opaque covering is used to secure the IV line, the insertion site and extremity distal to the site should be visible to detect an infiltration. If these sites are not visible, they must be checked frequently to detect problems early.

Traditionally, padded boards and splints have been used to partially immobilize the IV site. Padded boards and splints and restraints were appropriate when metal needles were inserted into the vein to prevent the sharp end from puncturing the vessel, especially at a joint. With the more recent use of soft, pliable catheters, arm or leg boards may not be necessary and have several disadvantages. They obscure the IV site, can constrict the extremity, may excoriate the underlying tissue and promote infection, can cause a contracture of a joint, restrict useful movement of the extremity, and are uncomfortable. Unfortunately, no research has been conducted to demonstrate their proposed benefit of increasing dwell time (patency of the IV line). Adequate securement should eliminate the need for padded boards in most circumstances. Older children who are alert and cooperative can usually be trusted to protect the IV site.

## Removal of a Peripheral Intravenous Line

When it comes time to discontinue an IV infusion, many children are distressed by the thought of catheter removal. Therefore, they need a careful explanation of the process and suggestions for helping. Encouraging children to remove or help remove the tape from the site provides them with a measure of control and often fosters their cooperation. The procedure consists of turning off any pump apparatus, occluding the IV tubing, removing the tape, pulling the catheter out of the vessel in the opposite direction of insertion, and exerting firm pressure at the site. A dry dressing (adhesive bandage strip) is placed over the puncture site. The use of adhesive-removal pads can decrease the pain of tape removal, but the skin should be washed after use to avoid irritation. To remove transparent dressings (e.g., OpSite, Tegaderm), pull the opposing edges parallel to the skin to loosen the bond. Inspect the catheter tip to ensure the catheter is intact and that no portion remains in the vein.