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MASE

The motor activity - subjective energy (MASE) project: Neurobiological and digital phenotyping towards digital mental health interventions in depression

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Major depressive disorder (MDD) is considered a worldwide leading source of disability. Behavioral activation (BA), a successful therapeutic approach for nearly 50 years, increases activation through short and rewarding experiences; e.g., taking a shower. However, BA alone is not superior to other forms of psychotherapy. Recently, researchers identified a new potential starting point for MDD treatment, ASEA: real-life physical activity-subjective energy association. It describes how people feel more energized and awake when moving. While past MDD research focused on exercise, we and others found that not sports (e.g. jogging) but nonexercise activity (e.g., walking stairs) improves energy, and we determined a specific brain region related to ASEA. From a clinical perspective, ASEA is highly relevant since activity reductions and loss of energy symptoms strongly affect patients.

Hence, short ASEA interventions are likely to improve MDD prevention and treatment. However, it is unclear who benefits most from which intervention (activity-type, timing, location, context). For example, people with a certain brain structure may profit from a short slow walk in the morning to increase energy and reduce depression, while others may benefit from fast stair-climbing in the evening. Therefore, we aim to apply brain network analyses to identify types of brains likely to profit (WP1), use artificial intelligence to detect where and when nonexercise activity helps people with certain brain properties most (WP2), conduct an experiment to test the intervention-suggestions (WP3), and develop a smartphone-app that delivers suggestions when and where to engage in which nonexercise activity (WP4).