

Title	Authors	Abstract
<p>The effectiveness of pulmonary rehabilitation in COPD is associated with specific shifts in oral microbiota</p>	<p>Sara Melo-Dias, University of Aveiro, Portugal; Miguel Cabral, University of Aveiro, Portugal; Andreia Furtado, University of Aveiro, Portugal; Sara Souto-Miranda, University of Aveiro, Portugal; Catarina Almeida, University of Aveiro, Portugal; Alda Marques, University of Aveiro, Portugal; Ana Sousa, University of Aveiro, Portugal</p>	<p>Pulmonary Rehabilitation (PR) is the most cost-effective therapy for chronic obstructive pulmonary disease (COPD), but not all patients are responsive. The reasons behind this and the role of the airway microbiota in PR effectiveness are currently unknown. Here, we explored the effects of PR on oral microbiota and inflammatory markers and the associations of observed changes with responsiveness to PR. 456 saliva samples and data on exercise capacity, dyspnoea, and health-related quality of life were collected from 76 patients, of whom half participated in a 12-weeks PR programme. PR responsiveness was defined as overcoming the minimal clinically important difference of the measure assessed. PR modulated patients' microbiota composition as well as the levels of IL-1β, TNF-α, and IL-10. Distinct patterns of longitudinal correlation between bacteria and inflammatory markers were also observed among responders (R) and non-responders (NR). Particularly, the longitudinal dynamic of Lautropia (Burkholderiaceae family) was significantly different between R and NR to exercise capacity, with NR having higher frequencies by the end of PR. Additionally, Lautropia was highly positively correlated with most of the inflammatory markers quantified (e.g., TNF-α, IL-6, IL-18) in NR to exercise capacity. Future studies should address the implications and stability of these microbiota modifications.</p>
<p>Evolutionary Model of Depression as an Adaptation for Blocked Social Mobility</p>	<p>Hanson Park, Seoul National University, Seoul, South Korea; Sunyoung Pak, Seoul National University, Seoul, South Korea.</p>	<p>Objectives In regard to the social competition hypothesis, depression is viewed as an involuntary defeat strategy. A previous study has demonstrated that adaptation in microenvironments can result in a wide range of behavioural patterns including defense activation disorders. Using a simulation model with evolutionary ecological agents, we explore how the fitness of various defence activation traits has changed over time in different environments with high and low social mobility.</p> <p>Method The Evolutionary Ecological Model of Defence Activation Disorder, which is based on the Marginal Value Theorem, was used to examine changes in relative fitness for individuals with defensive activation disorders after adjusting for social mobility.</p> <p>Result Our study examined the effects of social mobility on fitness by varying the d-values, a measure of depression in the model. With a decline in social mobility, the level of fitness of individuals with high levels of defense activation decreased. We gained insight into the evolutionary influence of varying levels of social mobility on individuals' degrees of depression. In the context of a highly stratified society, the results support a mismatch hypothesis which states that high levels of defence are detrimental.</p> <p>Conclusion Despite the fact that niche specialization in habitats composed of multiple microenvironments can result in diverse levels of defensive activation being evolutionary strategies for stability, decreased social mobility may lead to a decrease in fitness of individuals with highly activated defence modules. There may be a reason behind the epidemic of depression in modern society.</p>