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[Medicinal Informatics]

**Reductive Cleavage of Heteroaryl C-Halogen Bonds by Iodotrimethylsilane.  
Facile and Regioselective Dechlorination of Antibiotic Pyrrolnitrin.**

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The treatment of antifungal antibiotic pyrrolnitrin, 3-chloro-4(3-chloro-2-nitrophenyl)pyrrole, with iodotrimethylsilane ( $\text{Me}_3\text{SiI}$ ) at ambient temperature in an aprotic solvent resulted in smooth regioselective dechlorination to give 3-(3-chloro-2-nitrophenyl)-pyrrole with retained biological activity and accompanied by the concurrent formation of chlorotrimethylsilane and molecular iodine. Characteristics of this reaction are that the reductive cleavage of the C-Cl bond smoothly and efficiently proceeded even under mild conditions and, in addition, with high chemoselectivity. The present reductive dehalogenation with  $\text{Me}_3\text{SiI}$  is also applicable to the halogenated heterocycles.

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[Lab. of Health and Physical Education]

**Actual Osteo Sono-assessment Index in the Calcaneus Evaluated by Ultrasound Method  
in Preschool Girls and its Relative Factor: Comparison with Their Mother.**

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Osteo sono assessment index (OSI) in the calcaneus in preschool girls aged 3-5 years was assessed using the dry-type ultrasound method. And the relative factors concerning OSI in girls were examined, especially from the standpoint of relationship with their mother's OSI.

The significant difference of mean value for OSI was not observed among three age groups. Age seems to not affect bone quantity in this age period, 3-5 yr. A close association exists between the girl's OSI and their mother's one. The impact of heredity on OSI was seemed to be large in girl aged 3-5. Each "physically active" and "mother's OSI" was independent factor for OSI. From the above results, the preschool girls whose OSI were low should be consider for increase their bone quantities from the early period both at kindergarten and home.

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[Lab. of Health and Physical Education]

**Effects of Different Durations of Exercise on Macrophage Functions in Mice.**

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The effects of differing durations of daily exercise on macrophage functions in mice. Male ICR mice aged 4 wk were divided into five groups: a nonexercise group (Co group) and four exercise groups with differing daily exercise durations of 15 – 12 min (Ex groups). The exercise group applied was 5 days/wk treadmill running at 13 m/min for 12 wk. The potentiation of the phagocytosis function of the reticuloendothelial system and the glucose consumption of peritoneal macrophages in the Ex 30, 60, and 120 groups were significantly higher than those in the Co group. The lysosomal enzyme activities of peritoneal macrophages in the Ex 30, 60, and 120 groups were significantly increased. These results suggest that treadmill running exercise for at least 30 min/day (30 – 120 min) effectively enhances macrophage functions in mice. These data provide preliminary evidence indicating that chronic exercise-induced increases in phagocytic activity exhibit a dose-dependent relationship with exercise duration.

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[Lab. of Health and Physical Education]

**Impact of Two Different Types of Exercise on Murine  
Peritoneal Macrophage functions.**

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This study investigated the influence of two different types of chronic exercise (voluntary and forced) over 8 weeks on peritoneal macrophage functions in male ICR mice. Glucose consumption, nitric oxide ( $\text{NO}_2^-$ ) and interleukin-1 $\beta$  (IL-1 $\beta$ ) production were determined for voluntary wheel running (VE group) and treadmill running (TE group) exercise protocols. After 8 weeks of chronic exercise, the glucose consumption capacity of peritoneal macrophages cultured 12h and 24h in the VE and TE groups was significantly higher than that in the control group. The  $\text{NO}_2^-$  and IL-1 $\beta$  production by lipopolysaccharide (LPS)-stimulated peritoneal macrophages in the VE and TE groups cultured for 12h and 24h was significantly higher than that in the control group. These results indicate that 8-week voluntary running and forced running exercises enhances glucose consumption and production of  $\text{NO}_2^-$  and IL-1 $\beta$  stimulated by LPS in the peritoneal macrophages and that this enhancement was significantly higher in the TE group.