Heart rate (HR), heart rate variability (HRV), and respiration rate (RR) from the both systems were then collected and calculated. Intra-class correlation coefficients, Bland-Altman plots, and repeated measures ANOVAs were conducted for data analysis. The results indicated that both devices captured elevation in HR during stress and decrease in RR during speech preparation relative to baseline (ps<.05) and gave essentially the same values. HR measured by AutoSense was highly correlated with HR observed by the Biopac during baseline (rs>.97), psychological stress (rs>.93), and recovery (rs>.94). Correlations in RR were moderate to high during baseline (rs .63-.95) and recovery (rs .69-91) but the associations varied during stress periods (rs .28-91). Similar patterns were found in high (rs .19-.92) and low (rs .57-.99) frequency components of HRV. Bland-Altman plots supported these findings. Overall, these results demonstrated potential usefulness of Autosense in the real-time assessment of stress. No sex differences found in cardiovascular and respiratory measures suggested that the Autosense chestband could be suitable in both men and women. Moderate correlations in RR and HRV may be related to differences in technology (how the hardware captured respiration activity) and algorithms used for data extraction and calculation.

122) Abstract 519

CHILDREN'S SLEEP AND THE AUTONOMIC FUNCTION: LOW SLEEP QUALITY HAS AN IMPACT ON HEART RATE VARIABILITY INDEPENDENT OF STRESS

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Background There are recent suggestions that sleep deprivation could disturb autonomic nervous function with consequences for cardiovascular health. To study this, heart rate variability (HRV) is a non-invasive indicator for the autonomic function, especially as it has been linked to morbidity.

Methods In 2010 (N=334) and 2011 (N=293), HRV, sleep and stress were measured in Belgian children (5-10y) of the ChiBS study. HRV measurements (5-minutes) in supine position were analysed with frequency and time domain methodology. Sleep duration was reported and sleep quality was measured in a subgroup with accelerometry (sleep efficiency, sleep latency, 'awakenings' during the night based on movements). Linear regressions were executed with sleep duration or sleep quality as predictor, corrected for age, sex, physical activity and stress. Stress (z-score sum of emotions and problems) was tested as mediator and moderator in the sleep-HRV association. Finally, longitudinal mixed models were used to examine the impact of sleep on HRV over 1 year.

Results Awakenings and especially sleep latency were related to a lower parasympathetic tone and higher sympathetic tone. Consequently, lower sleep efficiency and corrected sleep duration were also related to a more sympathetic over parasympathetic dominance.Reported sleep duration was not associated with HRV, even not after categorizing. Since stress has been related to both HRV and sleep, a correction for stress was done but findings did not change. Consequently, stress was no mediator. Nevertheless, stress was a moderator in the sleep-HRV relation for both sleep quality and duration e.g. sleep efficiency was only related to HRV in high stressed children. Longitudinally, sleep quality and corrected sleep duration could again predict HRV, but reported sleep duration could not.

Conclusion Low sleep quality but not reported sleep duration was cross-sectionally and longitudinally related to an unhealthier HRV pattern (parasympathetic over sympathetic dominance), independently from the stress level. The results stress the health impact of a good sleep quality since sleep quality can already influence HRV in childhood and as such determine future cardiovascular risk.

123) Abstract 751

TRAIT HEDONIC AND EUDEMONIC WELL-BEING AND DIURNAL CORTISOL PATTERNS

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The field of Positive Psychology has generated interest into the beneficial health outcomes of trait well-being. Two strands of well-being are documented: hedonia, which refers to pleasure and satisfaction in life and eudaimonia which refers more to meaning and fulfilment in life. Debate exists within the literature over the relative independence and importance of these two strands of well-being for health. Although well-being has been related to cortisol secretion studies have mostly been in middle-aged and older populations and have focused on hedonic, largely ignoring eudemonic, aspects of well-being. This study aimed to explore the independence of hedonic and eudemonic well-being and examine relationships with cortisol secretion in a young healthy female sample.

Participants (n=50; mean age 21 years) completed measures of trait hedonic well-being (e.g. subjective happiness and life satisfaction), trait eudemonic well-being (e.g. psychological well-being) and ill-being (e.g. perceived stress and depression). Over four study days' participants collected saliva samples at 0, 15, 30 and 45 min post-awakening to measure the cortisol awakening response, and again at 3 and 12 hr post-awakening to measure the diurnal decline. Objective measures of awakening and adherence to the saliva sampling protocol were taken to encourage and monitor adherence to the protocol. Factor analyses of a larger population from which this sample was taken (n=240; mean age 21 years) showed that there were two components of well-being which were interpreted as hedonic well-being and eudemonic ill-being. Non-adherent saliva samples were excluded; well-being or ill-being was not related to the cortisol awakening response or the diurnal decline.

We conclude that in a study carefully controlled for adherence to protocol in healthy young females neither hedonic well-being nor eudemonic ill-being was related to patterns of cortisol secretion. Relationships between trait well-being and cortisol secretion may emerge in later life as a consequence of neurotoxicity across the lifespan.

124) Abstract 228

PROACTIVE REHABILITATION AND TELEPHONE INTERVENTION IN TYPE 2 DIABETES: RESULTS OF THE PARTID-TRIAL

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Diabetes greatly increases the risk of cardiovascular disease and other disorders. Targeted interventions addressing multiple risk factors have shown to reduce the risk of late complications in diabetes. In line with these results the PARTID-Trial included two interventions: (1) a three week multifactorial treatment in a rehab clinic specializing in diabetes care, and (2) an additional 12 month telephone follow-up. Patients were recruited from a Disease Management Program with predominantly lower-class insurants. Those meeting the inclusion criteria (N = 401) were randomized to the rehab treatment or usual care. Fifty-seven percent of the patients followed written advice to attend rehab treatment (adherence rate). Patients in the intervention group were randomized once more into the telephone intervention group with additional subjects recruited from the clinic because of the unexpectedly small sample size. Primary outcome was the overall cardiovascular risk. Analyses were conducted using multilevel models for change (growth curve modelling). Intention-to-treat analysis yielded no statistically significant effect of rehab treatment alone ($p = .60$), and analysis per-protocol just barely missed statistical significance ($p = .06$). However, telephone follow-up proved to be beneficial as to coronary risk over 12 months (intention-to-treat: $p < .01$). Further analyses showed that men ($p = .02$) benefited from rehab treatment, but women did not. Thus, proactive singular rehabilitation does not seem to have an overall positive impact on cardiovascular risk in patients with lower socio-economic status by the majority, but additional telephone counselling following rehabilitation helps to improve patient´s risk.