Abstract

Heart, as main driving unit of circulatory system of vertebrates, ensure a great number of body functions by constant circulation of blood in every individual. This body functions are provided by transposport of energy in various forms and by transport of chemical substances. Number of these body functions are absolutely necessary in each momemnt of the lifetime. If we describe metabolism as speed of all reactions in body, then circulatory system is one of the key means to reach it.

Metabolic rate increases with two basic factors, body mass and body temperature. It´s not proportional relationship, but allometric increase is conditioned by power law. In addition, this exponential relationship is limited, in case of body temperature, by temperature range specific for each living organism. It would be expected that changes in size of body and body temperature might have strong influence to quality and function of circulatory systém and heart itself.

However, metabolism is significantly influenced by some another factors like quality of adjacent surrounding. Organisms belonging to vertebrates habitated great number of various enviroments and they developed lots of adaptations to survive there. This adaptations include significant changes in cardiac architecture and heart functions.

The aim of this work is to review knowledge of scaling of heart size, determinant of diferences in cardiac function on great taxonomical range and focused on the relationship among body size, temperature of body and heart function.

Key words: body size, temperature, heart rate, stroke volume, heart size, vertebrates