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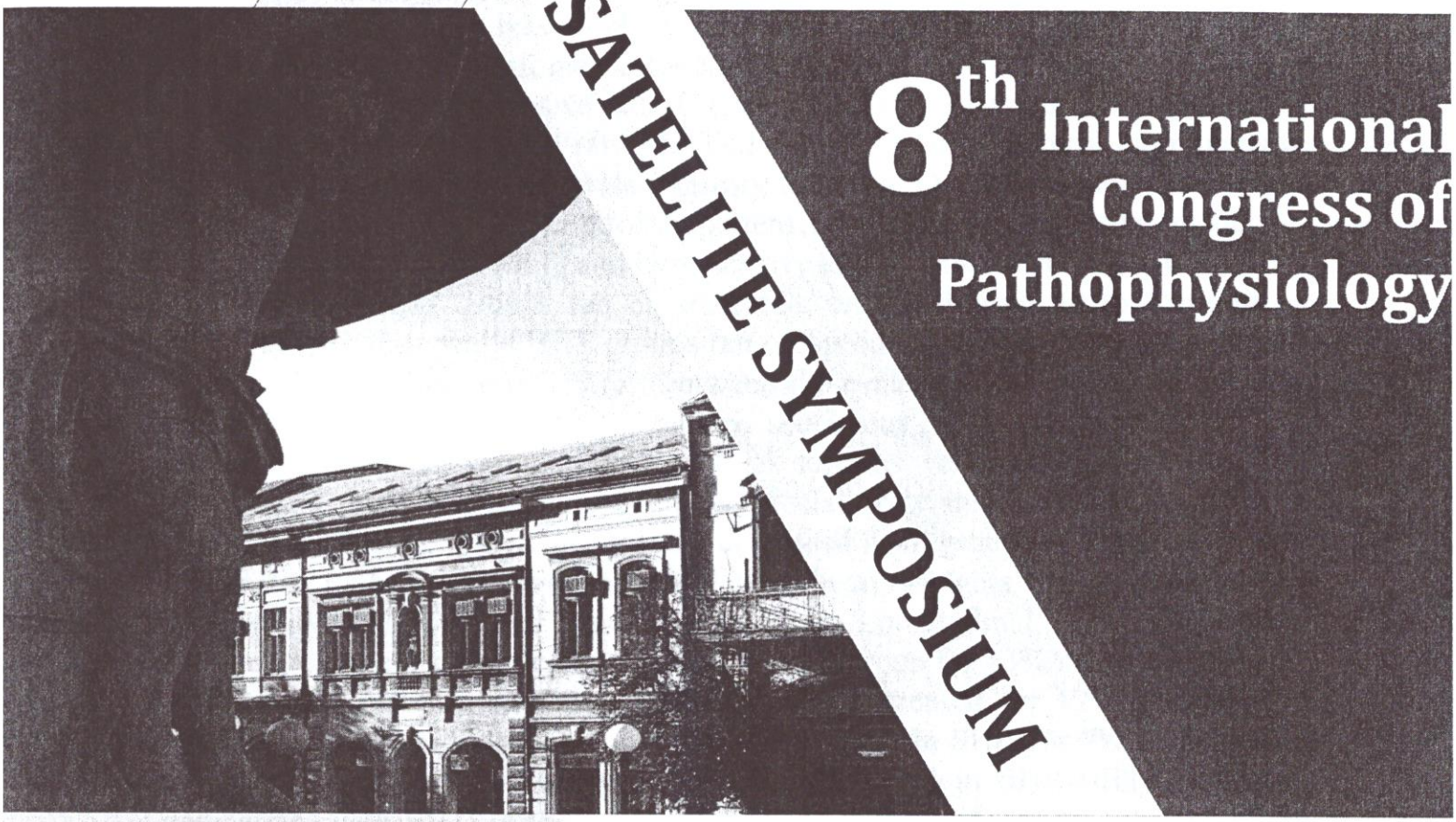

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OXIDATIVE STRESS IN HEALTH AND DISEASE: FROM BASIC SCIENCE TO APPLIED INVESTIGATIONS

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EFFECTS OF TWO DIFFERENT TYPES OF TRAINING ON MORPHOMETRIC PARAMETERS OF THE LEFT VENTRICLE MIOCARDIUM IN NORMOTENSIVE AND HIPERTENSIVE RATS

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The aim of this study was to show the effects of moderate-intensity and high-intensity training on morfometric parameters of the left ventricle miocardium in normotensive and hypertensive rats. The study included 32-male Wistar albino and spontaneously hypertensive rats, divided into 6 groups: control normotensive (CTRL), normotensive moderate-intensity training (MIT), normotensive high-intensity training (HIIT), control hypertensive (SHR), hypertensive moderate-intensity training (SHR-MIT) and hypertensive high-intensity training (SHR-HIIT). The rats from MIT groups ran on trandmile on speed from 10 to 15m/min, 5 days/week, 1h/day, while HIIT groups ran on speed from 35 to 55m/min, 30s in 5 cycles, with a 3 min period of rest between the cycles. After 4-weeks of training, the rats were sacrificed. Heart biopsy specimens were routinely fixed and embedded in paraffin. Five micrometer thick sections were H&E stained. Captured microscopic images were processed by special software for image analysis to quantify the results. Body weights were decreased in all groups of hypertensive rats compared to normotensive rats. Relative heart weights were increased in hypertensive rats compared to normotensive rats. Longitudinal section diameter of cardiac muscle cells was decreased in SHR-MIT group for 13% compared to MIT, while in SHR-HIIT group the same parameter decreased for 17% compared to HIIT. Cross section muscle cell area was decreased: in SHR for 7% compared to CTRL, in SHR-MIT for 6% compared to MIT, and in SHR-HIIT for 9% in comparison with HIIT. Both types of training caused significant hypertrophy of the left ventricle myocardium in normotensive and hypertensive rats.