

## Rear-Facing Seats

### Rear-Facing Basics

Why ride rear-facing?

Rear-facing kids are 5 times safer than those riding forward-facing.

Who should ride rear-facing?

Everyone – since it is so much safer – but especially infants and toddlers.

Where should the rear-facing child ride?

In the center of the back seat. The center is 43% safer than the side because you cannot take a direct hit if you are sitting in the center.

Which child safety seats go rear-facing?

Infant seats: For babies up to 22lbs. Some models go up to 30 pounds.

Convertible seats: Rear-facing for babies and toddlers up to 30 or 35 pounds and then forward-facing for kids up to 40 pounds or more.

When should a child switch from rear-facing to forward-facing?

The American Academy of Pediatrics says: When they are too big for rear-facing in their convertible seats. Most kids are 2 or 3 years old when they are too big. "Too Big" means either too tall or too heavy.

Too Tall: If head is within one inch of the top of the child safety seat.  
Too Heavy: If child is 30 or 35 pounds--it depends on which seat you have.

NOTE: It is OK for the child's feet to touch the vehicle seat. This is SAFE and is NOT uncomfortable.

{mospagebreak title=Why Ride Rear-Facing?}

Why ride rear-facing?

Sitting rear-facing is simply the safest way to sit in a car. Research shows that the risk of small children being killed or seriously injured is five times higher for those sitting in forward-facing seats than for those in rear-facing. New data demonstrates that in a side-impact crash (the most deadly type of collision) rear-facing kids are 4 times safer than those riding forward facing.

According to the laws of physics, in a crash you always go to the point of the impact. Therefore, in a frontal crash, everyone moves toward the front of the car. If you are forward-facing--either in a car-seat or a safety belt--your upper body stops quickly as the chest strap on the car seat or seat belt holds you back. However, your head doesn't stop as quickly, but rather travels all the way forward until your chin touches your chest, and then goes all the way back, in the whiplash motion.

Although you'd feel uncomfortable, as an adult you can physically withstand the whiplash motion. Because the head pulls away from the body so violently, having a smaller head in proportion to body makes the effects of whiplash less severe. An adults head is a small percentage of its body--only 6%.

It's quite different for a newborn baby, whose head is a whopping 25% of its body. This means that if a newborn were forward facing in a frontal crash, their head would pull forward with four times as much force as would an adult's!

Strength and rigidity of ligaments and bones in the spine also contribute to an ability to tolerate the whiplash motion. The bones of an infant's spine are made up of soft, stretchy cartilage, the same thing that makes your ears and nose flexible. The ligaments that connect these cartilagenous bones are also underdeveloped and stretchy. Scientists have found that a newborn's spinal column (bones + ligaments) can stretch up to 2 inches, whereas the spinal cord inside can stretch only 1/4 of an inch. If the spinal cord is forced to stretch more than it can, it breaks, leaving the baby paralyzed or worse.

{mospagebreak title=Preventing Injury}

How does sitting rear-facing help prevent injury?

In a frontal crash, when everyone moves to the point of impact--the front of the car--a rear-facing baby will move in a different way. A rear-facing baby will move into the back of his car seat and will slide gently up the car seat. This allows the back of the car seat to absorb the brunt of the impact and distribute the remaining forces along the child's entire back, which is the strongest part of his body. The most important part: because he sits rear-facing, the child's head, neck, and torso all move together in a straight line. The whiplash motion is avoided totally.

This photo shows two crash tests of properly installed car seats – one rear-facing and the other forward-facing – in a frontal crash. Note that both dummies are properly secured in the car seats (i.e. the harness straps are snug). The rear-facing dummy's head and back are cradled by the back of the car seat. The forward-facing dummy's head and neck are thrown forward in the whiplash motion.

Rear-facing seats also protect children better during side-impact crashes (the most deadly types of crashes). In a side-impact, everyone moves toward the impact. A forward-facing adult or child will pivot around their pelvis and turn to the side, leaving their head at risk for hitting the doorframe, window, other hard structures, etc. When a child is rear-facing in a car seat, the car seat itself does the pivoting, allowing the child's body to stay in a straight line. And since his head usually does not extend beyond the sides of the car seat, his head is better protected. {mospagebreak title=Who Rides Rear-Facing?}

Who should ride rear-facing?

As mentioned before, in an ideal world everyone would ride rear-facing. Unfortunately, in the US, car seats accommodate only children weighing less than 35 pounds in the rear-facing position. Nonetheless, given the wide array of available seats, most kids can ride rear-facing until they are 2-3 years old.

Never seen a 2 1/2 year old rear-facing? This picture proves it can be done. Many parents in the US think it's "weird" to have a 2 year old rear-facing--most children are switched to forward-facing around their first birthday. But if you lived in Sweden, the idea of a 2 year old FORWARD-facing would be "weird," as they keep kids rear-facing until the ages of 3 or 5. In Sweden, children go straight from rear-facing seats to booster seats! Because kids sit rear-facing for so long, fewer than 1 child a year dies in a rear-facing car seat in Sweden. If we also kept more kids rear-facing, we would not only see fewer deaths, but also fewer injuries--especially the really hard to fix ones like those to the spinal cord and head. {mospagebreak title=Height and Weight Limits}

Height and Weight Limits

Height Limits:

- There should be at least one inch between the top of the child's head and the top of the car seat. Because some kids have longer legs and others longer torsos, it's impossible to give a height limit in terms of the child's total height (since it's only the torso height that matters).

- Note: the child's feet touching the back of the vehicle seat is perfectly OK and does NOT indicate that the child is too tall for rear-facing.

Weight Limits:

- Most infant carriers go to 20-22 pounds. Exceptions are the Graco infant SafeSeat Step 1 and the Chicco KeyFit 30 Infant Car Seat which both go to 30 lbs, and the discontinued Cosco Opus/Designer 35, which goes to 35 lbs.

- Most convertible car seats (seats which convert from rear-facing to forward-facing) have rear-facing weight limits of 30-35 pounds.

{mospagebreak title=When to Turn Forward-Facing?}

## When Should Your Child Turn Forward-Facing?

The American Academy of Pediatrics has always recommended that children ride rear-facing until they are **AT LEAST 1 YEAR OLD** and **AT LEAST 20 POUNDS**. Many people still misunderstand this and mistakenly think that you must turn a child around as soon as they reach 1 year old and 20 pounds. The truth is that this is just a bare minimum that the child must meet before turning. In 2002, the Academy updated their recommendations, adding that children should stay rear-facing until they are too big for rear-facing.

What does that mean? When is a child too big for rear-facing? A child can be either too heavy, too tall, or both--but all of this depends on the specifications of the car seat. Each car seat has its own height and weight limits for rear-facing children. Most convertible seats allow children to sit rear-facing up to 30-35 pounds. The height limit for any rear-facing car seat is that there must be at least 1 inch of room between the top of the child's head and the top of the car seat. This inch ensures that as the child slides up the seat in a crash, his head will stay protected. Given the design of most car seats, the majority of children become too tall for rear-facing seats before they become too heavy. Therefore, when you purchase a convertible car seat, try to select one that is taller in seated height for the child.

What about the baby's legs? Many parents and even some pediatricians mistakenly think that a child should turn forward-facing when her legs touch the back of the vehicle seat, thinking that this leg position is uncomfortable and/or unsafe. This is untrue. In our experience installing 15,000 car seats, we've seen hundreds of children over the age of 1 riding rear-facing. Many of them are very verbal 2 and 3 year-olds and none have complained of their legs hurting. While your 2-year-old may look uncomfortable riding rear-facing – as they sit with their legs crossed or in the “frog-legged” position – rest assured that they are both safe and comfortable. Have you ever watched a 5 year old sleep in the car with their chin on their chest? If you tried sleeping like this your neck would hurt for a week – but the 5-year-old never complains of a stiff neck. Kids are much more flexible than adults and can sit and sleep comfortably in positions that would make an adult very uncomfortable.

Simply put, there are **ZERO** documented cases of rear-facing children breaking their legs, hips, feet, etc., due to their feet touching the back of the vehicle seat. However, since it looks plausible, this rumor persists.

Unfortunately there are too many documented cases of head and spinal cord injuries due to children riding forward-facing too soon. Modern medicine can easily fix a broken leg, but not a broken neck.

What about big babies? A 95th percentile baby may look stronger than his 5th percentile friend, but in a crash the bigger baby is likely **MORE** at risk if he's riding forward-facing. The rigidity of bones and the strength of ligaments in the spine is likely the same in children of the same age, no matter their size. And a 95th percentile baby likely has a much larger, heavier head, which will pull forward with much more force than that of a 5th percentile child. {mospagebreak title=Types of Rear-Facing Seats}

Which types of seats are appropriate for rear-facing children?

Two types of seats may be used rear-facing: Infant Only seats and Convertible seats.

**Infant Only Seats:** These have a carrying handle and snap onto strollers, making them very convenient. You can run errands, get in and out of the car, etc., all without waking the baby. Most infant carriers can be used without the base, a feature you will find very convenient for use in taxis, planes, and other types of travel. Getting a bigger infant carrier seat, where the weight limit is 30 lbs or more, is a good idea, since it extends the length of time during which travel with your sleeping baby is easy. Who wants to wake a sleeping baby to take them in or out of a car seat?

**Convertible Seats:** Called convertible seats because they convert from rear-facing to forward-facing, these seats can take a baby on their first ride home from the hospital all the way through the preschool years and even beyond!

This chart will help you compare these two types of seats.

### Types of Rear-facing Child Safety Seats

Features  
Infant Seats  
Convertible Seats

Direction?  
Only Rear-facing  
Rear-facing OR Forward-facing

Carry Handle?  
Yes  
No

Has Base?  
Yes. Base adds convenience, not safety. Once the base is installed in the vehicle, you just click the carrier in and out.  
No. Exception is Orbit Baby Toddler seat when used ONLY in rear-facing mode.

Requires Base?  
Most do not require the base. Exceptions include the Evenflo Embrace, Compass Via and old Peg Perego models  
No

Stroller Compatible?  
Yes  
No. Exception is Orbit Baby Toddler seat and Sit 'N Stroll. Snap-on wheeled attachments are available separately for most convertible seats to allow some portability.

Rear-facing Weight Limits?

22 or 30 lbs.

The Graco Safe Seat, the Chicco KeyFit30 and the Peg Perego Primo Viaggio 30/30 all go up to 30 lbs. The Graco SnugRide 32 goes up to 32 lbs.

30 or 35 lbs.

The Combi Zeus is an exception, it allows rear-facing only to 22 lbs. Rear-facing is 5.32 times safer than forward-facing! All manufacturers recommend keeping children rear-facing for as long as possible, meaning until the child exceeds the maximum height or weight limits for his child safety seat's rear-facing mode.

#### Rear-facing Height Limits?

When top of head is within 1 inch of top of seat

When top of head is within 1 inch of top of seat

#### Forward-Facing Weight Limits?

n/a

From 20 or 22 lbs to 40, 65 or even 80 lbs--check your seat's instructions. Rear-facing is 5.32 times safer than forward-facing! All manufacturers recommend keeping kids rear-facing for as long as possible, meaning until the child exceeds the maximum height or weight limits for his child safety seat's rear-facing mode.

#### Forward-facing Height Limits?

n/a

When top of ears are even with top of seat or when shoulders are even with highest harness slot

{mospagebreak title=Seat Placement in the Vehicle}

The center of the back seat is statistically the safest place in the car. It's not just safest for kids...it's safest for adults too! Research from real crashes shows that kids sitting in the center are 43% safer than those sitting on the side, since in the center you cannot take a direct hit in a crash.

What if my car does not have LATCH in the center?

Talk about mixed messages! LATCH was specifically designed for child safety seats, yet the safest place in the vehicle for the child safety seat usually doesn't have LATCH! But.....just because there is no LATCH does NOT mean that you cannot install the child safety seat in the middle. You will just need to use the vehicle safety belt to install the child safety seat instead. Remember, there is almost always a tether anchor for the center seat, so if you are installing a child safety seat forward-facing, make sure to use both the vehicle safety belt AND the tether strap. More about using LATCH in the center.

What if two or more people need to ride in my backseat?

Since the center is the safest place in the vehicle, try to put the person who is the least protected in that position. For example, a rear-facing child (even a 4 pound preemie) is 5 times safer than a forward-facing child or adult, simply because the rear-facing child is rear-facing! So put the forward-facing person in the center seat to "even things out."

Of course, there are times when this might not work. If you have a lap-only belt in the middle seat, things get complicated. A child in a booster seat or an adult should NOT ride with just a lap-only belt. If you have a lap-only belt, it will be safer for the child in a booster seat or the adult to sit on the side and use a lap-and-shoulder belt.

My child safety seat won't fit securely in the center! What do I do?

The most important thing is to use the child safety seat properly. If it does not fit in the center correctly, place it on the side. Or buy a different child safety seat that will fit in the center!

Won't my child fly through the front windshield if she sits in the center?

As a parent, you have many things to worry about. And many parents worry about this. But as Car Seat Ladies, we are going to tell you NOT TO WORRY! If a child safety seat is used correctly, you don't need to worry about anyone going through the windshield. A properly used child safety seat is belted tightly to the vehicle and the child is strapped in tightly to the harness. The one people who might go through the windshield are those who forgot to wear their safety belts or kids who were very loose in their harness straps.

Do I need to be concerned about the fold-down armrest in the center seat?

Nope! For those of you who may have heard not to put a rear-facing child safety seat in front of a fold-down armrest, here is how that myth got started. Years ago, one child safety seat manufacturer (Evenflo) slipped this sentence into the instruction manual for all of their rear-facing safety seats: "When this restraint is used rear-facing, DO NOT place it in a seating position with a fold-down armrest. During an impact, the movement of the armrest can cause serious injury or death to your infant." Evenflo was never able to provide even one real-world example where a baby was hurt in a crash because of an armrest. None of the other child safety seat manufacturers ever even thought the arm rest was a problem. In fact, no one in the safety field is even aware of one injury to a rear-facing baby due to the arm rest. Eventually, Evenflo removed this statement from all of their seats and now allows any of their seats to be placed in front of a fold-down armrest. Remember, the study that found that kids are 43% safer in the center was from real-world crashes, with real babies riding rear-facing in front of fold-down armrests. {mospagebreak title=Positioning the Child in the Seat}

How should a rear-facing child sit in his car seat?

There are three important components to properly seated rear-facing children: recline angle, shoulder-strap positioning, and safety belt positioning.

**Recline angle:** For safety and comfort, newborns should ride semi-reclined, so that the angle of the car seat (where their head and back rests) is reclined enough to keep their head back and their chin off their chest, but never more than 45 degrees from vertical. Most newborns will require a 45-degree angle to keep their head well-positioned and their airway open. We must position a newborn's head and neck for him, because he doesn't have the neck muscles required to hold his head up himself. Without this reclined position, a child's head could easily fall down onto his chest, pinching off his airway. As he grows older and can hold up his own head, you can move the car seat into a more upright position to provide better crash protection.

Many infant car seats now come with removable head supports. It has been our experience that the vast majority of these head supports are ineffective or worsen the positioning of the baby's head. Most of these head supports place more padding behind the child's head, which further encourages the head to fall forward--exactly what we don't want to occur!

Better positioning--even for the smallest preemies--can usually be achieved with a rolled diaper cloth or receiving blanket alongside the baby's head. Before removing the head rest on your car seat, read the owner's manual, since the head rest on a few car seats (like the Britax Companion) is not supposed to be removed (since it also functions to increase the side impact protection for the child.)

If a newborn needs extra head support, place two rolled up blankets or cloth diapers on either side of his head. Never place anything behind a newborn's head or under his neck.

**Shoulder-strap positioning:** Properly tightened harness straps also help keep a newborn's body straight, keeping his head straighter and allowing him to breathe more easily. Tight straps do more than just keep a child safely snug in a car seat!

Since a rear-facing child is likely to slide up the seat in a crash, the shoulder straps should start slightly BELOW the child's shoulders and come up and over in order to best prevent the child from sliding up too much. When the straps come so far below the shoulders that they slip off, you need to raise them to the next slot level. Note that many convertible seats have 3 slots for shoulder straps--the lowest two for rear-facing and the top one for forward-facing only.

Vehicle safety belt/LATCH belt path: The safety belt or LATCH belt should take the path closest to the back of the vehicle seat--for rear-facing this is usually under or above the the child's legs.{mospagebreak title=Infant Carrier Handle Positioning}

## Infant Carrier Handle Positioning

Where should the handle be?

A lot of parents think the handle has to be down when the safety seat is in the car. This is not true! Many infant carriers allow--and some even require--that the handle be up when the safety seat is in the car.

The table below lists the authorized handle positions for travel in the car for current and recently discontinued carriers. Please always double-check the manual for your child's safety seat.

Tip: The most versatile infant carrier is one that allows the handle to be in position #1, as the infant carrier takes up the least space in the vehicle when the handle is in position #1. The carrier is narrowest when the handle is in #1, meaning that the carrier is more likely to fit in the middle seat, nestled between the two front seats. The infant carrier also takes up the least amount of space in the back seat when the handle is in position #1. This comes in handy (no pun intended) when the infant carrier is placed behind a taller driver or front passenger or behind an adult of any height in a smaller vehicle. Position #3 will also work well in many situations, but in tight spaces it can be difficult to get the carrier handle up without moving the front seats up, and this makes it difficult to easily remove the infant carrier from the vehicle.

Position 1

Position 2

Position 3

## Handle Position for Infant Child Safety Seats

Infant Carrier Brands  
 Infant Carrier Seat Name  
 Authorized Handle Position for Travel in the Car

Baby Trend  
 All Models (Latch-Loc and Flex-Loc)  
 2, 3

Britax  
 Baby Safe  
 2

Britax  
 Companion  
 3

Chicco

KeyFit and KeyFit30  
Any locked position

Combi  
Centre and Shuttle  
1

Combi  
Connection  
Any locked position3

Combi  
Tyro  
1,2

Compass  
All Models (Via, I-400, I-410, I- 420)  
Any locked position EXCEPT 1

Team Tex  
Baby Ride  
2

Dorel (Cosco, Eddie Bauer, Safety 1st  
All Models (retroactive)  
Any locked position

Evenflo  
All Models  
2

Graco  
All Models  
1,2,3. Note that there is often one or two more locked positions between #1 and #2. These are NOT okay to use in teh vehicle. If the handle is in not in the fully upright position, it should always be below the top edge of the seat.

Maxi Cosi  
All Models  
Any locked position

Mia Moda  
Viva  
Any locked position

Orbit Baby  
Infant Seat  
Soft handles are lowered to the top edge of the seat.

Peg Perego  
Primo Viaggio-All models  
2

Curious how the rumor "the handle must always be down" got started? The first infant carrier with a base ever sold in the United States hit the market in the mid 1980's. On this particular seat, the Century 580, you placed the infant carrier into the base with the handle up (position #1) and then rotated the handle to position #2 to lock the carrier into the base. Forgetting to move the handle to position #2 meant that the carrier was not locked into the base and could come out of the base in a crash! The Century 580 and its successor the 590 were the only carriers to feature this type of locking mechanism. All other seats lock automatically when you place the carrier into the base. Other manufacturers were concerned that if they allowed their seats to use position #1, parents might mistakenly think it was okay to use position #1 on a Century 590, which could be a deadly mistake. With the last Century 590 made in 1997 (and too old to be used after 2003), manufacturers now feel comfortable recommending different handle positions. In fact, most seats sold in Europe use position #1.

{mospagebreak title=Keeping Rear-Facing Kids Happy}

### How to Keep Your Kids Happy (and safe)

Warmth: Keeping the baby warm is very important. Unfortunately some products designed to keep the baby warm can also make the baby unsafe in the car. Products that have a layer that goes UNDER the baby's body can make the baby unsafe. This is true even if the product is designed with slots for the harness straps to fit through. Remember that snug harness straps are like the baby's parachute in a crash, helping the baby to land slowly and gently. You wouldn't put thick padding underneath a parachute harness, because if you did that the harness wouldn't hold you tight. Don't put padding underneath your baby in the safety seat!

Does the product say it was "Safety Tested?" BUYER BEWARE! In order to sell a child safety seat in the US, the seat has to pass rigorous crash test standards to prove that it is safe. However, in order to sell a product for use with a child safety seat---but one that does not come with the seat---there are NO standards or crash tests required! Despite what such "aftermarket" products may claim, the child safety seat manufacturers feel that using such products may be unsafe and violates the warranty on the child safety seat.

There are many ways to keep your baby warm and safe! See our Car Seat Lady Approved product page for a list of fleece covers that will keep the baby warm and toasty.

Remember, kids get uncomfortable when dressed in bulky layers because they feel restricted and soon overheat when the car warms up. If it's cold outside, you can dress your child in several thin and tight layers. Once you've buckled him into the car seat, cover him with blankets to keep him warm. When the car warms up, you can pull the blankets off.

Toys: Lightweight objects can become deadly missiles in a crash, where an object or person will weigh their weight MULTIPLIED by the speed of the crash! For example, a 5 pound DVD player will weigh 150 pounds in a 30 mph crash ( $5 \times 30 = 150$ ). Therefore, it is important to make sure that toys and other objects surrounding the child are soft and lightweight. If you have an infant carrier that allows the handle to be up while riding in the car, then you can attach toys to the handle. Never attach a toy to the straps of the child safety seat!

Not sure if a toy is safe? Do the Ouch Test. Hit yourself in the head with the toy or object. If you have to say ouch, it will hurt your child in a crash.

Have you found a toy that is sold for the car seat but which fails the Ouch Test? Wonder how products like this can make it to the store shelves despite posing a danger to your child? While there are extremely strict standards including crash testing that child safety seats must pass, there are NO standards or crash testing for products sold to be used with a

child safety seat (but that don't come with the safety seat.) Buyer Beware!!

**Mirrors:** It is best not to use a mirror. The mirror is a risk to the baby's face (it fails the Ouch Test.) The mirror is also a risk to everyone in the car, as it encourages the driver to take their eyes off the road to look at the baby. Many parents worry about not being able to see their child in the car. But no parent can or should watch a child 24/7. Just as you can't watch the baby while you are sleeping, so too you can't watch the baby while you are driving. Besides, what is the mirror going to show you that you don't already know? It will show you that the baby is crying---but you already know that, since you hear the baby crying! Or it will show you that the baby is sleeping--but you already know that because the car is very quiet. Are you worried that the baby spit up and is choking? Gravity will take care of getting the spit up away from the baby's mouth. Are you worried that the baby god forbid stopped breathing? As a pediatrician, I can tell you that this would be an exceptionally rare occurrence in a healthy baby. If your baby has medical needs that require close monitoring, there needs to be an adult in the vehicle to tend to the baby, so the driver can tend to the road.

**Sun Shades:** Many parents install sun shades on the rear windows of their cars. Unfortunately, many sun shades are dangerous. Some block the view out of the rear window so much that the driver can't see out clearly. Others have hard plastic rollers that in a crash can fly around and hit the baby. If you use a sunshade, it should be lightweight and allow drivers to see through it easily, like this one from The First Years. Another option is this sunshade which attaches to the child's safety seat--and has no hard parts or sharp edges.

**Motion Sickness:** An adult's experience riding rear-facing – usually on a train – is very different from that of a young child riding rear-facing in a car. When rear-facing on a train, you are forced to look out the side windows as the scenery passes by very quickly. Ask any adult who gets motion sick, and they'll tell you looking out the side windows makes them the sickest! They'll be quick to point out that looking out the front window is the best thing to do, since the scenery goes by much more slowly, making them much less likely to feel sick. A rear-facing child in a car seat can easily see out the rear window, where the scenery goes by more slowly than the side windows--just like the front window. The only difference between being rear-facing and forward facing in a car is whether you see where you have been or where you are going. A study of several hundred children in rear-facing and forward facing car seats supports this conclusion – finding identical rates of “car sickness” – about 2%.

**Interacting with Your Child:** While your child can't see you when you're driving, even very young babies can recognize the voices of their parents. Talk to your baby – or play music and sing to it. You don't necessarily need to listen to “baby” songs – kids like music with a beat, so many of your favorite songs might become the baby's favorites too.

**Irritability:** It's developmentally appropriate for infants and toddlers to dislike the car seat and other forms of restraint (like high chairs or strollers). These restraints limit a child's mobility and freedom; most kids would much rather be crawling around exploring the world around them instead of strapped into a car seat.

But while its disconcerting to hear a baby cry, it's also important to realize that it's unlikely that the baby is crying out of pain. Crying is the baby's only form of communication. He might be trying to ask "Are we there yet? I want to get out and play!" As any pediatrician can tell you, the crying baby is the most reassuring baby, because you know his airway is open. {mospagebreak title=Tips for Newborns}

## Tips for Newborns

What makes a seat fit a newborn well?

A few things:

1. Low shoulder strap slot. The closer the shoulder strap slots are to the baby's shoulders, the better. Remember, it is best to have the straps start **BELOW** the baby's shoulders when kids are rear-facing. Many newborns are not tall enough to have the straps start below the shoulders, but finding a seat that has the slots as close as possible is important.

2. Close crotch buckle position.

3. Narrow spacing between the hip straps on seats with a 5-point harness.

4. Small, short and narrow chest clip. On some seats the clip is so big that it pushes under the baby's chin. On other seats it is so wide that it pushes the shoulder straps so far apart that they fall off the baby's shoulders.

How can I position my newborn in the car seat?

New babies do not have enough strength in their necks to hold their heads up. Their heads tend to flop sideways---this is OKAY!

But when the car seat is too upright, their heads tend to flop forward, and this is NOT OKAY. A baby's head should not fall forward in the car seat, so that his chin touches his chest. This is dangerous and can interfere with the baby's breathing. Two tips to make sure your newborn's head stays in a safe position.

1. Make the harness straps snug. Snug straps do more than just keep a baby safe in a crash. They prevent babies from slumping over, giving them the support they need to keep their bodies and heads straight.
2. Recline the car seat properly. For safety and comfort, a newborn should ride semi-reclined, so that the angle of the car seat (where their head and chest rest) is reclined enough to keep the baby's head back and his chin off his chest, but never more than 45 degrees from vertical. Most newborns will require a 45 degree angle to keep their heads well positioned and their airways open. We must position the newborn's head and neck for him, since he doesn't have the neck muscles to do it himself. Without this reclined position, a child's head could easily fall onto his chest, pinching off his airway.

As he grows older and can hold up his own head, you can move the car seat into a more upright position to provide better crash protection.

Can I use a head support device with the car seat?

It has been our experience that the vast majority of head supports that come with child safety seats are ineffective or worsen the positioning of the baby's head. Most of these head supports place more padding behind the child's head, which further encourages the head to fall forward---exactly what we DON'T want to occur! (Before removing your child safety seat's head support, read your owners manual, since a few car seats (like the Britax Companion) require the head support for crash protection.)

Better positioning, even for the smallest preemies, can usually be achieved with a rolled diaper cloth or receiving blanket alongside the baby's head. Never place anything behind a newborn's head or under his neck.

Do not use a head support device that did not come with your car seat. In order to sell a product for use with a child safety seat---but one that does not come with the seat---there are NO standards and NO crash tests required! Despite what such "aftermarket" products may claim, the child safety seat manufacturers feel that using such products may be unsafe. Using these products violates the warranty on the child safety seat.

Can I swaddle my baby in the child safety seat?

No.....and yes. It is dangerous to have anything under the straps that is not the baby's body. But you can still give the baby that snuggly feeling of being swaddled with these simple steps.

1. Buckle the baby into the safety seat and make the straps snug. There should be NO blankets or bulky clothing under the straps or on the baby's body.
2. Take a blanket and, while keeping the baby's arms down at the sides, tuck the blanket very tightly along the sides of the baby's body and underneath the baby's legs. Of course if it is very hot outside don't do this, since the baby will overheat.

How do I calm the baby? He cries when I put him in the child safety seat!

Dr. Karp, a pediatrician and author of the Happiest Baby on the Block talks about the 5 S's system to calm a baby. Just like your new baby cries when you change his diaper or dress him, he may cry when you buckle him into his safety seat. Here are a few tips adapted from Dr. Karp's 5 S's for calming the baby.

1. Swaddling. In the last few months of pregnancy, the baby tucks up into fetal position and spends her time with constant touch and support. Tight straps mimic this constant touch. Adding a blanket overtop the straps tucked alongside the baby's body gives an extra element of support by keeping the baby's arms at her sides, preventing her from setting off her own startle reflex.

2. Shushing Sounds. Babies in utero listen to a constant white noise "soundtrack," the sound of blood whooshing through the mom's body. You can mimic this sound by making a loud shushing noise.

3. Swinging. Babies in utero are used to constant motion, since when mom moves, so does baby. Most babies miss this constant motion and have trouble adjusting to it not being there. With your baby snugly buckled into the car seat, swing the car seat by the handle gently to mimic the motion he misses.
4. Sucking. This is a very powerful calming technique for babies. Once the baby is in the safety seat, offer her a pacifier.
5. Side or Stomach Position. This is not possible in the child safety seat, unfortunately.

Can I use a convertible child safety seat for my newborn?

Yes! People often use infant carriers for newborns because they tend to be more convenient. But a convertible seat is just as safe, provided it fits your child correctly (see *What makes a seat fit a newborn well*, above).

There are certain circumstances where it makes more sense to use a convertible seat instead of an infant carrier.

1. Money is tight and baby will typically be riding in just one vehicle. If you are using multiple vehicles and/or taxis, the convenience of the infant carrier makes it a better choice.
2. The second parent or the grandparent wants a child safety seat in his/her car, but won't be taking the baby frequently in the first months. Buying a second base for an infant carrier which a baby will use only a few times does not make sense.
3. You plan to use a sling to carry the baby instead of carrying them in the infant carrier car seat.

My baby weighs less than 5 pounds. What should I do?

Most infant seats start at 5 lbs. But some can be used for smaller newborns (the number in parentheses is the height of the lowest shoulder strap):

Britax Companion (7.25"). Starts at 4 lbs. Head pad must be used for side impact protection. Newborn foam insert available for babies under 7 lbs (order it from Britax).

Chicco KeyFit and KeyFit30 (6.5"). Starts at 4 lbs. Use of newborn insert from 4 to 11 lbs is highly recommended. Insert creates slightly more reclined position to help baby's head from falling forward.

Combi Connection (7.5" with infant insert). No minimum weight. Use of infant insert is highly recommended.

Compass I-400 (4.75"). Starts at 4 lbs.

Dorel On-Board 22. Starts at 4 lbs.

Graco Assura (7.5"). No minimum weight. Available only in industrial packs at this time. {mospagebreak title=Tips for Premies}

Tips for Premies

Many people are surprised to learn that not all infant seats fit preemies well. Some infant seats don't even fit normal size newborns well! The other surprise is that some convertible seats and even preemies very well.

What makes a seat fit a preemie?

1. Low shoulder strap slot. The closer the shoulder strap slots are to the baby's shoulders, the better. It is best to have the straps start BELOW the baby's shoulders when the baby is rear-facing. With preemies and even newborns, it is usually not possible to have the straps start below the shoulders, but getting a seat where the strap slot is as close as possible is important.
2. Close crotch buckle position
3. Small, short, and narrow chest clip. On some seats, the clip is so big that it pushes under the baby's chin. On other seats the clip is so wide that it pushes the straps so far apart that they fall off the baby's shoulders.
4. Narrow spacing between hip straps, on a 5-point harness seat.

Isn't it true that most seats start with a 5 pound minimum weight?

Yes. But there are some seats that can be used for babies under 5 pounds, as follows (the number in parentheses is the height of the lowest shoulder strap):

Britax Companion (7.25"). Starts at 4 lbs. Head pad must be used for side impact protection. Newborn foam insert available for babies under 7 lbs (order it from Britax).

Chicco KeyFit and KeyFit30 (6.5"). Starts at 4 lbs. Use of newborn insert from 4 to 11 lbs is highly recommended. Insert creates slightly more reclined position to help baby's head from falling forward.

Combi Connection (7.5" with infant insert). No minimum weight. Use of infant insert is highly recommended.

Compass I-400 (4.75"). Starts at 4 lbs.

Dorel On-Board 22. Starts at 4 lbs.

Graco Assura (7.5"). No minimum weight. Available only in industrial packs at this time

What is the "Car Seat Test?"

This is a test to see if the baby is safe to ride in a rear-facing child safety seat. The semi upright position of the rear-facing child safety seat is a stressful position for a baby, compared to laying flat. During the test, the baby is strapped into a rear-facing safety seat while the hospital monitors watch the baby's heart rate, breathing and oxygen level. A baby "fails" the test if his heart rate drops (bradycardia) OR his oxygen level drops (desaturation) OR he stops breathing (apnea). A baby who "fails" the test will need to ride in a car bed.

Who should get a Car Seat Test?

The American Academy of Pediatrics recommends that all babies born before 37 weeks get a car seat test. Other babies who should get a car seat test before going home are those:

1. Going home on an apnea monitor
2. Going home on oxygen
3. With craniofacial deformities--like Pierre Robin sequence--that may make it harder to breathe in a semi-upright position.
4. For whom the pediatrician is concerned that the baby may not tolerate the semi-upright position.

Tips for passing the Car Seat Test:

1. Buckle the baby into the safety seat exactly as you would if they were to ride in the car. Make sure of the following:

- the straps are snug

-

the baby is not swaddled, and nothing that did not come with the safety seat, including blankets, infant positioners, pillows, etc, is in the safety seat.

-  
once the baby is buckled in snugly, you can put receiving blankets alongside their head and/or body to provide extra support if you'd like.

2. Make sure the car seat is reclined to 45 degrees.

3. Wait at least 30 minutes after a feed to do the test.

Who needs a car bed?

Car beds are for use only by babies who have a medical need to lay flat. According to the American Academy of Pediatrics, a baby (even a 4 pound preemie) who can tolerate sitting in a semi-upright position should ride in a rear-facing safety seat, not a car bed. A car bed is a safe option for babies for whom there is no other option. However, a rear-facing safety seat offers better protection than a car bed for a baby who can tolerate sitting semi-upright. Rear-facing safety seats have an excellent track record in all real world crashes of providing the best protection in any type of crash. In a rear-facing safety seat, the shell of the safety seat does a tremendous amount to absorb the crash forces and distribute them on the strongest parts of the baby's body--the baby's entire back. A car bed's shell is not able to do as much, especially in a side impact. Babies who fail the car seat test and leave the hospital in a car bed should have a plan in place for when they will be retested in a rear-facing safety seat.

What Car Beds are available?

Angel Guard Products Angel Ride Infant Car Bed. This goes from birth to 9 pounds and 21.5 inches. Babies with taller torsos may need a longer harness, available from the manufacturer.

Dorel Cosco Dream Ride SE. Goes from 5 to 20 pounds.

Traveling with medical equipment? Here are some tips:

Some children must travel with devices such as apnea monitors, oxygen tanks and ventilators. Secure these devices in the vehicle so that they do not become flying objects in a crash or sudden stop. At this time, there is no single product available to secure medical devices. Try wedging the equipment on the vehicle floor with pillows or securing it with seat belts not being used by a passenger.

Make sure that any devices that use batteries have enough power for your entire trip.

Are you a physician or nurse working in a well baby nursery or neonatal intensive care unit?

This 2 page handout is a fantastic guide for helping ensure new babies leave the hospital safely.