Abstract

Dr. med. Claus Reinsberger

Measurements of electrodermal activity in sportsmedicine – a pilot study in golf

Activity of eccrine sympathetic dermal neurons generated in the central nervous systems by mental and physical stressors, can be measured by electrodermal activity (EDA). Therefore this easily obtainable parameter allows an assessment of different forms of stress and regeneration in sportsmedicine. A basic approach is succeeded by combining measurements of EDA and electroencephalography (EEG) before and after maximal physical exercise. Significant correlations between EDA-levels and spectral β-2-power densities in EEG can be demonstrated. Volunteers with high θ-power 45min after exercise showed an intraindividually unstable EDA-course. As golf requires high demands on the athlete`s physical and psychological condition, systematic EDA-measurements are introduced for the first time. Individually specific EDA-patterns allowing the definition of reproducible EDA-Indices can be demonstrated. Furthermore the importance of specific phases concerning the outcome of stroke can be assessed objectively. As indicated by golf-psychologists especially EDA in Pre-start- and in the regeneration-phase is of big influence for the result of the stroke and could possibly be used to monitor performance in practice and competition. Effects of physical exercise on EDA during golf can be shown with a specific training unit on the driving range. EDA-measurements during a 3-hole golf round prove that psychoregulatory exercise can lead to lower dermal sympathetic activation. To obtain a comprehensive assessment of the activity of the autonomic nervous system synchronous recordings of other vegetative functions should be ensured, as EDA is influenced by systematic internal and external disruptive elements.