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A tale of two pandemics: enhancing the immune system by addressing sedentary behaviors

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Background: The prognosis after a Sars-Cov-2 infection is substantially worse for individuals suffering from a non-communicable disease associated with insufficient physical activity (e.g. cardiovascular disease, obesity, diabetes). The HPA-axis, a prominent structure in aligning metabolic and inflammatory processes, is considered instrumental in this relation.

Methods: However, theoretically this provides a promising opportunity to strengthen immune functioning: reversing sedentary behaviors. A literature review was performed to investigate this hypothesis.

Results: Scientific evidence shows that interrupting prolonged sitting combined with moderately intensive exercise (~30 minutes every day: walking, cycling), potentially extended with 2/3 sports activities every week (~45 minutes, Heart Rate Reserve ~70%), provides an optimal exercise protocol to support immune functioning. Small but significant positive effects on immune markers are generally reported within 3 to 12 weeks.

Conclusion: On a population scale and under pandemic conditions reducing sedentary behaviors and promoting physical exercise are likely to have a significant positive effect on the overall health prognosis.

Immune Activation among Maltreated and Non-maltreated Children

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Background: Child maltreatment has widespread biological and social impacts with consequences for social and academic functioning as well as physical and emotional health outcomes. Little is known about maltreatment impacts on immune function in young children. This study examined immune activation following routine inoculation among maltreated and non-maltreated children.

Methods: Children aged 12-60 mos were recruited from general pediatric and child protection team clinics (N = 35; 43% female). Physical abuse/neglect was verified from child protective service reports. Blood samples were collected prior to influenza immunization, and 4- and 8- week follow-up. Influenza IgG and IgM levels were quantified by enzyme-linked immunosorbent assay and analyzed for change over time, controlling for age and sex.

Results: Maltreated and non-maltreated children showed different patterns of immune activation following routine immunization. Case report data supported the efficacy of booster doses.

Conclusion: These findings suggest maltreatment has direct impacts on immune system reactivity to immunization, with potential impacts for health.

Using ecological momentary assessment to track how contemplative mental training is implemented into everyday life

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Scientific investigations of the effects of meditation-based mental training are increasingly relying on studies in naturalistic settings. Ecological momentary assessment (EMA) approaches are well-suited to explore training-induced mental states (i.e., affect, thought content, stress experience), and the degree to which training effects carry over to practitioners’ daily routines. We will present findings from the ReSource Project, a large-scale, longitudinal 9-month mental training study. We compared results from an EMA study (N = 289) with previous ReSource findings on stress, affect and thought content, which were gathered using complementary methods (retrospective assessments, acute stress in the TSST, and acute practice effects (pre vs. post meditation session). While our findings corroborate prior evidence suggesting differential effects of distinct mental training modules on arousal states and present-moment focus, effects on acute stress reactivity and associated cortisol levels did not translate to ecological contexts. Together, our results suggest partial overlap regarding presence-focus and arousal, but an overall limited generalizability of mental training effects from acute laboratory stress to individuals’ daily lives.

Sex differences in a double-blind randomized clinical trial with minocycline: pilot findings on the key role of the immune system in treatment-resistant depressed female patients

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Background: The Minocycline in Depression (MINDEP) study is a 4-weeks double-blind, placebo-controlled clinical trial, investigating the efficacy of minocycline in treatment-resistant depressed (TRD) patients with major depressive disorder, and C-reactive protein (CRP) ≥ 1mg/L.

Methods: We explored sex differences in the effects of study arms and CRP groups (CRP ≥ 3mg/L; CRP < 3mg/L) on HAMD-17 variation from baseline to week-4.

Results: Independent samples t-test detected a significant difference between minocycline (M) and placebo (PL) groups only in males but not females, with M group (N = 8) showing greater improvement in comparison with PL group (N = 9) (p = 0.046).