787 biologists, shared the same mean decade of birth, the 1780s, and essentially the same geographic origin in Western Europe. The mathematicians showed a very significant SCZ liability-like, GP1-coincident seasonality while the biologists showed an even more significant SCZ resistance-like, GP2-coincident seasonality. The latter effect was particularly strong among naturalists, anatomists and other groups representing biological "observationalism" as opposed to "experimentalism."
Discussion: The findings are discussed in light of a) new evidence that the annual photoperiod is indeed alone responsible for both peaks of general births, with the GP1 and the GP2 being caused by maternal periconceptional exposure to, respectively, the summer-solstice sunlight maximum and the winter-solstice minimum, and b) an approach/withdrawal theory of lateralization of basic emotions where the left cerebral cortex would handle external stimuli eliciting complacent emotions towards external realities while the right cortex would handle internal stimuli eliciting disdain for those realities.

T199. DEVIANT CORTICAL SULCATION RELATED TO SCHIZOPHRENIA, BUT NOT COGNITIVE DEFICITS, LIKELY PREDATE BRAIN DEVELOPMENT IN THE SECOND TRIMESTER

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Background: Gestational disruptions are linked to the risk of schizophrenia; but in most cases, there is a lack of a clear history or observable anomaly indicating that the disruptions are likely to be subtle (Murray et al., 2017). The time-locked development of cortical sulci in a human embryo is highly sensitive to developmental disruptions (Chi et al., 1977). We can retrospectively infer the likely timing of embryonic/fetal disruption in schizophrenia by studying the structure of major cortical sulci that represent lobar development in adults with schizophrenia.
Methods: Anatomical T1 MRI scans from a publicly available dataset (COBRE) of 68 patients with schizophrenia and 72 controls were used to evaluate the sulcal depth. 5 major primary sulci that are invariable, representing lobar development (calcarine sulcus, superior temporal sulcus, superior frontal sulcus, interparietal sulcus and inferior frontal sulcus) with formation representing distinct developmental periods (16, 23, 25, 26 and 28 weeks respectively (Chi et al., 1977)) were chosen. Sulcal depth was measured using Morphologist interface of BrainVISA 4.5 (http://brainvisa.info/). Following the construction of 3-dimensional models of cortical folds, various sulci were automatically classified using a probabilistic algorithm with maximum depth computed for each identified sulcus. The 5 sulci were consistently labeled automatically across all subjects. The identified sulci were visually inspected to ensure that the boundaries are in accordance with Ono's Atlas of Cerebral Sulci (Ono et al., 1990).
Results: A repeated measure ANOVA with 5 sulci and 2 hemispheres as within-subject factors and gender, age and intracranial volume as covariates revealed a significant between-subjects effect for diagnosis ($F[1,134]=14.8$, $p=0.0002$). Gender ($F[1,134]=7.4$, $p=0.007$) and age ($F[1,134]=4.5$, $p=0.035$) also had significant effect in the model. Parameter estimates revealed a significant effect of diagnosis (Controls>Patients) for left superior temporal ($t=3.2$, $p=0.002$), right superior temporal ($t=2.8$, $p=0.006$), right inferior frontal ($t=2.7$, $p=0.007$) and left calcarine ($t=2.2$, $p=0.03$) sulci. 5 non-collinear factors representing the 5 bilateral sulci were obtained using varimax rotation, and related to overall MATRICS standardized composite score in patients using multiple regression. The depth of the superior frontal sulcus was the only predictor of the variation in the cognitive score ($F[1,54]=8.7$, $p=0.005$).
Discussion: The above findings suggest that the gestational cortical disruption underlying schizophrenia is likely to predate, if not, coincide with the appearance of calcarine sulcus (i.e. 16 weeks, early second trimester) and affects frontal, temporal and occipital lobes. Nevertheless, the burden of cognitive deficits may relate specifically to aberrant superior frontal development occurring in late second trimester.

T200. DISTINCT ASSOCIATIONS OF MOTOR DOMAINS WITH THE GENETIC RISK FOR PSYCHOSIS – DIFFERENT PATHWAYS TO MOTOR ABNORMALITIES IN SCHIZOPHRENIA?

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Background: Aberrant motor function is an integral part of Schizophrenia. In fact, abnormalities are frequently found in patients, in populations at risk, and in unaffected relatives. Motor abnormalities are suspected to be relevant for the clinical outcome and could probably predict the conversion from at-risk individuals to schizophrenia. Furthermore, motor function and has been argued as endophenotype of the disorder. Yet, which particular motor domain may classify as a potential endophenotype is unknown. We aimed to compare schizophrenia patients, unaffected first degree relatives and healthy controls for different motor domains. We expected impairments in all domains in patients and in some domains in relatives.
Methods: We included 43 schizophrenia patients, 34 unaffected first degree relatives of schizophrenia patients and 29 healthy control subjects, matched for age, gender and education level. We compared motor function of five domains between the groups. The domains comprise neurological soft sings (NSS), abnormal involuntary movements (dyskinesia), Parkinsonism, complex fine motor function applying the coin rotation task as well as finger tapping. Furthermore, we tested the association of motor function of the five domains with working memory, frontal lobe function and nonverbal intelligence for each group separately using within-group bivariate correlations.
Results: Schizophrenia patients showed poorer motor function in all tested domains compared to healthy controls. First-degree relatives had intermediate ratings with aberrant function in two motor domains. In detail, relatives had significantly more NSS and performed poorer in the finger tapping task than controls. In contrast, in relatives complex fine motor function was intact. Relatives did not differ from controls in dyskinesia or Parkinsonism severity.
Discussion: Taken together, schizophrenia patients have motor abnormalities in all tested domains. Thus, motor abnormalities are a key element of the disorder. Likewise, first degree relatives presented motor deficits in two domains. A clear difference between relatives and healthy controls was found for NSS and finger tapping. Thus, NSS and finger tapping may be a potential marker of vulnerability for schizophrenia. The lack of association between genetic risk and dyskinesia or Parkinsonism suggests distinct pathobiological mechanisms in the various motor abnormalities in schizophrenia.

T201. THE STUDY OF WHITE MATTER MATURATION IN THREE POPULATIONS OF GENETIC HIGH RISK FOR SCHIZOPHRENIA INDIVIDUALS SPANNING THE DEVELOPMENTAL TIMELINE

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