

P93

Different Water temperature and Swim Training on Tuberculosis infection of trained mice

Yi-Sub Kwak, Young-Wan Jin, Chan-Ho Park,
Byung-In Yoo¹ and Woo-Young Ku¹

Department of Leisure & Sport Science, Dong Eui University, Busan, Korea 614-714

¹Department of Physical education, Dong Eui University, Busan, Korea 614-714

Tuberculosis is the leading infectious disease in the world. It is urgent to develop new vaccine and treating drugs. Besides vaccines, we want to know the effects of regular swim training on TB infection in the mouse model. This study was designed to examine the effects of regular swim training on lung and spleen TB counts and IFN- γ activity in the trained mice at different temperature. The trained mice underwent a 10-wk endurance swim training (5 times/wk) in water at 29~33°C (WWG) and 21~23°C (CWG) for 60 min. And they were divided into 3 groups according to the regular swim training (CG; control, WWG; warm water group, and CWG; cold water group).

Mice were challenged by aerosol infection with *M. tuberculosis* H37Rv using an inhalation device(Glas-Col, Terre Haute, Ind.) calibrated to deliver bacteria into lungs. Three weeks after immunization, the mice were challenged. Four weeks after challenge, the mice were sacrificed and the numbers of viable bacteria in lung and spleen were determined by plating serial dilution of whole organ homogenates on nutrient Middlebrook 7H11 agar(Difco, Detroit, MI). Colonies were counted after four weeks incubation at 37°C.

All data were expressed as mean, standard deviation by using SPSS package program (win 10.0). The result through the statistical analysis of this data were summarized as follows; In the weight changes, there were significant differences among CG, WWG, and CWG following the swim training at different temperature, and CWG was the lowest. In the change of IFN- γ following the swim training, there were significant differences ($p < .05$) among CG, WWG, and CWG after stimulated with media and CFP. In MTB counts, there were significant differences ($p < .05$) between CG and WWG in the lung. and

also there were significant differences ($p < .05$) among CG, WWG, and CWG. These results suggest that regular swim training suppress Th1 immune response caused by decreased IFN- γ level in the WWG, Also For the WWG, highly increased level of TB counts appear in the lung and spleen compare to CG.

Key words : Tuberculosis, swim training, IFN - γ