Turf vs. Grass: Which Poses the Greatest Risk of Infection?

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With a changing economy, more people are replacing their grass fields with synthetic turf since it is often cheaper and more durable. There are several risks that accompany synthetic turf, including spread of bacterial infections, respiratory problems, and other environmental health factors. The purpose of this experiment is to analyze samples from both turf and grass fields to determine which poses a greater risk of bacterial infection. Then compare the different bacteria found in each field and determine if they are resistant to antibiotics used to treat bacterial infections. The hypothesis is that turf fields are more likely to contain and spread more bacteria that infects people, compared to that of the grass fields. This project is being conducted by collecting, culturing, and isolating bacteria from both turf and grass fields, then using antibiotic disks, to determine the different bacteria's resistance to the antibiotics: Tetracycline, Penicillin, Streptomycin, and Erythromycin. The results showed that the average percentage of resistance for the bacteria colonies collected from turf fields is 51.1% and the average for the resistance of bacteria colonies from the grass fields is 59.9%. Of the four different antibiotics being tested, Penicillin is the most resistant, followed by Streptomycin, Tetracycline, and Erythromycin, the antibiotic to which the bacteria were the least resistant. It can be concluded that the hypothesis of the experiment was incorrect, that both the turf and grass fields carry and spread bacteria, but since a larger amount of the grass fields had more resistant bacteria they may be more likely to cause infection. Although it is still being researched to determine which type of bacteria is the most harmful and most likely to infect someone.