



TECH UPDATE

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Recent Research: NHTSA Finds More Than a Third of Children Killed in Crashes Were Unrestrained

In 2013, NHTSA began a monthly newsletter on auto safety. It summarizes the latest information collected in national database. The newsletter is called "SAFETY 1N NUM3ERS". The September issue reports recent data related to child passenger safety.

The 2011 US data show that more than one-third of children killed in motor vehicle crashes were not in car seats or wearing seat belts. In the US, 4% of 1-to-3-year-olds, 10% of 4-to-7-year-olds and 12% of 8-to-12-year-olds ride completely unrestrained. This places them at a high risk of fatality.

The newsletter also described how unrestrained child fatalities vary with vehicle type. In SUVs, 55% of the children killed were unrestrained. This compares with 40% in pickup trucks, 40% in vans and 24% in passenger cars.

Take home message: These data highlight how important it is to educate parents and caregivers on proper restraint use.

Reference: *SAFETY 1N NUM3ERS*,
<http://www.nhtsa.gov/nhtsa/Safety1nNum3ers>
Volume 1, Issue 6, September 2013.

Inside this Issue:

| | |
|--|---|
| New Product Update | 2 |
| Another Teachable Moment | 2 |
| Focus on Testing | 3 |
| Recent Research: Boosting Booster Use | 3 |
| Regulatory Review | 4 |
| Seat Check Smarts: How Boosters Work | 4 |
| Help with Our Next Issue | 5 |
| Seat Check Smarts: What You Can Find in the New LATCH Manual | 5 |
| Technician Spotlight | 6 |
| Win Our Contest | 6 |

New Product Update: Cybex Aton 2 Infant Car Seat

The Cybex Aton 2 is a rear-facing only child restraint made in Germany. It became available in the US in 2013. The seat is for a child weighing 4 to 35 pounds and up to 30 inches tall. It is sold mainly online for around \$300. It has several unique safety features that are not commonly available in US products.

The child seat base has a load leg (sometimes called a foot prop) attached to the front edge of the base that rests on the vehicle floor. The load leg limits forward rotation of the child seat during a crash. The leg height adjusts to fit in different vehicles. You should not use the Aton 2 base in a vehicle seating position where you cannot lock the load leg so it makes firm contact with the floor. You should also not use it if the load leg lifts the base above the vehicle seat cushion, even with the load leg adjusted to its shortest position. The instructions for the child seat say that if you cannot properly use the load leg, you should install the child restraint without the base. (However, the child seat must pass the FMVSS 213 safety standard when tested with the base without the load leg to be sold in the US).



Base with Load Leg



Linear Side Impact Protection (LSP)

Another feature is the Linear Side Impact Protection (LSP). These are plastic side protectors attached to the upright carrier handle. You must always use the LSP device in outboard seating positions. The LSP near the vehicle door must be extended. But the LSP on the side farthest from the door should not be extended for travel.

The base has a belt tensioning plate to help tighten lap belts or lower anchor straps. With the belt tensioning plate open, route the webbing through the belt guides until it is snug. Closing the belt tensioning plate will tighten the system fully. If you are not using the base, there is a belt guide that routes the shoulder belt behind the child's head.



Base Belt Tensioning Plate

Another Teachable Moment



NO!

A caregiver added some wood planks beneath a rolled-up towel in an attempt to get the correct rear-facing angle.

Submitted by Kim Martin, Gainesville, GA

Follow the CPS Board

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2. On Facebook: National Child Passenger Safety Board www.facebook.com/NCPSB2011
3. Also On Facebook: CPS Certification www.facebook.com/cpscert

Focus on Testing: Different Types of Vehicle Crash Tests

News programs often show video of vehicle crash tests. Here's a summary of different types of crash tests.



www.iihs.org

Regulatory testing: Vehicles must pass these tests to be sold in the US. Federal Motor Vehicle Safety Standard (FMVSS) 208 specifies frontal crash testing, while FMVSS 214 covers side impact testing. Vehicle manufacturers run the tests themselves and certify that they meet the standard. NHTSA does "spot checks" to make sure that vehicles meet requirements.

Consumer information testing: NHTSA runs extra tests to provide more information to consumers. [NCAP](#) tests refer to the New Car Assessment Program. These tests are run at higher speeds than regulatory tests. Vehicle star ratings are based on NCAP test results. The star rating depends on dummy measurements in frontal and side impact tests. It also includes estimates of the vehicle's rollover potential. The frontal NCAP test is a frontal crash into a flat barrier at 35 mph, using an average male driver dummy and a small female passenger dummy. For side impacts, vehicles are struck by a 3015-pound barrier moving at 38.5 mph. The barrier shape represents a passenger car. This test uses an average male driver dummy and a small female rear passenger dummy. NHTSA also runs a side impact pole test with a small female driver. Rollover ratings are based on a stability score calculated from the vehicle track width and center of gravity height, plus a dynamic driving test. You can check star ratings at safercar.gov.

IIHS Tests: The Insurance Institute for Highway Safety ([IIHS](#)) is an independent organization funded by the insurance industry. They publish safety ratings for vehicles based on several tests. For frontal impacts, they perform moderate and small overlap crash tests at 40 mph. Overlap refers to the width of the front of the vehicle that crashed into the other car or object. For side impact, they use a 3300-pound impactor with an impact speed of 31.4 mph. The impact geometry represents an SUV or pickup. Unlike NHTSA, IIHS uses small female dummies in the front and rear seat for side impact testing. To assess rollover performance, they perform roof crush tests. The IIHS rating combines all these test results with ratings of head restraints (for rear impacts) and frontal crash avoidance. You can find IIHS test results at www.iihs.org/iihs/ratings.



www.iihs.org

IIHS Side Impact Test Configuration



www.iihs.org

IIHS Offset Frontal Impact Test Configuration

Vehicle manufacturers do not have to get good scores on NCAP or IIHS tests. But because consumers check these ratings before buying, many manufacturers try to do well on these tests too.

Recent Research: Boosting Booster Use

Can a marketing campaign increase booster use? Researchers at the Children's Hospital of Philadelphia performed a study to find out. The marketing campaign called "[Boosting Restraint Norms](#)" included a video, brochures, posters, audio public service announcements, active displays and flyers. Community organizations helped share the information to community groups, schools and parents. Posters and media were placed in churches, health departments and salons. Parent education sessions were conducted at schools and daycares. Over 250 free boosters were passed out at a fire station after attendees watched the information video.

The study involved two communities with similar populations, ethnicity, and education level. One community received materials. The other did not and acted as the control group. Before the study began, booster use was observed in at least 200 vehicles in each community. Observation of booster use was repeated 6 months after the education campaign.

For the control community, booster use was about 58% before and after the study. For the community with the marketing campaign, booster use increased 28%, from 39% to 50%. This study shows that a social marketing campaign, education, and free booster distribution helped increase booster use. Spreading educational messages in this way may help change behavior in populations that are hard to reach.



Reference: Bryant-Stephens T, et al. Boosting Restraint Norms: A community-delivered campaign to promote booster seat use. *Traffic Inj. Prev.* 2013; 14:578-583.

Regulatory Review: What to do in the time between announcement of a final rule and the time it's required

Most CPS techs know that FMVSS 213 requirements will change in February 2014. The revisions have already been published in the Federal Register. As the FMVSS are updated or new consumer information programs are introduced, there is window of time between the announced changes and the time they become required. This gives manufacturers time to redesign their products to meet the new rule. During this time, people can petition NHTSA for changes and improvements to a rule. This process can sometimes lead to extra revisions, even if the rule has already been called "final". During this "in-between" time, CPS techs must operate under the existing rule. This is a time where you can read about, discuss and better understand what the new rule means.

The new rules will only apply to products made after the rule is effective. So for a long time after the rule changes, techs will be helping caregivers with products that meet the old rules. For example, child restraint systems built in January 2014 should be used as labeled for the life of the product. Sometimes vehicle manufacturers will tell you that products made before a new rule is required meet the new requirements. Or that older products retroactively meet the new rule. Otherwise, you must follow the directions that come with the product, even if it looks exactly the same as one that meets the new rules. When new regulations are introduced, it takes a long time for the US fleet of vehicles or car seats to meet them.



Seat Check Smarts: How Boosters Work

Older children who use boosters have a lower risk of injury in a crash, especially abdomen injury. Boosters improve restraint in three ways. First, the booster raises the child relative to the seat belt and positions them more like adults. This usually shifts the shoulder belt away from the neck, improving comfort and placing the belt over the shoulder. This also increases the lap belt angle, which makes it harder for the child to slide under it during a crash.

Second, boosters improve posture. Since most rear vehicle seats are longer than children's thighs, children usually slouch without a booster. The shorter cushion length of a booster allows them to sit up straighter, which improves belt fit. This also often allows children to see outside of the vehicle.

Third, lap-and-shoulder belt guides help route the seat belt better. The best lap belt guides place the belt so it touches the child's thighs. They can also keep the belt low during a crash. The best shoulder belt guides place the belt in the middle of the shoulder. Make sure the shoulder belt guide doesn't pull the belt too far off the child's shoulder. Also check to make sure it doesn't interfere with the retractor. Test by having the child lean forward then back, then make sure there's no slack in the shoulder belt.



Slouched Posture



Upright Posture

Help with Our Next Issue

Do you have ideas for our next issue? Email us at CPSTechUpdate@umich.edu with suggestions for columns. These could include:

- Pictures of unusual child seat installations for the 'Another Teachable Moment' article
- Pictures of adorable properly restrained kids (will need photo release to use)
- Name and email of a CPS technician who you would like to see interviewed
- Research you heard about on the news
- New product features

HELP

Seat Check Smarts: What You Can Find in the New LATCH Manual

Safe Ride News released the 2013 version of the LATCH manual earlier this year. The CPS curriculum lists the LATCH manual among its list of resources. If you have the one with the bright orange cover, you have the latest. The LATCH Manual is a tool that can help CPS Techs promote correct use of LATCH. It can especially help you with tether use, which caregivers use only about half the time with forward-facing harnessed restraints in the US. The newest LATCH manual version has more current and comprehensive data, including information not found in vehicle owner's manuals.

The manual contains information including:

- the history of LATCH
- weight limits for lower anchors and tethers for each vehicle manufacturer
- directions on how to add tether anchors to older vehicles
- tables of car seats that can be tethered rear-facing
- lists of manufacturers that allow use of irregularly spaced LATCH anchors
- details on LATCH hardware use with specific car seat models and vehicle models
- preview of information regarding the 2014 FMVSS 213 upgrade that bases lower anchor weight limits on the sum of the child's and the car seat's weight.

Technician Spotlight

This issue we feature Bev Kellner, recently awarded 2013 CPS Instructor of the Year. Bev is the program manager for the Texas A&M AgriLife Extension Passenger Safety program.

1) How long have you been a CPS Tech?

I have been a tech since 1999 and an instructor since 2002.

2) Where do you do most of your car seat checks?

Mostly at child safety seat checkup events statewide in Texas and at our local Passenger Safety Fitting Station.

3) What prompted you to take the training?

I came to Texas A&M AgriLife Extension Service to work on the Passenger Safety Project to assist with the design of their website and resources. When the project began to focus on child passenger safety in 1999, I knew I wanted to work hands-on in helping parents with their safety seats and signed up for a class to become a technician. In 2002 I went on to become an instructor.

4) What is your favorite CPS resource?

I would have to say that the LATCH Manual is my favorite go-to resource. Not sure how techs can do an inspection without having one at the ready.

5) What is your favorite installation hint?

Showing parents how to get behind a rear-facing seat in order to put weight on the seat and tighten the belt is one of my favorite tricks. Being small in stature and using this method, I can often show a parent 3-4 times my size how to get a secure installation.

6) What is the worst weather you've ever experienced at a car seat check?

That would be at a checkup event near the Texas panhandle. We were in the small town of Quanah and the winds were picking up as we were conducting the event - probably gusts up to 50 mph or more. There were boxes and even car seats blowing across the parking lot. I began to fear that I would be next!

7) What do you think is the best new feature among recent new child restraint products?

One of my favorites is the new Britax ClickTight technology. I really do think this will help parents get the seat in securely without having to worry about lock-offs and switching retractors! Lock-offs on the infant seat bases are also a great feature that helps with preventing the seat from tilting due to the switchable retractors.

Win Our Contest

Sign up to be notified via e-mail when future editions of Tech Update are published and whenever significant announcements or updates to the CPS Board website are made.

Signing up also makes currently certified CPS technicians and instructors eligible to WIN a free CPS recertification—a \$50 or \$60 value—from Safe Kids Worldwide. To sign up for the CPS Board e-mail list, visit www.cpsboard.org and click on "Subscribe to our email list" at the top right of the home page.

TECH UPDATE

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