

The aim of the study was to investigate the impact of coronavirus infection (COVID-19) on the cardiovascular system (CVS) of athletes and the dynamics of relevant parameters during physical activity after the recovery.

Methods. A total of 62 marathon runners (training duration: 3 to 7 years; mean age: 43.8 ± 3.5 years) were examined. The participants were divided into two groups: Group 1 (n=34) included athletes who had recovered from a mild form of COVID-19; Group 2 (n=28) included athletes without a history of COVID-19. All participants underwent electrocardiography (ECG), 24-hour Holter ECG monitoring, echocardiography (EchoCG), and Doppler echocardiography using the ALOKA ProSound 6-Premier system (Japan) at rest and after physical exertion. Cardiovascular response types and recovery dynamics were assessed.

Results. EchoCG revealed no significant differences in chamber or wall sizes, except for the right atrium ($p < 0.05$). In Group 1, 47.1% of participants had pericardial effusion > 5.0 mm (mean 5.70 ± 0.27 mm) ($p < 0.05$), peaking at 7.0 mm by the 2nd–3rd month post-recovery and persisting up to six months. Physical exertion revealed increased grades of mitral regurgitation ($p < 0.05$, Fisher's exact test), with no increase in aortic regurgitation ($p = 1.000$). Holter monitoring showed supraventricular extrasystoles 46.8 times more frequently and ventricular extrasystoles 6.4 times more frequently (RYAN grade I) in Group 1. Episodes of paroxysmal supraventricular tachycardia were recorded in 23.5% of athletes and ventricular tachycardia in 5.8%. Asymptomatic ST-segment depression (downsloping and horizontal types) was observed in 17.5%. A hypertensive response to exertion ($p < 0.01$) and delayed blood pressure recovery (up to 3 months) were also recorded.

Conclusion. Despite the mild clinical course of COVID-19, cardiovascular changes during physical activity peaked at 2–3 months post-recovery and persisted for at least six months. These findings should be considered when determining fitness to return to training and competition.