9th MindBrainBody Symposium 2022

Poster Session D

Posters Nr. D1-D18 (Zoom Breakout Rooms)

Wednesday, March 18, 2022 at 11:45-12:30 (GMT+1)
Discussion Part 2 | Poster Session C & D | Wednesday, March 18, 2022 at 19:00-20:00 (GMT+1)

D01_Arbuzova	Polina	No evidence of impaired visual and tactile metacognition in adults with Tourette disorder
D02_Werwach	Annika	Speech perception slopes across the first year of life: Maturation of consonant perception, but not vowel perception, predicts lexical skills at 12 months
D03_Naraindas	Akansha	Body-based mental imagery and its relationship to body image disturbance and interoception from adolescence to late adulthood
D04_Myga	Kasia	Changing tactile amplitude and frequency perception via autosuggestion
D05_Kobylinska	Dorota	How is HRV and strengths of negative emotion connected to effectiveness of emotion regulation strategies (self-report and EMG data)
D06_Olszewska	Alicja	When Ears Deceive You. Processing of Auditory Incongruence in Musicians - preliminary results.
D07_Schulz	Corinna	Hyperaligning brainstem connectivity during vagus nerve stimulation
D08_Kühne	Katharina	Shaking hands in the face of danger? Interpersonal distance, peripersonal space, pro- and anti-social consequences of face masks during the COVID-19 pandemic
D09_Karjalainen	Suvi	Coactivation of autonomic and central nervous systems during processing of socially relevant information in autism spectrum disorder: a systematic review
D10_Shirali	Sahar	A Cognitive Evaluation of Lexical Access in Sequential Spanish-English Trilinguals
D11_Poster Withdrawn		
D12_Saleh	Ebtesam	Attitudes, Beliefs, and Experiences of Substance Use: A Systematic Review of Qualitative Research among Refugees and Practitioners
D13_Twarkowski	Hannah	Dentate gyrus inhibitory microcircuit promotes network mechanisms underlying memory consolidation
D14_Kiepe	Fabian	Probing Sensory Attenuation for Self-Initiated Actions using Virtual Reality
D15_Catrambone	Vincenzo	An overview on functional Brain-Heart Interplay measurements
D16_Demetriou	Andreas	Noetron: the central meaning-making unit in the mind and the brain
D17_Kraus	Nils	The Role of Affective States and Traits in Binocular Rivalry of Neutral Stimuli
D18_Livermore	James	A Single Administration of Citalopram Increases Interoceptive Insight in Healthy Volunteers

Poster Abstracts

D01 **Poster Presenter: Arbuzova, Polina**

No evidence of impaired visual and tactile metacognition in adults with Tourette disorder

Arbuzova, P. [1,2], Guo, S. [3], Koß, C. [2,4], Kurvits, L. [3], Faivre, N. [6], A. Kühn, A.A. [3], Filevich, E. [1,2], & Ganos, C. [3]

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Introduction: Premonitory urges in Tourette disorder are often linked to altered somatosensory processing, which might include deficits in metacognition. We explored tactile and visual metacognitive ability in people with Tourette disorder and healthy control participants. **Methods:** Patients with Tourrete disorder and healthy control participants completed a tactile and a visual metacognitive task. On each trial, participants did a forced choice discrimination and then rated their confidence in their decision. To quantify metacognitive ability, we used m-ratio — a bias-free measure that allows for comparisons across modalities. Correlations between severity of tics and premonitory urges with tactile metacognitive sensitivity were also performed. **Results:** Metacognitive ability in both tactile and visual domains was comparable between adults with Tourette disorder and healthy controls. We also found no evidence for correlations between tactile metacognitive ability and severity of premonitory urges or tic severity. **Discussion:** Tactile and visual metacognition is not impaired in adults with Tourette disorder. These results question the role of altered tactile metacognition in pathophysiology of tic disorders.

D02 **Poster Presenter: Werwach, Annika**

Speech perception slopes across the first year of life: Maturation of consonant perception, but not vowel perception, predicts lexical skills at 12 months

Werwach, A. [1], Schaadt, G. [2, 3], Obrig, H. [1], Friederici, A.D. [3], & Männel, C. [1, 3, 4]

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Introduction: Consonants and vowels differentially contribute to lexical acquisition across the first year of life, with a preferential role of consonants from around 8 months. Infants' differential reliance on consonants versus vowels in word recognition has been shown to predict later lexical outcome. This predictive value, however, has not been evaluated for infants' longitudinal trajectories of consonant and vowel perception. We here aimed to study brain markers that can capture perceptual changes before infants show vowel or consonant preferences in word recognition behaviorally. **Methods:** We examined longitudinally (at ages 2, 6, and 10 months) whether infants' (n= 59) maturation trajectories of vowel and consonant discrimination differentially predict their later lexicon. At each age, we measured infants' discrimination abilities in a multi-feature paradigm by means of electrophysiological mismatch responses (MMR) to consonant and vowel deviants. At 12 months, we assessed infants' lexical skills via the German version of the CDI (parental questionnaire). Using second-order latent growth models, we tested the maturation slopes of vowel and consonant MMRs as predictors of word production and perception at 12 months, controlling for the effect of individual MMRs at each assessment. **Results:** The consonant MMR slope significantly correlated with word perception and production, whereas there were no effects for the vowel MMR slope. Note that only for consonants at 2 months, the single-time point MMR predicted later lexicon, while the MMR slope from 2 to 10 months had an additive predictive value. **Discussion:** These results confirm a prominent role of consonant, but not vowel discrimination for word learning from early on. Given that a behavioral preference for consonants in word recognition only evolves towards the end of the first year, our study points to a much earlier predictive value of consonant perception and to a particular role of the longitudinal maturation of this perceptual skill in lexical acquisition.

D03 **Poster Presenter: Mahesh Naraindas, Akansha**

Body-based mental imagery and its relationship to body image disturbance and interoception from adolescence to late adulthood

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Introduction: Body image disturbance (BID) is the distortion of perception, behaviour, or cognition related to weight or shape. Body surveillance behaviours cause individuals to engage in 3rd person viewpoints of the self; leading to a prioritization of external signals at the cost of internal signals, causing a deficit in the ability to update allocentric body memory with inputs from perception (Riva, 2012). There is significant variation in body image satisfaction and BID; with limited understanding of how body image evolves over time and the role that self-body imagery plays in this development. This study aims to link how the body is imagined from different perspectives (egocentric and allocentric) to BID and tracks the developmental trajectory of self-body-imagery from early adulthood to older age. **Methods:** This was a within-subjects cross sectional study hosted online and preregistered on the Open Science Framework (OSF) . 1000 female participants with 250 subjects per 4 target age groups (Young Adults, Adults, Middle Adults, Older Adults) were recruited. The study used a modified Own Body Transformation (OBT) task (Blanke, 2005) to measure own-body imagery through visual perspective manipulations and linked this to interoceptive awareness and cognitive- attitudinal components (Self-Surveillance, Body dissatisfaction and Body shame) measured by questionnaires. **Results:** All the data have been collected and main analyses will be conducted prior to the conference. Pilot data revealed that the OBT task is successful in measuring the difference in time taken between egocentric and allocentric mental transformations **Discussion:** These results can tell us about the coherence of stored sensory information about the body and whether individual differences such as age and BID can affect this. As well as provide diagnostic insights for the manifestations of BIDs amongst the varied age groups, especially within older populations which are understudied in the context of eating disorder research.

D04 **Poster Presenter: Myga, Kasia**

Changing tactile amplitude and frequency perception via autosuggestion

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Introduction: Autosuggestion is an instantiation and reiteration of ideas or concepts by oneself aiming to actively influence one's own perceptual, brain or interoceptive states. Despite its potential beneficial clinical effects, for example in reducing chronic pain, autosuggestion has gained little scientific attention so far. Here, we tested the effects of autosuggestion on tactile amplitude perception using implicit measurements. **Methods:** In the experimental design, we made use of a known interaction effect between tactile amplitude and tactile frequency perception. We asked participants to manipulate their tactile amplitude perception via autosuggestion, but we measured their tactile frequency perception (implicit measure). Participants received two touches, first on their left (reference) and second on their right (test) index finger. The main task was to indicate if the touch on the test finger was higher or lower in frequency than the touch on the reference (baseline condition). In the autosuggestion condition, participants were asked to perceive the touches on the reference finger as very strong (Exp 1) or very weak (Exp 2), which we expected to influence frequency judgments. **Results:** Experiment 1 showed a significant difference ($p = .040$) in that frequency perception was lower at the test finger in the autosuggestion compared to the baseline condition, as expected. In Experiment 2, where participants were asked to perceive the touch as weaker, frequency perception was significantly higher ($p = .015$) at the test finger, as expected. An unexpected finding was that a significant difference ($p = .031$) in the direction opposite to predicted was found for those participants who show a reverse coupling between amplitude and frequency. **Discussion:** Our results indicate that the autosuggestion condition was effective in altering participants frequency perception, most likely via their internal change in amplitude perception. More research is needed to explain the effects in participants with reversed response trends.

D05 **Poster Presenter: Kobylinska, Dorota**

How is HRV and strengths of negative emotion connected to effectiveness of emotion regulation strategies (self-report and EMG data)

Kobylińska, T [1], Lewczuk, K. [2], Wizła, M. [2], Kastendieck, T. [3], Marcowski, P. [4] & Hess, U. [3]

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Introduction: We investigated how emotion regulation (ER) effectiveness -- operationalized via self-report and emotional expression (corrugator supercilii muscle activity) – is influenced by characteristics of the situation (strong vs weak negative material), strategy used (reappraisal, distraction, suppression, no regulation control condition) and individual dispositions (resting state Heart Rate Variability). **Methods:** The sample consisted of 69 adult females. In laboratory experiment, emotion regulation strategies were instructed before watching 8 blocks of negative IAPS photos. EMG and HRV were measured. **Results:** The results revealed that, all the included factors significantly influenced both corrugator activity and evaluation of pictures' negativity (in specific experimental conditions). For example, for high HRV participants (1) distraction, suppression and reappraisal significantly decreased corrugator activity compared to control condition, (2) distraction and reappraisal decreased appraised picture negativity for highly stimulating photos. For low HRV participants distraction and suppression were most effective in decreasing corrugator responses, while suppression was more effective than reappraisal in decreasing perceived picture negativity in low stimulation condition. Subjectively reported effort and success in applying ER strategies were also dependent on manipulated as well as dispositional factors. **Discussion:** Overally, our results support most of the hypotheses and lend support to flexible emotion regulation framework, showing that emotion regulation effectiveness relies on situational context as well as individual dispositions and their interaction.

D06 **Poster Presenter: Olszewska, Alicja**

When Ears Deceive You. Processing of Auditory Incongruence in Musicians - preliminary results.

*Olszewska, A.M. [1], Drożdziel, D. [1], Gaca, M. [1], Kulesza, A. [1], Obrębski, W. [2, 3], Kowalewski, J. [3], Widlarz, A. [4], Marchewka, A [1, *], & Herman, A.M. [1, *]*

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Introduction: Musicians use auditory feedback, e.g. sound pitch, to monitor their performance for errors and facilitate learning. The aim of this project is to investigate the processing of errors, understood as a mismatch between the expected and perceived auditory feedback, in musicians. **Methods:** Fifteen musicians (female, 19-26 yo) played various musical scales with their right hand while in an MRI scanner on a highly ecological, MRI-compatible keyboard instrument developed for this purpose. The musicians could not look at their hands while playing. In half of the trials, errors were simulated by replacing the auditory feedback of a single key with a sound corresponding to a neighbouring key. The keypresses were recorded, and the performance correctness was compared to a perfect performance using Levenshtein's ratio. Statistical comparison between auditory feedback conditions (altered vs correct) was conducted using one-way repeated-measures analysis of variance. Neuroimaging data were preprocessed and statistically analysed using SPM12 software. In the feedback condition, we directly compared altered and correct auditory feedback trials using one-sample t-tests. A voxel-wise height threshold of $p < 0.001$ (uncorrected) combined with a cluster-level extent threshold of $p < 0.05$ (FWE corrected) was applied. **Results:** At the behavioural level, the scales were played nearly perfectly for both conditions, with no statistical difference. Neuroimaging data analyses showed increased activation bilaterally in the visual cortex, the left supramarginal gyrus, the left supplementary motor cortex, and the left inferior frontal gyrus. **Discussion:** Taken together, despite no differences in behaviour, we observed the activation of structures involved in error monitoring and processing when musicians played with altered auditory feedback.

D07 **Poster Presenter: Schulz, Corinna**

Hyperaligning brainstem connectivity during vagus nerve stimulation

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Introduction: The brainstem is a central relay station for afferent signaling and offers potential for large-scale modulatory input, for example, via non-invasive transcutaneous vagus nerve stimulation (tVNS). However, due to the brainstem's anatomical characteristics, human fMRI has been used sparingly to better understand modulatory effects on the functional connectivity of the brainstem . Therefore, additional methods may be required to yield robust results at the group and individual level as well as generalization to independent samples. **Methods:** We extended connectivity hyperalignment (CHA) to the brainstem combined with tVNS (vs. sham) during resting-state functional magnetic resonance imaging (rs-fMRI) in 41 participants. Specifically, we calculated connectivity between voxels of the nucleus of the solitary tract (NTS), the first entry point of the vagus nerve, and 395 cortical and subcortical regions. First, we validated CHA using training and test sets of data. Second, we investigated tVNS-induced effects on hyperaligned vs. anatomically-aligned functional connectivity. **Results:** CHA doubled inter-subject correlations of functional connectivity across phases (i.e., on the same day), but not across sessions. Moreover, CHA across phases revealed robust tVNS-induced changes in functional connectivity that survived correction for multiple comparisons, which anatomical alignment did not. Specifically, connectivity increased between the NTS and left prefrontal areas and the right insular granular cortex and decreased between the NTS and the ventral temporal gyrus. **Discussion:** In line with the goal to provide improvements in the robustness of stimulation-induced changes, we demonstrate the potential of CHA for improving alignment between participants in the NTS across phases. We discuss how future research might improve the generalizability of CHA across days. Ultimately, CHA could provide an promising method for other anatomically challenging targets in the brain which may facilitate future clinical applications beyond the NTS.

D08 **Poster Presenter: Kühne, Katharina**

Shaking hands in the face of danger? Interpersonal distance, peripersonal space, pro- and anti-social consequences of face masks during the COVID-19 pandemic

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Introduction: Peripersonal space is the space surrounding our body, where multisensory integration of stimuli and action execution take place. The size of peripersonal space is flexible and subject to change by various personal and situational factors. The dynamic representation of our peripersonal space modulates our spatial behaviors towards other individuals. During the COVID-19 pandemic, this spatial behavior was modified by two further factors: social distancing and wearing a face mask. Evidence from offline and online studies on the impact of a face mask on pro-social behavior is mixed. **Methods:** In an attempt to clarify the role of face masks as pro-social or anti-social signals, 235 observers participated in the present online study. They watched pictures of two models standing at three different distances from each other (50, 90 and 150 cm), who were either wearing a face mask or not and were either interacting by initiating a hand shake or just standing still. The observers' task was to classify the model by gender. **Results:** Our results show that observers react fastest, and therefore show least avoidance, for the shortest distances (50 and 90 cm) but only when models wear a face mask and do not interact. **Discussion:** Thus, our results document both pro- and anti-social consequences of face masks as a result of the complex interplay between social distancing and interactive behavior. Practical implications of these findings are discussed.

D09 **Poster Presenter: Karjalainen, Suvi**

Coactivation of autonomic and central nervous systems during processing of socially relevant information in autism spectrum disorder: a systematic review

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Introduction: Body-brain interaction provides a novel approach to understand neuropsychiatric and neurodevelopmental conditions, such as autism spectrum disorder (ASD), more comprehensively. In this systematic review, we analysed the empirical evidence regarding coexisting differences in autonomic and central nervous system (ANS and CNS, respectively) responses to social stimuli between individuals with ASD and typically developing individuals. We also reviewed the evidence of deviations in body-brain interaction during processing of social information in ASD. **Methods:** We conducted systematic literature searches in PubMed, Medline, PsychInfo, PsychArticles and Cinahl databases. The systematic literature searches identified 623 studies. After screening the titles and abstracts for initial inclusion criteria, irrelevant studies were excluded and duplicates were removed. Thus, 29 full-text articles were further examined in detail to assess for eligibility. Finally, six studies met the eligibility criteria and were included in the synthesis. **Results:** The results indicated context-dependent ANS and CNS functional atypicalities in ASD. Furthermore, there were indications of altered contribution of ANS on CNS, interpreted as atypical body-brain interaction, among individuals with ASD during processing of socially relevant information. **Discussion:** Although the evidence was limited, the results demonstrated alterations in ANS activity among individuals with ASD that may contribute to social functioning by influencing the processing of socially relevant stimuli in the brain. This study emphasizes the need for establishing our knowledge of the body-brain interaction and its role in social functioning among individuals with ASD. Therefore, we proposed developments for future studies examining ANS and CNS interaction in social contexts.

D10 **Poster Presenter: Shirali, Sahar**

A Cognitive Evaluation of Lexical Access in Sequential Spanish-English Trilinguals

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Introduction: This study investigates whether Spanish-English cognates' cross-language overlap has any negative effect on sequential trilinguals' working memory. **Methods:** The participants of this research that was carried out in Iran, were 36 females whose first language was Persian and had educational exposure to English (L2) and Spanish (L3) respectively. A timed picture-naming task was applied to test the participants' English and Spanish lexical access and their cognitive development regarding resistance to inter-linguistic interference through low- (blocked) and high-competition (mixed) conditions. Forty-three colored pictures including cognate and non-cognate common nouns of Spanish and English were used in three conditions, at first two blocked ones and then, a mixed one. The number of correct answers in each block and also the response times were the variables of this research. **Results:** According to the results gained by the Kruskal-Wallis test and compared mean scores, a discrepancy was visible between the performances in single blocks and the mixed one, and also within the mixed block; between cognates and non-cognates. The results showed less accurate responses, more inter-linguistic interferences, and longer response times in the mixed condition than in the blocked ones. The scores in the mixed block and especially in cognates were the lowest among all three blocks, i.e., the participants' working memory functioned better in the single blocks. Also, they were more accurate and faster in the English block than in the Spanish one. **Discussion:** Based on the distributed memory representation model, the representation of cognates is associated with both lexical (form) and conceptual (meaning) levels; whereas, non-cognates relate only to the conceptual level. Thus, access to the exact lexical label for cognates takes longer. Besides, the results can be interpreted in terms of the participants' lower proficiency in L3 (Spanish) relative to their L2 (English). According to Cummin's Threshold Hypothesis, having reached the first critical threshold in both languages' proficiency, the learner is then able to overcome the negative effects of bilingualism, and the second threshold to get access to its benefits.

D12 **Poster Presenter: Saleh, Ebtesam**

Attitudes, Beliefs, and Experiences of Substance Use: A Systematic Review of Qualitative Research among Refugees and Practitioners

Saleh,E.A [1,2] , Lazaridou, F.B [1,3,4] , Klapprott, F. [1], Wazaify, M. [5], Heinz, A. [1,3] , & Kluge, U. [1,3]

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[5] Department of Biopharmaceutics and Clinical Pharmacy, School of Pharmacy, The University of Jordan, Amman, Jordan.

Introduction: Background and Aims While a range of growing research work is conducted among refugees; few studies conducted qualitative methods to investigate the problem of substance use. This systematic review explores the extent and type of evidence provided by qualitative research on substance use (SU) and substance use disorders (SUDs) among refugees. **Methods:** A systematic literature search identified 203 studies via six medical, allied health, and social sciences databases (EBSCO, PubMed, ScienceDirect, Web of Science, Scholar, and the Cochrane Library) in January - April 2021. Twenty-six studies were found to meet the inclusion criteria and were assessed for quality of evidence, findings were extracted and synthesized via the Database of Systematic Reviews and Implementation Reports according to PRISMA (2018). **Results:** Twenty-six studies were included, in which eight studies focused only on alcohol consumption, and eighteen studies investigated the use of all substances. Qualitative methods were applied by twenty-three studies, and mixed methods were applied by three studies. Four main themes emerged from the synthesis of evidence from the included studies: (1) Refugees are susceptible to SU and SUDs, (2) harmful consequences of SU complicated by social and organizational factors, (3) high barriers for refugees to access health facilities for SU treatment, and (4) there is a need to provide effective access to treatment, intervention, and prevention. **Discussion:** Understanding the problem of substance use among refugees remains limited; there is a need to conduct more qualitative and explorative methods to better understand refugees from different cultural backgrounds. Findings suggest a need to incorporate substance use preventive approaches and treatment into health and counseling services. Efforts are needed to overcome linguistic and organizational barriers in accessing health facilities to effectively provide substance use treatment among refugees.

D13 **Poster Presenter: Twarkowski, Hannah**

Dentate gyrus inhibitory microcircuit promotes network mechanisms underlying memory consolidation

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Introduction: The hippocampal dentate gyrus (DG) to CA3 pathway plays a key role in encoding new experiences that are ultimately consolidated in the anterior cingulate cortex (ACC). Experience-dependent changes among excitatory neurons in the DG – CA3 circuit have been intensely studied. However, DG cell axons innervate not only CA3 pyramidal neurons but also inhibitory, parvalbumin positive interneurons (PV IN) to provide strong feed-forward inhibition (FFI) onto CA3 pyramidal neurons. Following learning, FFI onto CA3 is temporarily increased which may be a key element for consolidation and long-term memory storage in hippocampal – cortical networks1; 2. Computationally, feed-forward inhibition has been suggested to support spike-timing fidelity and regulate bursting activity. However, the underlying mechanisms through which this inhibitory microcircuit mediates memory consolidation in hippocampal – cortical networks are not well understood. **Methods:** Here, we harnessed a molecular tool2 to investigate how increased FFI in this microcircuit affects downstream neuronal ensembles and network oscillations during memory consolidation. We performed longitudinal in vivo calcium imaging in CA1 and ACC during contextual fear learning in mice with virally enhanced FFI in the DG – CA3 circuit. **Results:** We found that selectively increasing FFI onto CA3 facilitated formation and maintenance of neuronal representation, in form of context-associated neuronal ensembles, in both brain regions as it prevented a time-dependent decay of neuronal representations. Furthermore, the specificity of neuronal ensembles was increased in a time-dependent manner in ACC. Simultaneous recordings of local field potentials (LFPs) in CA1 and ACC revealed that virally enhanced FFI in DG – CA3 increased coupling of CA1 sharp-wave ripples and ACC spindles, a mechanism for hippocampal – cortical communication during memory consolidation3. **Discussion:** This study links a defined synaptic mechanism in a DG – CA3 inhibitory microcircuit with ensemble dynamics and network oscillations and provides direct evidence for its role in memory consolidation.

D14 **Poster Presenter: Kiepe, Fabian**

Probing Sensory Attenuation for Self-Initiated Actions using Virtual Reality

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Introduction: Self-generated outcome is perceived as less intense than the same sensory input generated externally. This phenomenon, called Sensory Attenuation (SA), is often explained by motor-based forward models. Recent developments in the research of SA, however, challenge these models. **Methods:** Using Virtual Reality in an adapted study design (Vasser et al., 2019), we aimed to examine the abilities of motor-based forward models and predictive processing in explaining SA. Participants decided about the intensity of Gabor contrasts, which either appeared behind participants' virtually invisible moving hand or not. Further, we examined the influence of temporal predictability and identity prediction by externally manipulating stimulus onset time and the initiation of motor behavior. Stimuli either appeared immediately after motor-behavior, with a varying delay or independent of the participants' actions. **Results:** We assessed differences in contrast perception by analyzing variations of the point of subjective equality (PSE) depending on the different conditions. **Discussion:** Preliminary data analysis shows that our results partly reproduce and extend the findings reported by Vasser et al. (2019), favoring predictive processing over motor-based forward models to explain the collected results.

D15 **Poster Presenter: Catrambone, Vincenzo**

An overview on functional Brain-Heart Interplay measurements

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Introduction: Several functional Brain-Heart Interplay (BHI) estimation methodologies have been recently developed. **Methods:** Most of these BHI methods target biomedical signals and related characteristics including non-stationarity, nonlinearity, complexity, multiscaling, and a-specificity. Non-stationarity refers to the system statistics changing in time, and nonlinearity refers to the non-applicability of the super-imposition principle. Complexity in physiological systems, especially in the cardiovascular system, arises from the combination of nonlinearity and multiple biofeedback and regulation loops, and the multiscale nature of the system dynamics may be referred to a spatial (e.g., for the brain, at a whole brain, or cortical, or neuron levels) or temporal (e.g., multifractality) dimensions. A-specificity of system dynamics implies that the changes that can be observed in healthy conditions (e.g., during postural changes) may also be observed in case of disease (e.g., congestive heart failure). **Results:** We propose a taxonomy for functional BHI estimation methods and define categories according to specificity in brain-heart activity modeling, directionality (i.e., functionally from heart to brain or vice versa), capability of estimating linear and/or nonlinear BHI, time-varying estimates, and physiological plausibility. **Discussion:** For each category, we describe exemplary methods that have been successfully used in a BHI study, critically highlighting pros and cons of specific applications.

D16 **Poster Presenter: Demetriou, Andreas**

Noetron: the central meaning-making unit in the mind and the brain

Andreas Demetriou

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Introduction: The central core of intelligence is first specified. The brain equivalent is also discussed. **Methods:** Several studies are summarised, presenting structural equation models for behavioral data and reviews relevant brain research gearing on general intelligence. **Results:** Basic processes are search and alignment, abstraction and cognizance. These are served by process-specific modules and connector modules in several brain areas. **Discussion:** Implications for the psychology of intelligence, brain science, and artificial intelligence are discussed.

D17 **Poster Presenter: Kraus, Nils**

The Role of Affective States and Traits in Binocular Rivalry of Neutral Stimuli

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Introduction: Whether any mental process that is not perceptual in nature (e.g., personality traits or emotions) could in principle change the contents of our perception was widely debated throughout the last two decades (cognitive penetrability debate). Predictive coding tells us, that what we see is defined by how much we rely on prior assumptions and sensory evidence respectively. It further implies, that this balance could potentially be influenced by our affective status. This makes emotional states and traits a major variable of interest in studying potential effects of cognitive penetrability in vision. **Methods:** We are currently conducting a preregistered study (n=50) in which participants are asked to report their conscious percept in a binocular rivalry task in either a neutral, positive or negative mood. In a control condition, perception will alternate proportionally between the two presented stimuli (leftwards or rightwards tilted gabor). In a second condition (upright vs. tilted face) perception will be biased towards the more familiar stimulus (regular face). **Results:** We expect that negative affective traits (depressiveness, trait anxiety) as well as negative induced affect will lead to slower alternation rates in both stimuli. We further expect that during more-prior based perception, negative affect will lead to amplification of those biases (upright face is perceived longer on average) whereas positive affect will lead to attenuated biases. **Discussion:** If we find the described effects, this will strongly support the notion of cognitive penetrability of vision through affect. It will further broaden our understanding of how affect is functionally integrated into perceptual processing.

D18 **Poster Presenter: Livermore, James**

A Single Administration of Citalopram Increases Interoceptive Insight in Healthy Volunteers

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Introduction: Interoception is the signalling, perception, and interpretation of internal physiological states. Much of the psychopharmacology of interoception is still undiscovered. However, mental disorders associated with changes of interoception, including depressive and anxiety disorders are often treated with a selective serotonin reuptake inhibitor (SSRI). The aim of this current study was to causally test the effect of acute changes of serotonin transmission on interoceptive cognition. **Methods:** Using a within-participant, crossover, placebo-controlled design, forty-seven healthy human volunteers (31 female, 16 male) were tested both on and off a 20mg oral dose of the commonly prescribed SSRI, citalopram. For each randomly ordered session, participants made judgments on the synchrony of their heartbeat to auditory tones and expressed confidence in each of these judgments. **Results:** Citalopram enhanced insight into the likelihood that an interoceptive judgment had been correct, driven primarily by enhanced confidence for correct responses. This effect was independent of measured cardiac and subjective effects. **Discussion:** This novel result is evidence that acute serotonin changes can alter metacognitive insight into the reliability of inferences based on interoceptive information, which is a foundation for considering effects of serotonin on cognition and emotion in terms of effective top-down regulation of interoceptive influence on mental states.