

July 11, 2025
TRANSMITTED VIA EMAIL

Mr. Clarence Mow
Task Group Lead
ASTM F15.09 Indoor Triangle Climbers
F15.09 Home Playgrounds Subcommittee
100 Barr Harbor Dr.
West Conshohocken, PA 19428-2959

Dear Mr. Mow,

U.S. Consumer Product Safety Commission (CPSC) staff¹ supports the creation of the Triangle Climber Task Group under the ASTM F15.09 home playgrounds subcommittee to address hazards associated with low-height triangle climbers for toddlers for home use. Triangle climbers are used in classroom settings under close supervision by teachers² for gross motor development in children ages 9-months-through-2-years.³ Beginning around 2018 or 2019, similar triangle climbers began appearing for sale for use in the home.

CPSC staff shared with the subcommittee incident data in September 2024 and in-depth investigation reports in January 2025. Staff has recently completed a market scan of 10 triangle climbers to identify hazard scenarios and potential ways to address them (see Appendix for the data table). CPSC staff findings and recommendations are described below.

Head Entrapment:

The incident data revealed multiple reports of head entrapment, with one victim suspended above the ground. Most commonly, children climbed through the rungs or slipped feet first before becoming entrapped. This is likely because toddlers are prone to frequent slips and falls due to still-developing gross motor coordination and upper-body strength.³ Staff is concerned about the potential for head entrapment in climbers. “Even openings that are low enough for children’s feet to touch the ground can present a risk of strangulation for an entrapped child. Younger children may not have the necessary intellectual ability or motor skills to reverse the process that caused their heads to become trapped, especially if they become scared or panicked.”⁴

¹ The comments in this letter are those of the CPSC staff and have not been reviewed or approved by, and may not necessarily reflect the views of, the Commission.

² For more history on triangle climbers used in classrooms see: <https://pikler.org/>

³ Adolph KE, Hoch JE, Cole WG. Development (of Walking): 15 Suggestions. Trends Cogn Sci. 2018 Aug;22(8):699-711. doi: 10.1016/j.tics.2018.05.010. Epub 2018 Jul 4. PMID: 30032744; PMCID: PMC6145857.

⁴ U.S. Consumer Product Safety Commission (2010). Public Playground Safety Handbook, Section 3.3.1 Accessible at: <https://www.cpsc.gov/s3fs-public/325.pdf>

Rung spacing for all samples tested by staff failed head entrapment requirements for completely bounded non-rigid openings when tested to Section 6.1.2.1 in ASTM F2373-24 *Standard Consumer Safety Performance Specification for Public Use Play Equipment for Children 6 Months through 23 Months*. Specifically, the 3-inch torso probe was admitted through the rungs but the head probe was not. For comparison, staff also performed testing with the 3.5-inch torso probe, and all but one sample failed, presenting an entrapment hazard to preschool and school-age children as well. The wooden rungs flexed when less than 30 pounds-force was applied to the torso probe as specified in Section 6.1.2.1. In two of the climber samples, this flexing is what allowed the 3.5-inch torso probe through.

Recommendation: CPSC staff recommends a voluntary standard requirement for rungs to be spaced less than 3 inches apart or greater than 9 inches apart to reduce the risk of toddler head entrapment. Staff also recommends that the requirement address the flexibility of the wooden rungs.

Equipment Collapsing or Folding:

One collapse incident described the child leaning back on a triangle climber and having the sides collapse together and fall onto the child. Staff observed that many climbers were designed to fold flat for storage and have built-in stops for the sides to rest together (Figure 1). Some climbers had screw-in knobs to lock the rotation of the leg position (Figure 2), while other climbers did not lock in position.

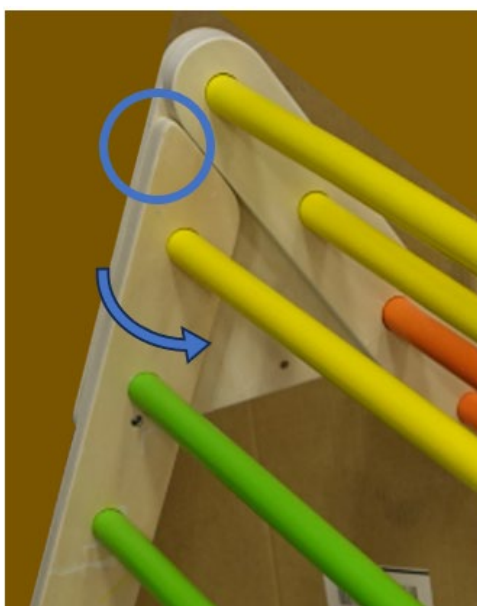


Figure 1. Example of a built-in stop to allow rotation one way to fold for storage, but stop rotation the other way.



Figure 2. A screw-in knob to lock the rotation of the leg position. A child can remove this and it fits in a small parts tube.

Staff found that many of the knobs, such as the knob shown in Figure 2, unscrew easily. The knobs resemble familiar shapes such as gears or stars, some with high contrast (black on natural wood), which can make them more inviting to a child. If a knob were removed and a child subsequently climbed on the structure, the sides could collapse. Most of the unscrewed knobs were also small parts.⁵ The stops shown in Figure 1 prevent collapse while a child is climbing normally, but if a child leans outward, there is no stop to prevent the sides from coming together and falling forward onto a child.

Recommendation: CPSC staff recommends a voluntary standard requirement for a double-action release mechanism,⁶ such as simultaneously activated locking pins on each side of the folding triangle climber's pivot points. Double-action locking pins cannot be operated by a young child because they are located too far apart to be simultaneously pulled out. This type of locking device would prevent both inward and outward collapse. Other locking mechanisms that can be demonstrated to be inoperable by a young child may also be acceptable.

Equipment Dislodging and Falling:

Several incidents involved notches on a sliding/climbing board becoming dislodged or knocked out of place and impacting a victim. CPSC staff found that all climbing samples had sliding/climbing boards with unsecured notches or parallel channels at either end, allowing the boards to be positioned over rungs of one or both structures. This design makes it very easy for a child to bump into one or more components, which could cause the board to become dislodged and fall to the ground.

Recommendation: Consistent with ASTM F2373 Section 7.4.3, CPSC staff recommends a voluntary standard requirement to secure all climbing equipment components at both ends with locking pins or similar mechanisms.

Fall Height:

For the products included in the triangle climber market scan, the maximum rung height, measured from the test surface to the top edge of the rung, was 33 inches. Considering that triangle climbers are intended to be used in living rooms and playrooms over carpet or even bare floors (based on marketing observations), this presents a fall hazard.

Recommendation: CPSC staff recommends a voluntary standard requirement for a maximum fall height of 18 inches for the highest climbing rung to remain consistent with height requirements in the ASTM F2373 standard.

⁵ See 16 CFR 1500.50-.53 www.ecfr.gov

⁶ "Double-action release mechanism" is a term defined in ASTM F833-21 *Standard Consumer Safety Performance Specification for Carriages and Strollers*, for example, to prevent children from activating a lock release.



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While we recognize that this scan is limited, we encourage the subcommittee to consider these observations and expand on them for developing requirements for these products. Staff appreciates the efforts of the task group in addressing safety concerns related to indoor triangle climbers for toddlers and looks forward to continued collaboration with the task group on this issue.

Sincerely,





Andrew Newens

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Appendix: Triangle Climbers Market Scan

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Molly Lynyak, ASTM F15 Staff Manager
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Heather Olsen, ASTM F15.29 Public Playgrounds Toddler Task Group Chair
Jos Huxley, ASTM F15.22 Toy Safety Subcommittee Chair

Appendix – Triangle Climbers Market Scan

Market Scan Sample	Age Label	Height (in)	Slide sidewalls	Rung Spacing (in)	Meets toddler head entrapment test? < 3.0"	Meets preschool head entrapment test? < 3.5"	Locking Device(s) - threaded tightening knob vs. actual locking pin	Sliding/ Climbing Board Attachment	Other Safety Concerns
	A 3-6 years	25.6	1 in.	3.5	fails	fails	Yes (one threaded twist knob to tighten on each side, 3 settings)	Have notches for resting in place but no means of securing in place	Negatives: Locking knob is a small part and can be easily unscrewed. Pinch hazard for gears on arched climber.
	B 2-5 years	31	None	4	fails	fails	No, but has stop to prevent outward collapse	Have notches for resting in place but no means of securing in place	Negatives: Collapses together if child is climbing and leans back. 5 rungs on triangle are loose. 1-2 rungs loose on arch climber. Some roughness.
	C NA	30.25	None	4	fails	fails	No, but there's a stop in one direction (has knob to hold parts together)	Have notches for resting in place but no means of securing in place	Negatives: Connecting knob easily unscrews and is a small part. Collapse hazard if one knob removed. Collapses together if child leans back.
	D 1+ years	24	None	3.5	fails	fails	Stays in fixed position (not adjustable)	Have notches for resting in place but no means of securing in place	Negatives: Wobbly sliding board, very rough. Some rough edges.

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	E	NA	33	None	3.3 4.8	fails	fails	No, but has stop to prevent outward collapse	Have notches for resting in place but no means of securing in place	Negatives: Lots of rungs turn. Super rough, splinters. Very tall. Collapses together if child leans back.
	F	3+ years	23	None	4.5	fails	fails	Yes, has locking device but easy to remove and collapses together and apart	Have notches for resting in place but no means of securing in place	Negatives: Star-shaped lock inviting to child, and if removed is a small part (unscrews easily). Very rough/splinters likely from sliding board. Attaches to learning tower which is wobbly/flimsy.
	G	6 months+	28.5	None	3.5	fails	fails	Yes, 2 locking pins that are spring-loaded - have to pull out simultaneously to adjust then release to lock. Has stop to prevent outward collapse.	Have notches for resting in place but no means of securing in place	Positive: Staff consider this the best example to prevent collapse because the two locking pins cannot be removed or operated sequentially, and they are too far apart to be operated simultaneously by a child.
	H	6 months+	28.5	None	3.5	fails	fails	Stays in fixed position (not adjustable)	Have notches for resting in place but no means of securing in place	Positive: High quality sanded, rungs don't spin. Negative: Fails with pre-k probe between top rungs.

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Market Scan Sample	Age Label	Height (in)	Slide sidewalls	Rung Spacing (in)	Meets toddler head entrapment test? < 3.0"	Meets preschool head entrapment test? < 3.5"	Locking Device(s) - threaded tightening knob vs. actual locking pin	Sliding/ Climbing Board Attachment	Other Safety Concerns
	I 1-6 years	32.75 with pointed roof (19.5 with flat roof)	None	3.5 for most rungs. 5 inches at joints	fails	fails	Yes, outer knobs and inner cogwheel to lock two pieces into place on triangle piece.	Have notches for resting in place but no means of securing in place	Positive: Smooth and solidly built (has internal cogs to prevent collapsing). Negative: Rungs rotate even when tightened.
	J toddler up to 7 years	30	no slide	3	fails	pass	Yes, but locking knob could be easily removed by spinning, it's a star shape toy element. Has a stop to prevent outward collapse.	NA	Negative: Once knob is removed, it will collapse together if kid leans back.