Appendix 13
FLUID REPLACEMENT

An average daily intake of fluids from food and drink is about 2.5 L. Body fluid is lost through unseen perspiration, obvious sweating, the breath, the urine and the faeces. In temperate climates it is possible to manage for a short time on as little as 1 L (just under 2 pints). In very hot climates where there is a large fluid loss through sweating, an intake of 6 L per day may be necessary.

If extensive chemical burns (see **table 8**) are present or chemical-induced bleeding (see **table 14**) from the gut occurs, there will be substantial loss of fluid (more than 3 L per day). If this fluid is not replaced, circulatory collapse, shock (see **table 11**) and acute kidney failure (see **table 12**) may follow. Although fluid may be replaced orally in the case of chemical burns, intravenous fluid replacement is preferable in all cases if a person is trained in the technique. Alternatively, rectal fluid replacement may be used.

Oral fluids

Use oral rehydration salts, which, when reconstituted with water according to instruction, will provide all necessary salts to maintain metabolic balance.

- In mild cases of fluid loss, give intermittently 1 L of the solution each day;
- In more severe cases, give 2 L each day;
- In very severe cases of fluid loss, give at least 3 L each day.

Monitor pulse and blood pressure regularly.

In **cases of extended chemical burns:**

the first 24 hours: give – in addition to normal food and fluid intake – for every 10% of the body surface area with burns, 3 L of salted water (1.5 teaspoonfuls of table salt in 1 L) intermittently.

24 to 48 hours: For every 10% of the body surface area with burns, give 1.5 L of fluids (preferably oral rehydration salt solution – ORS) intermittently.

After 48 hours the fluid intake should, in principle, be normal.

Check for urine output, that should be approximately 30 to 50 mL per hour (approximately 1 L per 24 hours).

Intravenous fluids

If advised medically and a trained person is available, give 1 to 3 L (or more) of sodium chloride (0.9%) intravenous infusion via an infusion set, depending on the severity of fluid loss and the **RADIO MEDICAL ADVICE**.

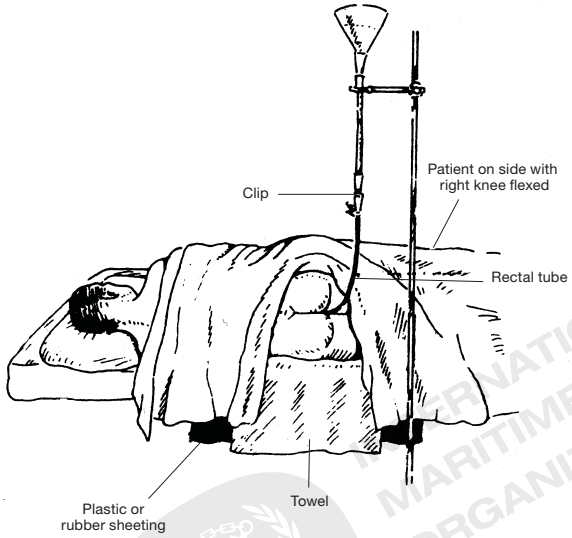
In very severe cases of shock, a gelatine-based plasma expander may be advised:

- Give 500 mL plasma expander via an infusion set and monitor pulse and blood pressure regularly.
- Seek **RADIO MEDICAL ADVICE** again.
- If advised, give a further 500 mL plasma expander and monitor pulse and blood pressure regularly.

Rectal fluids

Fluid may also be given via rectum, though it is difficult to administer more than 1 L of fluid per day by this route.

To prepare the bed, place two pillows, one on top of the other, across the middle of the undersheet. Protect the pillows with a width of rubber or plastic sheeting covered by a wide clean towel. Allow the ends of the sheeting and towel to hang over the side of the bed to drain any possible leakage. The casualty should be placed lying on his left side with his buttocks raised on the pillows and with his right knee flexed. He should be made comfortable but only one pillow should be allowed to support his head so that the tilt can be maintained. He should then be covered by a sheet, leaving only the buttocks exposed.



The importance of the treatment should have been explained to the casualty and he should be encouraged to relax and not to resist. The buttocks should be separated gently, then a catheter (26 French gauge) well lubricated with petroleum jelly (vaseline) should be passed slowly and gently through the anus into the rectum for a distance of about 23 cm (9 inches). After the catheter has been inserted, its external end should be taped to the skin in a convenient position to attach to a tube and drip set.

Give 200 mL of water slowly through the tube, taking about 10 to 15 minutes to drip the water in. This amount will usually be retained. Leave the catheter in position and block its end with a spigot, or small cork, or compression clip.

Give the casualty a further 200 mL of water every 3 to 4 hours. This should give a fluid intake of about 1,000 mL (1 L) per day. The rectum will not retain large amounts of fluid, and fluid must be retained in order to be absorbed. Occasionally the rectum will not accept fluid readily, especially if it is loaded with faeces. Smaller quantities at more frequent intervals should be tried in these cases. Careful observation will show whether the fluid is being retained.

Aim to give at least 1 L of fluid per day if possible. Giving fluid by rectum should be continued until the casualty can safely take fluid by mouth, or medical assistance becomes available.