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### Analgesic Effect of *Cheongungdajosan* Extract and its Action Mechanism

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The extract of *Cheongungdajosan*, a Korean medicinal prescription for analgesic effect, was evaluated for its analgesic effect using phenylquinone- and acetic acid-induced Writhing test and Hot plate test after oral administration and intraperitoneal administration. The contents of serotonin and its metabolite 5-hydroxyindoleacetic acid in mice brain were estimated, further, the activity of monoamine oxidase was determined. The concentration of prostaglandin E<sub>2</sub> (PGE<sub>2</sub>) were also investigated and its action mechanism was explained. As a result, the extract increased dose-dependently the analgesic effect by Writhing tests and hot plate test. Oral administration showed better effect than intraperitoneal administration. The extract did not change brain serotonin level in the phenylquinone- induced writhing test, but increased the level by about 18% in the hot plate test, this effect was better than that of acetaminophen, a positive control. The extract inhibited the activity of monoamine oxidase in a dose- dependent manner and did not diminish the prostaglandin (PGE<sub>2</sub>) content.

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### Physical stress on lymphocyte proliferation and reactive oxygen species

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The purpose of this study were to analyze the effect of regular exercise on spleen & peritoneal exudate ROS (reactive oxygen species) and lymphocyte proliferation by splenocytes. Twenty four female BALB/c mice were randomly divided into trained (TRre, n=6; TRex, n=6) and untrained (UTre, n=6; UTex, n=6) groups. Both groups were further divided equally into two groups where the mice were studied at rest and immediately after 2-hour acute bout of exercise. The animals were bred in the animal facility of the Yonsei university college of medicine, where they were housed in a temperature (22-24℃) and humidity (50-60%) controlled environment, with 12 h photoperiod, and provided with food and water *ad libitum*. The trained mice underwent a 10 week endurance swimming training (5 days/wk) in water at 26-29℃ for 60min. Analytical items were weight, proliferative activity, and the production of ROS from spleen lymphocytes and peritoneal exudates cells. All data were expressed as mean and standard deviation by SPSS package program (ver. 10.0). The results showed that trained group were much higher proliferative activity than that of untrained group in spleen lymphocytes (p<.05). This is explained by optimal expression of reactive oxygen species (ROS) in spleen lymphocytes and peritoneal exudate cells following the swim training. However, In the response of an acute bout of exercise, there were little proliferative activity stimulated with Med, ConA and LPS. This may caused by excessive ROS production following an acute bout of exercise (p<.05).