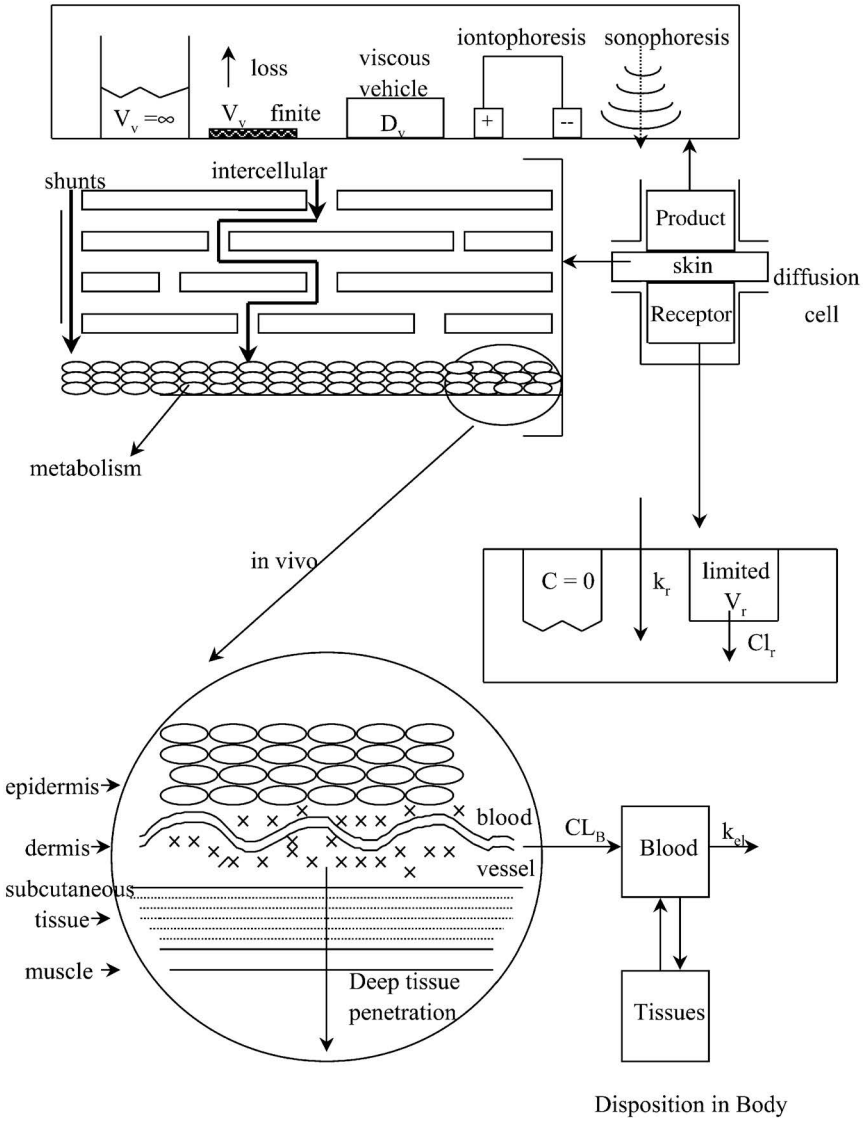

FIGURE 2.1 Diagrammatic overview of percutaneous processes associated with mathematical models.

we have emphasized the Laplace domain and steady-state solutions. Most nonlinear regression programs such as MULTI FILT, MINIM, and SCIENTIST enable analysis of concentration–time data using numerical inversion of Laplace domain solutions. By utilizing this technique, these programs are able to avoid some of the computational difficulties associated with series solutions, especially those involving solving transcendental equations. The steady-state solutions describing the linear portion of a cumulative amount versus time profile for a constant donor concentration are of great practical use. These solutions are described by a linear equation with lag time and steady-state flux as the intercept and the slope, respectively. In order to make equations in this chapter as useable as possible, each equation has been presented in nondimensionless form (all variables have their normal dimensions). Simulations and nonlinear regressions presented in this review were undertaken using either SCIENTIST 2.01 or MINIM 3.09.