

An indirect blood pressure measuring system with digital readout

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A system has been designed to provide a fast, accurate indirect measurement of systolic blood pressure in rats immobilized by light ether anaesthesia as recommended by Byrom (1947).

A block diagram of the apparatus is shown. The rats are put for 15 min in a cabinet maintained at 37°C, lightly anaesthetized with ether, placed on a platform, also at 37°C, with a sphygmomanometer cuff and sensor positioned on the tail.

The control unit inflates the cuff to 300 mmHg and then allows it to slowly deflate until the systolic pulse is detected. The cuff pressure is monitored by the transducer and converter and on receiving the arterial pulse via the sensor the systolic blood pressure is displayed digitally. A push button connected to the release valve allows rapid deflation of the cuff. The sequence of operations takes approximately 30 seconds.

The apparatus utilizes standard 74 series logic circuitry and as the endpoint is determined electronically errors due to misreading of the manometer or observer bias are avoided.

Reference

BYROM, F.B. (1947). An optical method for measuring systolic blood pressure in the intact rat. *Austral. J. Exp. Bio. & Med. Sci.*, 25, 351-354.

