Title: IDENTIFICATION OF *ENTEROBACTERIACEAE* WITH ANTIMICROBIAL RESISTANCE PROFILE IN GYMS OF VITÓRIA DE SANTO ANTÃO, PERNAMBUCO

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Abstract:

The microorganisms are easily spread in various locations and the main disseminator is the man himself. Thus, fitness machines can be sources of contamination, since the academies are environments with large flow of people and suitable conditions for the spread of these pathogens if there is no proper cleaning of such equipment. Thus, the aim of this study was to identify *Enterobacteriaceae* with antimicrobial resistance profile from two fitness machines most used in 2 gyms located in Vitória de Santo Antão, PE. Firstly, samples were collected in the morning, afternoon and at night with a swab, and then the samples were plated on MacConkey agar and SS agar and incubated for 24h at 35°C. After incubation, the colonies were submitted to biochemical tests to confirm the presence of *Enterobacteriaceae*. The identification of *Klebsiella pneumoniae* carbapenemase (KPC) and Extended-spectrum β-lactamase-producing bacteria (ESBL) were performed according to the *Clinical and Laboratory Standards Institute* (CLSI). KPC was identified by the disk diffusion method as well as the modified Hodge test and ESBL the disk diffusion and disk approximation test. Additionally the samples were also plated on Sabouraud agar for the isolation of filamentous fungi and yeasts. Within the 12 samples analyzed, all samples showed *Enterobacteriaceae*: *Klebsiella pneumoniae*, *Enterobacter* spp., *Serratia* spp. and *Salmonella* spp. in 33.33%, 58.33%, 28.57% and 75% of the samples, respectively. Twenty five percent of samples were contaminated with only one bacterium, 41.66% with 2 bacteria and 25% with 3 bacteria. Furthermore, one sample showed ESBL, an antimicrobial resistance profile of *Enterobacteriaceae*. Regarding fungi, approximately 17% of the samples presented filamentous fungi and in all of them it was possible to isolate yeasts. Furthermore, in the three periods of analysis the fitness machine presented microorganisms. We can conclude that these machines act as reservoirs of important bacterial and fungal groups and can serve as sources of infection for individuals. Thus, the cleaning with alcohol of the fitness machine before and after use, as well as washing hands often are important measures that should be adopted to prevent diseases caused by contact with these microorganisms.

Keywords: *Enterobacteriaceae*, bacterial resistance, *Klebsiella pneumoniae* carbapenemase (KPC), Extended-spectrum β-lactamase-producing bacteria (ESBL), Gyms.