

Continuous Isolated Spleen Weight Registration

In this journal¹ a perfused isolated spleen method was described in which air plethysmography is used for the continuous registration of spleen volume variations.

The method previously described has now been modified in such a way that spleen volume variations are presently monitored by means of a continuous spleen weight registration. Similar methods were used by GREEN et al.² and GREENWAY et al.³ in the course of in situ animal experiments. The same thermostatic box as previously described is used, but air tightness is no longer necessary. Gaskets may be omitted except for those in the catheter outlets, which will provide a fixation avoiding unwanted movements of the catheters.

The fixed nylon grid on which the spleen is laying is now replaced by a tilting table, rotating around 2 pivots (Figure 1). The table is in fact a frame of stainless steel wires of 2 mm in diameter having a cross connection in the

middle of its sides. One branch of the cross connection is protruding for about 5 cm through a groove in the side wall of the bottom part of the thermostatic box and will be used as balance arm. The nylon grid is fixed on the frame and carries the spleen. This balance arm is connected by means of a string to a displacement transducer (Grass FT03 or equivalent). By means of this device, weight variations of 0.1 g can easily be detected. A fairly good calibration can be obtained by placing known weights on the nylon grid at the approximate site of the spleen gravity center, and plotting corresponding deviations of the recording device against these values (Figure 2). This modification of the perfused isolated spleen technique has the advantage that the preparation remains accessible throughout the experiment and that an increased accuracy in the measurement of spleen volume variations (steady base line) may be obtained⁴.

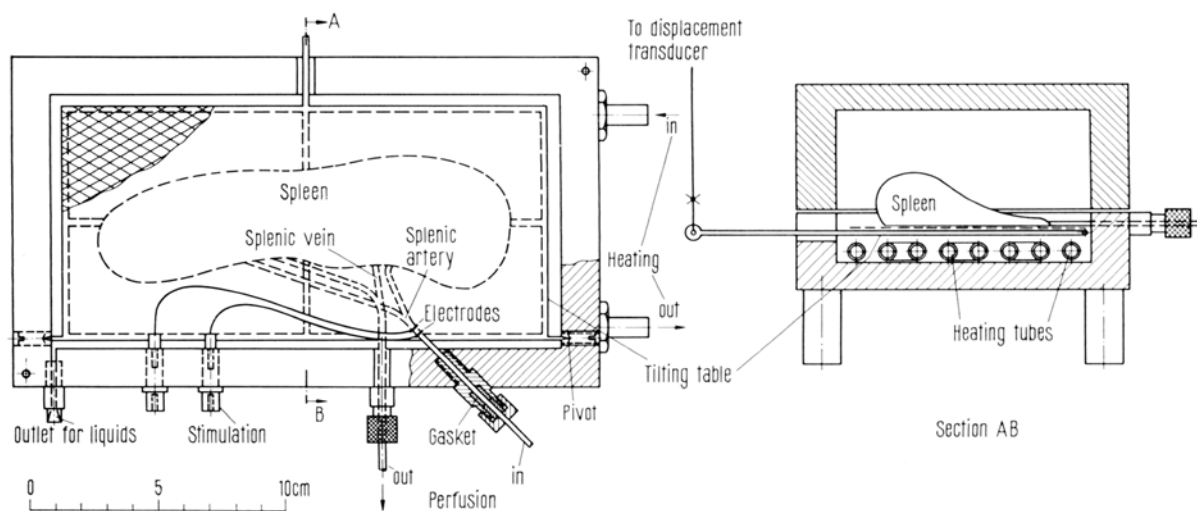


Fig. 1. Apparatus for perfused isolated spleen experiments.

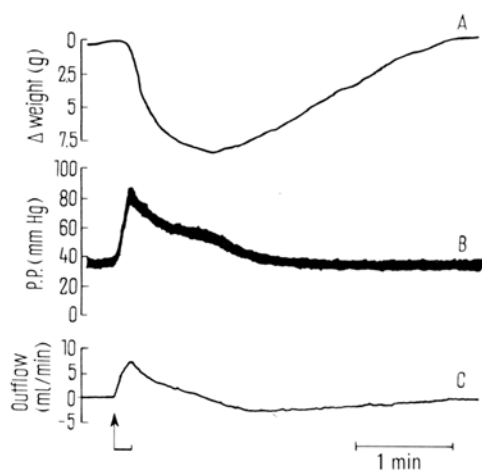


Fig. 2. Dog spleen. Constant rate perfusion. Stimulation of sympathetic nerve with a square wave current of 6 Hz, duration of pulses 2 msec, voltage 30 V, duration of stimulation 10 sec. (A) spleen weight variations; (B) perfusion pressure; (C) outflow rate.

Zusammenfassung. Es wird gezeigt, dass für die Messung der Gewichtsänderung der isolierten, durchströmten Hundemilz, die Registrierung mittels eines «Displacement transducer» eine präzise volumetrische Auswertung erlaubt.

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University, Columbus, Ohio (USA), 6 May 1968.

¹ A. L. DELAUNOIS, E. J. MOERMAN and A. F. DE SCHAEPRYVER, *Experientia* 24, 307 (1968).

² H. D. GREEN, K. OTTIS and T. KITCHEN, *Am. J. Physiol.* 198, 424 (1960).

³ C. V. GREENWAY, A. E. LAWSON and R. D. STARK, *J. Physiol.* 194, 421 (1968).

⁴ This work was supported by a grant from the Fund for Collective Fundamental Research (Belgium).