

LOG OF MEETING

SUBJECT: Trampolines - ASTM F08-17 Subcommittee Meeting

DATE OF MEETING: December 8, 1999

DATE OF LOG ENTRY: January 4, 2000

PERSON SUBMITTING LOG: George F. Sushinsky

LOCATION: Hyatt Regency Hotel
New Orleans, LA

CPSC ATTENDEE(S): George F. Sushinsky

NON-CPSC ATTENDEE(S): Members and Guests of ASTM F 08.17
(See attached attendance list)

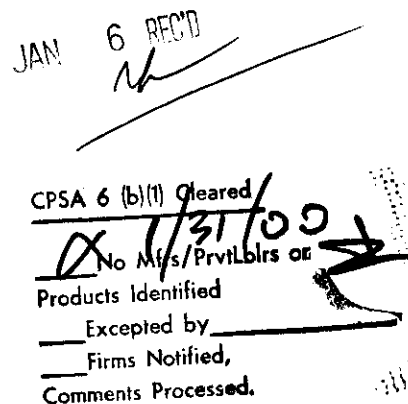
SUMMARY OF MEETING:

Subcommittee chairman, John Kuchno called the meeting to order and passed out an agenda (attachment 1). After introductions and some initial subcommittee housekeeping, the minutes were approved.

Lani Loken-Dahle discussed the activities of the Institutional Trampoline Task Group. This group is reviewing institutional standards (FIG and CEN) as it works toward developing a new standard for institutional practice trampolines. Christian Klubitschko augmented the discussion with his knowledge of these standards. Ms. Loken-Dahl pointed out some similarities but mainly differences between the commercial standards and the standards in place for consumer trampolines. She presented an overview of issues regarding bed size, bed materials as they affect rebound characteristics, springs, and padding requirements. Questions of spring coverage by padding and mat marking were discussed. Mat marking is part of commercial/institutional but not consumer standards. Ms. Loken-Dahl said that her task group is incorporating FIG and PREN requirements into a draft ASTM standard. A draft of the standard is to be circulated to subcommittee members prior to the May meeting.

Pat Welsh initiated discussion of the work of the trampoline padding task group. In addition to the round robin testing of instrumentation response to standard test pads, the subcommittee received a letter from the CPSC requesting the development of procedures and requirements for padding attachment strength. That letter was circulated to the meeting attendees. (See attachment 2.) The letter contained data on the strength of pad attachment on current products. George Sushinsky was asked to report on both issues.

Mr. Sushinsky summarized the scant results that he had from the round robin tests. Three labs had reported data, one other had equipment problems and was unable to respond. The available data had been quickly scanned for trends and found that in terms of Peak G



response the data was variable both between laboratories and materials. In addition, there was no consistent trend in the data showing one laboratory to be always higher or lower than the other two labs. The comparison between the labs was intermingled. The more difficult measure of severity index was expected to show equally discordant results. Two other laboratories requested that they participate in the testing. It was requested that the testing proceed quickly and that a meeting to discuss the results be convened in early 2000. Results are expected at the subcommittee level prior to the May meeting.

With respect to pad attachment strength, Mr. Sushinsky summarized the data in the letter handed out at the meeting. In order to put the CPSC concern with trampoline injuries in context, he also handed out the latest information on trampoline injuries (attachment 3) and discussed the relationship of trampoline injuries to other sports and recreation products as reported in the Fall 1999 issue of the Consumer Product Safety Review. Pat Welsh agreed that the existing padding task group should handle padding attachment strength issues. John Kuchno asked for a working draft by May. During discussion, it was suggested that padding attachment look and strength, environmental degradation, and lateral movement under side impact loading. As an example of the need for environmental testing, the recall a related product, Jump Court, on December 7, 1999 was discussed by George Sushinsky and Steve Moulton. A brief discussion of the type of environmental testing needed followed. Phillip Aja endorsed the proposed effort on pad attachments by noting that the current padding attachment requirement was too vague.

Under "New Business" it was announced that Jim Alshefsky (sp?) was replacing George Luciw as the ASTM subcommittee liaison. Mike Shanok commenting on the issue of broken springs submitted an e-mail message (attachment 4). It was reported to the subcommittee at the May meeting that CPSC had a few cases under investigation concerning spring stretching and breaking. Mr. Sushinsky addressed the points made by Mr. Shanok by noting that the CPSC findings included variation in material and spring properties from different batches of springs.

Dr. Carl J. Abraham initiated a discussion on markings for trampolines by noting a change in language instructing users to focus eyes on the trampolines. Without bed markings he was unsure of this message's intention. John Kuchno reviewed some of the history of the subcommittee that concluded that markings for backyard trampolines were not viable. This was partly because of the UV degradation of marking materials. A motion was made, defeated and withdrawn to review the standard with respect to marking. Christian Klubitschko noted that marking requirements were in the CEN standard and wondered what rationale there was against center marking. This is probably not a dead issue but will be discussed further when the standard next faces revision.

After a break, Bud Nichols discussed trampoline enclosures and the need for standards for this emerging product line. He particularly addressed entrapment between the bottom of the enclosure and the trampoline bed. He discussed the measures that his company, Jump King, has taken to prevent entrapment potential. He expressed the opinion that a properly installed enclosure (based on his company's installation instructions) addresses many of the safety issues with trampoline use. He stated that when properly installed, an enclosure may

eliminate the need for padding. Steve Moulton suggested that up to 50% of injuries might be addressed by an enclosure. Lani Loken-Dahl and others felt strongly that padding requirements for all trampolines were necessary to protect bystanders from finger entrapment, spring breakage, etc. A task group was formed to develop requirements for enclosures. There was commitment to present something in writing for the May subcommittee meeting.

The next meeting is scheduled for the week of May 21 in Toronto at the Sheraton Center.

The meeting adjourned at about 12:30 p.m.

MEETING ATTENDANCE LIST

F08.17 - TRAMPOLINES AND RELATED EQUIPMENT

NEW ORLEANS, LOUISIANA

December 08, 1999

CHAIRMAN: JOHN J KUCHNO

INSTRUCTIONS: Please have members initial, visitors sign visitor sheets and proxies initial by member names (and sign visitor sheets).
Keep lists for your minutes. Make no corrections.

CA ABRAHAM, CARL

___ ADAMS, ANDY

___ ADAMS, LEE

___ AYERS, RICK

___ BASS, DEREK

BAW BEARNSON, BRAD

___ BIGELOW, CLIFFORD

___ BOLLINGER, RONALD

___ BONE, VALERIE

___ BOS, PETER

___ BRELAND, RICHARD

___ BURCHFIELD, JOE

SB BURTON, SCOTT

___ CHALMERS, DAVID

___ DICK, DAVID

___ FAGAN, JOHN

___ FELLER, KURT

___ GEORGE, GERALD

___ GORMAN, SEAN

___ HOERNER, EARL

___ HYMAN, WILLIAM

___ JOHNSTON, WAY

CK KLUBITSCHKO, CHRISTIAN

JN KUCHNO, JOHN

LD LOKEN-DAHL, LANI

___ LUCENKO, LEONARD

___ LUCIW, GEORGE

✓ MOULTON, STEVEN

___ MULLINS, MICHAEL

___ NICHOLS, ALBERT

___ RABINOFF, MARC

___ REEVES, TRACEY

GR REYNOLDS, GARY

___ SABELLI, JOHN

___ SCHMIDT, ROGER

___ SHUTE, RAYMOND

RS SUTTON, RALPH

___ SWEENEY, THEODORA

X WELSH, PATRICK P.W.

___ ZETTEL, DAVID

ASTM ATTENDANCE SHEET

Please Print Clearly

MAIN/SUB/TASK GROUP F08.17

CITY NEW ORLEANS

DATE 12/08/99

Name	Company & Address	Phone/Fax/email
John Johnson	John - of need to replace Dave Zetter	1-800-882-5543
GARRY J. TINSLEY	Allied Tube & Conduit, 16100 S. Latimer, Phoenix, AZ 60426	501-288-3392
Lanola DeVore	Temperature USA, Inc 8672 IH 10 Orange TX	1 800 872 6765
Todd Churdock	" " " "	" "
ERIC TUCKER	TC Baycor 2170 Satellite Blvd Suite 350 Duluth GA 30097	1-800-685-8880 X342
Phillip M Aja	A Landmark Co. Boise, Idaho 83704	208-322-4456
Aer Mitterstern	RECREATION SAFETY INSTITUTE 39 S MADYSDALE AVE PORT WASHINGTON NY 11576	208 322-7944
GEORGE SUSHINSKY	U.S. CPSC 10901 DARNESTOWN Rd Gaithersburg MD 20878	516 383 6379
Laurel Jensen	ICON Health & Fitness 1500 South 1000 West Logan Utah 84321	301-413-0172
		301-413-7107 (fx)
		435-750-5000

IF YOU WISH TO JOIN THE COMMITTEE PLEASE SEE YOUR STAFF MANAGER OR STOP AT THE ASTM MEMBERSHIP DESK.

Attachment 1

Agenda

F08.17 Trampolines and Related Equipment December 8, 1999 New Orleans, Louisiana

- I. **Welcome and Introduction of those present**
- I. **Approval of minutes from May, 1999 meeting in Seattle**
- II. **Report and discussion from Institutional Trampoline Task Group**
- III. **Report and discussion from Trampoline Padding Task Group**
 - A. **Request from CPSC for performance requirement for ties/straps**
- IV. **New Business**
- V. **Announcements**
- VII. **Summarize and Close**

Attachment 2



U.S. CONSUMER PRODUCT SAFETY COMMISSION
WASHINGTON, D.C. 20207

August 31, 1999

Mr. John J. Kuchno, Esq
Subcommittee Chairman, ASTM F08.17
4122 Red Bandana Way
Ellicott City, MD 21042

Re: Trampoline Padding Retention Forces

Dear Mr. Kuchno:

Attached are the results of the pull tests conducted by the U.S. Consumer Product Safety Commission (CPSC) staff of ties/straps on seven trampoline pads, from five companies. These tests provide information about current performance and can be used by the subcommittee to develop a performance test and pass/fail criteria. The attachment also includes the test method used by the CPSC staff to conduct the pull tests.

CPSC staff believe that consumer injuries on the springs and frames can be reduced by ensuring that the padding covering the springs and frame remains in place. CPSC staff request that the trampoline padding subcommittee develop a performance requirement for ties/straps for inclusion in ASTM F-08.17.

Should you have any questions or comments, please contact me at the following: U.S. CPSC. Scott Snyder, ESME Room 611-25. 4330 East West Highway, Bethesda, Maryland, 20814. 301-504-0494 x1517 fax-301-504-0533. Thank You. Please note that these comments represent the opinions of the CPSC staff and have not been reviewed or approved by the Commission.

Sincerely,

Scott Snyder
Scott Snyder, Mechanical Engineer

Attachment

ATTACHMENT

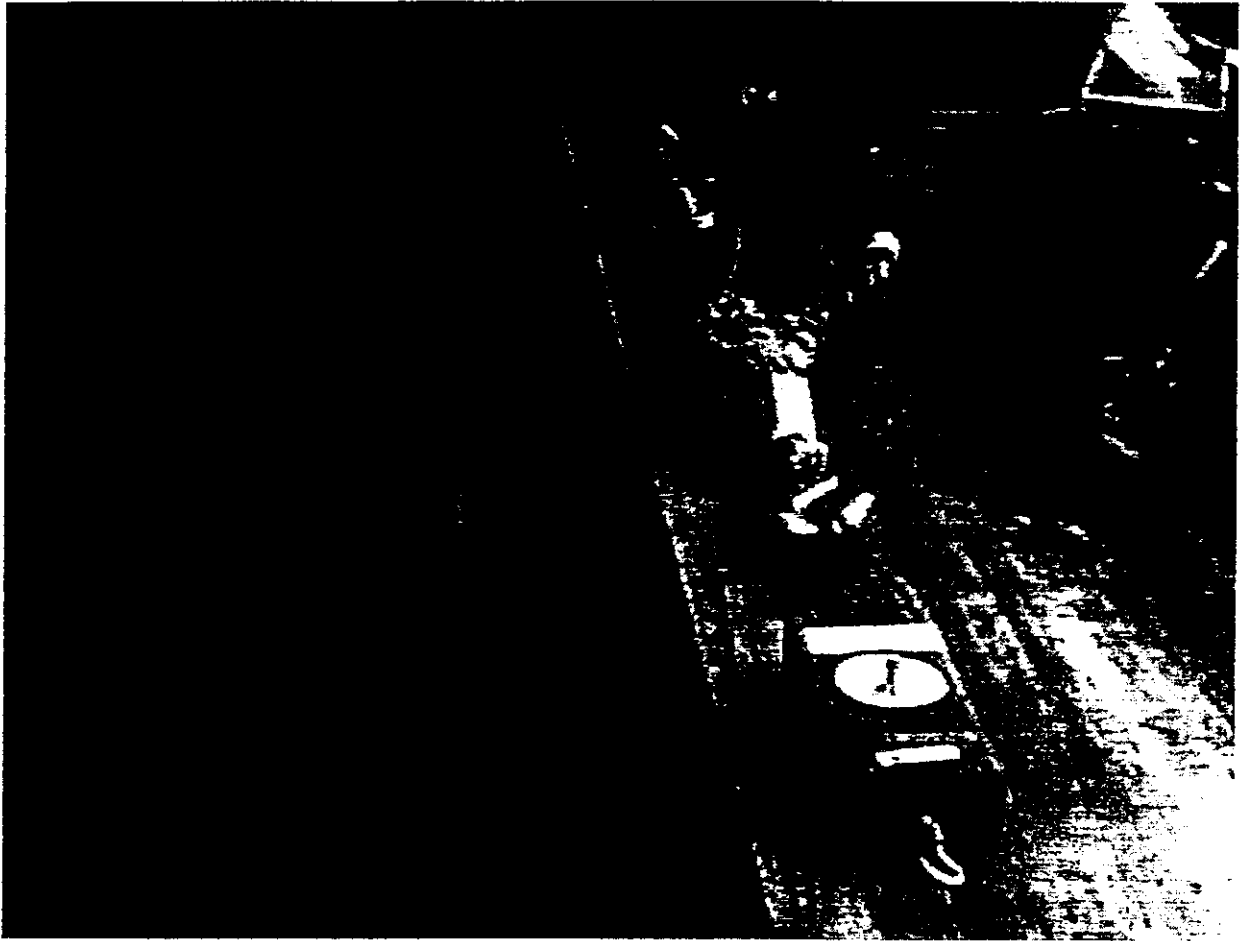
**Trampoline Frame Padding
Tie-down Pull Tests
conducted by CPSC staff**

Pull Test Procedure: At a point adjacent to the padding tie down(s), the padding sample is affixed to a work bench using adjustable clamps. The padding tie-down(s), either singularly or connected together, are affixed onto a pulling hook on a 250 lb analog Chatillon force gage. The opposite end of the Chatillon force gage is affixed to one side of a come-along. The opposite end of the come-along is affixed to the work bench. The lever on the come-along is ratched so that the force gage pulls the tie-down(s). The amount of pull force being applied to the tie-down(s) is indicated by the read-out on the force gage. The level of pull force is increased until the tie-down fails (failure is any partial breakage of the threads or the tie-down, itself). The force gage has a resettable indicator which indicates the maximum force that has been applied at the moment of failure. When the tie-down(s) fail, the maximum force indicator is examined and that force is recorded

Sample #1 had one inboard cloth sectional-tie, one outboard cloth sectional-tie, and two cloth frame straps (one strap had a built-in buckle). Sample #2 had two cloth frame straps (no buckle). Sample #3 had two elastic frame straps and a separate buckle. Sample #4 had two cloth frame straps and no buckle. Sample #5 had two different types of strap sets, one set of cloth straps with no buckle and another set of cloth frame strap with a built-in buckle. Sample #6 had one inboard cloth tie and two cloth frame ties (no buckle). Sample #7 had one inboard cloth tie and two cloth frame ties (no buckle).

<u>Tie Position</u>	<u>Sample # & Force(lb)</u>						
	#1	#2	#3	#4	#5	#6	#7
<u>Inboard cloth sectional-tie(1)</u>	90	-	-	-	-	70	55
<u>Outboard cloth sectional-tie(1)</u>	150	-	-	-	-	-	-
<u>Frame ties/strap</u>					(s)250 (d)200		
	(s)135 (d)150	(s)135 (d)200	(s)125 (d)130	(s)125 (d)190	(s)135 (d)200	(s)50 (d)85	(s)40 (d)95

(1)-has only one strap/tie down at this location
(s)-one of two ties pulled
(d)-both ties connected (i.e., tied together or buckled) and pulled



TRAMPOLINE-RELATED INJURIES TREATED IN U.S. HOSPITAL EMERGENCY ROOMS, 1997

1997 - ESTIMATED INJURIES: 82,722 (95% C.I. = 69,979 to 98,465)
(n=1981)

HAZARD PATTERNS:

	Estimate	Percent
Total	82,722	100.00%
Fell off	18450	22.30%
Mult. Jumpers	4806	5.81%
Other	2030	2.45%
Unknown*	52432	63.38%

*Many in the "unknown" category appeared to involve victims landing improperly on the trampoline

HAZARD PATTERN BY BODY PART INVOLVED

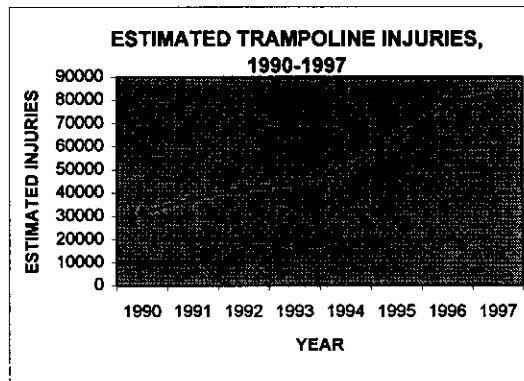
	Total	Head/Face	Neck	Trunk	Arm/Hand	Leg/Foot	Oth/Unk
All hazards	82,722	11,621	3,847	9,133	22,370	35,621	131
Row percent	100.00%	14.05%	4.65%	11.04%	27.04%	43.06%	0.16%
Fell off	100.00%	14.06%	3.47%	14.44%	39.14%	28.45%	0.44%
Mult. Jumpers	100.00%	23.90%	5.71%	19.96%	20.99%	29.43%	0.00%
Other	100.00%	30.23%	1.26%	14.45%	24.38%	29.68%	0.00%
Unknown	100.00%	9.90%	5.50%	9.23%	24.73%	50.55%	0.09%

HAZARD PATTERN BY DIAGNOSIS

	Total	Laceration	Cont/Abr	Str/Sprain	Fracture	Disloca	Concuss	Internal	Oth/Unk
All hazards	82,722	8,467	13,046	31,065	22,535	2,039	471	489	4,610
Row percent	100.00%	10.24%	15.77%	37.55%	27.24%	2.46%	0.57%	0.59%	5.57%
Fell off	100.00%	9.24%	18.46%	25.82%	38.29%	1.57%	1.42%	0.97%	4.24%
Mult. jumpers	100.00%	12.22%	24.96%	23.33%	26.83%	3.72%	0.00%	0.13%	8.82%
Other	100.00%	29.12%	19.75%	30.80%	7.88%	0.00%	3.69%	1.05%	7.92%
Unknown	100.00%	7.43%	12.07%	45.90%	25.36%	2.85%	0.13%	0.46%	5.80%

ANNUAL ESTIMATES (ADJUSTED), 1990-1997

Year	Adj Estimate	Old Estimate	Adj. Factor
1990	31629	32,554	0.9716
1991	37553	38,879	0.9659
1992	41899	43,631	0.9603
1993	44117	46,215	0.9546
1994	50189	52,892	0.9489
1995	62415	66,174	0.9432
1996	78662	83,399	0.9432
1997	82722	82,722	N/A



From: George Luciw <gluciw@astm.org>
To: John J Kuchno <kuchno@gateway.net>
Date: Monday, November 01, 1999 3:40 PM
Subject: Fw: F08.17

John,
Please review , and cover as appropriate at the next F08.17 meeting, as requested by Mike Shanok in the message below.

Regards,
George

----- Original Message -----

From: michael.shanok < >
To: < >
Sent: Friday, October 29, 1999 3:15 PM
Subject: F08.17

> George - Please mention this at the 12/8 F08.17 meeting, as I can not
> attend. In the minutes of the last meeting, I noticed George
> Shushinsky's comment about CPSC receiving reports of broken and stretched
> trampoline springs. I have investigated a trampoline accidents for
> manufacturer's carriers, in which similar problems were caused by
> improperly assembling the trampoline - attaching adjacent springs, one
> after another to the mat instead of working back and forth, across the
> mat. The symptoms of this are a combination of relatively unstressed
> springs along with stretched and/or broken springs. Although I suspect
> that this is well known in the industry, CPSC may not be aware of it.
>
> Thanks,
> Mike Shanok
>
>