THE IMPACT OF COVID-19 HOME CONFINEMENT ON SELECTED ANTHROPOMETRIC, HAEMATOLOGICAL AND BIOCHEMICAL PARAMETERS AMONG SLOVAKS - A PRELIMINARY STUDY

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Abstract

The coronavirus has caused containment of more than a third of the world's population. Containment can drastically change lifestyle habits, exercise routine and psychological wellbeing. However, there is currently lack of data on the influence of confinement on eating habits. In this preliminary (observational) study, we examined the effect of COVID-19 isolation measures in Slovakia on selected haematological and biochemical parameters, body composition, dietary patterns and physical activity among 16 healthy volunteers.

In this study were involved 16 volunteers (75 % women, aged 26-68 years). Whole blood was collected and subjected to immediate standard haematological analysis using the automated haematology analyser Sysmex KX-21N (Sysmex Co., Bellport, NY, USA). Concentrations of serum glucose, total cholesterol, HDL cholesterol and triglycerides were assessed using commercially available diagnostic kits (Randox, UK) and measured using the automatic analyzer Advia 1800 (Siemens Healthcare GmbH, Erlangen, Germany). A direct ISE method and automated clinical analyzer Biolis 24i Premium (Tokyo Boeki Medical System Ltd., Tokyo, Japan) were used to assess the serum concentration of sodium, potassium, and chloride. Haemoglobin A1c was assessed using high-performance liquid chromatography system sets BIO-RAD D-10 Haemoglobin Testing System (Bio-Rad Laboratories Co., Hercules, CA, USA). A multifrequency bioimpedance method was used to determine the body composition, and a questionnaire was prepared to assess eating and exercise habits before and during the home confinement. We used paired t-tests to evaluate the significance of changes from pre-lockdown to lockdown in the responses. All statistical analyses were performed using the statistical software Statistica 10.0 (StatSoft Inc., USA).

It was revealed that glycated haemoglobin increased significantly ($P < 0.001$) during home confinement, while glucose concentrations were significantly lower ($P < 0.05$) in comparison to the pre-lockdown period. A significantly increased calcium concentration ($P < 0.001$) was observed while a significant decline was recorded in case of iron ($P < 0.05$) following home confinement. The haematological and other biochemical markers were not affected by the COVID-19 restrictions. Similarly, the anthropometric parameters remained relatively stable throughout the lockdown period. The survey revealed that physical activity of moderate intensity increased by 90.75% during home confinement. While the number of meals per day increased by 33% during the lockdown, the consumption of unhealthy food and/or snacks remained the same.

While self-isolation is currently the most effective policy to reduce the health implications of a global pandemic, our results indicate that home confinement may alter dietary patterns, exercise routine and lifestyle choices of the population, which may be translated into tangible physiological changes.

Key words: *Home confinement, COVID-19, Health impact, Nutrition, Physical activity, Behaviour.*