Ribeiro, P., Souza, C. C. C. D., Camerino, C. M. C., Pordeus, D., Leite, C. F., Marques, J. A. L., Madeiro, J. P., & Rodrigues, P. M. (2024). *Assessment of the post-acute covid-19 syndrome cardiovascular effect through ECG analysis*. Abstract from The 1st International Online Conference on Bioengineering.

Introduction: SARS-CoV-2, a virus responsible for the emergence of the life-threatening disease known as COVID-19, exhibits a diverse range of clinical manifestations. The spectrum of symptoms varies widely, encompassing mild to severe presentations, while a considerable portion of the population remains asymptomatic. COVID-19, primarily a respiratory virus, has been linked to cardiovascular complications in some patients. Notably, cardiac issues can also arise after recovery, contributing to post-acute COVID-19 syndrome, a significant concern for patient health. The present study intends to evaluate the post-acute COVID-19 syndrome cardiovascular effect through ECG by comparing patients affected with cardiac diseases without COVID-19 diagnosis report (class 1) and patients with cardiac pathologies who present post-acute COVID-19 syndrome (class 2). Methods: From 2 body positions, a total of 10 non-linear features, extracted every 1 second under a multi-band analysis performed by Discrete Wavelet Transform (DWT), have been compressed by 6 statistical metrics to serve as inputs for an individual feature analysis by the means of Mann-Whitney U-test and XROC classification. Results and Discussion: 480 Mann-Whitney U-test statistical analyses and XROC discrimination approaches have been done. The percentage of statistical analysis with significant differences ($p<0.05$) was 30.42% (146 out of 480). The best overall results were obtained by approximating the feature Energy, with the data compressor Kurtosis in the body position Down. Those results were 83.33% of Accuracy, 83.33% of Sensitivity, 83.33% of Specificity and 87.50% of AUC. Conclusions: The results show that the applied methodology can be a way to show changes in cardiac behaviour provoked by post-acute COVID-19 syndrome.