

57 HRV Monitoring System for Drivers

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Previous studies indicate the possibility of quantifying a driver's tension under the controlled conditions by means of HRV. In this paper the process efforts to apply the HRV method to drivers under normal driving conditions, rather than controlled, are described. An on-board HRV monitoring system has been developed for this purpose, and the test was performed to study the possibility to represent a driver's physiological reaction during driving under the conditions as usual manner.

Two subjects drove two different vehicles on the expressway for 90 minutes: Vehicle 'O' had been evaluated to cause less fatigue than vehicle 'P', and the difference due to an extended drive was distinguishable between the two vehicles.

This test had revealed that LF/HF ratio for vehicle 'P' was higher than that for vehicle 'O' at the start of driving, and tends to decrease as time elapsed.

58 The effect of space on Physiology

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The aim of this study is to examine the relationship between influence of space on EEG, ECG and Blood pressure. Subjects were 4 men and 4 women aged 21-32. The plan of the space had 9 variations, which were formed by 3 types of width (900, 1800, 2700mm), and 3 types of length (900, 1800, 2700mm). The height of space was fixed at 2400mm. As a result, the amplitude of β -waves and the minimal blood pressure in case of space sized W1800*L1800mm were significantly larger than in another cases.

59 Study on S-Curve Walking

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Usually running or walking tests are examined using a treadmill, so we conceived a s-curve walking for work load in the limited environment such as indoors. Three kinds of s-curve courses (diameter: 0.6, 1.2 and 1.8m) and straight-line course were prepared. In experiment I and experiment II, 10 and 8 young female subjects participated, respectively. In the former, the step length and velocity were measured. The properties of s-curve walking were similar to the one of straight-line when the diameter of course became larger and larger. In the latter, heart rate and oxygen consumption were measured using a 1.2m diameter course and straight course. The values of heart rate and oxygen consumption during s-curve walking were higher about 40% and 4% than straight-line walking, respectively.

60 The relationship between the form of moving and the time of the eye fixation in slope and level

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The aim of this paper was to clarify the relationship between the pedestrian's eye fixation and slope. Eyecamera was used to know the eye fixation. The following results were obtained. In the case that the form of walking is same, there is no difference between the average time of the eye fixation and the average frequency of the eye fixation in both slope and level. Whether uphill or downhill, the difference of the condition doesn't affect it. In contrast, in the case that the form of walking is different, the difference appears.

61 A Study on Effects of Rapid High-rise Elevator on Ears

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In order to understand the psychophysiological response to a rapid high-rise elevator of human ears whose Eustachian tube function is normal (Type-Tn, 10 subjects) or abnormal (Type-Ta/Ta', 5 subjects), experiments were conducted using a high-rise elevator. Results showed that factors such as direction, speed and subject were significant. The drastic change in pressure induced a feeling of ear pressure in subjects, which was more severe during descent than ascent. The compliance behavior of subjects' tympanic membranes varied depending on Eustachian tube function. Subjects with Ta/Ta' type Eustachian tubes who could not adjust their tympanic cavity pressure showed such symptoms as dull dull baroreception, dizziness and dislike of the elevator. A rapid high-rise elevator may cause some problems for Ta/Ta' type ears.

62 The effects of recovery exercise on blood lactate in different levels of anaerobic threshold (AT)

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The purpose of this study was to investigate the effects of rest and active recovery exercises (35%, 55% and 75%AT) during recovery flowing 130%AT exercise in high and low AT-groups. Subjects were nine healthy male students. Five males were in high-AT-group (61%VO₂max in average). Four males were in low-AT-group (49%VO₂max in average). Blood lactate and oxygen uptake per weight measured during recovery exercise periods. Decrease in blood lactate was clearly accelerated during three active recovery compared with that during rest, especially at 55%AT exercise, in high AT-group. In the case of low AT-group, significant effect on blood lactate was found only at 75%AT exercise. Both 55%AT in high-AT-group and 75%AT in low-AT-group, oxygen uptake per weight were 17ml/kg/min.