

$N=93$ healthy subjects (39 f, 54 m, age = 28 ± 8) completed the Maastricht Vital Exhaustion Questionnaire (Short Form) and reported their physical exercise activities. Multiple linear regression analyses were conducted.

The results show a significant influence of physical exercise on vital exhaustion ($\beta = -.300, p < .05$). Posthoc analyses show that this association is only evident in female ($\beta = -.368, p < .05$), not in male participants ($\beta = .006, p = .966$).

In the current study the influence of physical exercise on VE in healthy subjects was confirmed only for women. This might be due to the higher range of vital exhaustion scores in women. Further implications of this gender differential effect will be discussed.

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PO155

Neural dynamics of stress recovery and their relation to hormonal, cardiac, and subjective changes



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Stress strongly influences one's physiological and psychological functioning. With its extensive impact on bodily systems, stress constitutes a major risk factor for mental (Pittenger and Duman, 2008) and physical health (McEwen and Gianaros, 2010). As people differ in the consequences that stress has on them, a better comprehension of such inter-individual differences – especially during stress recovery – is central to understanding psychosomatic health.

The brain's central role in stress processing warrants an investigation of brain network dynamics related to stress. Evidence is accumulating that there is a switch from prefrontal cortex to subcortical, limbic structures during stress exposure (Arnsten, 2009) and the reverse resource allocation in its aftermath (Hermans et al., 2014). Such cerebral dynamics occur in close connection with other bodily (i.e., hormonal and autonomic) changes associated with stress processing.

Thirty healthy young male participants completed the Trier Social Stress Test (TSST; Kirschbaum et al., 1993), while a matched sample underwent a placebo TSST procedure. We acquired endocrine (in saliva and blood), cardiac, and subjective measures throughout the whole experiment. Before and after the task, we used a 3T-fMRI scanner to additionally measure brain structure and function (during task-free resting-state sessions).

We analyzed the temporal pattern of neural networks before and after acute psychosocial stress in relation to hormonal, cardiac, and subjective measures of stress processing. Through a comprehensive assessment of the neural consequences and dynamics of stress, we hope to gain new insights into the question how individual recovery patterns relate to stress resilience and to psychosomatic health.

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PO156

High allostatic load and atypical diurnal cortisol secretion in nursing professionals



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The vulnerability of nursing professionals to stress is associated with chronic exposure to everyday work stressors. Cumulative effects of chronic exposure to the stress mediators may overload the interconnected biological systems involved in the stress response leading to allostatic load (AL) and increasing the risk to develop stress-related disorders. Despite several studies have reported the high levels of perceived stress in nursing professionals, the cumulative effects of chronic stress related to work remains unclear. The current study examined whether nursing professionals exhibit high AL and atypical rhythm of cortisol secretion. Salivary cortisol of 142 nursing professionals between 23 and 67 years of age, randomly selected, was collected over 2 workdays at morning, afternoon and evening. Ten neuroendocrine, metabolic, immunologic and anthropometric biomarkers were analyzed and values were transformed into an AL index using clinical reference cut-offs. Around 31% of nursing professionals showed atypical pattern (inconsistent or “flat”) of cortisol secretion and 47.2% showed high allostatic load. The higher the time of profession the higher the AL index ($p \leq 0.05$). These findings suggest that nursing professionals exhibited signs of wear of the biological systems involved in the regulation of stress response and that the activities related to job may influence this overload. Institutional psychoeducational programs are warranted to support health professionals in order to diminish the risk to develop work-related disorders.

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PO157

Changes in vagal tone in response to a startle: A new protocol



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Background: The brain's first response to stress is mediated through the vagus nerve of the parasympathetic nervous system (PSNS). In the presence of a stressor the vagal brake is either removed to facilitate peripheral engagement or bolstered to enhance cognitive flexibility. In contrast to other stress response systems, no standardized test exists to determine the integrity of the system in an individual. We attempted to develop such a protocol to reliably and robustly elicit a response from the PSNS.

Methods: Participants viewed a series of three neutral and three startle videos wherein an auditory and visual stimulus rapidly appeared on the screen. Videos were onscreen for 15 s with an inter-video length of 150 s. Total viewing duration was 17 min and 30 s. Data were analyzed in MatLab. To test for statistical significance, we performed a repeated measures ANOVA followed by post-hoc, pairwise *t*-tests.