

Miyamoto et al.⁵⁷ studied the effects of surfactants and bile salts on the gastrointestinal absorption of antibiotics using an in situ rat-gut perfusion technique. Some surfactants increase the rate of intestinal absorption, whereas others decrease it. Some of these effects may result from alteration of the membrane by the surfactant. [in the effective concentration] Quaternary ammonium compounds are examples of surface-active agents that in themselves possess antibacterial activity." This may depend in part. The agents are adsorbed on the cell surface and supposedly bring about destruction by increasing the permeability or "leakiness" of the lipid cell membrane. Death then occurs through a loss of essential membrane material. Both the negative and gram-positive organisms are susceptible. A surfactant may affect the activity of a drug or may itself exert drug action. As an example of the first case, the penetration of hexylresorcinol into the pinworm *Ascaris*, is increased by the presence of a low concentration of surfactant. In the action of the cationic quaternary compound, and anionic agents attack gram-positive organisms more than gram-negative bacteria.