**FLUID ADMINISTRATION ROUTES**

***Oral***

The oral route is the most physiologic. Fluids can be administered rapidly with minimal side effects. This route should not be used in the presence of vomiting. This route is also inadequate for animals that have had acute or extensive fluid losses. Fluid absorption is not sufficiently rapid via the oral route, in those cases where the fluid loss has been extensive and blood flow inadequate.

***Subcutaneous***

Fluids are usually administered in the subcutaneous tissues over the dorsal neck and cranial trunk. In the absences of vasoconstriction and hypovolemia the rate of absorption is approximately six to eight hours. Fluids should be administered at body temperature to decrease the discomfort to the patient and improve absorption. Only isotonic fluids should be administered by this route. Potassium supplementation up to 40 mEq/L may be added to the fluids. The rate and volume of administration will vary from patient to patient. Skin necrosis and infection are complications associated with this route of fluid administration.

***Intravenous***

This is the route of choice when vascular volume restoration is desired. This route is superior to all others with perhaps the exception of intraosseous. Fluid absorption is rapid. In addition to isotonic solutions, hyper and hypotonic solutions may be administered via this route. The rate and volume administered will vary from patient to patient based upon the desired endpoint.

***Intraosseous***

Fluids are administered via the bone marrow. Like intravenous administration, fluid absorption is rapid. This route is indicated when it is difficult to gain venous access using standard techniques. This route is best used for the short-term administration of fluids and or drugs. Fluid rates of 11 ml/min with gravity and 24 ml/min under 300 mm Hg pressure have been used to deliver the fluids.

***Intraperitoneal***

Intraperitoneal administration is the administration of fluids into the peritoneal cavity. The rate of absorption from this route is roughly equivalent to the subcutaneous route. Peritonitis and intra-abdominal abscess are potential complications associated with this route. Intraperitoneal administration does not offer any advantages over other routes; therefore it is reserved as a last resort.