ULTRAFILTRATION BY GRAVITY IN MAINTENANCE HAEMODIALYSIS

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A method of ultrafiltration utilising gravity suction in the modified Kiil dialyser is demonstrated (Fig. 1).

Fig. 1. Diagrammatic representation of haemodialysis system. T = tank, P = pump, F = flowmeter, M = negative pressure manometer, K = Kiil dialyser, B = bubble trap, W = blood rewarming bath.

Fig. 2. Close-up of outflow tube showing side arm.

A constant flow of dialysate (500 ml/min) is supplied to the kidney by a pump situated near the tank reservoir. A single pass system is used and the outflow tube leads to a floor
drain. The syphon effect thus produced creates a negative pressure in the dialyser. A side arm communicating with the atmosphere is inserted into the outflow tube and the level of this insertion in relation to the Kii1 dialyser determines the degree of negative pressure achieved (Fig. 2).

![Graph of weight loss per hour at four levels of negative pressure.](image)

*Fig. 3. Weight loss per hour at four levels of negative pressure.*

![Graph of weight loss during haemodialysis in relation to negative pressure.](image)

*Fig. 4. Weight loss during haemodialysis in relation to negative pressure.*

Our working range is from zero to 75 mm Hg and this involves adjusting the level of the side arm insertion from that of the Kii1 dialyser (zero) to approximately 40 inches below the dialyser (—75 mm Hg). Positive pressure can be attained by raising the side arm above Kii1 dialyser level.

This system is simple, silent, inexpensive and can be adjusted individually (Figs. 3 and 4).