

TITLE: OCURRENCE AND ANTIBIOTIC SUSCEPTIBILITY PROFILE OF *STAPHYLOCOCCUS AUREUS* ISOLATED FROM GYM EQUIPMENT IN MANAUS - AM

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ABSTRACT:

One location that has been associated with an increased risk of both infection and colonization with *S. aureus* is the fitness center. Up to the present time, no published studies on *S. aureus* from fitness center or sport facilities have been conducted in Manaus. Therefore, the aim of this study was to assess the occurrence of *S. aureus* on the surface of fitness equipment. The investigations were carried out in three different fitness centers located in Manaus and equipped with a simple set of weight machines and cardiovascular equipment. The fitness Center A is an outdoor open-air facility located in a recreational park. The fitness Center B is naturally ventilated indoor and the fitness center C is an air-conditioned indoor. Two sequential swabs were used to take each sample: first, a wet swab was rotated and rubbed in a zig-zag pattern over the surface and this process was repeated at an angle of 90° with a dry swab. Both were put into a tube with a PBS solution. The samples were streaked onto Mannitol Salt Agar (MSA) and identified by phenotypic techniques. The antimicrobial susceptibility test were conducted according to M02-A12 CLSI protocol. Samples of the bench, barbell, elliptical, triceps rope, fly machine, treadmill and free weights were collected. Twenty of the 34 samples yielded coagulase positive *Staphylococcus sp*, which were then identified as 11 *S. aureus* and 9 *S. hyicus*. Positive samples were collected on barbell (n=4), elliptical (n=4), triceps rope (n=4); workout benches (n=2), treadmill (n=2), fly machine (n=2), free weights (n=2). All *S. aureus* isolates were resistant to penicilin, oxacilin, clindamycin, erythromycin, ciprofloxacin, norfloxacin and 45.4% were resistant to gentamicin. All *S. aureus* presented reduced susceptibility to vancomycin (zone size < 14mm). There is no CLSI guideline interpretative values for *S. hyicus*. All *S. hyicus* were resistant to penicilin and oxacilin (no zone size produced). The majority of *S. hyicus* (66.7%) presented reduced susceptibility to vancomycin (zone size < 14mm) if the same CLSI criteria established for *S. aureus* is considered. Our findings corroborate another studies indicating that fitness centres may serve as reservoirs for *Staphylococcus* and can be a significant source of bacterial exposure, possible leading to infection in the community.

Keywords: Fitness equipment; *S. aureus*; community;

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