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HIGH BLOOD PRESSURE RESPONSE TO EXERCISE AS A PREDICTOR OF FUTURE HYPERTENSION DEVELOPMENT IN YOUNG BODYBUILDERS

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Introduction. Exercise testing is widely used in sportsmen to get information regarding cardiovascular adaptations to effort and to detect subclinical conditions such as arrhythmogenic diseases and coronary artery anomalies. Assessment of blood pressure level during exercise is an integral part of the test and provides important haemodynamic data with relevant clinical value, such as hypotensive response in patients with obstructive hypertrophic cardiomyopathy or valvular heart diseases. Besides, high blood pressure level has been reported as a prognostic factor for incident hypertension or cardiovascular disease in the general population. Bodybuilders are capable of a superior exercise performance compared with sedentary subjects and the blood pressure achieved at maximal exercise has been reported to be higher compared with the general population. However, it is not clear whether an exaggerated blood pressure response to exercise in highly trained bodybuilders should be considered a simple adaptation to superior exercise performance, or may represent a mismatch of cardiac output and peripheral vascular resistance, and expression of subclinical impairment of vascular relaxation with potential adverse clinical implications. The present study is planned to evaluate the level of blood pressure in young bodybuilders as a predictor of hypertension development in future.

Aim: Due to superior exercise performance, bodybuilders show higher blood pressure at peak exercise compared to untrained individuals. However the prognostic significance of high blood pressure response to exercise has not yet been clarified in this population.

Materials and methods The level of blood pressure and heart rate were measured in 45 sportsmen at peak exercise (after 30 squats) and 3 minutes later. The mean age of the overall group was 22±6 years and all of them were male. All the participants answered the questions of a special questionnaire aimed to get anamnesis information. 30 normotensive bodybuilders with high blood pressure response to exercise were compared to 15 normotensive bodybuilders with normal blood pressure response to exercise

Results and discussion. There was no significant difference in terms of family history of hypertension or smoking habit between high blood pressure response and normal blood pressure response groups. Both resting and exercise blood pressure were higher in the high blood pressure response group. In young normotensive bodybuilders, an abnormal high systolic and diastolic blood pressure response to exercise can be an independent and significant predictor of incident hypertension. Several mechanisms have been proposed to explain the excessive increase in blood pressure during exercise, including high sympathetic tone, decreased aortic distensibility, endothelial dysfunction, and increased activation of the renin-angiotensin-aldosterone system.

Conclusion. The present study showed that an exaggerated blood pressure response to exercise can be a predictor of incident hypertension in highly trained and normotensive bodybuilders.