

## **EVALUATION OF BLOOD VESSELS RESISTANCE TO RUPTURE IN LABORATORY ANIMALS**

**LUCCHIARI, P.H.; SUGIZAKI, M. ; MALUCELLI, M.I.C.; CRIVELLARO, O; BACILA, M.**

Disciplina de Bioquímica I, Centro de Ciências Biológicas e da Saúde, Pontifícia Universidade Católica do Paraná – PUCPR.

The evaluation of blood vessel wall capability of contraction is a very important physiological parameter for the interpretation of the circulatory activity and also to infer its contribution for the understanding of bioenergetic mechanisms. Aiming to study the capacity of blood vessels contraction we have projected and built a new instrument specifically designed for measuring contractile capacity and the strength of rupture of blood vessels from fish and laboratory animals as well. Back in 1986 we have projected and built (NARESSE et al, 1986a) an instrument specially designed to measure the strength of rupture of healing processes, a very attractive methodology which has been in use since then for a number of research with laboratory animals (NARESSE et al., 1986b,c; NARESSE et al., 1987; NARESSE et al., 1988a,d; NARESSE et al., 1991a,b; NARESSE et al., 1993a, b; VERDERESE et al., 1993; LEITE et al., 1993; GUIMARÃES et al., 1998; RAHAL et al., 1999). The objective of the present research work was the development of a new equipment allowing to measure directly the strength of rupture of blood vessels - arteries and veins - of laboratory animals and evaluate their wall capability of contraction. This instrument has been built at the Laboratory of Biochemistry I, Department of Medicine, Pontifícia Universidade Católica do Paraná. It consists of the following parts: a. One transducer of force assembled on an elastic body that glides on two sustenance rods which is pulled by means of a motorized system; b. A monitor of strength formed by an electronic digital unit that measures the strength of rupture. The blood vessel is isolated by dissection fastened on the transducer of strength by means of two tweezers and immediately subjected to the experiment. This equipment is connected with a recorder. Having access to this important technique, a number of research work is being carried on at our Laboratory aiming to study several aspects of the physiological and pathological behavior of blood vessels.

**Key Words:** Vascular resistance; strength of rupture, laboratory animals.