

Dermatophytic contaminations in sport centres of Jundishapur University of Medical Sciences, Ahvaz, Iran

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Fungi are found in different environments with variable distribution patterns depending on various factors. Dermatophytic contamination of sport centres and equipments, which are used by athletes, such as wrestling mats and gymnastic mattresses, may pose a potential health risk to personnel who service, repair, and handle the equipment (1,2). The studies showed that swimming pools can be a source of fungi and environmental surfaces may be contaminated by many species of fungi (3,4). In addition, swimming pools can be a good carrier for transmission of fungal, parasitical, and bacterial diseases (3,4). Several studies also showed that the incidence rates of tinea pedis and tinea corporis have increased in relation with some sports (5,6). The aim of this study was to evaluate dermatophytic contamination in sport centres, swimming pools, and equipment used by athletes.

One hundred and forty samples were collected from different parts of sport centres, sports equipment, and swimming pools in Jundishapur University of Medical Sciences, Ahvaz, Iran. Samples include swimming pools, showers, sauna baths, wardrobes, wrestling mats, and gymnastic mattresses and pillowcases, etc. In the present study carpet sterile fragments were used for sampling. In brief, carpets were cut into 2 × 2 cm pieces and sterilised by autoclave. For sampling, a piece of sterile carpet put on the surfaces and rubbed against the surface, then after a few minutes they were removed and placed on the surface of Sabouraud's dextrose agar medium containing chloramphenicol and cyclohexamide (SCC) (Merck, Germany). Cultures were incubated at 25-27 °C aerobically. The cultures were examined weekly for a period of 4 weeks. Isolates were identified on the basis of microscopic morphology, cultural characteristics, and differentiation tests.

Out of 140 samples that were analysed for the presence of dermatophytes, 13 isolates of dermatophytes were identified. Among the 13 isolated strains, 6 strains were *Trichophyton tonsurans*, followed by *Microsporum gypseum* (4 strains) and *T. mentagrophytes* (3 strains). In the present study 4 isolates of *Streptomyces* species were also detected. Regarding equipment and places that strains were found, 6 cases of dermatophytes (3 isolates of *T. mentagrophytes* and 3 isolates of *T. tonsurans*) were observed on wrestling mats. Three isolates of *T. tonsurans* and 3 isolates of *M. gypseum* were also identified on equipment. In the present study, 1 isolate of *M. gypseum* was observed on the floor. In this study, 4 strains of *Streptomyces* species were also observed on equipment (2 cases), floor (1 case), and swimming pool (1 case). Floors of indoor swimming pools are contaminated by several fungi, such as dermatophytes, yeasts, and other saprophytic species (4). Previous epidemiological studies have revealed that the dermatophytes isolated from wrestling

Received: 06.09.2010 – Accepted: 12.11.2010

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mats, bathrooms of swimming pools, hammams, fitness centres, barbers, beauty parlours, and saunas (1,3,7). Such places are suitable for spread of dermatophytosis by infectious hair and detached skin. In another study, wrestling mats, pillowcases, and sheet were found to be positive for *T. tonsurans* (8).

Several authors reported *T. mentagrophytes*, *T. tonsurans*, and *M. gypseum* as etiologic agents of dermatophytosis. *M. gypseum* is a geophilic species and is isolated from soil in the world, whereas *T. tonsurans* is an anthropophilic species and causes chronic disease in humans. In a report from Turkey, the main isolated dermatophyte (56%) from athletic activities was *T. tonsurans* (9). In our study, *T. tonsurans* was isolated from wrestling mats similar to the study by Hedayati et al. (6). Hirose et al. reported that the prevalence of the dermatophytosis due to *T. tonsurans* is rapidly increasing in Japanese athletes (5). *T. mentagrophytes* var. *interdigitale*

is an anthropophilic dermatophyte that causes chronic dermatophytosis in humans. However, *T. mentagrophytes* var. *mentagrophytes* is a zoophilic dermatophyte. Dermatophytosis caused by these dermatophytes is usually acute and contracted by wild animals.

In conclusion, sport equipment and centres, such as swimming pool, showers, sauna baths, wardrobes, wrestling mats, gymnastic mattresses, pillowcases, may serve as reservoirs for the transmission of pathogenic fungi. As a result, dermatophytic contamination in such sport centres may pose a risk for infection.

Acknowledgment

This study was a MD thesis (Sara Rahnemaei). This study was supported by a grant (No. 85U064) from Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.

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