

Which safety seat is "the best" for my child?

The short answer: The "best" seat is the one that fits your child, fits your car, and fits your family's needs in terms of comfort and convenience, so that you'll use it on every single ride. Try before you buy! For the long answer — read on.

Consider both the age and the size of your child. Follow these general rules:

- Keep babies rear facing as long as possible.
- Keep small children in a seat with a harness as long as possible.
- Keep older children in a belt-positioning booster as long as possible.

Newborns may ride in an infant-only seat (most certified for rear-facing use only up to 22 pounds, depending on the model) or a convertible seat (certified for rear-facing use up to 30-35 pounds and forward-facing use up to 40 pounds or more). It may be more economical to use a convertible seat from birth, but not all models fit tiny babies. Look for a model that has shoulder strap slots less than 10 inches from the bottom of the seat and a choice of two crotch strap positions.

Babies should ride rear facing as long as possible to protect the spine. They **must** ride rear facing until they are at least one year old to prevent possible death or lifelong disability. Babies have heavy heads and weak necks with soft bones and stretchy ligaments. In a frontal collision, which is the type most likely to cause death or severe injury, a forward-facing baby's neck may stretch up to two inches, but the spinal cord ruptures if it stretches more than one-fourth of an inch. At about one year, the bones start to harden, and the baby gradually becomes less vulnerable. SafetyBeltSafe U.S.A. recommends rear facing until at least 18-24 months.

Older babies should continue riding in a rear-facing convertible seat as long as possible. Check the maximum rear-facing weight shown in the instructions (30-35 pounds). As the baby grows, make sure there is at least one inch of space between the top of her head and the top of the safety seat (the hard plastic, not the puffy fabric). Otherwise, the baby's head may not be fully contained within the seat for best protection in a crash.

Convertible seats have been designed with three harness styles: five-point, T-shield, or tray-shield. A 5-point harness has several advantages for a child of any age or size. The straps are placed on the child's shoulders and low on the hips, so that crash forces are absorbed by the strongest parts of the child's body instead of the soft abdomen. A harness system with a shield is not appropriate for a baby, since the shield lies in front of the face or neck and holds the harness straps away from the baby's body. If the child is husky, a tray-shield may squeeze the tummy. T-shield seats are no longer made; if you have one, it is probably too old to be used safely. In smaller cars, it may be hard to remove the child if the tray-shield cannot be raised completely.

Safety experts have concerns about safety seats with shields. Tray-shields usually are not covered with energy-absorbing padding to protect the head if it hits the shield. This contact is more likely with a shorter child and a loose harness. In a test series with a 12-month-sized dummy¹, peak head acceleration was 35% higher for tray-shield restraints than for 5-point harnesses. At least one child

¹ Conducted by Kathleen Weber, University of Michigan, Child Passenger Protection Program

(19 pounds) is known to have received a fatal head injury from contact with a tray shield. Today, there are very few models of safety seats with shields.

Children from one year to at least 40 pounds

After age one, a child may ride in a forward-facing safety seat. For best protection, however, toddlers should continue to ride rear facing as long as possible, based on the weight limit shown in the instructions. All current convertible seat models may be used rear facing up to 30-35 pounds. Most children under age two are comfortable sitting with their legs bent outward. The head must be at least one inch from the top edge of the plastic shell.

When it is time to turn a convertible safety seat to face forward, based on the child's age and size, it is important to re-read the manufacturer's instruction booklet. In general, the safety seat should be adjusted to the upright position, the shoulder straps moved to the top slots (or center slots if specified in instructions), and the vehicle belt moved to a different part of the safety seat. It is essential that these adjustments be made according to the manufacturer's instructions to prevent possible serious injuries to the child.

Another type of seat for a child who is at least one year old and weighs at least 20-30 pounds, depending on the model, is a forward-facing-only seat with a harness. Most of these seats come with a removable harness and are called combination seats or child seat/boosters. (Some manufacturers call these seats highback boosters, which is confusing, because the term "booster" generally is used to describe a seat that lifts the child up to improve the fit of vehicle lap and shoulder belts.) A tall, thin, child may fit in a seat with a harness longer by using a combination seat, which may be taller than a convertible seat and may have higher strap slots. For best protection, use the built-in harness until the child outgrows it. A few child seats are to be used only with a harness. The weight to which the harness is certified varies from 40 lbs. to 80 lbs.

Some vehicles can be ordered with built-in child safety seats. Many of them may be used with a harness up to 60 pounds. Built-in seats must meet the same standards as comparable products that are not integrated into the vehicles. Others can be modified for use with the vehicle lap and shoulder belt when the child reaches "booster" age and size.

Children over 40 pounds

If a child is ready to stay properly seated without being held in place by a 5-point harness, a belt-positioning booster seat is the next step.² The most flexible choice is a booster with a removable, adjustable back that positions the shoulder belt properly. The belt hooks or "arms" keep the lap belt from sliding up on the abdomen. If the child rides in a vehicle with a low seatback and no head restraint, a backrest is needed to prevent possible whiplash in a rear-end collision. A few highback boosters also require vehicle seat support for the child's head and are unsuitable for use with low back seats. Most boosters are certified for use up 80-100 pounds, but many children are too tall or too wide in the hips to use a booster after 65-70 pounds. Look for a wide or adjustable base if the child is short and chunky.

If the child has a combination seat (a safety seat with a removable harness), it may be used as a booster with the vehicle lap and shoulder belt when he or she outgrows the harness (see instructions for

² Refer to #627 for a list of booster seats and how to choose them

maximum weight). However, many combination seats and highback boosters hold the lap belt up too high and/or push the shoulder belt out of the proper position. The shoulder belt should cross the center of the shoulder and lie on the child's chest.

The belt-positioning strap or clip on the side of a highback booster should only be used if necessary to prevent the shoulder belt from rubbing against the child's neck. Caution: do not use the clip if it grips the shoulder belt so it will not retract if there is slack in the belt caused by the child leaning forward. In some cars, the safety belt can be locked by "switching" the retractor at the top of the shoulder section of the belt. This adjustment helps children to sit up straight and prevents the addition of dangerous slack in that portion of the belt when used with a belt-positioning booster.

Most children need to use a belt-positioning booster until they are 8 to 10 years old, depending on the child's seated height and where the safety belt is attached to the car. The child should continue using a booster until he or she can sit all the way back against the vehicle seat with the knees bending comfortably at the edge of the seat cushion. Otherwise, the child may slouch or slide forward to the edge of the seat, which is very dangerous. The lap belt should touch the hips or tops of the thighs, and the shoulder belt should touch the center of the shoulder and chest. Finally, the child must be able to sit like this for the whole trip.³

Children who are under about four years old or are very active may not stay put without a 5-point harness system that holds them in place. Booster seats do not work well for these children because the vehicle shoulder belt does not prevent them from leaning forward or placing the shoulder belt behind the back or under the arm. Larger safety seats with a harness and travel vests that provide upper body restraint for children over 40 pounds are available. Boosters must be used with a lap and shoulder belt or, for one model, a lap-only belt and harness with top tether strap.

Booster seats with a plastic shield in front of the child are not recommended and no longer made. Shield boosters do not pass current federal standards for children over 40 pounds, and children under 40 pounds should ride in a regular safety seat with a harness. If the booster has a removable shield, the base of the booster may be used with a lap and shoulder belt. Never use a booster with only a lap belt.

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³ Refer to #630 for the 5-Step Test