Prevalence of *Staphylococcus aureus* carriage by young Malaysian footballers during indoor training

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**Background:** Research has shown that athletes are carriers of *Staphylococcus aureus* during physical activity.

**Objective:** To estimate the mean total plate count of *S aureus* carried by footballers before and after training at an indoor venue.

**Methods:** Forty Malay and 20 Indian students volunteered to participate. There was also a control group consisting of 40 Malay and 20 Indian students who were not active. The experimental group were active footballers who had played at school or club level. The subjects were healthy and free of skin infection. The experiment was divided into three sessions, with 20 subjects present at each. At each session, the subjects were trained for one hour. Swabs were taken from the skin, nose, and ear before and after training. For the control group, swabs were taken only once from the skin, nose, and ear. The swabs were subjected to biochemical tests and then streaked and cultured aerobically in Baird Parker agar plates for 24 hours at 37°C. Black colonies with a clear zone were presumed to be *S aureus*, and the mean total plate count of the colonies was estimated. Gram staining, catalase, coagulase slide, coagulase tube, acetoin production, *α*-nitrophenyl-β-D-galactopyranoside (ONPG), and mannitol fermentation tests were used to confirm the colonies as *S aureus*. A haemolysis test was conducted with human blood to confirm haemolytic activity.

**Results:** All subjects in the experimental group were carrying *S aureus* both before and after training. The estimated mean total counts of colonies from the skin, ear, and nose for the Malays before training were 33, 71, and 312 respectively. Counts after training were 21, 44, and 452 respectively. The results for the Indians were 72, 80, and 309 respectively before training and 55, 200, and 466 respectively after training. The positive results for Gram staining, catalase, coagulase slide, coagulase tube, acetoin production, ONPG, and mannitol fermentation tests were 100%, 96%, 95%, 95%, 93%, 93%, and 90% respectively. All subjects in the control group were also carrying *S aureus*.

**Conclusions:** All of the players were carriers of *S aureus* during training. The decrease in total count from the skin for both races may be due to lysozyme activity lysing the bacterial cells. Contamination of the environment with these bacteria may have increased the estimated total plate count in the nose. The experimental group face a higher risk of infection because of lower immunity during training and higher rate of injuries compared with the control group.