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EXERKINES AS MEDIATORS OF HEALTH BENEFITS INDUCED BY PHYSICAL EXERCISE

ASSESSING HEALTH OUTCOMES IN MULTIDISCIPLINARY INTERVENTIONS THROUGH NON-INVASIVE PHYSIOLOGICAL BIOMARKERS: LINKING BIOLOGICAL MEASURES WITH PSYCHOLOGICAL WELL-BEING

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The biopsychosocial model increasingly conceptualizes emotional processes as the outcome of dynamic interactions among psychological, relational, and physiological factors. Previous research has shown that physiological patterns, such as muscle tension, skin conductance, and peripheral temperature, can inform assessments of quality of life and overall health status of individuals exposed to different type of stressors or events. Psycho-neuro-endocrinology, which examines the interplay among the mind, brain, and endocrine system, offers a particularly promising integrative framework. In this context, the discovery and early investigations of irisin, a hormone produced by muscles during physical activity, have begun to highlight its positive effects on the health of physically active individuals, both in healthy populations and in those undergoing treatment or rehabilitation for various chronic diseases. Irisin has been shown to support metabolism, bone and muscle health, and holds potential therapeutic implications for the management of diabetes and obesity, as well as a protective role against carcinogenesis.(1) However, evidence remains limited regarding: A) the methodologies for collecting irisin and the associated challenges or concerns experienced by participants, and B) the potential relationship between irisin levels and psychological well-being across populations with diverse health conditions.(2,3) Investigating these correlations within multidisciplinary interventions requires careful reflection on ethical and methodological issues, particularly those arising from invasive or non-invasive procedures for sampling physiological biomarkers. We evaluated whether non-invasive salivary sampling (vs. invasive blood sampling) can effectively measure health-related irisin, potentially reducing participant burden while maintaining measurement validity. To our knowledge, no prior research has specifically explored this approach. This multidisciplinary cross-sectional study consisted of two phases. In the first phase, blood and saliva samples were collected from a convenience sample of ten participants, and irisin concentrations were quantified in both matrices to compare their measurement characteristics. In the second phase, semi-structured interviews explored participants' lived experiences of both sampling procedures and their preferred method, focusing specifically on subjective accounts. A Thematic Analysis was conducted to identify recurrent themes within the interview data, a widely used qualitative approach that enables a rich understanding of participants' experiences and captures subjective and relational dimensions.(4) Qualitative analysis identified three main themes: a) perceived cost-benefit of study participation, b) personal responsibility associated with the type of biological sampling, and c) engagement in scientific research, reflecting a sense of contribution to the broader social community, particularly during periods of personal challenge. In summary, the presence of a responsible professional overseeing the correct collection of biological samples was identified as the most important factor during the sampling procedure. Moreover, considering the quality of the biological data obtained, salivary sampling appears to be a valid alternative to serum-based measurements.(2,5) Finally, from a practical perspective, salivary sampling is less costly. Understanding the effectiveness and acceptability of different biological sampling methods can help researchers design less invasive and ethically sound procedures that maintain measurement validity while minimizing participants' burden and sampling costs. Such approaches may improve both the collection of physiological data and participants' psychological well-being in multidisciplinary interventions.

Keywords: *Chronic diseases, multidisciplinary intervention, salivary irisin, rehabilitation, psychophysical well-being.*