis.

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