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### Effect of Change of the Internal Organs of the Rats Administrated Anabolic-androgenic Steroid.

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**Purpose:** Unfortunately, anabolic-androgenic steroid (AAS) abuse is prevalent in Japan. Most Japanese AAS abusers experience side effects. However, it is not necessarily clear how AAS use affects the living body. In this study, which was undertaken in 1998, we attempted to examine the effects of AAS in male rats.

**Methods :** Rats were divided into two groups according to the duration of administration of the agent. Animals in Group I (3 sub-groups) received either nandrolone decanoate, metenolone enanthate, or saline using the "steroid cycle" method for 4 weeks and were then sacrificed. Animals in Group II (3 sub-groups) were also administered either nandrolone decanoate, metenolone enanthate, or saline using the "steroid cycle" for 6 weeks, then were sacrificed two weeks after the cessation of administration. The Group II animals who received AAS became agitated and then depressive after the fourth week of administration of AAS and remained so until sacrifice.

Endocrinologic studies were performed on blood samples.

**Results :** The testosterone/estradiol ratio in AAS administrated rats was statistically lower than that in control rats (saline administered) and the feminization distinctly progressed over time with the usage of AAS. Furthermore, we determined the pathology of the organs in these animals. Although AAS was withdrawn from Group II rats two weeks before sacrifice, the effect of AAS on organs was evident. Light microscopy revealed nests of necrosis in the cardiac muscle after 8 weeks.

**Conclusion :** From these results, it was shown that AAS doping is clearly injurious to the body. For this reason, we support anti-doping efforts.

**Key Words :** Anabolic-androgenic Steroid , Doping , Rat , Histology , Side Effect

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### The Effect of the protein intake on the performance of exercises in-vivo

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**Objective:** The protein food has been developed for the purpose of reinforcement of muscular strength at the point of sports performance. Sports players have believed that the increase of the protein intake should made good results in competitions. Although there are several reports showing that the protein intake have some effect on the exercises, the indicated conclusions are inconsistent and the effect is still obscure. In this study, we study the influence of the protein dosage on the exercise especially at the point of the concentration of the plasma enzymes.

**Materials and methods:** Fifteen young male sprinters are served as subjects in this study. The experiments were performed from November 1998 to February 1999. They were classed into three groups and took following three types of compounds (1) Group A took the compounds containing protein (derived from animals) at the concentration of 80 %. (2) Group B took the food containing protein, which was derived from vegetables, at the same ratio of Group A. (3) Group C took placebo as control. The compounds mentioned above were dissolved in milk (15-20 g/200-300ml) and subjects took them for three times per day. The protein intakes were continued for two months. Peripheral blood samples were taken every three months during experiment.

**Results and conclusions:** The lactic acid concentrations in serum of Group A and B were significantly lower than that of Group C. Other parameters in serum, such as T-cho, HDL, TG, Glu, GOT, GPT, CRE, CPK, were almost same among these three groups. In conclusion, the continuous protein intake should moderate the muscle fatigue.

**Key words:** Protein, Lactic acid, Sprinter