

## **Abstract**

Heart as one of the life-important organs is influenced by many ongoing processes in organism. Even the smallest molecular changes can importantly influence heart's physiology and activity. Last years, there were many studies concentrating on clarification of renin-angiotensin-aldosterone system (RAAS) and its influence on heart and kidneys. Cardiovascular diseases are usually caused by changes in RAAS and that is the reason why more and more experts are examining the extent to which diseases can be prevented and heart function improved. Ambient temperature is one of the factors that greatly affects the RAAS and the heart. In this thesis I tried to summarize current knowledge about RAAS and its effects on organism, focusing on influencing the physiology of the heart. While ambient temperature has significant effect on the RAAS and the heart, this thesis points to the knowledge associated with cold acclimation at 5 °C.

**Key words:** renin-angiotensin-aldosterone system, heart, cold, hypertension, adrenergic receptors, natriuretic peptides