

INFLUENCE OF THE COMPETITIVE PHYSICAL LOAD ON THE INDICATORS OF THE HEART RHYTHM REGULATION IN KETTLEBELL LIFTERS

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The kettlebell lifting contributes to the formation of young people's need for a healthy lifestyle, the implementation of harmonious development of the individual, the education of responsibility and professional self-determination in accordance with individual abilities.

Modern kettlebell lifting makes high demands on the functional readiness of athletes in the process of training and competitions, for which it is recommended to monitor the heart rate indices, which is the easiest to measure physiological parameter. A detailed analysis of the frequency of myocardial contractions makes it possible to detect the dynamic characteristics of the heart rhythm (HR) reflecting the shifts in the vagosympathetic regulation when the functional state of the cardiovascular system (CVS) of a person changes.

The purpose of the study is to discover the characteristics of regulation of the cardiovascular system of athletes engaged in kettlebell-lifting, under the influence of competitive loads.

Twenty kettlebell lifters aged from 18 to 30 years were divided into 2 groups based on the type of vegetative regulation of the heart rhythm according to the indices of the regulatory system stress index by R. M. Bayevsky. The registration of heart rate variability was performed with the help of an electrocardiographic complex "KARDIOLAB" ("XAI-MEDICA" company, Ukraine, Kharkov). In compliance with the recommendations of the working group of the European Cardiological Society and the North American Society of Electrophysiology, the recording time was 5 minutes in the prone position.

The study showed that under the influence of competitive loads, changes in the functional performance of the heart indicate a shift in the vago-sympathetic balance towards increased activity of the parasympathetic department of the autonomic nervous system and an increase in the dominance of the autonomic contour in the regulation of the heart rhythm in the first group of weightlifters. There were no significant changes in the functional state of the cardiovascular system in the second group of kettlebell lifters after the past competitions, the slight fatigue was present, judging by the PARS indices and a decrease in the overall spectrum of heart rate regulation.

Keywords: kettlebell-lifting, competitive loads, heart rate variability, autonomic nervous system, functional readiness.

References

1. Baranov V. V., Pavlov S. P., Funtikov N. N., Girevoy sport v fizicheskom vospitanii studentov, *Universitetskiy kompleks kak regionalnyy tsentr obrazovaniya. nauki i kultury materialy Vserossiyskoy nauchno-metodicheskoy konferentsii. Orenburgskiy gosudarstvennyy universitet*, 4144 (2017).
2. Tarabrina N. Yu. Grabovskaya E. Yu., Lyalina T. D., Rol aktivnoy traksionno-rotatsionnoy miorelaksatsii v reflektornoy korrektsii vestibulyarnykh reaktsiy sportsmenov s uchetom iskhodnogo vegetativnogo tonusa, *Fizicheskaya kultura. sport i zdorovye v sovremennom obshchestve sbornik nauchnykh statey Vserossiyskoy s mezhdunarodnym uchastiyem ochno-zaochnoy nauchno-prakticheskoy konferentsii, Voronezhskiy gosudarstvennyy institut fizicheskoy kultury*, 225 (2016).
3. Oreshnikov E. V., Tikhonov V. F., Agafonkina T. V., Variabelnost serdechnogo ritma u sportsmenov-girevikov, *Fiziologiya cheloveka*, **4**, **35**, 139 (2009).
4. Task Force of The European Society of Cardiology and The North American Society of Pacing and Electrophysiology. Heart Rate Variability. Standards of measurement, physiological interpretation, and clinical use, *Eur. Heart J.*, **17**, 354 (1996).
5. Mikhajlov V. M., *Variabel'nost' ritma serdtsa. Opyt prakticheskogo primeneniya metoda*, 290. (Ivanovo, 2002).
6. Baevskij R. M., Berseneva A. P., *Otsenka adaptatsionnykh vozmozhnostej organizma i risk razvitiya zabolevanij*, 236. (Meditsina, Moskva, 1997).
7. Chuyan E. N., Biryukova E. A., Ravaeva M. YU., Nikiforov I. R., Individual'nyj profil' funktsional'nogo sostoyaniya organizma studentov s razlichnym tipom vegetativnoj regulyatsii, *Uchenye zapiski Tavricheskogo natsional'nogo universiteta im. V.I. Vernadskogo. Ser. «Biologiya, khimiya»*. **22(61)**, **2**, 152 (2009).
8. Pitkevich Yu. E. Variabelnost serdechnogo ritma u sportsmenov, *Problemy zdorovia i ekologii*, **4 (26)** 101 (2010).
9. Gavrilova E. A., *Sport. stress. variabelnost: monografiya*, 168 (Sport, Moskva, 2015).
10. Dubrovskiy V. I., *Sportivnaya meditsina: ucheb. dlya studentov vuzov, obuchayushchikhsya po pedagogicheskim spetsialnostyam*, 528 (Gumanitar. izd. tsentr VALDOS, Moskva, 2005).
11. Kozhevnikov V. S., Shlyk N. I., Individualnyy portret VSR v pokoye i pri ortostaticheskom testirovanii u sportsmena-khodoka v podgotovitelnom trenirovochnom periode, *Variabelnost serdechnogo ritma: teoreticheskiye aspekty i prakticheskoye primeneniye: tez. dokl. IV Vseros. simpoz. s mezhdunar. uchastiyem. Izhevsk*, 140 (2008).
12. Sorokina L. V., Korolev S. A. Minayev S. N. i dr., Kompleksnaya otsenka funktsionalnogo sostoyaniya sportsmenov vostochnykh boyevykh edinoborstv v period predsorevnovatelnoy podgotovki, *Vestnik sportivnoy nauki*, **3**, 65 (2012).