



September 22, 2022

TRANSMITTED VIA EMAIL

Mr. Harv Voris
Chairman Subcommittee F08.30 Fitness Products
HCV Consulting LLC
Huntington Beach, CA 92646

Dear Mr. Voris:

In April 2021, U.S. Consumer Product Safety Commission (CPSC) staff requested that the subcommittee on fitness products, ASTM F08.30, develop requirements in ASTM F2115-19 to address hazards involving entrapment of children and objects underneath the rear roller on an operating treadmill.¹ The subcommittee formed the F08.30 Treadmill Task Group in June 2021, and CPSC staff has participated in monthly task group meetings since that time.

As of the last task group meeting on July 25, 2022, the task group has coalesced around the concept of a mechanical guard to provide a physical barrier to prevent contact between the moving surface and a child or object at the rear roller area of the treadmill. The group is finalizing design requirements for a guard that covers the surface area of the rear roller, with no more than a 95 mm (3.74 in.) gap between the bottom of the guard and the floor, and no more than a 9.5-mm (0.374 in.) gap between the moving surface and the guard. At the meeting, CPSC staff expressed concern that the 9.5 mm (0.374 in.) gap between the moving surface/tread and the rigid guard presents amputation and pull-in hazards. At the task group meeting on May 18, 2021, two members shared videos of testing with proof-of-concept guards installed on exemplar treadmills, and the preliminary results showed that objects can be pulled into a 9.5-mm (0.374 in.) gap. CPSC staff's testing of a 9.5-mm (0.374 in.) gap between the moving surface of a slatted treadmill and rigid guard indicates a child's finger and hand can be pulled into this gap, inflicting severe injury, and possibly, death.

CPSC staff objects to the current direction of the task group, and we encourage the task group to consider the following performance requirements that staff drafted based on prototypes, which can address the hazard without limiting manufacturers to one particular design solution. Staff recommends the following preliminary draft performance requirements and welcomes the subcommittee or a task group to discuss appropriate specifics related to size and types of probes, entrapment force, and variables marked as "xx" below:

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

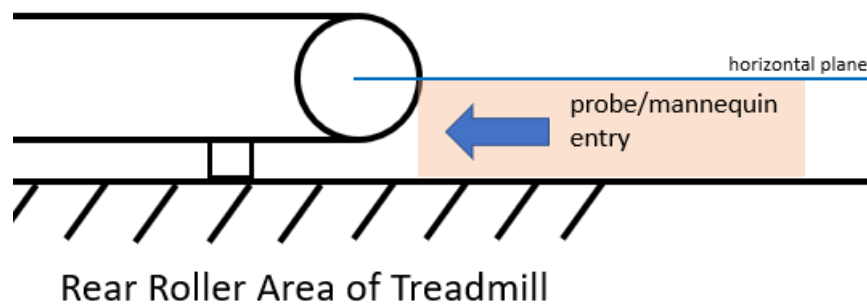
Definitions

Hazardous Gap – Opening between the moving surface and stationary component in which a child's finger or hand can access and be pulled in.

Entrapment – xx lbs. is required to remove probe/mannequin.

Requirements

1.1 Entrapment Requirement – when tested to 2.1, the rear roller area of the treadmill shall not allow any portion of the test mannequin (head, fingers, arms, legs, or feet) to touch the moving surface of the treadmill from the horizontal plane that extends from the center of the rear roller to the floor.



1.2 When tested to 2.2, any hazardous gap between the moving tread/belt surface and a stationary surface where the tread/belt is entering the gap shall:

- a) not allow the child small finger probe to enter the gap, or
- b) allow entry of an xx-inch probe composed of rubber, and stop the treadmill within xx seconds and prevent the test mannequin finger/hand from becoming entrapped in the gap, or
- c) if the child finger probe can enter the gap, a mechanism will allow the gap to open beyond xx inches and the treadmill stop within xx seconds and prevent the test mannequin finger/hand from becoming entrapped in the gap.

Test Method

2.1 – Push the test mannequin into the rear of the treadmill, and any opening at the rear of the treadmill, headfirst and feet first, while mannequin is laying on floor. Extend mannequin arm into rear of treadmill, and any opening at the rear of the treadmill, as far as possible.

2.2 – With treadmill operating at its maximum speed, push test mannequin finger/hand into any hazardous gaps between the moving surface and design feature of treadmill intended to address test method 2.1.

CPSC staff's proposed test methods are intended to prohibit entrapment of any part of a child between the moving surface of the treadmill and a stationary component or the floor. CPSC staff will provide proof-of-concept designs with the task group that can meet staff's proposed requirements. Two proof-of concept designs are:

- 1) Breakaway guard design that provides physical barrier between moving surface and floor to prevent entrapment at the rear of the treadmill. Breakaway of guard at xx lbf shuts off power to treadmill and prevents entrapment at gap between moving surface and guard.
- 2) Full-enclosure guard design that provides physical barrier between moving surface and floor to prevent entrapment at the rear of the treadmill. The design does not have a gap between moving surface and guard, thereby eliminating entrapment between moving surface and guard.

CPSC staff believes the known entrapment hazard between the moving surface and the floor (or rear horizontal bar) can be addressed without introducing a new finger/hand entrapment hazard. Staff encourages the task group to develop performance requirements that address all entrapment hazards, which thus far, have included two fatalities on treadmills. Staff's suggestions are preliminary drafts that are intended to focus discussion on the concept of performance requirements, instead of design requirements, to address child-entrapment hazards on treadmills.

Staff appreciates the task group's efforts and looks forward to continued collaboration on addressing staff's concerns. If you have any questions, please feel free to contact me.

Sincerely,

Caroleene Paul

Caroleene Paul
Director, Division of Mechanical and Combustion Engineering
Directorate of Engineering Sciences

Cc: Jacqueline Campbell, CPSC Voluntary Standards Coordinator
Joe Koury, ASTM F08 Staff Manager