



Shizuoka Central Area

Shizuoka Organization for Creation of Industries
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Core Research Organizations

University of Shizuoka, Shizuoka University,
 Shizuoka Industrial Research Institute of Shizuoka Prefecture, Tokai University

Establishment of high-sensitive evaluation system for physical/mental stress, and development of new foodstuffs and medical/chemical materials which reduce their stress

Major Participating Research Organizations

Industry...Hamamatsu Photonics K.K., Maruhachi Muramatsu Corp., Yaizu Suisankagaku Industry Co., Ltd. and others
 Academia...University of Shizuoka, Shizuoka University, Tokai University and others
 Government...National Agriculture and Food Research Organization, Shizuoka Industrial Research Institute of Shizuoka Prefecture, Shizuoka Prefectural Fisheries Experiment Station and others

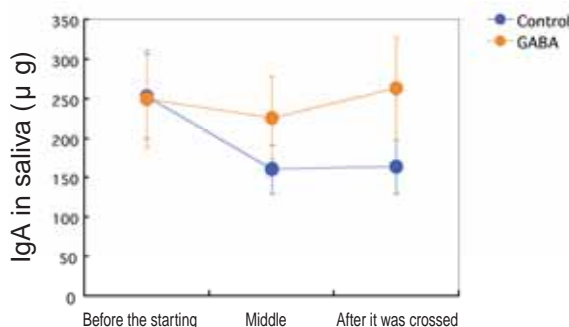
Typical result of City Area Program

1. The physical and mental stress evaluation system was established by using ultra-weak chemiluminescence measurement system.

The ultra-weak chemiluminescence measurement system was more sensitive to measure the physical and mental stress compared to chemical analysis using immunoglobulin and amylase. This method will be applied to evaluate the relaxation in several behaviors containing bath in hot spring.

2. Successful business to produce foods showing anti-physical/mental stress

Professor Yokogoshi et al, University of Shizuoka, loaded the height fear stress to volunteers by crossing a suspension bridge. At that time, an increase of the stress markers such as IgA and chromogranin A in saliva of the group which took γ -aminobutyric acid(GABA) were held compared to the control group. GABA-contained chocolate products are currently brought to the market. Other groups of our organizations are proceeding the development of tea drinks and bonito ovary oil-contained products which show anti physical/mental stress.



Fear control effect of the suspension bridge by a GABA intake

About the approach after the project

1. The analysis and the evaluation system of the condition are established by applying non-stress instrumentation technology by light.

The aim of this program is to determine physical/mental stress by ultra-weak chemiluminescence. It has been known that IgA and amylase by chemical analysis are useful markers in saliva. But ultra-weak chemiluminescence technique shows higher sensitivity than chemical analysis. The program is proceeding for collection of relaxation data in hot spring to follow the establishment of the evaluation system of physical and mental stresses. It will contribute to creation of new businesses in food and medical or chemical products.

2. Production of foods showing anti-physical and mental stress and anti-lifestyle related diseases.

Ingredients to reduce physical and mental stress and to cure lifestyle-related diseases are searched on special products of Shizuoka Prefecture. The bonito ovary oil, which has been proven to heal stresses in animal experiments. It has been planning to use pet foods on a commercial basis.

The sugar-chain related researches conducted by local universities are also to be advanced to create new business opportunity for chemical products such as reagents.



The part of research the result (including samples and products under development)