



FIGURE 25-5. Pump and bucket handle motions of the ribs during inspiration. **(A)** The arrow represents the common axis of motion for the upper ribs, which is close to the frontal plane. The upper ribs move upward and forward in a pump handle motion. **(B)** The axis of the lower ribs lies closer to the sagittal plane. The upward and lateral motion of these ribs is referred to as bucket handle motion. (From Norkin CC, Levangie PK. Joint Structure and Function: A Comprehensive Analysis. 2nd Ed. Philadelphia: FA Davis, 1992.)