

initiated by measuring blood glucose from the tail at zero time of insulin formula pumping. After that, the insulin perfusion preparation was perfused through the isolated intestine; the circulation rate was 3.5 ml/min, controlled by a peristaltic pump to pre-balance. Blood glucose was measured from tail vein by glucometer at 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 75 and 90 min.

To evaluate the intestinal uptake of insulin and compare the absorbed insulin level between the oral insulin formula (7 IU/ml) and Rh-insulin solution (1 IU/ml), *in situ* intestinal perfusion of insulin solution was performed on normal and diabetic rats. Also blood glucose concentrations were measured at the same time intervals.

The efficacy of the enteral route of insulin administration relative to subcutaneous (s.c.) was estimated. Briefly, insulin solution was administered subcutaneously. The insulin s.c. dose was 250 μ l (1 IU/ml). Thus, placebo formula was perfused and the same conditions were performed on normal and diabetic rats in the S.C. experiments (Matsuzawa et al., 1995).



(Figure 2.3): Cannulation of exposed intestine at both ends then the isolated intestine was perfused in circulating system.