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Background: Couples' closeness and emotional intimacy have been related to reduced endocrine and autonomic stress levels and improved health outcomes. The neuropeptide oxytocin has been shown to be involved in social cognition processes and might, thus, modulate the perception of closeness and intimacy.

Methods: In the current eye-tracking study, and using standard pictures of dyads and pictures of their own partner, we investigated whether oxytocin administration might affect focus on bonding-related areas of interest (AOIs; e.g., the face, the eyes) and intimacy ratings. A double blind placebo controlled design was used with intranasal administration of 24IU of oxytocin vs. placebo and cross-over repeated assessments two weeks apart in N= 71 participants (38 women, 33 men).

Results: Analyses suggest that oxytocin increased eye-focus on the face and, specifically, the eye-region ($F= 4.95, p= .029$) as well as positive subjective ratings ($F= 4.02, p= .05$). Surprisingly strong carryover effects were found with in part even opposite results depending on whether oxytocin was administered at first vs. second session.

Conclusion: Effects of repeated oxytocin administration on social cognition processes have rarely been investigated in the past. In particular, the neuropeptide's long-term effects might have relevance for psychosomatic medicine and will be discussed in the presentation.

Friday, March 11 from 10:45 am to 12:00 pm

Symposium 1091

WHEN THOUGHTS CAN BREAK YOUR HEART: MECHANISMS LINKING PERSEVERATIVE COGNITION TO HEALTH RISK

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Perseverative cognition is defined as the repetitive or sustained activation of cognitive representations of past stressful events or feared events in the future, is extremely common and even at non-clinical levels it causes a "fight-or-flight" action tendency, followed by a cascade of biological events, starting in the brain and ending as peripheral stress responses such as increases in heart activity, blood pressure, and stress hormones like cortisol (Perseverative Cognition Hypothesis). Such persistent physiological activation has an impact on an individual's health and may ultimately lead to somatic disease. Although the pivotal role of perseverative cognition in psychopathology has been acknowledged for a long time, its effects on somatic health have remained largely unexplored. This symposium has the aim to provide evidence on the consequences of perseverative cognition at a physiological level and clarify the autonomic and hemodynamic mechanisms through how this may ultimately lead to cardiovascular disease. Among the contributions are: a series of meta-analyses estimating the magnitude and generalizability of perseverative cognition consequences at a physiological level; the role of a more vascular compared to myocardial response as the key ingredient linking perseverative cognition with cardiovascular risk, particularly in African Americans, and how perseverative cognition is responsible of a potentially pathogenic prolonged cardiac activity in daily life that exceeds momentary metabolic needs. In terms of therapeutic implications, results point to the potential role of non-standard methods such as vagus nerve stimulation and transcranial direct current stimulation.

Individual Abstract Number: 1202

The Effects of Perseverative Cognition on Diverse Physiological Responses: An Integrative View

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Perseverative cognition is not only implicated in psychological health, contributing to mood worsening and psychopathology but, due to its ability to elicit prolonged physiological activity, is also considered to play a role in somatic health. Although there is emerging evidence that such negative and persistent thoughts have consequences on the body, this association has not yet been quantified. The aim of this study was to meta-analyze available studies on the physiological concomitants of perseverative cognition in healthy subjects. Associations emerged between perseverative cognition and higher systolic blood pressure ($g = .45; p = .003$), diastolic blood pressure ($g = .51; p = .001$), heart

rate ($g = .28; p < .0001$) and cortisol ($g = .36; p = .03$), and lower heart rate variability ($g = .15; p = .03$). Even if effects were small to medium, moderator analysis suggests that there is the potential for larger effects if a series of precautions will be taken by future studies. Significant moderators were sex, ethnicity, type of induction used to elicit perseverative cognition, assessment of state versus trait perseverative cognition, focus on worry or rumination, duration of physiological assessment, and quality of the studies. Results showed that perseverative cognition affects cardiovascular, autonomic, and endocrine nervous system activity, suggesting a pathogenic pathway to long-term disease outcomes and clarifying the still unexplained relationship between chronic stress and health vulnerability.

Individual Abstract Number: 1201

Hemodynamic Profiles of Adaptive and Maladaptive forms of Perseverative Cognition: Implications for Health

Cristina Ottaviani, PhD, Santa Lucia Foundation, Rome, Italy, Jos F. Brosschot, PhD, Institute of Psychology, Leiden University, Leiden, The Netherlands, Julian F. Thayer, PhD, Psychology, The Ohio State University, Columbus, Ohio

The ability of the human brain to escape the here and now can take functional (problem solving) and dysfunctional (perseverative cognition) routes. Although it has been proposed that only the latter may act as a mediator of the relationship between stress and cardiovascular disease, in terms of cardiovascular reactivity both forms of repetitive thinking have been associated with blood pressure (BP) reactivity of the same entity. However, one important limitation of the "reactivity hypothesis" is the focus on BP reactivity per se and not on its underlying physiological determinants. The aim of this study was to overcome such limitation and explain previous inconsistencies by examining the way (hemodynamic profile) and the extent (compensation deficit) to which total peripheral resistance (TPR) and cardiac output (CO) compensate for each other in determining BP reactivity during functional and dysfunctional types of repetitive thinking. Fifty-six participants (26 women, 30 men; mean age 24.5 (3.9) years) underwent a perseverative cognition, a mind wandering, and a problem solving induction in a randomized order, each followed by a 5-min recovery period while their cardiovascular parameters were continuously monitored by the Portapres device. Perseverative cognition and problem solving (but not mind wandering) elicited BP increases of similar entity ($p > .70$). However, perseverative cognition resulted characterized by a more vascular (vs myocardial) profile compared to mind wandering and problem solving ($F= 4.34; p = .02$). As a consequence, BP recovery was impaired after perseverative cognition compared to the other two conditions ($F_s > 4.43; p_s < .04$ for SBP and DBP). Given that high vascular resistance is the hemodynamic hallmark of cardiovascular risk, results suggest a potential mechanism through which rumination and worry may act a mediator in the relationship between stress and risk for developing precursors to cardiovascular disease.

Individual Abstract Number: 1212

Examining Ethnic Differences in the Hemodynamic Profile of State Perseverative Cognition

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There is accumulating evidence of the important role of perseverative cognition (PC), characterized by worrisome and ruminative thinking, in acute and long-term changes in cardiovascular function and health. Several studies have shown that greater PC is linked with altered cardiac activity; however, less is known regarding the influence of PC on other aspects of cardiovascular function and in particular to variations in the mechanisms underlying blood pressure (BP) regulation. According to previous research, stressors characterized by greater vascular, compared with central, cardiovascular responses may convey heightened risk for later cardiovascular disease. Using data from a laboratory-based study, we investigated whether changes in BP during an induced period of PC were more strongly governed by shifts in cardiac output (CO), a volumetric index of cardiac blood flow to the periphery, or total peripheral resistance (TPR), a global measure of vasoconstrictive force in the vasculature. Results revealed important ethnic differences in the hemodynamic response to state PC. Specifically, among white participants BP changes during State PC were mixed, or not clearly due to exclusive changes in either vascular or myocardial activity. However, among African Americans, BP responses during State PC were more strongly driven by changes in TPR, a pattern which is consistent with the greater vascular profile thought to underlie hypertension and other CVD disparities among AA's. These findings further illustrate how commonly experienced stressors may evoke divergent patterns of underlying cardiovascular response and potentially contribute to ethnic disparities in cardiovascular disease risk.