



Fig. 1.1 • Pathways a drug may take following the administration of a dosage form by different routes.

Routes of drug administration

The absorption pattern of drugs varies considerably between individual drug substances as well as between the different administration routes. Dosage forms are designed to provide the drug in a suitable form for absorption from each selected route of administration. The following discussion considers briefly the routes of drug administration and whilst dosage forms are mentioned, this is intended only as an introduction since they will be dealt with in greater detail later in this book.

Oral route

The oral route is the most frequently used route for drug administration. Oral dosage forms are intended usually for systemic effects resulting from drug absorption through the various epithelia and mucosa of the gastrointestinal tract. A few drugs, however, are intended to dissolve in the mouth for rapid

absorption or for local effect in the tract due to poor absorption by this route or low aqueous solubility. Compared with other routes, the oral route is the simplest, most convenient and safest means of drug administration. However, disadvantages include relatively slow onset of action, possibilities of irregular absorption and destruction of certain drugs by the enzymes and secretions of the gastrointestinal tract. For example, insulin-containing preparations are inactivated by the action of stomach fluids.

Whilst drug absorption from the gastrointestinal tract follows the general principles described later in this book, several specific features should be emphasized. Changes in drug solubility can result from reactions with other materials present in the gastrointestinal tract, as for example the interference of absorption of tetracyclines through the formation of insoluble complexes with calcium, which can be available from foodstuffs or formulation additives. Gastric emptying time is an important factor for effective drug absorption from the intestine.