S-2 Significance of the inter-relation between stress and occlusion in maintaining somatic health
Sadao SATO
Department of Craniofacial Growth and Development Dentistry, Research Institute of Occlusion Medicine, Research Institute of Brain and Oral Science, Kanagawa Dental College, Yokosuka, Kanagawa, Japan

The masticatory organ has evolved over a long period of geological time, through a stage in which it was predominantly a tool for expressing aggression, into an organ for emotional management. In humans, the powerful grinding and clenching of masticatory muscles play a role in mitigating stress-induced psychosomatic disorders by down-regulating the limbic system, the hypothalamic-pituitary-adrenal (HPA) axis and the autonomic nervous system. McEwen BS (1998) proposed a new concept so-called allostatic which is defined as the ability to achieve stability through change against the challenge. Through allostasis, the autonomic nervous system, the HPA axis and immune systems protect the body by responding to internal and external stress. According with our results from stress-biting animal model, it was clearly demonstrated that stress-induced increasing of physiological parameters such as Fos and CRH expression of PVN, blood ACTH, IL1-B, and corticosteron levels were suppressed by the biting activities of the masticatory organ. Therefore, it was suggested that the function of masticatory organ constitutes an important activity for maintaining allostasis. Recent research has also shown that using the masticatory organ suppresses stress-induced stomach ulcers formation and pathologic blood leukocyte balance. However, unhealthy condition (malocclusion) induces increasing activity in the limbic system including amygdala, indicating that clenching in a displaced position of the mandible causes unpleasant reaction in the brain. The health of the somatic system depends critically on the masticatory organ and occlusion, which must be of sufficient quality to successfully carry out its important role of managing stress. Therefore, we must integrate the study of occlusion into the broader scope of medical science; by so doing we will meaningfully advance the state of the art of dental care and general health care.

Key Words: Masticatory organ, Stress, Allostasis, Bruxism

S-3 Establishment of system for human subject research in exercise physiology

Yutaka NAKAYA
Clinical Trial Center for Developmental Therapeutics, the Tokushima University Hospital

Research involving human subjects should be based on a moral commitment to advancing human welfare, knowledge and understanding. Researchers should conduct scientifically sound research, and respect the participant’s free-will. Recently, leading journals review only papers reporting human experimentation in accordance with the precepts established by the Helsinki Declaration. Such papers must include a statement that the human investigations were performed after approval by Institutional Review Board (IRB). The principles of human subject research include respect for: human dignity, autonomy, informed consent, vulnerable persons, confidentiality, the lack of harm, maximum benefit, and justice. Informed consent requires that individuals truly understand and freely undertake the decision to participate in any kind of experiment or clinical care; 1) the anticipated risks and benefits of participation in the experiment; 2) alternatives to participation and their expected outcomes; 3) who is responsible for the experiment; 4) arrangements in case of serious side effects or complications arising as a result of the experiment; 5) procedures and relevant design features; 6) incentives; and 7) legal considerations (e.g., liability for adverse events).

In the field of exercise physiology, each institute also should have their own IRB, and every human subject research should be approved by them before start, even researchers consider that there will be no risk in the research.