

**Introduction:** Cardiorespiratory fitness (CRF) can be directly measured and assessed by the cardiopulmonary exercise test (CPET) or estimated from different field tests as the Modified Shuttle Walking Test (MSWT). The CRF in schizophrenia (SP) population may be altered due to sex, age, body composition and core symptoms variables. However, the extent to which each domain influences CRF in this pathology is still unknown.

**Objectives:** To analyze the predictive value of body composition and core symptoms in SP for CRF.

**Methods:** Participants (N = 144,  $41.7 \pm 10.3$  yr old) with SP were assessed with (1) body mass index and fat percentage; (2) upright bicycle ergometer using an incremental ramp protocol and the MSWT; and (3) positive and negative symptoms of the disease ["Positive and Negative Syndrome Scale" (PANSS) and "The Brief Negative Symptom Scale" (BNSS)]. In the Stepwise Multiple Regression analyses, those variables which correlated (Spearman's Rho) significantly with each CFR scores were included

**Results:** Lower negative symptoms ( $P < 0.001$ ) and positive PANSS ( $P = 0.035$ ) predicted  $VO_{2peak}$  ( $L \cdot min^{-1}$ ) ( $R^2 = 28.3\%$ ). Lower negative symptoms ( $P < 0.001$ ), positive PANSS ( $P = 0.006$ ) and fat body mass ( $P < 0.001$ ) explained  $VO_{2peak}$  ( $mL \cdot kg^{-1} \cdot min^{-1}$ ) ( $R^2 = 46.5\%$ ). MSWT was predicted ( $R^2 = 58.9\%$ ) by lower negative symptoms ( $P = 0.001$ ), body mass ( $P < 0.001$ ) and total PANSS ( $P = 0.004$ ).

**Conclusions:** In patients with SP significantly higher CRF was detected in those with lower negative and positive symptoms, as well as lower body mass. Exercise interventions for improving CRF should be promoting in this population for a better control of core symptoms.

**Disclosure:** No significant relationships.

**Keywords:** cardiorespiratory fitness; body composition; core symptoms; schizophrenia

## EPP0210

### Multivitamin, mineral, and n-3 PUFA supplementation to reduce aggression among long-stay psychiatric inpatients: a randomized clinical trial

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**Introduction:** Aggression and violent incidents are a major concern in psychiatric inpatient care. Nutritional supplementation was found to reduce aggressive incidents and rule violations in forensic populations and in children with behavioral problems.

**Objectives:** To assess whether multivitamin, mineral, and n-3 PUFA supplementation would reduce the number of aggressive incidents among long-stay psychiatric inpatients.

**Methods:** The trial was a pragmatic, multicenter, randomized, double-blind, placebo-controlled study. Data were collected from 25 July 2016 through 29 October 2019 at 8 local sites for mental healthcare in the Netherlands and Belgium. Participants were randomized (1:1) to receive either three supplements containing multivitamins, minerals, and n-3 PUFA or placebo for 6 months. The primary outcome was the number of aggressive incidents using the Staff Observation Aggression Scale – Revised (SOAS-R). Secondary outcomes were the patients' quality of life, affective symptoms, and adverse events.

**Results:** In total, 176 participants were randomized (supplements, n = 87; placebo, n = 89). Participants were on average 49.3 years old

(SD = 14.5), and 64.2% were male. Most patients had a psychotic disorder (60.8%). The primary outcome of SOAS-R incidents was similar in those assigned to supplements (1.03 incidents per month; 95% confidence interval [CI]: 0.74-1.37) and placebo (0.90; 95% CI: 0.65-1.19), with a rate ratio of 1.08 (95% CI: 0.67-1.74;  $p = .75$ ). Differential effects were not found in sensitivity analyses on the SOAS-R or on secondary outcomes.

**Conclusions:** Six months of nutritional supplementation did not reduce aggressive incidents among long-stay psychiatric inpatients.

**Disclosure:** No significant relationships.

**Keywords:** supplements; nutrition; aggression; psychiatric inpatients

## EPP0211

### Brain controllability and clinical relevance in schizophrenia

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**Introduction:** Apart from the psychiatric symptoms, cognitive deficits are also the core symptoms of schizophrenia. Brain network control theory provided information on the role of a specific brain region in the cognitive control process, helping understand the neural mechanism of cognitive impairment in schizophrenia.

**Objectives:** To characterize the control properties of functional brain network in first-episode untreated patients with schizophrenia and the relationships between controllability and psychiatric symptoms, as well as exploring the predictive value of controllability in differentiating patients from healthy controls (HCs).

**Methods:** Average and modal controllability of brain networks were calculated and compared between 133 first-episode untreated patients with schizophrenia and 135 HCs. The associations between controllability and clinical symptoms were evaluated using sparse canonical correlation analysis. Support vector machine (SVM) and SVM-recursive feature elimination combined with the controllability were performed to establish the individual prediction model.

**Results:** Compared to HCs, the patients with schizophrenia showed increased average controllability and decreased modal controllability in dorsal anterior cingulate cortex (dACC). Brain controllability predominantly in somatomotor, default mode, and visual networks was associated with the positive symptomatology of schizophrenia. The established model could identify patients with an accuracy of 0.68. Furthermore, the most discriminative features were located in dACC, medial prefrontal lobe, precuneus and superior temporal gyrus.

**Conclusions:** Altered controllability in dACC may play a critical role in the neuropathological mechanisms of cognitive deficit in schizophrenia, which could drive the brain function to different states to cope with varied cognitive tasks. As symptom-related biomarkers, controllability could be also beneficial to individual prediction in schizophrenia.

**Disclosure:** No significant relationships.

**Keywords:** schizophrenia; Resting-state functional magnetic resonance imaging; Recursive feature elimination; Controllability