

I-4 Effects of Different Light Intensities during the Daytime on Urine Volume and Creatinine Clearance

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Our present experiment aimed at knowing whether bright/dim light intensities during the daytime could influence the urine volume and creatinine clearance. Eight females served as subjects, spending time under bright light (5,000 lx) from 07:00 h to 15:00 h one day, and under dim light (200 lx) the other day. The amount of urine was 1333.1 ± 520.8 ml/day under bright light and 864.4 ± 283.7 ml/day under dim light ($p < 0.01$). The creatinine clearance was 140.0 ± 30.4 l/day under bright light and 130.6 ± 26.1 l/day under dim light ($p < 0.05$).

I-6 Possibility of judgement between correct and incorrect inputs by evoked potential signals for eye gaze-select interface

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It is significant for serious handicap persons to use an eye gaze-select interface as an input device like a mouse or a keyboard because a possibility that the function for eye movement will remain as a healthy function of a handicap person is very high. It is difficult to solve the problem that the selected target is sometimes different from the target that the user wants to input for the eye gaze-select interface. In this study, we proposed to add the mechanism judging the correct selection or the incorrect selection by an evoked EEG signals, to the gaze-select interface. Two kinds of evoked EEG signals were measured in the experiment. One is measured when the character that a subject just watched shines red, and the other is when the next character shines red. We examined the difference among two kinds of evoked EEG signals by statistical technique.

I-8 Effects of skin pressure by clothing on gastrointestinal transit time and digestion of food

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We examined the effects of skin pressure by clothing on absorption of dietary carbohydrate and orocecal transit time of a test meal by means of breath hydrogen test on 7 healthy young women. Skin pressure applied by a girdle on waist, abdomen and hip region was about 10 to 15 mmHg, which values were 2~3 times larger than without a girdle. The results are summarized as follows:

1) The significantly pronounced breath hydrogen excretion was observed with a girdle ($p < 0.01$). 2) The transit time did not significantly differ between with / without a girdle. These results indicate that the clothing skin pressure has an inhibitory effect on the absorption of dietary carbohydrate at the small intestine, but no effect on the orocecal transit time of a meal.

I-5 Analysis of Muscle Fiber Conduction Velocity with Observing the Change of Correlation Coefficient

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Most studies about muscle fiber conduction velocity have focused on only the delay time when a correlation coefficient between EMG signals of neighboring channels becomes the maximum. The purpose of this study is to investigate in detail the characteristics of correlation coefficient function, that is, the change of correlation coefficient by the delay time between two EMG signals. The correlation coefficient functions were roughly classified into four groups by the characteristics of the function. In the EMG signal observed from the electrode put on near by the end-plate of the muscle, it was found that there were many correlation coefficient functions characterized by the decrease in the correlation coefficient at near zero for the delay time.

I-7 Electromagnetic measurement system for the 6DOF kinematic shoulder model

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The present study developed a measurement system for the skeletal movement of the human shoulder. This system was based on the 6DOF biomechanical shoulder model that was defined by 3DOF postural angle and 3DOF spatial position of the humerus. The present system employed an electromagnetic tracking device 3SPACE Fastrak (Polhemus inc.) to acquire 3 dimensional data. The special calibration method that adopted an optimization defining sphere surface regression of sensor vectors fixed on the upper arm was employed to calculate the accurate rotational center of the humerus. The computer program that described in Visual Basic (Microsoft inc.) was prepared for all measurement treatments like calibration, data save, and graphic displaying of the shoulder movement. The whole measurement error was curbed within 2-3mm using our original devices to fix the transmitter and a sensor block on the human body.

I-9 Effects of clothing pressure on a change in autonomic nervous and immunity system during the menstrual cycle in young women

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This study aims to investigate the effects of clothing pressure on a change in autonomic nervous and immunity system during the menstrual cycle in young women. We measured heart rate variability (HRV), systolic blood pressure variability (SBPV) and secretory immunoglobulin A in saliva (sIgA). The subjects with higher pressure brassiere (HP) showed significantly lower s-IgA compared with lower pressure brassiere (LP) in the menstrual and follicular phase. The subjects with HP showed significantly lower LF/HF ratio of HRV compared with LP in the menstrual phase. It suggests that high clothing pressure with brassiere may lead autonomic nervous and immunity system activities to a distress condition.