

Salivary cortisol as a measure of professional stress; an overview and a description of a study with paramedics
Eliahu Heldman – PhD, Department of Clinical Biochemistry, Ben Gurion University of the Negev, Beer Sheva, Israel

Work-related stress is caused by an excessive load on the worker and generally is affected by the environment at work. Work stress has been implicated as a factor in cardiovascular diseases, reduced immune functions, metabolic diseases and mental illnesses. To minimize the risks of such illnesses, particularly those that are work-related, an independent assessment of the stress level of the worker is needed. Since the assessment of the stress level, when a professional stress is in question, should be done in the environment of the work place, questionnaires and psychological evaluations pose difficulties and are essentially impractical with respect to a variety of professions. For this reason, biomarkers are needed for the objective, reliable and unproblematic measurement of stress. Currently, cortisol level is the most promising biomarker to assess the response to chronic stress. It is widely accepted that stress is associated with changes in circulating cortisol levels, whereas the hormone is quickly elevated immediately after the subject is exposed to the stressful conditions. There seem to be a correlation between the levels of the stress and the levels of blood cortisol that follow the stressful event. Therefore, determination of cortisol levels may provide a reliable index for the stress level of professionals who are exposed to stressful conditions during their work. A good correlation has been shown to exist between the level of the blood cortisol and salivary cortisol. Since salivary cortisol may be measured in a non-invasive manner in samples of human saliva that can be collected while the worker performs his duty, it may be an attractive method for the assessment of stress in the environment of the work place. To test whether changes in cortisol levels are indeed correlated with professional stress, we carried out a pilot study in paramedics, measuring salivary cortisol under conditions of rest and while being on duty during an emergency call. The results of this study, as well as an overview about the relationships between salivary cortisol and professional stress, will be discussed in this presentation.