

5/30/90 12 with the memo
X No Mfrs/Private Labels or Products Identified

- IV Direct the staff to develop a public information and education campaign concerning strangulation hazards associated with crib toys.

Signature

Date

- V Take other action (please specify): _____

Signature

Date

Petition on Crib Toys

EXECUTIVE SUMMARY

On November 17, 1988, the Consumer Federation of America and the Attorney General of New York submitted a petition requesting that the Consumer Product Safety Commission ban certain crib toys because of entanglement and strangulation hazards to children.

The Commission has previous experience dealing with the hazards associated with crib toys. Compliance actions have resulted in the recall, correction or relabeling of hazardous crib toys. Based on work conducted by the CPSC and before 1973 the U.S. Food and Drug Administration, provisions have been included in the ASTM Voluntary Standard for Toy Safety which limit the length of strings, cords and elastics on crib toys; require labels with cautionary messages and age recommendations and require instructions for using the product safely. Messages on the safety of crib toys have been included in the Commission's consumer education efforts.

The petitioners assert that the existing voluntary standard provisions are not adequate to protect children from the strangulation hazards associated with crib toys. They recommend that the Commission initiate action to ban crib toys not meeting ten different criteria. They cite CPSC data and information contained in two 1987 studies, an Epidemiological Hazard Analysis and a Human Factors Study as support for this request.

These two studies cited the 49 strangulation-related incidents involving crib toys which had been reported to the Commission between 1973 and April 1987. These cases included 30 deaths, one case of severe brain damage, and 18 "near misses" where no permanent injuries occurred. The crib toys involved were designed to be strung across a crib or playpen, attached to a corner post or siderail or suspended above an infant. The staff is aware of one additional non-fatal incident since these studies.

Based on its analysis of the issues raised by this petition, the staff recommends that the Commission grant the petition by initiating a rulemaking proceeding and issuing an Advance Notice of Proposed Rulemaking which could result in mandatory requirements for crib toys.

UNITED STATES GOVERNMENT

MEMORANDUM

05#3653
U.S. CONSUMER PRODUCT
SAFETY COMMISSION
WASHINGTON, D.C. 20207

MAY 30 1990

TO : The Commission
Through: Sadye E. Dunn, Secretary *S. Dunn*
Through: Susan Birenbaum, Acting General Counsel *Susan Birenbaum*
Through: Thomas W. Murr, Jr., Acting Executive Director
Through: *DW* Douglas L. Noble, Director,
Office of Program Management and Budget,
Through: David W. Thome, Program Manager, *DW*
Emerging Hazards/Vulnerable Populations, EXPB
FROM : Elaine A. Tyrrell, Project Manager,
Vulnerable Populations, EXPB *E. Tyrrell*
SUBJECT: Petition HP 89-1 on Crib Toys

Issue:

Whether to grant or deny a petition (Tab A) submitted on November 17, 1988, by the Consumer Federation of America (CFA) and the Attorney General of New York (AGNY) which requests the Commission to ban certain crib toys as hazardous substances in accordance with the provisions of various sections of the Federal Hazardous Substance Act (FHSA).

Petition Requests:

The petitioners request the Commission to initiate a proceeding under provisions of the Federal Hazardous Substances Act (FHSA) for a rule to express the Commission's determination that certain crib toys intended for use by children under two years of age present a mechanical hazard and therefore are banned hazardous substances.

The petitioners allege that certain types of crib toys and mobiles present risks of strangulation to infants and young children because of their design or manufacture. The petitioners cite three types of crib toy strangulation hazards where the infant's or young child's neck: 1) becomes entangled in cord(s) attached to the toy, 2) becomes entangled in its own clothing which caught on a crib toy protrusion, or 3) becomes suspended over a crib toy horizontal cord or toy part.

Seven types of crib toys are included in the petitioners' scope: crib gyms, crib mobiles, suspended stuffed toys, cord-activated toys, activity boxes, crib mirrors, and crib music boxes with wind-up mechanisms. (Appendix A of the Petition presents illustrations of the various types of crib toys currently available in the marketplace. Many of these products contain the features that are the subject of the petition). For discussion purposes, these toy types were grouped into three categories depending on characteristics or features of the

individual products: 1) crib toys - referring to all seven types of toys listed above, 2) manipulative crib toys - referring to all of the types except mobiles and possibly crib mirrors, and 3) mobiles.

The petitioners request 10 specific actions of the Commission for the three toy categories. These 10 actions are summarized as follows:

1. Ban manipulative crib toys with horizontal suspension members unless the horizontal members are rigid and can be attached at or above crib side rails and such suspension members do not create a protrusion hazard.
2. Ban manipulative crib toys with horizontal suspension members unless the products contain a permanent and conspicuous warning stating: "Warning. Always use with both ends attached to opposite crib sides. Child could strangle on unconnected end."
3. Ban crib toys with vertical strings 6 inches or greater in length.
4. Ban crib toys with perimeter openings greater than 14 inches.
5. Ban crib toys with protrusions - rigid and non-compressible vertical and horizontal protrusions that could catch clothing or a cord.
6. Ban crib toys with pull rings.
7. Ban mobiles located within reach of children not capable of pushing up on hands or knees.
8. Ban mobiles that attach to cribs unless they contain a permanent and conspicuous label (on product and package), warning of the strangulation hazard and urging removal of the mobile when the child can push up on hands and knees.
9. Ban crib toys unless they contain a warning statement in their Instructions that crib mattresses should be in one of the lower positions and crib drop sides should be up when the toys are attached.
10. Ban crib toys whose warning statements in Instructions are not presented first and are not separated and easily distinguishable from informational and marketing messages in the Instructions.

On pages 3 - 7 of the petition, the full text for each requested action is presented along with supporting incident/death data or

the reasoning for the requested action. This information is summarized at Tab B.

The petitioners assert that the existing voluntary standard provisions in ASTM F963-86, "Standard Consumer Safety Specification on Toy Safety", are not adequate to protect children from the three strangulation hazards associated with certain crib toys and cite CPSC data and information as well as information from other referenced sources to support their assertion that the 10 specific actions described above are necessary.

Background:

The Commission has extensive experience with the entanglement/strangulation hazards associated with certain crib toys. Staff from the Commission and its predecessor, the Food and Drug Administration (FDA) have used "best professional judgment" in addressing these hazards over the years. A number of cases opened under Section 15 of the Federal Hazardous Substances Act (FHSA) have resulted in the recall, correction, or relabeling of hazardous crib toys. Based on work conducted by the CPSC and the FDA, provisions were gradually included in the Voluntary Standard for Toy Safety (ASTM F963-86) which 1) limit the length of strings, cords, elastics, etc., used in the construction of crib toys; 2) require labels on the product and package which provide cautionary messages and age recommendations; and 3) require instructions to accompany the product which describe procedures for using it safely (Tab C). In the past the CPSC has included safety messages and summaries of the voluntary standard requirements for the strangulation hazards associated with crib toys in various CPSC documents intended for general public consumption (Tab D). These messages also have been included in numerous toy and nursery equipment safety press conferences held by CPSC since 1985.

In Fiscal Year 1987, the staff was scheduled to submit an options package to the Commission on work conducted in a project called "Ligature Strangulation". The purpose of this project was to identify the hazards and causal factors associated with crib toys, evaluate the adequacy of the provisions applicable to crib toys as contained in the voluntary standard (which had been republished in April 1986), and develop remedial strategies to address the problem areas.

Due to a number of unscheduled, Commission directed, activities that took priority for staff working in the children's hazards area, the staff's work on the options package was not completed. The resources for the program area in FY 1988 did not permit a carry-over of the work for the project. However, two documents prepared by the staff in support of the project were forwarded to the Commission in a package dated January 22, 1988.

These documents have been released to the public upon request. These documents were 1) a report entitled, Human Factors Evaluation of Provisions Which Address Crib Toy Strangulations in the Toy Safety Voluntary Standard, dated July 1987, and 2) a memorandum entitled, "Strangulation-Related Incidents Involving Crib Toys," dated June 22, 1987. A copy of this package is available for review in the Office of the Secretary.

The strangulation-related incident data cited in these two CPSC staff documents represent a total of 49 crib toy cases (including four homemade toys) which occurred from 1973 through April 1987. These cases included 30 deaths, one severe brain damage, and 18 "near-misses" where no permanent injuries occurred. The crib toys involved were designed to be strung across a crib or playpen, attached to a corner post or siderail, or suspended above an infant.

The victims were reported to have ranged in age from one month to two years; however, a majority of the victims were from 6 to 12 months of age. It was commonly reported that the victims were able to push up, pull up, or stand in their cribs at the time the accident occurred.

The crib toys involved in the 49 incidents were classified as being one of the five following types: 1) crib gyms which are usually strung across a crib with the ends attached to opposite sides (28 cases with 14 deaths and one severe brain damage); 2) suspended stuffed toys which are suspended by two or more cords converging at some distance above the toy and attached to the crib at one point (4 cases with 3 deaths); 3) cord-activated toys which are attached to the crib at one point and hang in the crib (4 cases with one death); 4) mobiles which are attached either to the crib, ceiling or wall and hang above the crib (4 cases with 3 deaths); and 5) activity boxes which are attached to one part of a crib by a frame containing play objects (2 cases each with a death). The type of crib toy was unknown in seven cases each with a death.

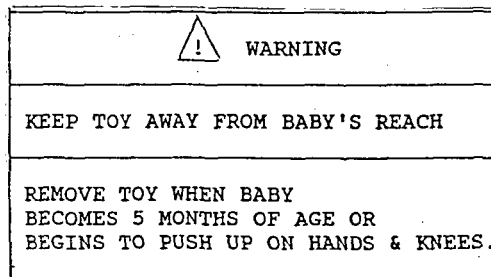
The strangulation incidents occurred primarily in one of two ways: 1) by hanging (35 cases with 19 deaths) where pressure was exerted on the neck by a crib toy cord or by an item already around a child's neck e.g., clothing strap, pacifier cord, bib, etc., which caught on a crib toy protrusion (the cords, straps or clothing items became entangled and were tightened by the weight of the victim's body); and 2) by postural strangulation (8 cases with 6 deaths) where the child's head and neck was suspended over a horizontal cord and pressure on the neck was exerted by the weight of the body. Information to identify the type of strangulation was not available for the remaining 6 cases.

For 3 of the 4 cases where cautionary statements were present, the product was a toy intended to be suspended across

the crib and the cautionary statements were included in the instruction booklet, but not affixed to the toy itself. In the fourth case, the cautionary statement was printed on the toy (a mobile), but it was reported not to be easily visible. In several cases, it was reported that the parents were unaware of potential strangulation hazards that may exist with crib toys.

The Human Factors report identified 5 product characteristics common in crib toys (play value, installation height, cords, pull rings, and protrusions) and related them to child development characteristics. The results were used to evaluate the adequacy of the applicable provisions for crib toys contained in the ASTM F986-86 Voluntary Standard. The report contains seven conclusions which, from a human factors standpoint, describe crib toys having characteristics that would be less likely to result in strangulation than the crib toys involved in the incidents reviewed. These conclusions are:

1. Non-manipulative crib toys, such as mobiles, which cannot be inadvertently located within reach of the crib occupant.
2. Non-manipulative crib toys, which attach to a crib, that contain a permanent label on both packaging and product stating:



3. Manipulative crib toys with horizontal suspension members that are rigid and can only be installed at or above the height of crib side rails.
4. Crib toy vertical strings that are less than 6 inches.
5. The perimeter of crib toy openings, formed either by multiple cords or by cords in combination with other portions of the toy to which cords are attached, that are less than 14 inches in their maximum extended state.
6. Crib toys without protrusions which can catch or hold a cord or part of clothing.
7. Crib toys with instructions which include warnings that crib mattresses should be placed in one of the lower positions, and that crib drop sides should be up. In addition, instructions

which separate safety messages from informational messages, and present the safety messages first.

The petition is based largely on the two Commission staff analyses described above. Of the 10 actions requested in the petition, 8 are closely related to the conclusions expressed in the Human Factors (HF) report. The HF report does not include 2 of the toy types included in the petition - crib mirrors and crib music boxes with wind-up mechanisms. The petitioners' requested actions expressed at numbers 2, 5, 6, and 8 on page 2 differ from the HF conclusions. The differences, as discussed at Tab B, are not considered major.

Another Commission staff document developed for the 1987 Ligature Strangulation Project provided preliminary market information (Tab E). At that time, industry sources indicated that about 25 companies produced or supplied crib toys, with the leading manufacturer possibly holding more than 50% of the market. It was estimated that approximately 340,000 crib gyms and 780,000 crib mobiles were then in use. These calculations include both old and new products.

Legal Guidance:

The Office of the General Counsel (OGC) provided legal guidance to the staff for consideration in the evaluation of this petition. The OGC memorandum to the staff is attached at Tab A.

The Federal Hazardous Substances Act (FHSA) authorizes the Commission to issue a rule banning any "toy or other article intended for use by children" which presents a "mechanical hazard" if it presents "an unreasonable risk of personal injury or illness from points or other protrusions, surfaces, edges, openings, or closures or because of any other aspect of the article's design or manufacture."

If the Commission grants the petition, the proceeding to issue the rule requested by the petitioners is initiated by publication of an advance notice of proposed rulemaking (ANPR). The Commission is not required to make any finding about the existence of an unreasonable risk of injury to publish the ANPR. However, to issue a final rule banning a toy or children's article because it presents a "mechanical hazard," the FHSA requires the Commission to make and support findings that the product banned by the rule presents an unreasonable risk of injury.

For this reason, OGC advised the staff that the briefing package should include a discussion of any information in the petition or available from other sources which is relevant to the issue of whether the crib toys described in the petition may present an unreasonable risk of injury.

A separate memorandum from OGC, marked "For Official Use Only", accompanies this briefing package and discusses legal issues involved in the decision of whether to grant or deny the petition.

Voluntary Standard

The Voluntary Standard for Toy Safety, ASTM F963-86, contains a number of provisions aimed at addressing the entanglement/strangulation hazard associated with certain crib toys (see background section and Tab C). The staff met with representatives from the Toy Manufacturers of America (TMA) on several occasions during 1988 to discuss the Human Factors report and to request consideration of additional provisions and changes to the voluntary standard to address this hazard with certain crib toys. TMA stated that in the absence of more current incident data, they saw no reason to change the provisions in the current voluntary standard.

During 1989, CPSC staff discussed the crib toy strangulation issue with the then president of TMA. He was asked, in his role as Chairman of the ASTM Toy Safety Task Group, to call a meeting of the Task Group to make it aware of the petition before the Commission and to determine its position on the issues of the petition, as a Task Group. The president of TMA stated that he did not plan to call a meeting of the Task Group. His rationale for this position was 1) no new injury data, 2) without new or current injury data there were no clues on how to make crib toys safer, and 3) the ASTM Toy Safety Task Group includes manufacturers and distributors of all kinds and types of toys, so there is no need to call a meeting of the entire Task Group to talk only about crib toys (Tab F).

On February 28, 1990, the current president of TMA and Interim Chairman of the ASTM Toy Safety Task Group, called a meeting of the Task Group to discuss, among other items, the 10 requested actions in the petition on crib toys. The Task Group members present did not take a formal position on any of the petition issues at the meeting. They agreed to have the president of TMA raise their comments at the next TMA industry safety standards meeting where a position and recommendations would be drafted for review by the ASTM Task Group. They also agreed that they wanted to take advantage of the opportunity to review the staff's briefing package when it is available to the public.

The Task Group's comments on the 10 requested actions in the petition are contained in the meeting log at Tab G. In general, their comments can be summarized as follows: 1) a concern for toy alternatives (which may be more hazardous) that might be used by parents if crib gyms were eliminated from the market, 2) the need

for current injury data to support each of the 10 requested actions, 3) the need for clearer definitions or a narrower scope for certain toy categories, 4) the possible inclusion of provisions in the voluntary standard to require labels and information in the instructions for mobiles to be consistent with such provisions for crib gyms, and 5) the possible need to clarify provisions in the voluntary standard related to the perimeter of crib toy openings and the location/distinguishability of warning statements in instructional literature accompanying the toy. The next meeting of this Task Group is scheduled for May 15 at ASTM Headquarters in Philadelphia.

CPSC Compliance and Enforcement Activities:

Since the late 1970's, the Compliance staff, has negotiated a number of recalls of crib toys which had been involved in one or more strangulation deaths (Tab H). In addition to removing especially hazardous crib toys from the market, these actions helped to focus attention on the types of hazards presented by crib toys and provided much of the impetus for adding provisions on crib toys to the Toy Safety Voluntary Standard over the years.

For the time period since the 1986 republication of this Voluntary Standard (1987 through February 1990), the Compliance staff has identified 14 different crib toys which they preliminarily determined to present substantial risks of injury to children because of strangulation hazards. Ten of these actions resulted in recalls of the products involved. The remaining four resulted in either the manufacturer halting production, halting distribution to the retail level or correcting future production of the toy.

The specific defects which resulted in these crib toys presenting potential strangulation hazards included inappropriate age recommendations, inadequate or no warning labeling or instructions, excessive string length, or a combination of these problems. In almost all of the cases, the product did not conform to the voluntary standard. Based upon this experience, the Compliance staff is concerned that there may be substantial non-conformance with the existing voluntary standard provisions.

Staff Discussion:

Crib Toy Risks

The staff believes that the crib and its environs should be the safest place in the house to leave a baby unattended. This means that crib toys left in the crib for the baby's amusement and stimulation should be free of features or characteristics that have the potential to harm a child during its earliest developmental stages. Such features and characteristics include protrusions and catch points, cord lengths, loops or openings

formed by cords, cords in combination with other toy parts, etc. Cautionary information to warn parents and other caretakers of the possible consequences if toys are not used in the manner prescribed in the toy's instructions is also considered important to the safety of infants who have not yet developed the skills necessary to protect themselves from actions that could cost them their lives.

The staff has not addressed crib toy strangulations in a hazard project since 1987. From a review of current injury data, the staff is aware of one additional non-fatal incident involving a crib toy since the June 1987 staff memorandum which was cited in the petition. The staff is aware of three deaths associated with crib toys since republication of the toy safety voluntary standard in April 1986. (It appears that in at least two of the three cases, the product was purchased before the republication date.) Despite the absence of a large number of current injuries or deaths associated with crib toys, the staff remains concerned about new and future crib toys that may have features or characteristics similar to those on products that have contributed to infant strangulations in the past.

Adequacy of the Voluntary Standard

As noted earlier, almost all of the crib toys involved in corrective actions negotiated between the firms and the Compliance staff since 1987 were not in conformance with one or more provisions of the current voluntary standard. Based upon this experience, the staff has reason to believe there may be wide-spread non-conformance with the existing voluntary standard provisions for crib toys. Based on the two 1987 CPSC studies, the staff also has reason to believe that the current voluntary standard provisions developed earlier by TMA in conjunction with CPSC or FDA staff may not be adequate to address all of the potential strangulation hazard associated with certain crib toys.

Specifically, the human factors study stated that the voluntary standard provisions for cord lengths were not supported by the most recently developed anthropometric data or by the mechanisms of strangulation. Further, the voluntary standard label provisions advise parents to remove crib gyms when, according to child development literature cited in this study, the toy would be of most use to the child. The staff believes that a parent may be reluctant to remove crib toys from the crib when the child is five months or can push up on hands and knees, as stated in the voluntary standard labeling provision for crib gyms, as this is the age when the child is becoming interested in the toy.

The human factors study also recommended that the string length provisions of the voluntary standard should be revised. The study pointed out that cords contributed to almost all of the crib toy incidents other than those where the children were

hanged by items already around their neck that caught on a crib toy protrusion. The 50th percentile neck circumference of infants between the ages of 4 and 6 months is 8.3 inches. CPSC staff is aware of an incident where death occurred on a 9-10 inch pull cord. The human factors study stated that 12-inch long vertical cords, as specified in the voluntary standard, are long enough to encircle a child's neck and cause strangulation. Vertical cords less than 6 inches in length would reduce the likelihood of strangulation from cords encircling the neck. Further, it is not necessary for a cord to extend around the entire neck, particularly in postural strangulations. External marks on the necks of three such victims were 2.4, 3.5, and 4.3 inches long. The shortest cord involved in a postural strangulation was approximately 2.5 inches long. Therefore, the HF staff believes that no horizontal string length is safe.

Also, the voluntary standard states that if a cord can tangle to form a loop, the perimeter of the loop shall be less than 14 inches. While this provision is adequate to prevent loops from fitting over the head, it does not address openings formed by multiple cords or by cords in combination with other portions of the toy to which the cords are attached. In 5 cases, resulting in 4 deaths, an infant's head and neck became entangled in the openings created by these two additional cord and toy combinations. A revision to address these other openings in crib toys (that can be created by multiple cords or cords in conjunction with other portions of the toy) should be addressed in the voluntary standard and would lower the risk of strangulation.

Summary

Infants gain the strength and mobility necessary to begin playing with crib toys at the age of 3 - 4 months. They continue to be interested in playing with crib toys until about 12 months of age. Most of the crib toys are designed for manipulative play by infants presumably to improve or enhance development of motor skills. The design of many of these toys includes features (such as dangling play objects on strings) to stimulate the infants to reach for or kick moveable parts that may result in some sound or motion of the toy.

The staff believes that almost any type of crib toy can present some type of strangulation hazard. The staff also believes that it is difficult to eliminate all strangulation hazards from crib toys. However, the staff has identified the characteristics or features that would make crib toys less likely to result in strangulation. These characteristics form the basis for the seven conclusions contained in the 1987 Human Factors report. The staff believes that these conclusions should represent the starting point for any CPSC action to address the strangulation hazards associated with certain crib toys if the Commission pursues this issue.

Options:

The options available to the Commission with regard to the petition are:

1. Grant the Petition

If after consideration of the available information, the Commission has reason to believe that an unreasonable risk of injury may be associated with crib toys and that a rule may be needed to address that risk, the Commission could grant the petition and initiate a rulemaking proceeding by publishing an Advance Notice of Proposed Rulemaking. Such a proceeding could result in the issuance of regulations mandating some or all of the requirements for crib toys requested by the petition. The possibility also exists that the proceeding might result in issuance of requirements for crib toys other than the ones requested by the petition, or that the proceeding might be terminated before a final rule is issued.

2. Deny the Petition

If the Commission finds from the available information that the risk of injury associated with crib toys, if any, does not warrant issuance of a rule the Commission could deny the petition and take no further action directed specifically toward entanglement/strangulation hazards associated with crib toys. If the Commission chooses this option, crib toys will remain subject to provisions of Section 15 of the FHSA if they contain "a defect which creates a substantial risk of injury to children." As in the case of any other toy or children's article containing such a defect, crib toys would be subject to orders for public notification and corrective action under Section 15 of the FHSA.

3. Deny the Petition and Take Other Action

If the Commission finds from the available information that the risk of injury associated with crib toys, if any, does not warrant issuance of a rule, the Commission could deny the petition and take either or both of the following actions:

- A. If the Commission decides that a voluntary standard might adequately address any risk of injury associated with crib toys, the Commission could direct the staff to work with ASTM and the crib toy industry to amend the voluntary standard for toys to incorporate some or all of the requirements for crib toys requested by the petition.
- B. The Commission could also direct the staff to develop a public information and education campaign to be conducted in cooperation with TMA or other organizations, or by the Commission alone.

Staff Recommendation:

The staff recommends that the Commission approve Option 1. The staff is preparing a draft Advance Notice of Proposed Rulemaking (ANPR) for Commission review and approval. The ANPR will be submitted to the Commission separate from this briefing package. However, the staff will not have the resources for further activities until the beginning of FY 1991 when work will begin under the approved project for crib toys. Should additional resources be needed for the regulatory activities for this project, they will be included in the FY 1991 operating plan documents submitted for Commission approval.

Pursuant to Section 5 of the Commission General Policies of March 18, 1987, the Acting Executive Director indicates that he is reasonably unaware of any relevant and significant minority or dissenting views on this package except for those contained in this package, if any.

ATTACHMENTS

Tab A Memorandum from Brauninger, A.F., OGC, to Noble, D.L., EXPB, entitled, "Petition for rule to ban certain crib toys, HP 89-1", November 22, 1988.

Attachment:

Petition from Consumer Federation of America and Robert Abrams, Attorney General of the State of New York with a cover letter from Mary Ellen Fise, Product Safety Director and Attorney for petitioner CFA, to Sadye Dunn, Secretary of CPSC, dated November 17, 1988.

Appendix A - Advertisements to illustrate various types of crib toys currently available in the marketplace.

Appendix B - CPSC Report: Human Factors Evaluation of Provisions Which Address Crib Toy Strangulations in the Toy Safety Voluntary Standard, (July 1987) by Shelley W. Deppa

Appendix C - CPSC memorandum from Tinsworth, D. EPHA, to Tyrrell, E., EXPB, "Strangulation - Related Incidents Involving Crib Toys" (June 22, 1987).

Tab B Table: Summary of Petition's Requested Actions with Supporting Incident Data and Comparison with CPSC's Human Factors Report Conclusions.

Human Factors Staff Discussion of Differences Between Petition Regulated Actions and HF Report Conclusions.

Tab C Standard Consumer Safety Specification on Toy Safety (ASTM F963-86), Revised and Republished April 1986. Provisions applicable to crib toys excerpted.

Tab D A listing of Commission documents containing safety information on crib toys.

Tab E Memorandum from Kennedy, C., ECCP, to Tyrrell, E., OPM, entitled, "Ligature Strangulation - Toy Crib Accessories," March 20, 1987.

Attachments (con't)

- Tab F Log of Telephone Conversation between Mr. Douglas Thomson, then President of TMA, and Colin B. Church, Voluntary Standards Coordinator, CPSC, dated June 6, 1989.
- Tab G February 28, 1990, Meeting Log of ASTM F15.22 Task Group meeting on Toy Safety.
- Tab H Memorandum from Rogers, T., CACA, to Tyrrell, E.A., EXPB, entitled, "Crib Toys", May 7, 1990.

UNITED STATES GOVERNMENT
MEMORANDUM

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

DATE: November 22, 1988

TO : Douglas L. Noble, Director,
Office of Program Management and Budget

Through: Thomas W. Murr, Jr., Acting Executive Director
Sadye E. Dunn, Secretary *Sadye E. Dunn*

FROM : James V. Lacy, General Counsel *James V. Lacy*
Stephen Lemberg, Assistant General Counsel *Stephen Lemberg*
Allen F. Brauninger, Attorney, OGC *Allen F. Brauninger*

SUBJECT: Petition for rule to ban certain crib toys, HP 89-1

The attached submission from the Consumer Federation of America (CFA) should be docketed as a petition for rulemaking under provisions of the Federal Hazardous Substances Act (FHSA).

The submission from CFA meets all requirements of 16 C.F.R. § 1051.5(a) for consideration as a petition. It requests the Commission to begin a proceeding under provisions of section 3(e) of the FHSA (15 U.S.C. § 1262(e)) for a rule to express the Commission's determination that certain crib toys present mechanical hazards. If issued on a final basis, such a rule would ban the toys not meeting its provisions from distribution in interstate commerce.

The products which are the subject of the petition are "crib toys" and "mobiles." As described in the petition and illustrated in Appendix A of the petition, these products are "toys or other articles intended for use by children" as that phrase is used in sections 2(f)(1)(D), 2(q)(1)(A), and 3(e) of the FHSA (15 U.S.C. §§ 1261(f)(1)(D), (q)(1)(A), and 1262(e)) and are subject to regulation under that act.

The petition alleges that certain types of crib toys and mobiles present risks of strangulation to infants because of their design or manufacture. As described in the petition, the risks of injury alleged to be associated with certain crib toys could meet the definition of "mechanical hazard" in section 2(s) of the FHSA.

The petition attaches a copy of a report prepared by the Commission's Division of Human Factors entitled "Human Factors Evaluation of Provisions Which Address Crib Toy Strangulation in

the Toy Safety Voluntary Standard," dated July 1987 as Appendix B, and a memorandum from Debbie Tinsworth, EPHA, to Elaine Tyrrell, OPMB, on the subject of "Strangulation-Related Incidents Involving Crib Toys," dated June 22, 1987, as Appendix C. The petition cites facts and information from these documents and other referenced sources in support of its assertion that issuance of the requested rule is necessary. The petition contains an explicit request for rulemaking and describes ten specific requirements which it claims should be issued.

The petition also discusses provisions of one voluntary standard applicable to crib toys, "Standard Specification on Toy Safety," ASTM F 963-86, and asserts that these provisions are not adequate to protect children from the risks of injury alleged by the petition to be associated with certain crib toys.

From the information provided by the petition and from other sources of readily available information, the staff should prepare a briefing package for consideration by the Commission when deciding whether to grant or deny the petition. The Commission is not required to make any finding concerning the existence of an "unreasonable risk of injury" associated with crib toys in order to begin the rulemaking proceeding requested by the petition. See section 3(f) of the FHSA (15 U.S.C. § 1262(f)). However, the Commission must make and support findings that such toys present an unreasonable risk of injury in order to issue a final rule containing the requirements sought by the petition. See sections 2(s) and 3(i) of the FHSA (15 U.S.C. §§ 1261(s) and 1262(i)). Therefore, the briefing package should include a discussion of any information in the petition or available from other sources from which the Commission could find "reason to believe" that one or more unreasonable risks of injury may be associated with the toys which are the subject of this petition.

This office is available for informal discussions with the staff concerning any aspect of the petition.

Attachment



Consumer Federation of America

November 17, 1988

Ms. Sadye Dunn
Secretary
Consumer Product Safety Commission
5401 Westbard Avenue
Bethesda, MD 20207

Dear Ms. Dunn:

Enclosed for filing please find five copies of a petition to ban, under the Federal Hazardous Substances Act, certain crib toys posing hazards to young children. This petition is being filed jointly by Consumer Federation of America and the Attorney General of New York.

Sincerely,

Mary Ellen R. Fise
Product Safety Director and
Attorney for petitioner CFA

cc: the Commission

CPSA 6 (b)(1) Cleared *POSSIBLE*
EXCUSED 11/17/88
NO FIRMS/PRIVILEGES OF
Products Identified
Exempted by _____
Firms Notified,
Comments Processed.

NOTE: This document has not been re-
viewed or accepted by the Commission.
Initial *SB* Date *11-17-88*

IN THE UNITED STATES OF AMERICA
BEFORE THE CONSUMER PRODUCT SAFETY COMMISSION

In the Matter of The Petition of the
Consumer Federation of America
and Robert Abrams, Attorney General
of the State of New York, to Ban
Hazardous Crib Toys.

No. _____

Pursuant to the Administrative Procedures Act, 5 U.S.C. Section 553(e) and regulations of the Consumer Product Safety Commission (CPSC), 16 C.F.R. sections 1051 and 1500.201, the Consumer Federation of America and Robert Abrams, Attorney General of the State of New York, hereby petition the CPSC to determine, under section 3(e) of the Federal Hazardous Substances Act (FHSA), 15 U.S.C. section 1262, that certain crib toys intended for use by children under two years of age present a mechanical hazard and, therefore, pursuant to section 2(f)(1)(D) of the FHSA, 15 U.S.C. section 1261, are hazardous substances. Accordingly, pursuant to section 2(q)(1)(A) of the FHSA, 15 U.S.C. section 1261, these certain crib toys are banned hazardous substances.

INTRODUCTION

A variety of toys including, but not limited to crib gyms, mobiles, activity centers, and music boxes are marketed for use in cribs and playpens. These "crib toys" are intended for use by children ranging in age from birth to two years of age and are common objects in the nursery.

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Although highly attractive and seemingly harmless, crib toys present a serious, but unperceived, hazard to infants and young children - strangulation. Between 1973 and 1987 at least 49 incidents involving crib toys, including 30 deaths, one severe brain damage and 18 "near-misses", were reported in the United States. These deaths and other incidents all occurred when the infant's or young child's neck: 1) became entangled in a cord or cords attached to the toy; 2) became entangled in clothing worn by the child which hooked on to a part of the crib toy; or 3) became suspended over a cord or toy parts attaching the toy to the crib or playpen.

Despite these statistics, no mandatory standard exists governing the performance of or labeling for crib toys. The voluntary standard, American Society for Testing and Materials Standard Consumer Safety Specifications on Toy Safety, F963-86, is not only gravely inadequate, it may exacerbate the problem.

Crib toys should not be permitted to pose hazards to the children for whom they are intended. Because of the severity of the hazard presented by crib toys and the lack of adequate safety standards, the Consumer Federation of America (CFA) and the New York State Attorney General request that CPSC determine, under section 3(e) of the FHSA, that certain crib

toys intended for use by children under two years of age represent a mechanical hazard and are, therefore, banned hazardous substances. Petitioners request that the Commission take the following ten actions:

1) Ban crib gyms and other manipulative crib toys (including but not limited to suspended stuffed toys) that require horizontal suspension members, unless the horizontal members are rigid and can be attached at or above the height of the crib side rails and such horizontal suspension members do not create a vertical protrusion hazard.

CPSC has reports of eight incidents including six deaths of children whose heads and necks were suspended over a horizontal cord. CPSC also has reports of six incidents including three deaths due to protrusions on crib gyms. This ban would eliminate both types of hazards presently posed by crib gyms.

2) Ban crib gyms and other manipulative crib toys (including but not limited to suspended stuffed toys) that require horizontal suspension members unless such products contain a permanent and conspicuous warning stating:

WARNING

Always use with both ends attached to opposite crib sides.
Child could strangle on unconnected end.

At least six incidents, including one death, have occurred where an unattached end of a crib gym wrapped around a

child's neck. Parents need to be aware of the strangulation hazard posed by an unattached end of a cord.

3) Ban crib toys that contain vertical strings that are six inches or greater in length.

CPSC has reports of five incidents, including one death, occurring on pull cords that wrapped around a child's neck. Strings that are six inches long, or longer, can encircle a child's neck. This ban would eliminate strangulations caused by vertical strings.

4) Ban crib toys whose "perimeter crib toy openings," formed either by multiple cords or by cords in combination with other portions of the toy to which cords are attached, are greater than 14 inches in their maximum extended state.

At least five incidents, including four deaths, have occurred when a young child's head and neck became entangled in the noose-like opening created by multiple cords of a crib toy or the cords in combination with other parts of the toy. Banning openings which would allow a child's head to fit through would eliminate this problem.

5) Ban crib toys that contain protrusions that can catch or hold a cord or part of clothing. This ban would apply to crib toys that have any rigid and non-compressible vertical protrusions and to crib toys that have horizontal protrusions of

such a length that could catch clothing or a cord.

CPSC is aware of ten cases, including seven deaths, where an article worn by a child (either clothing, pacifier cord, bib or necklace) caught on a protrusion of a crib toy. Banning crib toys with protrusions on which articles worn by children could catch would eliminate this hazard.

6) Ban crib toys with "pull rings", grasping rings or rings attached to pull cords.

Rings attached to pull cords pose a risk of strangulation. CPSC has received a report of a death to a child whose arm got caught in the ring of a crib toy. Because he was unable to remove his hand from the ring, the string wrapped around the child's neck when he rolled over and strangled him. A solid handle, rather than a ring, could have prevented this death.

7) Ban mobiles that are located within the reach of children not capable of pushing up on hands or knees.¹

At least four incidents, including three deaths, involving mobiles have been reported to CPSC. This ban would eliminate the possibility of a child becoming entangled in mobile cords.

8) Ban mobiles attached to the crib unless they have a permanent and conspicuous label on both the product and packaging warning of the strangulation hazard and urging removal of the mobile and all attachments when child can push up on hands and knees.

Children who can sit up or pull up to a standing position are subject to mobile-caused strangulation in two ways: first, a child's neck can become entangled in the mobile cords, and second, the mobile, its attaching mechanism and music box components may have protrusions on which a child's clothing or other objects around a child's neck can become caught. This requirement would alert parents to the specific risks presented.

9) Ban crib toys that fail to contain a conspicuous warning statement in their instructions that crib mattresses should be placed in one of the lower positions and that crib drop sides should be up when the toys are attached.

By keeping the child farther away from the strings or cords attached to crib toys, this requirement will help eliminate a strangulation hazard.

10) Ban crib toys whose warning statements are not presented first, and are not separate and easily distinguishable from informational and marketing messages contained in the instructional literature.

Separating the warning and highlighting its importance will help assure that it is read and not overlooked by the consumer. (See section V for further discussion and rationale of these requested actions).

I

INTEREST OF PETITIONERS

The Consumer Federation of America (CFA) is the nation's largest consumer advocacy organization representing over 240 state, local and national consumer organizations and over 50 million American consumers. CFA brings this petition on behalf of its members and all children affected by crib toys.

The New York State Attorney General brings this petition in his capacity as parens patriae for the youngest residents of the State of New York and their families and as the chief legal officer of New York State charged with enforcing, inter alia, the State's hazardous toy statute, General Business Law, section 396-k, on behalf of the citizens of the State of New York. Petitioners particularly seek to protect the health, well-being and safety of the children of this State.

II

CRIB TOYS

As used throughout this petition, the term "crib toys" includes those products intended to be used in a crib or playpen for the purpose of providing amusement, stimulation and exercise to children two years of age or younger.²

Petitioners contend that crib toys include, but are not limited to, the products discussed below. Pictures of some of these products are contained in Appendix A.

A. Types of Crib Toys

1. CRIB GYMS

Crib and play gyms, as currently marketed, are manipulative toys that are safe for children ages 3 to 6 months,³ but which are of interest to and in fact used by children three through twelve months of age.⁴ Crib gyms are "usually strung across a crib's width with the two ends attached to opposite sides."⁵ Various objects intended to be manipulated by the the child may be attached to a crib gym. Such parts might include a pull cord, squeaker, rotating spoke, or rattle, or some combination thereof.⁶ These objects also may be intended to provide sound and/or visual stimulation for the child. These crib gyms or play gyms are also known as exercisers or kickers.⁷ Consumers use these products in cribs as well as in playpens.

2. MOBILES

Mobiles provide visual stimulation for children and are sometimes intended to be manipulated by the child. Mobiles are appropriate for children from birth through six months of age.⁸ Mobiles attach to the crib rail, crib end, wall, ceiling or other fixture or piece of furniture. Mobiles have objects that are strung from a rigid member that is suspended above the crib. In some cases the objects might move in a circular motion if touched or activated in some other manner. Additionally, some mobiles contain a wind-up music box. Mobiles are used on cribs and playpens.

3. SUSPENDED STUFFED TOYS

These toys are stuffed animals or other stuffed objects or shapes that are suspended by two or more cords above or around the crib.⁹ Some suspended stuffed toys make noise when they are used. The product is intended for manipulative, visual, and in some cases, auditory stimulation. Because they serve the same purpose and are similar in their operation to mobiles or crib gyms, petitioners believe that suspended stuffed toys are appropriate for children from birth to twelve months of age.

4. CORD-ACTIVATED TOYS

Cord-activated toys are attached to a crib side or end rail and hang into the crib.¹⁰ These toys provide visual,

manipulative and, in some cases, auditory stimulation. They are operated by pulling a cord to activate a device, such as a music box.¹¹

5. ACTIVITY BOXES

Activity boxes are appropriate for children of age seven through 24 months.¹² These boxes are used in the crib, playpen or bath and are considered manipulative toys. Activity boxes also provide visual and auditory stimulation. Generally, these boxes consist of a square or rectangular frame on which there are several knobs to turn, doors to open, buttons to push, dials to wind or spin, and other manipulations to perform. These products are also known as activity centers.

6. CRIB MIRRORS

Mirrors aid in the development of self-awareness and identity.¹³ Crib- and wall-mounted mirrors are suitable for children ages two to twelve months, although one expert recommends that crib mirrors be limited to two-to six-month olds.¹⁴ Some mirrors are particularly marketed as appropriate for crib and/or playpen use.

7. CRIB MUSIC BOXES

Crib music boxes are intended to be attached to a crib and are marketed for crib use. Unlike cord-activated music boxes, included in the description of cord-activated crib toys

discussed above, these music boxes contain a wind-up mechanism that activates the music.

B. Crib Toy Market Information

Crib toys are popularly used items which are considered by parents as important for their babies' growth. A survey conducted by "Small World Magazine," utilizing the "Better Homes and Garden" Consumer Panel of 500 women, found that 53% of those surveyed considered crib toys as essential for their baby and 60% considered mobiles as essential.¹⁵ In this survey, mobiles and crib toys were considered more "essential" than swings, changing tables, walkers, playpens, toy chests, and "other" children's products.

The affordable price of toy crib accessories is another factor contributing to their widespread use. According to CPSC Economics staff, toy crib accessories range in retail price from \$7.00 to \$36.00 for manufactured items.¹⁶ Non-mass produced crib toys made by consumers from kits or patterns, or through original design, and sometimes sold at craft fairs, also typically sell in the same price range.

Furthermore, the same crib toy is often reused by several infants. The useful life of most crib toys is greater than average because they are not handled as much as other toys,

particularly since the primary objective is often visual stimulation.

CPSC staff estimates that there are approximately 350,000 crib gyms and 800,000 crib mobiles currently in use. These figures are based on a 1984 survey of recent and expectant mothers in which it is reported that 9.6 percent of the recent or expectant mothers owned crib gyms and 21.6 percent owned crib mobiles.¹⁷

III

HAZARDS PRESENTED BY CRIB TOYS

Crib toys present a strangulation hazard to infants. Two types of strangulation may occur with use of these toys: hanging strangulation and postural strangulation.

The following have been identified as the physiological factors which result in strangulation: blockage of the airway by elevation of the base of the tongue against the pharynx; compression of the jugular veins (veins leading to the head); or occlusion of the carotid arteries (arteries leading to the head).¹⁸

Hanging strangulation occurs when "pressure is exerted on the neck by an external mechanism, and tightened by the weight of the victim's body."¹⁹ While a typical hanging

involves a point of suspension above or over the victim, it is clear that hanging strangulation can result from virtually any position and the victim does not have to be suspended.²⁰

Postural strangulation "occurs with [sic] the victim's neck is placed over an object, with the weight of the body putting pressure on the neck."²¹ It should be noted that compression of the jugular veins in the neck does not require much force; in a 50th percentile five month old infant this would be approximately 2 kg (4.4 lb) of force, which is less than one third of the child's total body weight.²² Further it is not necessary for a cord to extend around the entire circumference of an infant's neck for strangulation to occur, particularly in postural strangulation. Evidence, in the form of external marks on victims' necks, indicates that cords as short as 2 1/2 inches long have been involved in postural strangulation.²³

In a review of 49 crib toy incidents by CPSC staff the type of strangulation was identified in 43 cases. Hanging was the most predominant type with 35 cases, including 19 deaths. These occurred when pressure was applied to the neck, either by a crib toy cord or secondary product (such as clothing, pacifier cord, bib) which caught on a crib toy protrusion. These incidents are summarized in the table below.

HANGING STRANGULATION INCIDENTS ASSOCIATED WITH CRIB TOYS²⁴

<u>Hanging Source</u>	<u>Cases</u>	<u>Deaths</u>
Crib Toy Cord	25	12

Cord wrapped around child's neck;

Three most common accident scenarios:

1. Detached toys: [7 cases; 1 death]
-6 of these involved a crib gym where one end was detached either accidentally or intentionally; 1 case occurred when mobile fell into crib.
2. Pull cords: [5 cases; 1 death]
-3 cases on pull cords of cord-activated toys; 2 cases on pull cords on crib gyms.
3. Suspension cords [5 cases; 4 deaths]
-In 4 cases infant's head and neck entangled in opening created by multiple suspension cords attached to a stuffed animal. One case involved homemade mobile of toys suspended by individual cords.

There were 8 additional cases where the type of entanglement was unknown or was unique to one case.

Secondary Product Entanglement	10	7
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In these cases something worn by the child (such as clothing, pacifier cord, bib, or necklace) became caught on a protrusion of the crib toy. Over half these cases occurred on crib gyms but nearly all types of crib toys were involved (mobile attachment clamp, activity box knob, cord-activated toy protrusion).

NOTE: The data contained in this chart are taken from the CPSC Report included in this petition in Appendix E.

Postural strangulation was involved in 8 of the incidents, including 6 deaths, reviewed by CPSC. Seven of these cases involved the suspension of the child's head and neck over the horizontal cord of a crib gym. The remaining case occurred on a cord attaching a flexible activity box to a mesh-sided playpen.

The CPSC staff review of crib toy incidents also categorized the cases (including deaths) by crib toy type. This information is summarized in the table below.

CRIB TOY INCIDENTS CATEGORIZED BY TYPE OF TOY²⁵

Type of Toy	Cases	Death	Brain Damage
Crib Gyms	28	14	1 severe
Suspended Stuffed Toys	4	3	
Cord-Activated Toys	4	1	
Mobiles	4	3	
Activity Boxes	2	2	
Unknown	7	7	
TOTAL	49	30	1 severe

NOTE: A second CPSC analysis of crib toy incidents reviewed 45 of the 49 incidents included above. A further delineation of toy type and hazard pattern, by severity of incident, is contained in that analysis. See page B-5 of Appendix C to this petition.

IV

INADEQUACY OF VOLUNTARY STANDARD

The toy voluntary standard [ASTM standard F963-86, "Standard Consumer Safety Specification on Toy Safety," (hereafter cited as the voluntary standard or the ASTM standard)] is inadequate to protect children from hanging and postural strangulation hazards associated with crib toys. The CPSC Report "Human Factors Evaluation of Provisions which Address Crib Toy Strangulations in the Toy Safety Voluntary Standard" concurs and documents this contention.

The voluntary standard has essentially two requirements that specifically apply to crib toys: 1) a maximum string or cord length requirement and 2) labeling/instruction provisions.

A. String or Cord Length

Section 4.13.1 of the ASTM standard (entitled "Crib and Playpen Toys") states:

"Flexible strings or cords attached to any toy shall be less than 12 in. (300 mm) when measured to the maximum length in the free state. If string can tangle to form a loop, then the perimeter of the loop shall be less than 14 in. (360 mm)."

This provision is inadequate because strings or cords that are greater than 6 inches pose a strangulation hazard to babies. CPSC has reports of one entanglement incident that occurred on an 8 inch pull cord and one entanglement death on a 9-10 inch pull cord. The 50th percentile neck circumference of a 4-6 month old infant is 8.3 inches. To determine safe cord length, this figure must be reduced to 6 inches to account for compression of the child's neck when resting on a string or cord. Therefore, the voluntary standard's provision allowing strings and cords of 6-12 inches in length is inadequate to prevent strangulation.

The voluntary standard fails to address "perimeter crib toy openings" formed by multiple cords or cords in combination with a part of the crib toy that pose a strangulation hazard to children.

B. Labeling and Instruction Requirements

The labeling and instruction requirements for crib gyms, crib exercisers and "similar toys" are found in sections 4.25, 5.4 and 6.3 of the ASTM standard. These requirements address only "toys intended to be strung across a crib or playpen." The labeling requirement is "intended to alert consumers to the possibility that a child may become entangled in the toy or its attaching components" (section 5.4). This

provision specifically exempts mobiles because "although attached to the crib, [mobiles] are not intended to be grasped by the child." While this may be the intention of the manufacturer, it is clear that mobiles present a strangulation hazard to children. CPSC has reports of four incidents including three deaths of children associated with crib mobiles.

The voluntary standard requires that toys intended to be strung across a crib or playpen bear a label which states:

"From birth to 5 months," and

"CAUTION: To prevent possible entanglement injury, remove toy when baby begins to push up on hands and knees." (Section 5.4.1)

This caution statement, while intended to prevent postural strangulation, is an inadequate remedy to address this hazard. At five months of age, children are just beginning to enjoy the crib toy. Because the caution statement recommends discontinuation of use at precisely the time when the child is starting to use the product, parents tend to ignore the caution statement and opt for allowing their child to get some use and enjoyment from the toy.

The voluntary standard requires that instructions for crib gyms, crib exercisers and other toys intended to be strung

across a crib or playpen must include the following information:

A crib gym is not intended to be "mouthed" by the baby and should be positioned clearly out of reach of the baby's face and mouth.

(section 6.3.1)

On cribs with adjustable mattress levels, the highest position may allow the gym to be too close to the baby. The second or lower position is more appropriate. (section 6.3.2)

The dropside of the crib should never be lowered with the gym in place and the baby left unattended. (section 6.3.3)

These three statements do not adequately convey the information about the severity of the risk of postural or hanging strangulation.

Finally, although the voluntary standard annexes a list which sets out age grading guidelines, these guidelines which are not requirements even in the voluntary standard, completely fail to address the hanging and postural strangulation hazards posed by crib toys.

Although the guidelines note that toys with long cords or straps are inappropriate for young children, they merely reference section 4.13 of the standard, which as previously discussed is inadequate. In sum, the age labeling guidelines fail to address the strangulation hazards that are the subject of this petition.

V

ACTION REQUESTED

CFA and the New York State Attorney General request that CPSC determine under section 3(e) of the FHSA that certain crib toys intended for use by children present a mechanical hazard and therefore are banned hazardous substances. Specifically, petitioners request that the Commission:

1) Ban crib gyms and other manipulative crib toys (including but not limited to suspended stuffed toys) that require horizontal suspension members, unless the horizontal member is rigid and can be attached at or above the height of the crib side rails and such horizontal suspension members do not create a vertical protrusion hazard.

RATIONALE: This ban addresses both hanging strangulation and postural strangulation hazards posed by crib gyms. A crib gym is a manipulative play toy that is appropriate for children from 3 to 12 months of age.²⁶ Yet because of a child's ability to raise up on her hands and knees at approximately five months of age, any horizontal crib gym or

other manipulative crib toy that is below crib rail height poses a postural strangulation hazard to the child. Children who are learning to push up on their hands and knees may also very easily topple over onto the horizontal cord or suspended member of a crib gym. At this age children do not have the cognitive ability, strength, or motor skills to extricate themselves or push off the cord.²⁷ CPSC has reports of 8 postural strangulation cases, including 6 deaths, of children whose head and neck was suspended over a horizontal cord. Seven of these cases occurred on crib gyms and one on a cord attached to a flexible activity box. The exemption allowed by this proposed ban provision relies on the fact that the head and body masses of a child who climbs up on a rigid horizontal suspension at crib rail height are distributed in a manner so as to allow the head/neck to spontaneously rotate off the horizontal member.²⁸

If the crib gym contains protrusions that could catch a child's clothing, it poses a hanging strangulation hazard. CPSC has reports of six incidents due to protrusions on crib gyms, including 3 hanging strangulation deaths.²⁹

The voluntary standard currently requires a caution statement to remove the crib toy when the baby begins to push up on hands and knees. But because this is precisely the age when

a child is beginning to get the most enjoyment from the product, parents are reluctant to remove the toy. By mandating that manipulative crib toys have rigid horizontal suspension members, not fall below the crib rail height, and not have any protrusions, the hanging and postural strangulation hazards presented by these products can be greatly reduced.

2) Ban crib gyms and other manipulative crib toys (including but not limited to suspended stuffed toys) that require horizontal suspension members unless such products contain a permanent and conspicuous warning stating:

WARNING

Always use with both ends attached to opposite crib sides.

Child could strangle on unconnected end.

RATIONALE: CPSC has reports of 6 incidents, including 1 death, where an unattached end of a crib gym wrapped around the child's neck posing a hazard of (or in the case of the death, was responsible for) a hanging strangulation.³⁰ Parents of a child who can not fully reach or manipulate the crib gym may be tempted to detach one end in order to give the child easier access to the toy. Parents and others need to be warned that intentional or accidental detachment of one end of a crib gym or other horizontally suspended crib toy poses a strangulation hazard.

3) Ban crib toys that contain vertical strings that are six inches or greater in length.

RATIONALE: Vertical strings six inches or greater in length on crib toys pose a strangulation hazard since those lengths can encircle a child's neck. The six inch length requirement is based on the fact that the circumference of child's neck is approximately eight inches and 25 percent of the neck circumference must be subtracted to approximate compression of the child's neck.³¹ Allowing for tissue compression has been a standard practice; the dimensions used in the test fixture of the mandatory standard for crib headboard cutouts (16 C.F.R. section 1508.11) take into account tissue compression, as do the test fixture dimensions of the voluntary standard for accordian gates and enclosures.³² CPSC has reports of 5 incidents, including 1 death, occurring on pull cords that wrapped around a child's neck. Three of the cases involved cord-activated toys and two involved pull cords on crib gyms.

4) Ban crib toys whose perimeter crib toy openings, formed either by multiple cords or by cords in combination with other portions of the toy to which cords are attached, are greater than 14 inches in their maximum extended state.

RATIONALE: When the perimeter of a crib toy and its cords is greater than 14 inches, a strangulation hazard is present. As discussed above, the cords alone if greater than 6 inches long can create a noose-like opening in which a child's

head could become entangled. Similarly, a portion of the crib toy in combination with a cord used for attachment can form the same noose-like opening. CPSC is aware of five cases, including four deaths, where the suspension cords from crib toys created a strangulation hazard.³³

In four cases reviewed by CPSC "an infant's head and neck became entangled in the opening created by multiple suspension cords attached to a stuffed animal. The other case occurred on a homemade mobile consisting of toys suspended by individual cords which tangled so that the effect was the same."³⁴

Banning crib toys with perimeters of 14 inches or less is justified on the grounds that the head circumference for a 0-3 month old is 14.6 inches. Additionally, the Ear-to-Ear Over Top of Head Arc Length of 9.3 inches added to the Ear-to-Ear Under Chin Arc Length of 5.6 inches totals up to 14.9 inches. In order to avoid head entanglement in crib toy perimeter openings, the opening has to be smaller than that which would allow it to fit over the child's head. The dimensions cited above account for the perimeters of the youngest (and therefore smallest) user's head in two directions of measurement (back of head-ear-face-ear perimeter; and top of head-ear-chin-ear perimeter).³⁵

5) Ban crib toys that contain protrusions that can catch or hold a cord or part of clothing. This ban would apply to crib toys that have any rigid and non-compressible vertical protrusions and to crib toys that have horizontal protrusions of such a length that could catch clothing or a cord.

RATIONALE: Protrusions that can catch or hold a cord or part of clothing pose a strangulation hazard to young children who may not be able to get themselves untangled. CPSC staff has described this accident scenario as follows: "[U]sers of crib toys are developing, but have not yet mastered skills such as kneeling, sitting, and standing. They often struggle to attain these positions, only to fall over uncontrollably, hooking anything in their way. In addition, once caught, these children are unable to free themselves, lacking both cognitive ability as well as fine motor skills."³⁶ Petitioners believe that even older infants and young toddlers (under age two) who may have acquired some of the kneeling, sitting and standing skills, are still at risk. These children may be attempting to climb out of the crib and become entangled on crib toy protrusions in that manner.

CPSC is aware of 10 cases, including 7 deaths, where something worn by the child, such as clothing, pacifier cord, bib, or necklace, caught on a protrusion of the toy.³⁷ More than half of these accidents occurred on crib gym protrusions. Other cases occurred on a mobile attachment clamp, a cord activated crib toy, an activity box, and another type of crib toy.³⁸

6) Ban crib toys with "pull rings" or rings attached to pull cords.

RATIONALE: Crib gyms that have hanging rings for grasping, cord-activated toys that have rings used to activate the toys and other crib toys that have rings pose a risk of strangulation to young children. These children are capable of placing their hands in the ring yet may not be able to disengage their hands at will. If they roll over with their hand engaged in the ring, they easily can wrap the pull cord around their neck and a hanging strangulation may result. CPSC is aware of one death that occurred in this manner.³⁹

Postural strangulation can also occur because of a crib toy ring. If a hand or arm gets caught in the ring, the cord can be pulled to a horizontal orientation. With the cord in this position and the child's hand stuck in the ring, postural strangulation can result if the child's neck rests over the cord. Hence a ring allows a child to strangle on a cord shorter than the neck circumference.

The voluntary standard does not address this hazard. Petitioners believe that a solid handle attached to a pull cord could eliminate this hazard. Crib toys should be free of rings that pose strangulation hazards.

7) Ban mobiles that are located within the reach of children not capable of pushing up on hands or knees when in the crib.

RATIONALE: Mobiles located within the reach of a child when in a crib pose a strangulation hazard since the child can become entangled in mobile cords. CPSC has reports of four incidents including three deaths on crib mobiles.⁴⁰ One child who died was only one month old.⁴¹ Thus, regardless of the child's age, a mobile within the reach of a child may pose a fatal hazard.

8) Ban mobiles attached to the crib, unless they have a permanent conspicuous label on both product and packaging stating:

WARNING

Keep toy away from baby's reach

Remove mobile and attachment clamp (and music box attachment, if applicable) when baby becomes 5 months of age or begins to push up on hands or knees

Child could strangle if clothing, head or neck gets caught on toy part

RATIONALE: When babies begin to push up on hands or knees, usually around five months of age, they are capable of getting closer to a mobile hung over their crib. At around seven months they begin to rise to a sitting position and to then pull themselves to a standing position. In 3 out of 4 mobile cases reviewed by CPSC staff, the children involved were 7 or 8 months of age. One 8 month old died when his clothing

caught on a mobile attachment clamp.⁴² when children reach the age of 5 months or are capable of pushing up on hands and knees, mobile cords are more easily in reach and present a strangulation hazard; as the child grows older,, mobiles, their attaching mechanisms, and music box components can present protrusions that lead to hanging strangulation of children whose clothing becomes caught. It is important to warn parents of these hazards, including the need to remove attaching clamps and mechanisms since the mobile might contain a music box that has become a part of the child's bedtime ritual. Simply removing the hanging portions of the mobile (the animals, figures or parts providing visual stimulation) will not eliminate the hanging strangulation hazard.

9) Ban crib toys that fail to contain a conspicuous warning statement in their instructions which clearly states that crib mattresses should be placed in one of the lower positions and that crib drop sides should be up, and (2) that failure to do so creates a strangulation hazard.

RATIONALE: Crib toys encourage action and movement on the part of the child. As this petition has described, both hanging and postural strangulation hazards exist with crib toys. Warning parents and other users in the instructions to place the crib mattress in one of the lower positions and to put the drop sides up, can help reduce the risks of injury or death.

The current voluntary standard requires these warnings only in the instructions for crib gyms but NOT all crib toys. Petitioners contend that children attempting to use activity centers, cord activated crib toys, and other types of crib toys are at a substantially greater risk if the sides of the crib are lower rather than higher. Keeping drop sides up and the mattress in a lower position will help eliminate a strangulation hazard.

10) Ban crib toys whose warning statements (as required by number 8 and 9 above) are not presented first, and are not easily distinguishable from informational and marketing messages contained in the instructional literature.

RATIONALE: Warning statements that are buried in the text of instructions are less likely to be seen and read by consumers. This is particularly true when the informational literature included with the product contains, as it often does for children's toys, marketing and other promotional material. Petitioners contend that making the warnings conspicuous and distinct from other information and placing these safety

messages first will help assure that more people see and read this important information.

Respectfully submitted,

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Dated: November 17, 1988

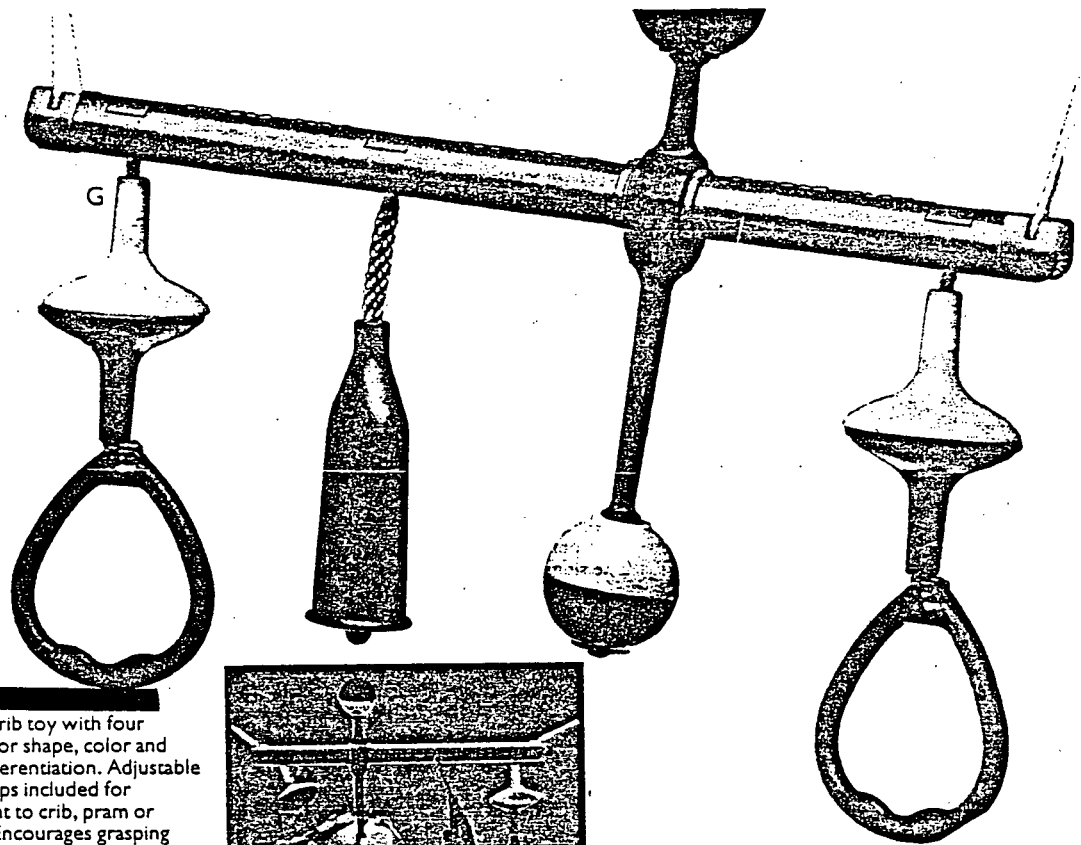
FOOTNOTES

1. Petitioners contend that pushing up on hands or knees is the critical action as opposed to pushing up on hands and knees. A child who can push up on hands alone is capable of becoming entangled in mobile or other crib toy parts.
2. CPSC and others recommend that children no longer sleep in cribs after they are 35 inches tall. This height approximates a 95 percentile child in the age range of a 19-24 month old. Snyder, R.G., Spencer, M.L., Owings, C.L., and Schneider, L. W., Physical Characteristics of Children as Related to Death and Injury for Consumer Product Design and Use, Highway Safety Research Institute, University of Michigan, May 31, 1975, Report No. UM-HSRI-B1-75-5. See also, CPSC, The Safe Nursery--Buyer's Guide, 3.
3. Goodson, Barbara D., Bronson, Martha B., Guidelines for Relating Children's Ages to Toy Characteristics, report to CPSC, Contract No. CPSC-85-1089, October 17, 1985 (hereinafter cited as Goodson), 101.
4. Deppa, Shelly Waters, "Human Factors Evaluation Of Provisions Which Address Crib Toy Strangulations In the Toy Safety Voluntary Standard, U.S. Consumer Product Safety Commission, July 1987 (hereinafter cited as Deppa), 7. [See Appendix B]
5. Id. at 3.
6. Id.
7. Id.
8. Goodson, 29.
9. Deppa, 3-4.
10. Id. at 4.
11. Id.
12. Goodson, 102-103.
13. Id. at 21.
14. Id.
15. "Just The Essentials," Small World, March 1987, 63.
16. Kennedy, Carolyn, "Ligature Strangulation - Toy Crib Accessories," CPSC Memorandum to Elaine Tyrrell, March 20, 1987.
17. Id.

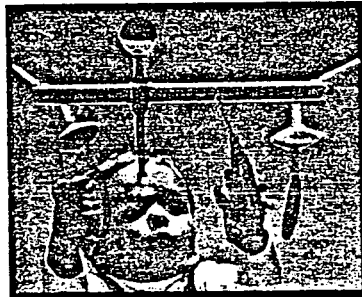
18. Deppa, 9.
19. Iverson, Kenneth, V., Strangulation: A Review of Ligature, Manual, and Postural Neck Compression Injuries, Ann Emerg Med., March 1984; vol. 13 (hereinafter cited as Iverson), 179.
20. Id. at 179-180.
21. Iverson, 180.
22. Deppa, 9.
23. Id. at 13.
24. Id. at 4-6.
25. Id. at 3-4.
26. Id. at 7.
27. Id. at 9.
28. Id. .
29. Id. at 5.
30. Id.; Tinsworth, Debbie, "Strangulation-Related Incidents Involving Crib Toys, CPSC Memorandum to Elaine Tyrrell, June 22, 1987 (hereinafter cited as Tinsworth), 5. [See Appendix C].
31. Deppa, 13.
32. Id.
33. Id. at 5.
34. Id.
35. Id. at 13-14.
36. Id. at 15.
37. Id. at 5.
38. Id. at 5-6.
39. Id.
40. Id. at 4.
41. Tinsworth, 5.
42. Deppa, 10.

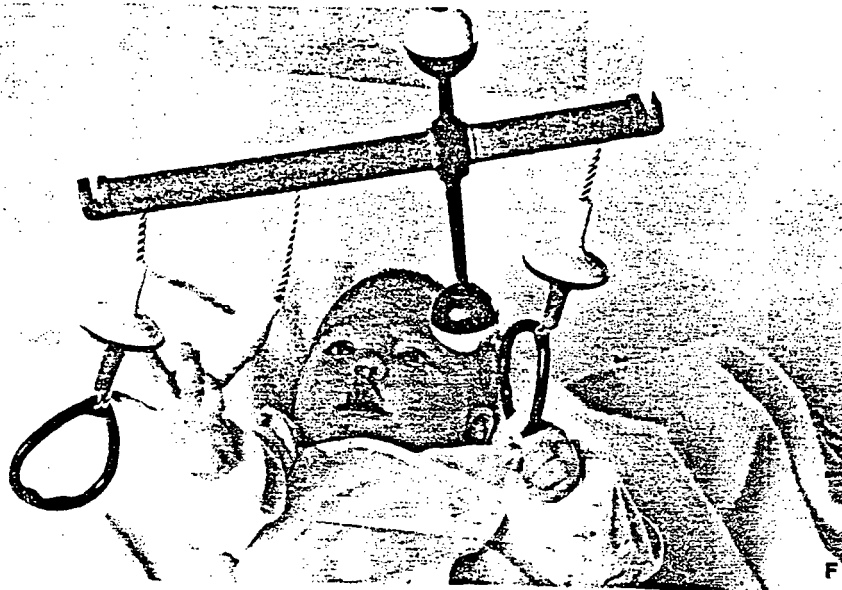
APPENDIX A

The advertisements included in this Appendix are intended to illustrate the various types of crib toys currently available in the marketplace. By including them in this Appendix, Petitioners are not making allegations as to the products' safety. However, some may represent those products that are the subject of the petition.

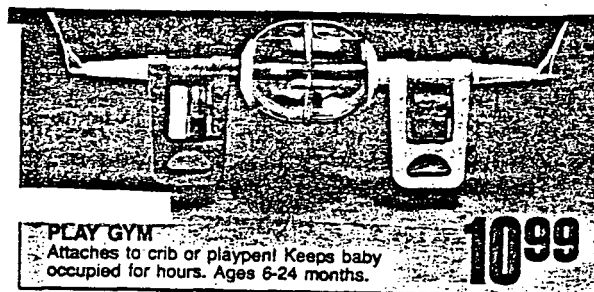


G A crib toy with four activities for shape, color and sound differentiation. Adjustable nylon straps included for attachment to crib, pram or playpen. Encourages grasping and eye hand coordination. Bar measures 13" long. For ages 0 to 5 months. 1005 \$14.99





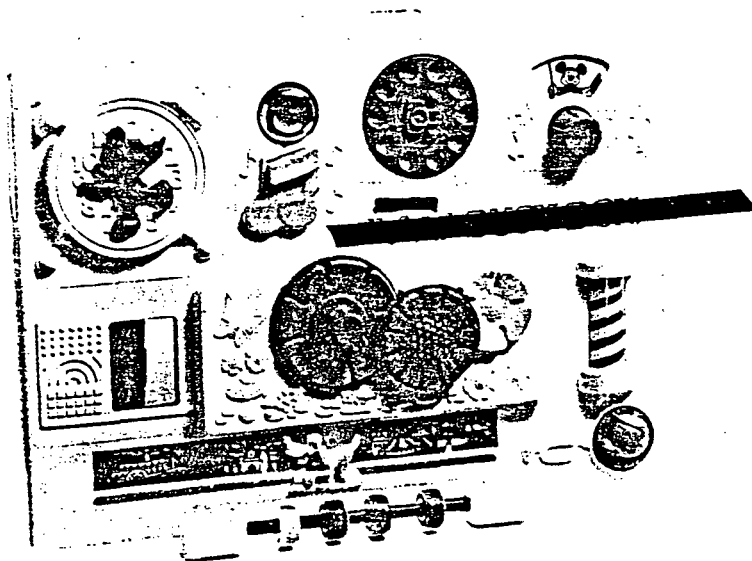
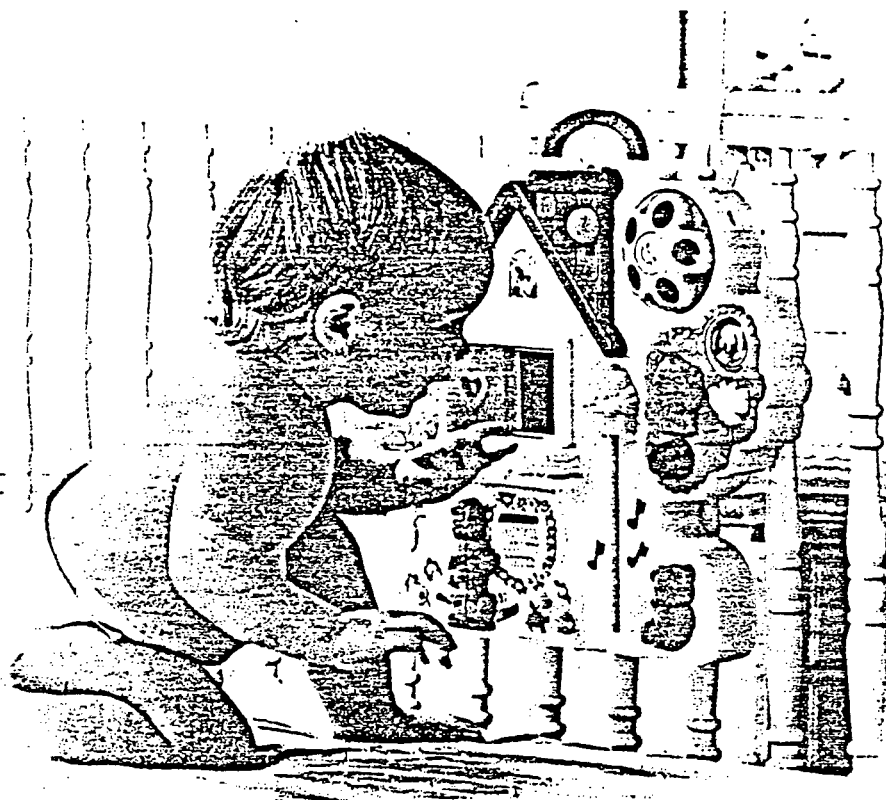
A bright, sturdily built 13" long
crib toy to stimulate grasping
and pulling. Attaches to crib
or playpen. Birth to 5 mos.
1005 \$14.99



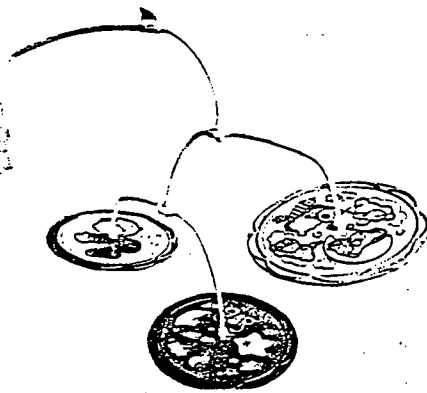
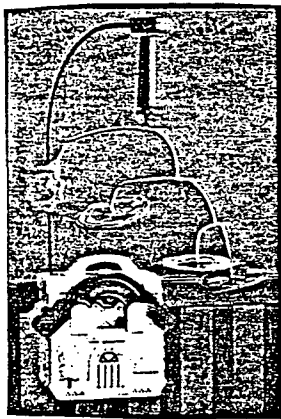
PLAY GYM

Attaches to crib or playpen! Keeps baby
occupied for hours. Ages 6-24 months.

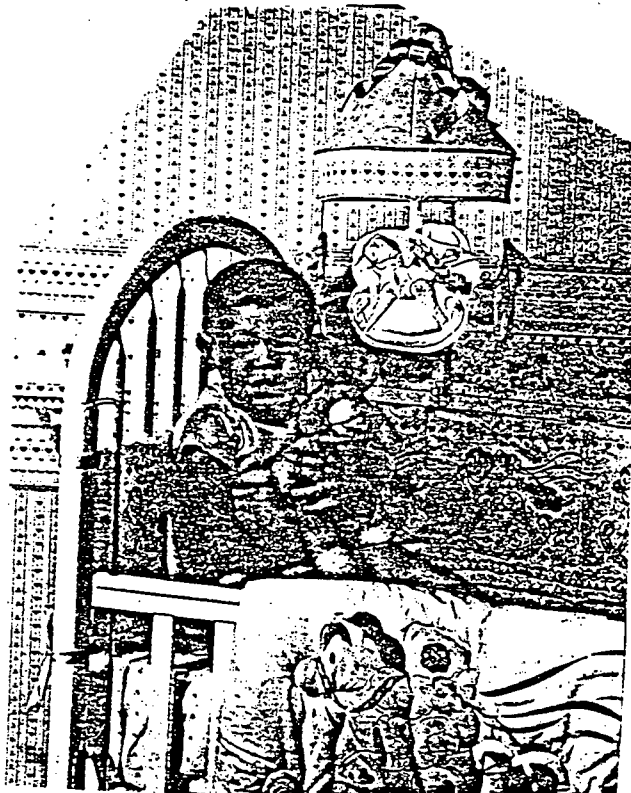
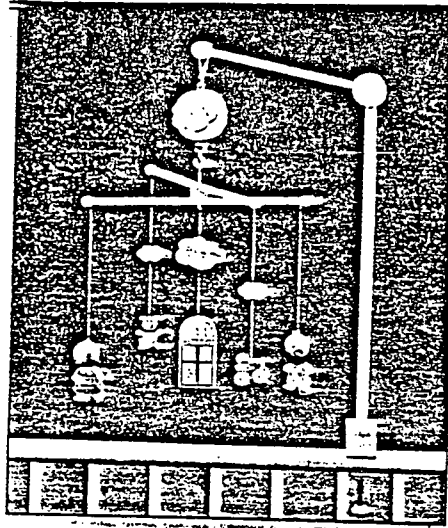
1099





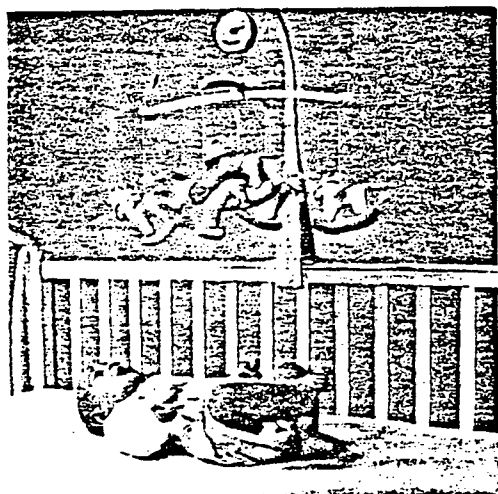
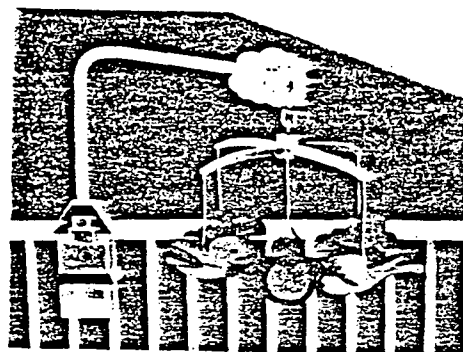


Newborn's mobile, infant's crib toy,
toddler's tape player, all in one!
(Four C batteries not included)



Automatic Mobile

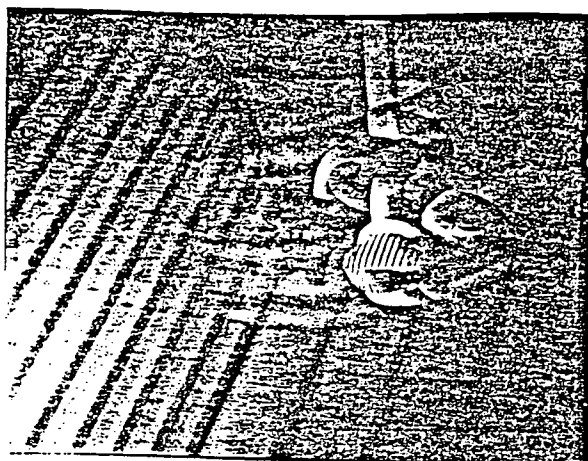
introduces a voice-activated musical mobile. The brightly colored plastic mobile plays a lullaby when the baby starts to cry and automatically shuts off after one minute. The mobile can also be set manually to play for ten minutes.



All the Pretty Horses

A new musical mobile features pastel fabric horses that can be removed and used as toys after the child outgrows the mobile. As it slowly turns it plays "All the Pretty Little Horses." The mobile is gift boxed and has a suggested retail of \$50.00.





\$15 The latest in portable playthings will keep your baby busy as she makes the star squeak, the oyster rattle, and the fish beep. This loop of padded fabric toys attaches with Velcro to car seats, cribs, and almost any other place where infants may become restless. Details, page 112.

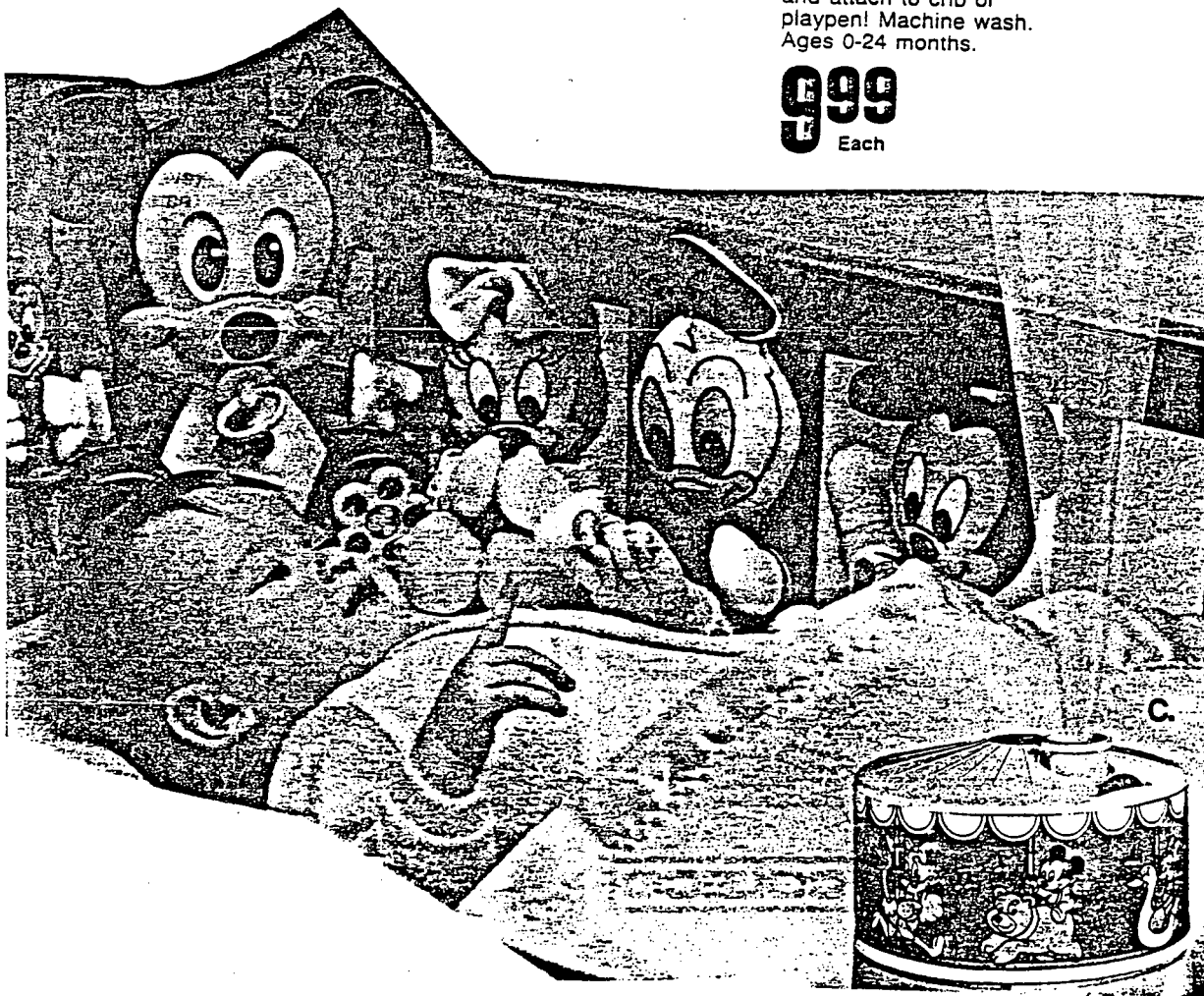


8-activity fun center attaches
to crib or playpen!
Ages 3-24 months.

1499

9"  crib toys squeak,
and attach to crib or
playpen! Machine wash.
Ages 0-24 months.

999
Each



 music box
projects pictures on ceiling
to soothe baby to sleep!
Ages 4-24 months. (Two C
batteries not included)

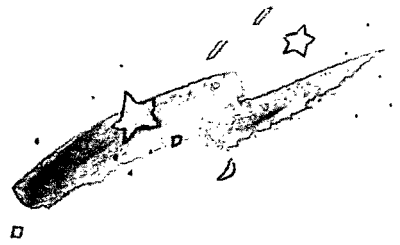
1999

Child's Play

A Guide to
Play and Toys
from Children's
Hospital and
Medical Center,
Seattle, Washington



Children Are Born to Play.



Children play from the moment they're born. They *need* to play, not just because it's fun—although, of course, it is!—but because play is how they learn about themselves and their world. It's how they develop and practice the physical, intellectual and social skills they'll need in life.

Toys are the tools of the child's trade, so to speak, and since the dawn of time parents have given their children things to play with. The choices parents make about toys are important because playthings both reflect and teach values. They teach skills and behaviors. They help form young minds and bodies.

But choosing toys need not be a stressful task. Play is, after all, mostly fun, and selecting playthings can be, too, once you know some basics about play and safety.

Children's Hospital and Medical Center has prepared this booklet to give you some general guidelines for choosing toys and play activities for children from birth to age 12. You'll learn:

The kinds of play children like and what they learn from it (pages 2-3);

How to choose toys your child will play with (pages 4-5);

About toy safety (pages 6-8);

About play for sick children (pages 9-10);

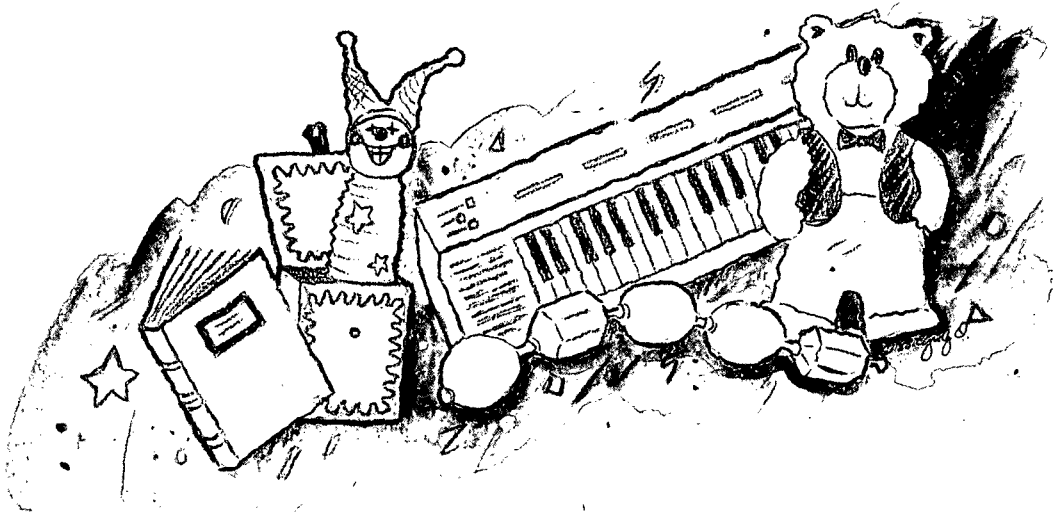
About alternatives to toys (page 11);

Which kinds of toys match your child's age, interests and abilities (pages 12-29);

Where you can get more information (page 30).

Fun Comes in Many Forms.

The child's primary responsibility is to figure out the physical world around him and how he is related to others socially, emotionally and culturally. His goals are to develop physical strength, agility and coordination; to learn to think, create, solve problems, understand, communicate; to become part of a family, the community, the world.



Children will naturally engage in different kinds of play to help them reach their objectives:

Active play

In spite of what parents may think, infants don't grab things and throw them to the floor 20 or 30 times to try Daddy's patience. It's a game, and they're developing fine muscle coordination (grabbing) and gross muscle strength (tossing). Active play of all kinds—pushing and pulling objects, running, jumping, riding bikes and trikes, throwing and catching—help children learn to coordinate their movements and build strength.

Manipulative play

Construction toys, puzzles, sand and water, and blocks are among the playthings that help develop fine motor skills as well as teach children how things work. They also stimulate imagination and creativity as the child combines or changes objects to make new things or uses them as props for make-believe play. Some manipulative play, such as with construction sets, take-apart toys, and science kits, also teaches problem-solving skills, introduces new concepts, and reinforces the idea that learning is fun.

Make-believe play

Children love to pretend. This kind of play lets them use their skills in new and creative ways, stimulates the imagination, lets them express their emotions, and helps them learn about the adult world by imagining themselves in adult roles. Children use all kinds of props for make-believe play—dolls, stuffed toys, adults' clothing, toy trucks and cars, puppets, cardboard boxes.

Creative play

Play involving arts, crafts, music, reading and writing stimulates creativity, teaches children to appreciate beauty, provides an outlet for emotions, and enhances communication skills. Paints, crayons, musical instruments, craft materials, and audio-visual equipment (such as record and tape players, cameras) are useful in creative play.

Learning play

Some games and toys are designed to teach children specific skills or concepts, such as matching and sorting shapes and colors, mathematics, science and reading.

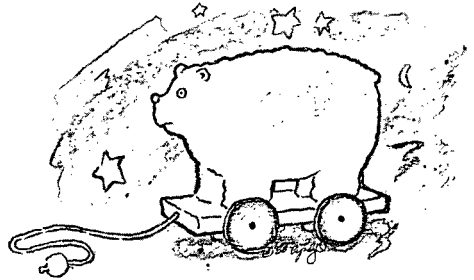
Social play

Whenever two or more children play together, it's social play. Whether the activity is physical, intellectual, or both, social play teaches teamwork and competition and allows children to practice and expand their communication skills. Social play may involve any type of play.

It's important for parents and others to recognize the value of **child-directed play**, in which the child leads or directs the play *safely* with the adult in any way he wishes. It is a form of play that can enhance the child's sense of self-direction and self-esteem. You can engage in child-directed play by locating yourself close to the child, watching his activity closely, imitating and describing some of his specific activities, and praising play behavior. During this time of play, avoid giving the child your play ideas or commands about behavior or toys, or asking questions.

Decisions, Decisions:

How to Choose Good
Toys for Your Child



Children don't need lots of toys; they need the right kinds of toys, toys that give balance and variety to their play. Often, one toy will encourage two or more different kinds of play.

The first consideration in choosing a plaything is safety, of course. It's so important that pages 6-8 are devoted just to safety.

Other things to think about when you choose toys are...

The value of the toy.

A toy is a good value if the child plays with it in many ways for many years. It has nothing to do with price. In fact, some of the best playthings are items you'll find around the house: measuring spoons on a ring, plastic bowls and lids, pots and pans, old clothes, spools, wooden spoons, boxes and paper bags. You don't have to spend a lot on toys. Be creative and shop wisely.

The abilities and interests of the child.

A toy is useless if the child doesn't play with it. Toys should be *fun*. They will be if they interest the child and build on skills she already has. A toy that's too advanced for the child will frustrate and discourage her; a toy that's too simple will bore her. Toy manufacturers have developed age guidelines for the

toys they make—your child's physical and mental development may be faster or slower than the average, so you need to use your own judgment, but don't try to rush the child.

The special needs of the child.

There are appropriate toys for all children, no matter what their abilities. Play is just as important for children who are physically or intellectually different from others. It helps them learn to adapt to their environment with confidence, to feel that they "belong." Many toys and activities can be changed so that the physically or developmentally disabled child can play successfully; others need no adaptations. For example, all babies respond to tickling, holding, and cuddling; rattles, mirrors, music and colorful objects made of materials with several different textures will stimulate the senses. Also,

there are many toys and games on the market that were designed especially for disabled or gifted children.

Ask your child's doctor, therapist, or teacher for ideas for games, toys and activities for the special needs child. The Children's Resource Center at Children's Hospital can also give you some ideas as well as answer your questions about appropriateness and safety and direct you to community resources.

What the toy teaches your child.

Consider your own values when you buy toys. War toys, for example, may give you an opportunity to talk about violence, but if they are extremely realistic, the toy itself, not the child, determines the nature of the play.

Toy-buying can be a learning experience for the child when you involve her in it. Letters to Santa and birthday wish lists also provide opportunities to talk to your child about values and priorities.

How else the toy can be used.

The best toys are those which encourage the child to be creative and which can be used for several different kinds of play. They're more fun for the child and a better value.

What the child does and what the toy does.

Does the toy do everything, or must the child manipulate it or interact with it in some way? Choose toys that stimulate creativity and imagination and encourage involvement with the environment or with other children.

Whether the toy adds to the variety of the child's play experiences.

Too much of a good thing isn't good! For example, video games can improve eye-hand coordination and problem-solving skills, but too much of this play discourages physical activity and make-believe play. Solitary video games deprive children of social interaction as well. Similarly, children shouldn't be overwhelmed with toys for active, creative, make-believe or learning play.

Whether it might be more fun to make a toy than to buy it.

Making toys can be a wonderful family project. Keep a "survival kit" around (glue, tape, scissors, crayons, strings, etc.; let the child decorate the box that holds it all) and use found items to create toys and craft projects. For example, a large cardboard box can be a car, a house, a spaceship or a store. Let the child decide what it's going to be and do as much of the building as he can do safely himself.

How much space you have.

Keep in mind that some toys take up a lot of room when they're played with, and they all have to be stored somewhere.

How long the toy will last.

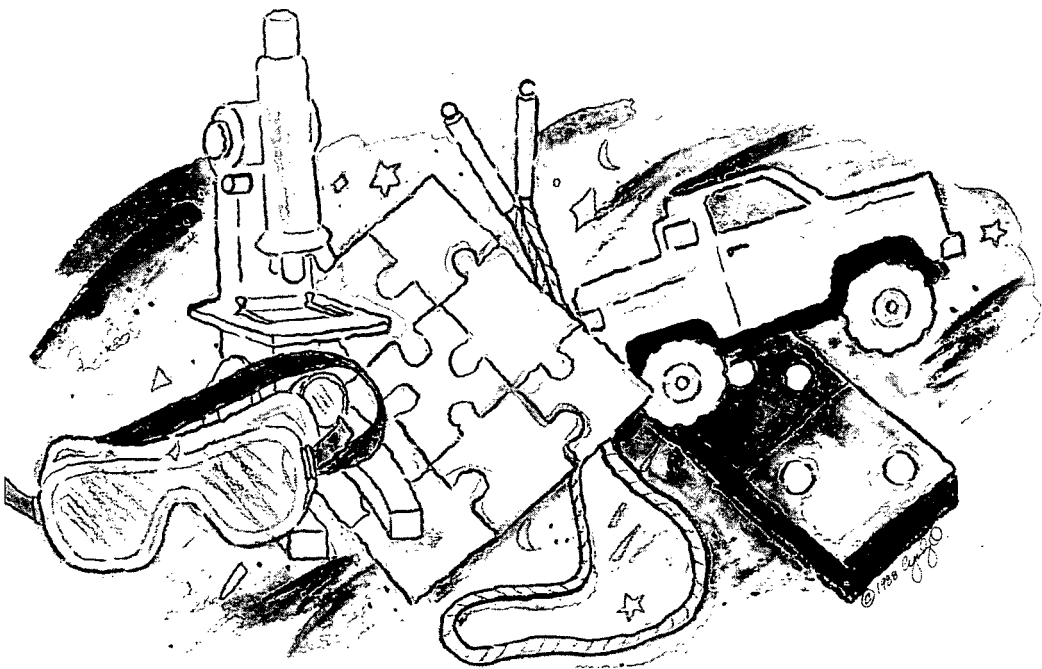
Consider not just durability, but also how long your child will be interested in the toy.

That no toy is a substitute for you.

Children want you to be part of their lives and, therefore, their play, so choose toys and activities that lend themselves to both solitary and family play.

Safety is First. Always.

Many toys are designed and manufactured with safety in mind, but that doesn't relieve parents of the responsibility for safety. No environment is 100 percent safe; even the most carefully constructed toys can be misused or broken.



So when you're looking for toys for your child, either at the store or around the house, remember these precautions:

Choose playthings suitable for the child's age and abilities.

Buy items that are flame retardant or resistant, washable and non-toxic.

Throw away plastic wrappings right away.

Read the instructions.

Make sure the toy's proper use and care are clear to you and to the child.

Buy the safety equipment that goes with a toy or activity.

For example, don't buy a bike without a helmet, a skateboard without knee and elbow pads and a helmet, or a chemistry set without goggles. Set the example. Wear or use safety equipment when you play with your child!

Make sure ride-on toys are the right size for the child.

If they're too small, they'll be unstable; if they're too big, they'll be hard to manage, steer, and stop.

Watch for the "nine toy dangers" identified by the U.S. Consumer Product Safety Commission:

1. Sharp edges.

New toys intended for children under eight are required to have no sharp edges, but toys can break.

2. Small parts.

Choking kills more children under six than any other home accident. Children can choke on anything small enough to fit in

their mouths but large enough to lodge in their throats: chunks of hot dogs, grapes, carrots—and pieces of toys. Regulations prohibit swallowable parts on new toys for children under three years of age, but beware of older toys. Also, toys can break into small, swallowable pieces or allow small items to fall out. Toys for older children might have small parts. Teach older children to put their toys away and make sure they do it.

3. Loud noises.

Read warning labels for safe use of toys that make noise to avoid damage to hearing.

4. Cords and strings.

These can get wrapped around a child's neck. Remove crib gyms from the crib when the child can pull up on his hands and knees; some children have strangled when they fell across crib gyms stretched across the crib. Never attach toys to cribs or playpens with cords or strings more than 12 inches long or with elastic.

5. Sharp points.

Toys for older children may have sharp points that can injure a small child. Watch for broken toys, too. Stuffed toys may have wires inside them that will stick out if the toy comes apart.

6. Propelled objects.

Make sure children know how to use projectile toys (those that shoot objects into the air, such as guns, bow-and-arrow sets, space toys) and are aware of the danger to themselves and others. Children should *NEVER*

play with adult hobby or sporting equipment. Arrows used by children should have soft cork tips, rubber suction cups or other protective tips intended to prevent injury. Check to be sure the tips are secure. Avoid projectile toys that can be used to fire other things such as pencils or nails.

7. Inappropriate for age.

Use the age guidelines on toys. Teach older children to put away their toys. Rubber balloons are not appropriate for children under three years old, and if you have young children at home, avoid them: *Uninflated balloons and pieces of broken balloons are the leading cause of suffocation in children.*

8. Electric toys.

These must meet mandatory requirements for maximum surface temperatures, electrical construction and warning labels. Buy only those toys with the Underwriters Laboratories Seal (it says "UL Approved"). Toys with heating elements are all right for children over eight years old when used under the supervision of an adult. Don't make or repair electric toys yourself.

9. Small toys.

Be sure toys for infants are large enough that they can't be swallowed and that foam toys are too big to be swallowed even when they're completely compressed.

Store toys in a safe place.

Keep toys requiring adult supervision under lock and key. All toys should be put away when they're not being played with so that people don't trip over them. Toys for older children can be stored on

shelves (out of reach of little ones). If you must have a toy chest, be sure the lid is removable or has a spring-loaded support so that it can't drop down on a child. Children like to climb into things: Toy chests should have ventilation holes and open easily from the inside.

Check toys for damage frequently.

Watch for splinters or sharp edges on wooden toys and sand them when necessary. Check outdoor toys for rust. If you repaint toys, use new paint—old paint may have hazardous levels of lead or other chemicals. If a toy cannot be fixed, throw it out right away.

Provide a safe place for play indoors and out.

Watch out for things children can trip over, fall from, or bump into. *Always* supervise children closely when they're playing in or around water. Assemble home playground equipment correctly, making sure it is firmly anchored on a level surface on grass or wood chips. Set safety rules for play on all play equipment and enforce them. Teach children to be especially careful near traffic and on neighborhood streets. They should walk, not ride, their bikes, skateboards and other wheeled toys across streets.

Remember:
Nothing can substitute for careful supervision.

Sick Children Need Play, too.



It's almost a reflex to buy a gift for a sick or injured child. However, although play can enhance recovery, being sick or going to the hospital need not *always* result in a gift. It's not necessary to buy new toys for a sick child and, in fact, familiar toys and playthings give a child comfort and reassurance.

If you do decide to buy something, try to be especially sensitive to the child's medical, physical and emotional condition. Give her something she can play with in the hospital or in bed at home, *not* something she can only play with "when she gets well." This is particularly important for seriously or chronically ill children or for those whose abilities have changed because of injury or illness.

Likewise, a time of illness may not be the time to present a child with new or challenging activities. Give toys or games the child already knows how to play with or has already mastered. The child will take on new challenges when she's able.

If the child is in the hospital, be sure to check with the hospital before you bring a gift—hospitals have rules about what can be brought into patient areas. Most hospitals, for example, don't allow flowers in intensive care units because they can carry or promote infection-causing bacteria; Children's does not allow rubber balloons in any part of the hospital because of the choking danger to very young children. The hospital can also tell you about any special restrictions for the individual child.

Lengthy illnesses are opportunities for creative gift-giving, not necessarily expensive gift-giving. A small tape player and music or story tapes are good for a very sick child who may have difficulty doing things. A series of little packages—stickers; inexpensive books; pictures and audio tapes of family, friends, and pets; home-made posters and cards; and so on—is fun and gives the child something to look forward to each day.

Quiet Activities

There are plenty of things children can do while they're getting well. Some general guidelines are:

Activities for a sick child should be geared to a slightly younger age group or be familiar activities that the child can complete successfully.

The sick child's attention span is usually shorter than normal. Plan activities that can be finished in short periods of time or can be easily interrupted and started again later.

If you set regular times throughout the day to spend with your child, he will more easily let you go about your daily tasks. The younger child needs your attention more frequently, but for shorter periods of time; the older child can manage being with you less often but will enjoy having you stay long enough to play a game or do some activity with him.

Help your child get started on an activity, check on her progress, and help her finish or clean up. This kind of structure encourages a child to continue on her own.

If the child needs to stay in bed, provide him with a large, firm surface for playing and, if possible, some sort of table at his bedside.

Try not to insist on neatness. An old vinyl tablecloth or piece of plastic will protect the child's bed or play area.

Avoid activities or toys with many small pieces that can get lost in bedding. For the child of six or seven years and older who enjoys toys of this type, use a large tray or flat traylike cardboard box to keep the pieces together.

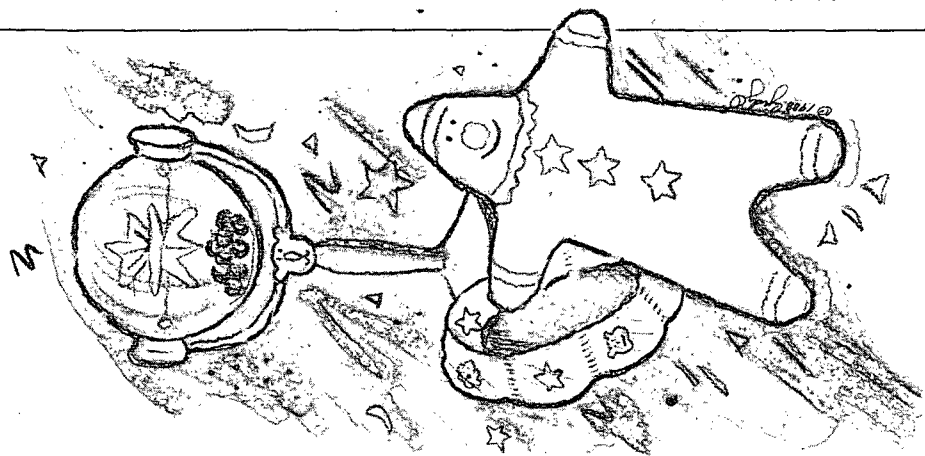
Remember that no toy can replace *time* spent with a sick child. Children want your presence more than anything. It's difficult, when both parents are working and there are other children at home, to spend as much time as you'd like with your child when he is ill, but do try to be there as much as you possibly can.

Suitable Toys For Various Kinds of Play

0-12 Months

ACTIVITIES/ABILITIES	IN GENERAL	ACTIVE	MANIPULATIVE	MAKE-BELIEVE	CREATIVE (arts, crafts, music)	LEARNING
• Follows objects with eyes • Localizes sounds; turns to see • Gains control of hands • Discovers feet • Begins to sit with support • Explores with hands, feet, mouth • Aware of others, self • Does one thing at a time • Begins to smile at faces, voices and mirror • Begins to coo, babble, laugh • Listens to voices; may imitate sounds <i>from about 7 months:</i> • Begins to: • Sit alone • Creep and crawl • Pull to a stand • Hold onto furniture while walking • Walk alone • Develops thumb and finger grasp • Holds objects with one hand; manipulates with other • Enjoys bath play, kicking and splashing • With objects: • Bangs, pokes, twists, squeezes, drops, shakes, bites, throws, opens/shuts, pushes/pulls, empties/fills • Interest in: • Appearing/disappearing • Containers (empties cupboards, drawers, containers of objects) • Letting go and dropping objects • Exploration • Remembers people, objects, games, toy actions • May fear strangers, change • Watches/imitates others • Sensitive to praise, disapproval • Enjoys simple games; peek-a-boo, bye-bye • Babbles; may try to imitate sounds • Recognizes own name; may point to named objects; obey simple commands	Toys for this age are primarily for: looking, listening, sucking, or fingering <i>Infants 0-2 months</i> enjoy seeing and hearing interesting things <i>Infants 2-6 months</i> show growing interest in touching, holding, bathing, turning, shaking, kicking, mouthing and tasting objects Infants like to see: • bright primary colors • high contrast • simple design • clear lines and features • human face features (esp. eyes) • bull's eye pattern Infants enjoy watching hanging objects or "mobiles" that move by wind, wind-up action, or infants' own activity Toys for watching only should be suspended 8-14 inches from the infants' eyes at first and angled toward his/her eyes, then moved up out of reach when s/he can touch them Toys for watching are more appealing if they move and make noise (but movement should be slow and noise not too loud or sudden) <i>Infants 7-9 months</i> interested in longer and more extensive exploration of toys, etc. Infants of this age like to: bang, insert, poke, twist, squeeze, drop, shake, bite, throw, open and shut, empty and fill. <i>Infants 10-12 months</i> show beginning interest in object mastery and like many objects to explore. Infants of this age like to: stack, put in and take out, pour out, fit one object into another, open and close, press levers, turn things (not unscrewing yet), push balls and cars. Generally, infants in this age range are interested in: operating simple mechanisms, containers and the container/contained relationship, appearing and disappearing objects. Safety Toys for infants • nontoxic materials • no sharp points or edges • safe for mouthing • nonbreakable; no glass or brittle plastic • no small parts to be lodged in throat, ears, nose • no parts to entrap fingers, toes, hands • no electrical parts • nothing can substitute for careful supervision	Sports Equipment <i>from about 6-8 weeks:</i> • clutch balls • texture balls • soft squeeze balls <i>from about 7 months:</i> • transparent balls • chime balls • flutter balls • action balls Push and Pull Toys <i>from about 7 months:</i> • push toys without rods (simple cars, animals on wheels or rollers) Ride-On Toys <i>not suited to age group</i> Outdoor or Gym Equipment • infant swings (with adult supervision) <i>from about 7 months:</i> • soft low climbing platform for crawlers	Construction Toys <i>from about 4 months:</i> • soft blocks <i>from about 7 months:</i> • rubber blocks • rounded wood bell blocks Puzzles <i>from about 10 months:</i> • brightly colored, lightweight crib and playpen puzzles (2-3 pieces) Pattern-Making Toys <i>not suited to age group</i> Manipulative Toys <i>from about 6-8 weeks:</i> • simple rattles • teethers • light, sturdy cloth toys • squeeze toys • toys suspended above or to the side of infant for batting and grasping <i>from about 4 months:</i> • nipple balls • disks, keys on ring • interlocking plastic rings • toys on suction cups • crib gyms <i>from about 7 months:</i> • large, plastic pop beads • drop objects on string • squeeze-squeak toys • roly-poly toys • activity boxes and cubes • pop-up boxes (easy operation) • containers with objects to empty and fill • simple nesting cups • stacking ring cones (few rings and safe stick) • graspable (unbreakable) mirror toys which can be held and played with • losses interest in crib gyms and toys suspended above when can sit up and move about (crib gyms can create safety hazards when child can get to hands and knees and should be moved out of reach) Dressing, Lacing, Stringing Toys <i>not suited to age group</i> Sand and Water Play Toys <i>from about 7 months:</i> • activity boxes for bath • simple floating toys	Dolls • soft baby dolls, soft-bodied dolls, or rag dolls —all with molded (not loose) hair Stuffed Toys • small plush animals • music box animals (operated and monitored for safety by adults) • grab-on soft toys <i>from about 7 months:</i> • brightly colored, lightweight crib and playpen puzzles (2-3 pieces) Puppets • soft hand puppets, <i>from 6-6 months</i>, held and moved by adults; <i>from about 7 months</i>, baby may handle but must be moved as puppets by adult Role-Play Materials • mirrors (large, unbreakable) fastened to crib, playpen or wall (peak interest in mirrors 4-6 months) <i>from about 7 months:</i> • low wall-mounted mirrors to see self sit, creep, crawl, etc. Play Scenes <i>not suited to age group</i> Transportation Toys <i>from about 7 months:</i> • simple push cars (one-piece)	Musical Instruments <i>from about 6-8 weeks:</i> • bells on handle • wrist bells to shake • rattles <i>from about 7 months:</i> • rubber or wood blocks that rattle or tinkle Art and Craft Materials <i>from about 12 months</i> • large paper • large crayons for scribbling Audio-Visual Equipment • phonograph or tape recorder (adult-operated) • records or tapes (gentle, simple rhythms and songs, lullabies) • music boxes (adult-operated)	Games <i>not suited to age group</i> Specific Skill Development Toys <i>not suited to age group</i> Books • may enjoy being read to <i>from about 7 months:</i> • cloth books • plastic books • small cardboard books <i>Note: Some children enjoy "lap reading" (being read to) from this age onward. When adult held, paper picture books are appropriate.</i>

Reprinted from information provided by the U.S. Consumer Product Safety Commission.
Please note that these categories do not represent all the toy products that might be suitable for a particular age, nor do they represent an endorsement of any particular product. Age categories and appropriate toys are based on children's average abilities.



ACTIVITIES/ABILITIES

- Exercises physical skills
- Likes to: Lug, dump, push/pull, pile, knock down, empty/fill
- Climbs, manages small indoor steps
- Interested in multiple objects
- Can kick; catch a larger ball by age 2
- Can string large beads; turn knob; use screw motion by age 2
- Interest in cause/effect
- Prefers action toys
- Makes simple block structures
- Uses simple stacking toys
- Does simple puzzles
- Curious, experimental
- Groups/matches similar toys by age 1½-2
- Identifies by pointing
- Enjoys water, sand play
- Makes marks on paper; scribbles
- Imitates adult actions — housekeeping, caretaking
- Plays alone mostly
- Thes to do adult tasks
- Expresses affection
- Likes being read to, hearing nursery rhymes
- Enjoys interactive games like tag by age 1½

IN GENERAL

- Child prefers action toys, toys that produce movement or sounds by child's own efforts
- toys need not be highly detailed but should be realistic looking
 - toys should be lightweight for easy lifting, carrying
 - bright colors preferred
- In play, child always on the move — large muscle activities such as running, climbing dominate over small muscle activities such as exploring objects, constructing
- Child beginning to combine, put together objects
- Beginning of imitative play

Safety

- Toys should meet safety regulations for age:**
- **sturdy, unbreakable, not likely to break into small pieces and strong enough for child to stand on or in**
 - **nontoxic materials**
 - **no sharp points or edges**
 - **too large to be lodged in windpipe, ears, nostrils**
 - **no detachable small parts**
 - **no parts that could pinch or entrap fingers, toes, hair**
 - **not put together with easily exposed straight pins, sharp wires, nails**
 - **no electrical parts**
 - **nothing can substitute for careful supervision**

ACTIVE

Push and Pull Toys

- push toys with rods (rods with large handles on ends)
- toys to push on floor — simple, sturdy, with large wheels
- special noise and action effects
- for steady walkers, pull toys on strings (based to tip less easily)

from about 1½:

- simple doll carriages and wagons — low, open, big enough for child to get in
- small rocking horses — confined rocking arc, stout handles rather than reins, knee height on child
- push/pull toys filled with multiple objects

Ride-On Toys

- ride-ons propelled by pushing with feet — no pedals, no steering mechanism
- stable ride-ons — 4 or more wheels, wheels spaced wide apart, child's feet flat on floor when seated
- ride-ons with storage bins
- ride-ons that make noise, look like animals

Outdoor and Gym Equipment

- all gym equipment needs adult supervision
- low, soft climbing platforms
- tunnels for crawling
- swings (pushed by adult) — seats curved or body-shaped, of energy-absorbing material

from about 1½:

- simple, low climbing structures
- low slides with handrails
- outdoor play equipment with stationary rather than moving parts

Sports Equipment

- soft lightweight balls, especially with interesting visual effects, noises, unpredictable movement
- chime ball, flutter ball
- largish balls (easier for child to maneuver)
- *from about 1½*, interest in small rubber balls (at least 1¼ inches in diameter)

MANIPULATIVE

Construction Toys

- small lightweight blocks (15-25 pieces) *before 1½, most interlocking mechanisms are too difficult*
- from about 1½:*
- solid wooden unit blocks (20-40)
- large, hollow building blocks
- large plastic bricks (2-4 inches)

Puzzles

- simple prepuzzles or form boards — 2-3 pieces, each piece a familiar shape

from about 1½:

- 3-5 piece puzzles with knobs easier to use (knobs firmly attached)

Pattern-Making Toys

- peg board with a few large pegs

Manipulative Toys

- activity boxes attached to crib or playpen or freestanding — simple action mechanisms (doors, lids, switches)
- hidden object toys
- simple pop-up toys operated by pushing a button or knob
- nesting cups — round shape, few pieces
- simple stacking toys — few pieces, no order
- shape sorters — a few common shapes

from about 1½:

- fit-together toys of about 5 pieces
- activity boxes with more complex action mechanisms — turning knob, dial, or key
- pounding/hammering toys
- nesting toys — square or other shapes
- stacking toys of 4-5 pieces
- simple matching toys
- simple number/counting boards (1-5) with large pegs
- jack-in-the-box toys (adult supervision if toys spring back quickly)
- toys with screwing action (child can usually manage only 1 turn)

Dressing, Lacing, Stringing Toys

- large colored beads (fewer than 10)
- from about 1½:*
- lacing cubes or board with thick, blunt spindle
- Sand and Water Play Toys**
- simple floating toys — 1 or 2 pieces
- sponges, small shovel and pail

from about 1½:

- nesting tub toys
- bathtub activity centers
- funnels, colanders
- small sandbox tools

MAKE-BELIEVE

Dolls

- soft-bodied or all-rubber baby dolls
- simple dolls — no hair, moving eyes, or movable limbs
- dolls to fit easily in child's arms, or small dolls (5-6 inches)
- simple accessories for caretaking — bottle, blanket
- simple doll clothes, need not be detachable

from about 1½:

- small peg people

Stuffed Toys

- very soft, lightweight, easy to hold
- slender limbs on toys for easy grasp
- no whiskers, buttons, bows, bells

Puppets

- puppets operated by adult

from about 1½:

- small hand puppets sized to fit child's hand
- soft, plush puppets that double as stuffed toys

Role-Play Materials

- toy telephone, full-length mirror
- simple housekeeping equipment
- simple doll equipment — carriage, bed

from about 1½:

- simple dress-ups — hats, scarves, ties, shoes, jewelry, role-play toys that can be pushed and make noise — mower, vacuum
- child-sized equipment — oven, fridge, sink, table and chairs

Play Scenes

- before 1½:*
- child may enjoy handling, carrying around figures

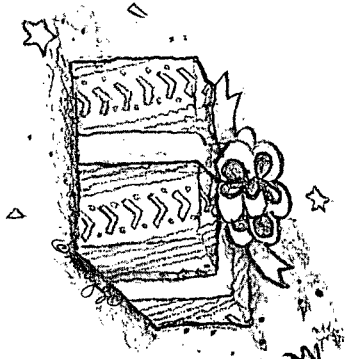
from about 1½:

- familiar, realistic scenes — farms, airport, garage, not overly detailed nor lots of pieces (4-6 pieces)
- prefer scenes with moving parts or that make noise

Transportation Toys

- lightweight vehicles of a size for easy handling (not too small)
- push or pull cars and trains
- vehicles that make noise
- first train — 1-2 cars, no tracks, simple or no coupling system
- from about 1½:*
- more detailed vehicles — doors, hoods that open
- trains with simple coupling system — large hooks, magnets

Surprise Packages.



Children love surprises, and toys make wonderful ones, as holiday or birthday gifts, as special rewards, or “just because.”

Surprise packages don't have to contain toys, though. Be creative! There are many alternatives to toys; your choices are limited only by your imagination.

For example, instead of a toy, give a child ...

A gift of your time.

Plan a special outing to a favorite place or try someplace new. Do a project or prepare a special meal at home together. Couple the activity with a small gift, if you like — a stuffed toy or a book about animals and a trip to the zoo; a toy boat and a picnic at the beach; art supplies and a trip to the museum.

Magazine subscriptions.

As children get older, their interests become more defined. There's a magazine or newsletter somewhere devoted to just about any subject you can think of, and there are also

Lessons.

Older children might like music, art, dance, or sports/athletic lessons or instruction.

Gifts don't have to be expensive, just appropriate and fun.

Give the child something she likes to do and do it with her.

You'll create a memory that will never get lost or broken or outgrown.

Stimulating Toys for Various Kinds of Play

12 Months

ACTIVITIES/ABILITIES

- Follows objects with eyes
- Localizes sounds; turns to see
- Gains control of hands
- Discovers feet
- Begins to sit with support
- Explores with hands
- Aware of others
- Does one thing especially with interest
- Begins to see, unpredictable
- Begins to
- Lister child to maneuver (in small rubber balls from diameter)

more wheels, wheels
child's feet flat on floor

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ise, look like animals
Equipment
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y-absorbing material

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making Toys
• peg board with a few large pegs

Manipulative Toys

- activity boxes attached to crib or playpen or freestanding—simple action mechanisms (doors, lids, switches)
- hidden object toys
- simple pop-up toys operated by pushing a button or knob
- nesting cups—round shape, few pieces
- simple stacking toys—few pieces, no order
- shape sorters—a few common shapes

from about 1½:

- fit-together toys of about 5 pieces
- activity boxes with more complex action mechanisms—turning knob, dial, or key
- pounding/hammering toys
- nesting toys—square or other shapes
- stacking toys of 4-5 pieces
- simple matching toys
- simple number/counting boards (1-5) with large pegs
- jack-in-the-box toys (adult supervision if toys spring back quickly)
- toys with screwing action (child can usually manage only 1 turn)

Dressing, Lacing, Stringing Toys

- large colored beads (fewer than 10)
- lacing cubes or board with thick, blunt spindle

Sand and Water Play Toys

- simple floating toys—1 or 2 pieces
- sponges; small shovel and pail

from about 1½:

- nesting tub toys
- bathtub activity centers
- funnels, colanders
- small sandbox tools

- Rel...
- actions
- May fear s...
- Watches/int...
- Sensitive to praise
- Enjoys simple game
- Babble; may try to imit
- Recognizes own name; may
- Recognizes simple commands
- objects; obey simple commands

very soft, lightw...
slender limbs on...
no whiskers, butto

Puppets

- puppets operated by...
- from about 1½:
- small hand puppets size
- soft, plush puppets that d

Role-Play Materials

- toy telephone; full-length m
- simple housekeeping equipm
- simple doll equipment—carria

from about 1½:

- simple dress-ups—hats, scarves, jewelry, role-play toys that can be p
- make noise—mower, vacuum
- child-sized equipment—oven, fridge
- table and chairs

Play Scenes

before 1½:

- child may enjoy handling, carrying around figures
- from about 1½:
- familiar, realistic scenes—farms, airport, garage, not overly detailed nor lots of pieces (4-6 pieces)
- prefer scenes with moving parts or that make noise

Transportation Toys

- lightweight vehicles of a size for easy handling (not too small)
- push or pull cars and trains
- vehicles that make noise
- first train—1-2 cars, no tracks, simple or no coupling system
- from about 1½:
- more detailed vehicles—doors, hoods that open
- trains with simple coupling system—large hooks, magnets

- salt
- nonbre
- no small
- ears, nose
- no parts to entr
- no electrical parts
- nothing can substit
- supervision

Musical Instruments

- rhythm instruments operated by shaking
—bells, rattles

from about 1½:

- rhythm instruments, operated by banging together—cymbals, drums

Art and Craft Materials

- large crayons
- sturdy, large-size paper

Audio-Visual Equipment

operated by adult:

- tapes and records of nursery rhymes and rhythms
- hand-cranked music box, worked by child if crank is large and easy to turn

Games

not suited to age group

Specific Skill Development Toys

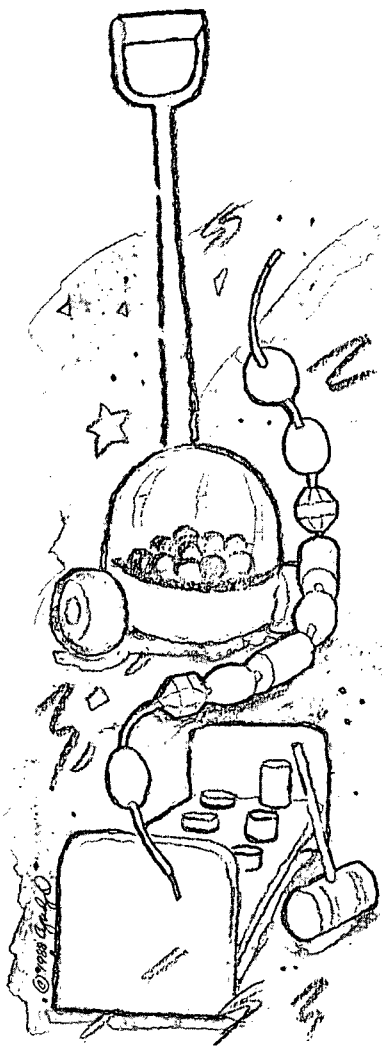
not suited to age group

Books

- sturdy cloth, plastic, cardboard books with few pages
- picture books, nursery rhymes, stories with repetition
- books to be held and read by adult can be more fragile, with paper pages

from about 1½:

- touch-me or tactile books



- Can do simple large-muscle skills
- Jumps from heights
- Climbs
- Hangs by arms
- Rolls
- Gallops
- Somersaults
- Rough-and-tumble play
- Throws/retrieves objects
- Pushes self on wheeled objects with good steering
- Good hand/finger coordination by age 2½-3
- Lots of active play with small objects
- Interested in texture, shape, size, color of objects
- Can match group of similar objects
- Plays with pattern, sequence, order of size
- First counting skills
- First creative activities—drawing, construction, clay
- Begins to solve problems in head
- Imaginary/fantasy play increases, playing alone or with adult
- Begins cooperative play with other children
- Uses words to express wishes
- Enjoys hearing simple stories with repetition
- Very independent

Beginning of cooperative, social play

Increasing interest in pretend play

Love of physical, active play

Child prefers action toys, toys that produce movement or sounds by child's own efforts

More realism preferred

- beginning to pay attention to qualities of objects
- prefers toys with working parts

Toys should be lightweight enough for easy lifting, carrying

Bright colors preferred

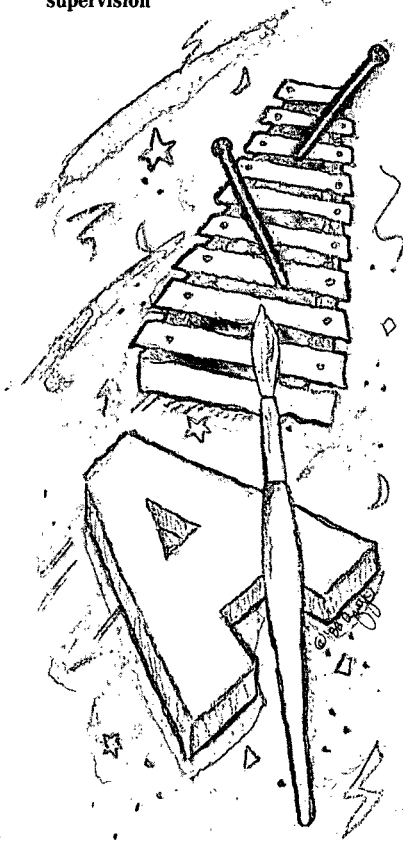
Safety

Toys should meet safety regulations for age:

- **sturdy, unbreakable; not likely to break into small pieces and strong enough for child to stand on or in**
- **nontoxic materials**
- **no sharp points or edges**
- **too large to be lodged in windpipe, ears, nostrils**
- **no detachable small parts**
- **no parts that could pinch or entrap fingers, toes, hair**
- **not put together with easily exposed straight pins, sharp wires, nails**
- **no electrical parts**
- **nothing can substitute for careful supervision**

- Runs, jumps, climbs, balances with ease
- Gross motor skills well developed by age 5
- Likes risks, tests of physical strength and skill
- Loves acrobatics, outdoor equipment
- Finger control increases:
 - Picks up small objects
 - Cuts on a line with scissors
 - Holds pencil with proper grasp
 - Strings small beads
- Expert builder with small construction materials; enjoys big blocks, larger materials
- Basic interest by age 5 in ball games with simple rules and scoring
- Knows common shapes, primary sizes
- Interest in simple number activities; alphabet play; copying letters; matching/sorting
- Begins to be goal-oriented, makes use of a plan by about age 4
- Interest in producing designs, including puzzles
- Prefers realism
- Interest in science, nature, animals, time, how things work
- Plays out adult jobs with costumes, props
- Begins to share, take turns
- Play is cooperative by age 5
- Interest in group pretend play
- Not ready for competitive play; hates to lose
- Enjoys simple board games based on chance, not strategy
- More sex differentiation in roles, interests
- Enjoys books, being read to

- Preschoolers prefer toys with realistic detail and working parts
- Increasing interest in dramatic and pretend play; by age 5, peak period for dramatic play, with all sorts of props
- Period of peak interest in puppet play
- Increasing construction activity, often with plan or goal
- Period of peak interest in play scenes, small figures and cars
- Safety**
- **not likely to break easily into small pieces or leave jagged edges**
 - **no sharp points or edges**
 - **not made of glass or brittle plastic**
 - **nontoxic materials**
 - **no electrical parts unless supervised by adult**
 - **nothing can substitute for careful supervision**



- Push and Pull Toys**
- small wagons
 - small wheelbarrow
 - push toys resembling lawnmowers, vacuum
 - doll carriages and strollers
- from age 5:*
- full-size wagons, scooters

- Ride-On Toys**
- tricycles sized to child
 - 3- and 4-wheel pedal vehicles with steering
 - prefer realistic, detailed
 - full-size rocking horses
- from age 4:*
- low-slung tricycles
 - battery-operated ride-on toys
- from age 5:*
- small bicycle with training wheels, sized to child (a helmet)

- Outdoor and Gym Equipment**
- adult supervision recommended
 - stationary outdoor climbing equipment
 - slides (with side rails)
 - swings with curved seats
 - balance board

- from age 4:*
- equipment with movable hanging rings
 - swings with flat seats
 - rope ladders and ropes
 - gym sets with enclosed forts

- Sports Equipment**
- balls of all shapes, sizes
 - double-blade ice skates
 - sleds size-graded (no wheels)

- from age 4:*
- lightweight soft baseballs
 - junior-sized soccer balls
 - speed-graded roller skates (no ball bearings for rotation)
 - kites
 - wading pool (adult supervision)
- from age 5:*
- jump ropes
 - skis (sized to child)
 - flying disks (especially magnetic darts)
 - inner tubes, kickboard, swimming (adult supervision)

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pervision needed)

Construction Toys

- solid wood unit blocks—large and small
- large hollow blocks
- plastic blocks to be pressed together (2-4 inches)

from age 4:

- most types of interlocking building systems, pieces of all sizes
- no motorized parts

from age 5:

- prefer sets that make realistic models
- can connect pieces in specific order to create simple models

Puzzles

- fit-in or framed puzzles: *age 3*, up to 20 pieces; *age 4*, 20-30 pieces; *age 5*, up to 50 pieces
- large, simple jigsaw puzzles (10-25 pieces)
- number or letter puzzles; puzzle clocks

Pattern-Making Toys

- bead stringing—longer, thinner string (with stiff tip), large beads
- peg board with small pegs
- color cubes/color forms
- magnetic boards with shapes

from age 4:

- beginning interest in design materials—mosaic blocks, felt boards

from age 5:

- simple weaving; small beads to string ($\frac{1}{2}$ in.); block printing equipment

Manipulative Toys

- matching toys by color, shape, or picture; *from age 4*, by concept, letters (ABC), numbers (1-10)
- sorting toys; number rods
- number boards with smaller pegs
- simple counting toys; lock boxes
- nesting toys with multiple pieces

from age 4:

- geometrical concept toys

from age 5:

- simple models of mechanical devices or natural objects; more complex lotto matching toys

Dressing, Lacing, Stringing Toys

- frames/cards to button, hook, tie

from age 5:

- simple sewing kits with thick cloth and needle (with supervision)

Sand and Water Play Toys

- large and small sandbox tools; bubbles
- wind-up bath toys; bath activity centers

from age 4:

- sand molds; water pump
- realistic working models of boats (no sharp metal parts)

Dolls

- realistic dolls with detail and accessories, especially baby dolls
 - dolls with hair, moving eyes, movable limbs
- from age 5:*
- child-proportioned dolls (can dress dolls if garments and fastenings are simple)
 - paper dolls to be punched out

Stuffed Toys

- stuffed toys with accessories—ribbons, bells, simple clothes
 - realistic-looking toys, replicas of famous characters
 - music box toys
- from age 5:*
- collecting toys in sets

Puppets

- simple sock or mitten puppets
 - finger puppets
 - simple puppet theater (no scenery)
- from age 5:*
- hand-and-arm puppets
 - more detailed puppets; puppets with limbs

Role-Play Materials

- dress-ups, costumes of all types
- realistic, detailed equipment—by 5, want it to really work
- housekeeping and cooking equipment
- toy telephone; toy camera; doctor kits
- specialized doll equipment
- cash register; equipment to play store
- play stages; large mirror

Play Scenes

- scenes with a variety of realistic accessories and working parts
- favorite themes—garage, farm, airport, space, forts
- action/adventure sets; action figures
- first doll house—simple, few rooms; easy access, space to move objects around, sturdy furnishings

from age 5:

- can manipulate very small pieces; attention to realistic detail

Transportation Toys

- toy cars of all sizes—small metal cars, trucks with very realistic detail
- large-scale trucks, road machinery that really works (dumps, digs)
- action/adventure vehicle sets
- small, realistic trains

from age 5:

- small trains with tracks; can work most train coupling systems; can plan, build simple track layouts; wind-up and spring-driven cars

Musical Instruments

- all rhythm instruments
- xylophones
- instruments that require blowing—harmonica, horns, whistles, simple recorder
- wind-up music boxes
- piano—one-finger tunes

Art and Craft Materials

- large crayons with many colors
- color paddles
- magic markers
- finger and tempera paint
- adjustable easel
- brushes of various sizes
- clay, including modeling clay and tools
- chalkboards and chalk of various sizes
- scissors with rounded ends
- paste and glue
- simple block printing equipment
- pop-it beads
- large beads to string
- simple sewing kits (without needles)

from age 4:

- increased interest in art products; also, can copy order
- workbench and hammer, nails, saw

from age 5:

- smaller crayons; coloring books; watercolor paints; simple weaving loom; small beads to string; sewing kits with large, blunt needles

Audio-Visual Equipment

- hand-cranked music boxes
- adult-operated record and tape player

from age 4:

- record and tape players for child to operate
- simple video games

from age 5:

- radio

- pool toys (tubes, mats) with adult supervision

Games

- dominoes (color or number)
- simple matching and lotto games based on color, pictures
- simple card games
- bingo (picture)

from age 4:

- first board games, based completely on chance—games should have few rules, simple scoring, no reading required beyond ABC, only a few pieces
- games requiring simple fine-motor coordination (picking up or balancing objects)

Specific Skills Development Toys

simple electronic and other teaching toys for:

- matching/sorting
- shapes, colors
- numbers and letters

from age 4:

- simple computer programs for teaching color matching, letters, classification, numbers, sounds
- simple science models

from age 5:

- science materials—magnets, flashlight, shells and rocks, magnifying glass, stethoscope, prism, aquarium, terrarium
- clock
- printing set
- toy typewriter
- simple calculator
- computer programs to teach simple programming

Books

- picture books, simple stories, rhymes
- complex pop-up books
- like complex illustrations with an abundance of detail

age 3 interests:

- here-and-now stories
- animal stories
- alphabet books
- words and rhymes

age 4 interests:

- wild stories, silly humor
- information books
- familiar places, people

age 5 interests:

- realistic stories
- poetry
- primers
- animals who behave like people

ACTIVITIES/ABILITIES

- Large muscle abilities and interests:
Jump rope, hopscotch, climbing, ice skating, roller skating, bike riding, water sports, ball play
- Small muscle abilities and interests:
Printing, drawing with pencils, simple sewing and carpentry, weaving, braiding, stringing small beads, cut out paper dolls, jigsaw puzzles
- Interest in reading, spelling and printing activities, games
- Interest in simple math activities and games (time, calendars, weight, coin values)
- Interest in nature and simple science experiments
- Interest in collecting things
- Likes magic and tricks
- Likes to produce finished art, models, crafts, sewing, carpentry
- Great interest in peers and belonging:
special friends, secret languages, passwords
- Prefers to play with same sex peers
- Plays well with others
- Wants to play "fair"
- Interest in dramatic play
- Beginning interest in wider community



IN GENERAL

Child primarily interested in goal rather than means or process

Experimentation becomes increasingly "scientific"

Child less dependent on concrete object for concept

Child can:

- sort and classify using more than one criterion
- increasingly make use of reading, writing and simple arithmetic in games and toys
- do simple sewing, weaving, braiding, ceramics, jewelry kits—has greatly increased fine motor control
- use simple mechanical toys (cars, trains)

Child is interested in:

- time and seasons and in toys marking time
- collections of things
- line between fantasy and reality (likes tricks and magic and disguise kits)
- producing products in arts, crafts, woodworking, etc.
- kits (science, craft, models) and can follow simple directions
- adult roles and likes realistic costumes and props for character play
- rudiments of sports and skill development

Child shows increasing variation in interest and abilities

Reading interests vary but child beginning to be able to use dictionary

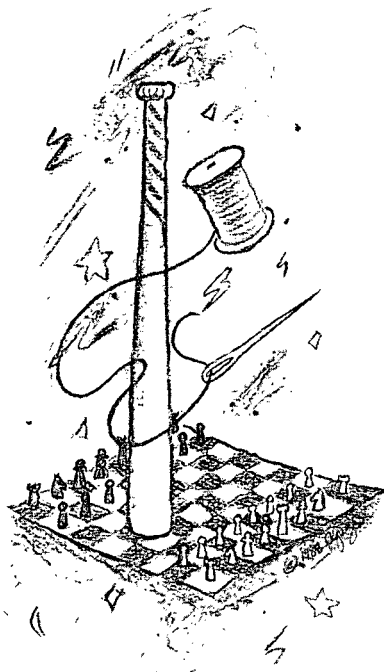
Beginning of interest in giving "shows"

Great interest in "fairness" but hates to lose and will cheat to win in games

Safety

- no sharp points or edges
- no electrical parts without adult supervision
- use/wear appropriate safety equipment for the activity
- nothing can substitute for careful supervision

- Ready for athletic and team sports:
 - Riding (bicycling and horseback), skating, swimming, sailing, tennis, fishing, variety of ball games
- Enjoys pick-up sticks, marbles, jacks, darts, ring toss, tiddly-winks
- Can do complex models, jigsaw puzzles of 100 to 1000 pieces
- Interest in arts and crafts
- May be interested in music, dance, art and craft lessons
- Able to play and carry out activities on own
- Independent thinker; evaluates ideas and people
- More individual differences in abilities and interests
- Increasing ability to arrange, classify, generalize
- May enjoy hobbies, collections, scrapbooks
- Interest in stories, plays; acting
- Interest in gadgets and inventions; computers
- Works cooperatively with others
- Interest in clubs, group activities
- Plays complex card and table games with rules
- Enjoys competitive games, sports
- Interest in drama and games like charades
- Growing interest in the world



Great increase in individual differences in abilities and interests — may be interested in:

- reading (and in specific kinds of books)
- science (with some specific interest like chemistry or astronomy)
- computers (some like to make their own programs)
- hobbies
- crafts (skill approaches adult level by age 12)
- building models
- collections (some become serious collectors and many enjoy small collections)
- formal training in arts (music, drama, drawing) or specific crafts (pottery, weaving, carpentry, sewing, etc.)
- producing shows or plays (live actors, animals, puppets, etc.)
- both sexes now enjoy athletics and/or competitive sports, but specific interests vary — child may be interested in formal training in some athletic skill

Fine motor abilities begin to approach that of an adult — may enjoy dexterity games, complex constructions, or puzzles

Interested in more complex table games and enjoys strategy and competition — can now stick to the rules and lose gracefully

Safety

- **use/wear appropriate safety equipment for the activity**
- **no electrical parts without adult supervision**
- **nothing can substitute for careful supervision**

Pushing and Pulling
not suited to age group

Ride-On Toys

- two-wheeled bicycle
- adult size by 11 or 12
- cle with geared speed
- battery-powered ride-on toys (gearshifts)
- 12-year-olds not yet ready for ride-ons that require about speed, safety, etc.

Outdoor and Gym

- complex gym sets with ropes, rope ladders, swinging too big for average
- complex climbing structures
- jump ropes
- some like weightlifting

Sports Equipment

- baseball, basketball (regular size)
- football (regular size)
- flying disks (regular size)
- roller and ice skates
- ski equipment (adult supervision)
- hockey equipment
- sleds with steering and brakes (adult supervision)
- toboggans (adult supervision)
- croquet sets
- ping pong sets
- horseshoe sets
- badminton equipment
- tennis equipment
- golf equipment
- swimming and under (adult supervision)

g Toys

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Equipment

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soccer equipment

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Construction Toys

- large sets of blocks or bricks (at least 80-100 pieces)
- construction sets (wood/plastic/metal) — can put together complex parts, manipulate tiny nuts and screws, and follow directions
- sets with motorized parts
- complex gear systems
- can copy or build models following instructions — prefer sets that produce realistic models

Puzzles

- jigsaw puzzles
- age 8-10, 100-500 pieces
- age 10+, 500-2000 pieces
- three-dimensional puzzles

Pattern-Making Toys

- great increase in design skills in this age range
- design or pattern work in virtually any medium (wood, plastic, paper, cardboard, cloth, tiles, beads, etc.)
- kits to produce design products
- design interest merges into arts and crafts interests

Manipulative Toys

- may enjoy producing or manipulating: math models, mechanical models, science models (of body, stars, planets, etc.), simple physics models

Dressing, Lacing, Stringing Toys

- stringing beads of any size or material
- many skills such as sewing now becoming crafts
- may enjoy:
 - simple to complex handlooms
 - jewelry making kits
 - knitting kits
 - needlepoint kits
 - leather sewing kits
 - leather and plastic braiding kits

Sand and Water Play Toys

- can operate small real boats with adult supervision (sailboats, rafts, canoes)
- elaborate model boats, including gas powered boats (with supervision)
- remote control boats

Dolls

- dolls are increasingly decorative pieces or hobbies
- preference for lots of accessories
- interest in careers (dolls with roles)
- may enjoy: fashion dolls/teenage dolls, costume dolls, collector dolls, dollhouse or miniature dolls, haircutting dolls, dolls representing familiar characters, fantasy/action characters

Stuffed Toys

- small, collectible toys
- large, floppy stuffed toys (some interest in oversized animals)
- very realistic toys
- replicas of famous animals
- (may have particular love of horses, dogs, cats, bears, etc.)
- unusual, unique stuffed toys

Puppets

- can manipulate puppet theater, curtains and scenery
- interested in scripted puppet plays
- may enjoy: hand puppets, puppets on rods, stringed marionettes

Role-Play Materials

- mirrors (used in adult way)
- dolls and role play leads to sewing (for dolls), real cooking, dramatic games (characters, etc.) and real dramatics (making up or giving plays)
- dolls, doll houses, toy soldiers, scale model toys may become hobbies
- may like:
 - real cooking and sewing equipment,
 - make-up and disguise kits, props, adult clothes and costumes for plays and dramatics

Play Scenes

- elaborate doll houses (may become hobby)
- may be interested in collections or hobbies with toy soldiers, forts, robots, etc.

Transportation Toys

- remote control vehicles
- electric trains
- electric racing cars
- gas-powered toy cars (11-12 years) (with adult supervision)

Musical Instruments

- may be interested in real instruments: piano, autoharp, ukulele, children's sousaphone, recorder, violin, horn, etc., and formal lessons
- may be interested in formal dance lessons: ballet, modern dance, tap dancing, folk dance, acrobatics
- may be interested in songbooks and group singing

Art and Craft Materials

- *age 10-13*—formal art lessons following interest
- crayons, paints, markers, pencils, art chalks, casein paints
- variety of papers, sketch pads, art papers and cardboards
- very complex coloring/design books
- stencils
- papier mache
- glues
- regular scissors
- clay (oil-based, self-hardening, pottery clay)
- plaster of paris
- *age 10-13*: formal craft lessons following interest
- can learn and use (lessons and kits): real sewing, knitting, embroidery, needlepoint, crocheting
- working (simple) sewing machines
- weaving
- clay modeling/pottery/ceramics
- jewelry making (beads, enamels, shells)
- printing
- leather work and leather braiding
- photography as art (real equipment)
- woodburning (adult supervision)
- more complex woodworking
- basket making
- kite making
- puppet making

Audio-Visual Equipment

- record or tape player to run by itself (if not too complex or fragile)
- blank tapes to make own recordings
- story and book records/tapes
- individual preferences in music—some like: popular, classical, folk, musical comedy, rock

Games

- now likes games requiring: speed, dexterity, strategy, competition, extended concentration
- labyrinth games; chess; card games; more complex math games; complex detection games; word games/spelling games; quiz games; dominoes; checkers; Chinese checkers; bingo; marbles; parcheesi; theme and strategy games

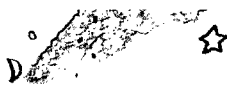
Specific Skill Development Toys

- conceptual models (human body, physical world, stars, space, moon)
- science kits (chemistry sets, science models, weather kits)
- microscope
- telescope
- field binoculars
- protractor
- clocks, watches, stopwatches
- calculators
- standard typewriter (can learn to type)
- more complex video games including target games
- computers with:
 - game-generating computer programs
 - word processing programs
 - typing programs (*age 10 and up*)
 - drawing/graphics programs
 - special-subject programs: spelling, vocabulary, grammar, chemical elements, economics, history, geography, ecology, political science, programs to teach programming

Books

- great individual differences in amount and type of reading preferred
- some like: childhood classics; myths and legends; biographies; poetry; mysteries; westerns, adventure; fantasy; science fiction; science, information books; anthologies; books about animals (especially horses); books about sports; dictionaries (age appropriate)
- some prefer specific types of books or books by a specific author

formation...



The Children's Resource Center at Children's Hospital can answer your questions about play activities, toys or your child's development. Visit the Children's Resource Center Monday, Wednesday and Thursday, 9 a.m.-6 p.m.; Tuesday, 9 a.m.-9 p.m.; Friday, 9 a.m.-3 p.m.; Saturday, 9 a.m.-noon; or call the Children's Resource Center at 526-2500 between 11 a.m. and 11 p.m. daily. Here's a list of books, places and community resources that can help you choose toys and play activities for your child.

Consumer Product Safety Commission, Washington, D.C. 20207, 8-CPSC; Booklets: "Which Toy for Which Child" (ages birth through five and ages six through 12); "For Kids' Safety" brochure; "Think Toy and Play Happy, Play Safely" books.

Manufacturers of America, Inc., 111 Ave., New York, NY 10010, 5-1141. Booklets: "The ABCs of Play" and "Learning About

Child Association for the Education of Young Children, 1834 Connecticut Ave. N.W., Washington, D.C. 20009, 1-800-424-2460. Booklet: "Tools for Learning."

Christine, **I'll Tell You a Story, I'll Sing You a Song. A Parents' Guide to Fairy Tales, Fables, Songs and Stories of Childhood**, 1987.

Association for the Care of Children's **Activities for Children with Special Needs**, 1986.

Shannon, Stevanne, Ph.D., **The Toy Sourcebook of Toys for Children**, 1986.

Dr. Helen, **The Right Toys: A Guide to Selecting the Best Toys for Children**, 1986.

Paula, **Backyard Adventure. A Parent's and Teacher's Guide to Outdoor Play**, 1988.

Burt, Kent Garland and Kalkstein, Karen, **Smart Toys for Babies from Birth to Two**, 1987.

Caney, Steven, **Steven Caney's Toy Book**, 1972.

Einon, Dorothy, **Play With a Purpose - Learning Games for Children Six Weeks to Ten Years**, 1985.

Fisher, John J., **More Toys to Grow With - Infants & Toddlers: Unique Ideas for Making Everyday Routines Fun**, 1987.

Joseph P. Kennedy, Jr. Foundation, **Recipes for Fun: Play Activities and Games for Young Children With Disabilities and Their Families**, 1986.

Oppenheim, Joanne, Barbara Brenner and Betty D. Boegehold, **Choosing Books for Kids**, 1986.

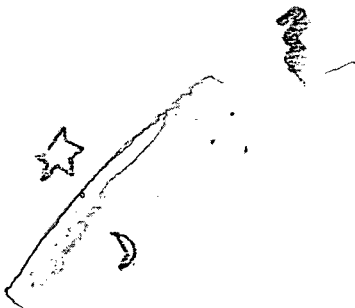
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Segal, Marilyn and Adcock, Don, **Your Child at Play: Three to Five Years**, 1986.

Shea, Jan Fisher, **No Bored Babies**, 1986.

Spizman, Robyn Freedman, **Lollipop Grapes & Clothespin Critters: Quick, On-the-Spot Remedies for Restless Children 2-10**, 1985.

Weller, Barbara F., **Helping Sick Children Play**, 1980.



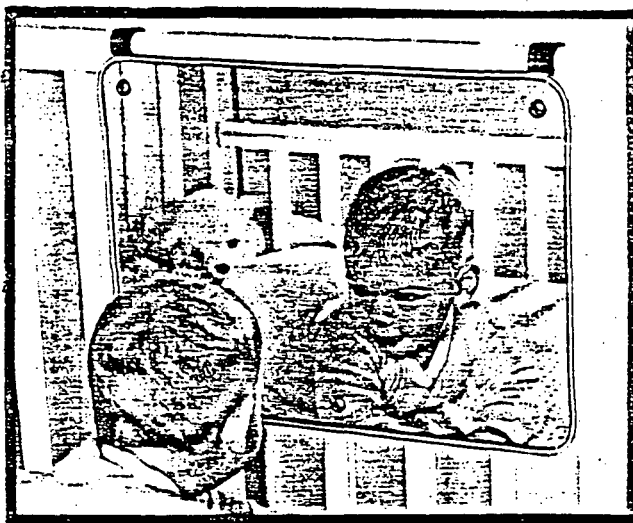
Children's

Hospital & Medical Center

4800 Sand Point Way N.E.
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FOR KIDS' SAKE
KOMO NEWS 4

PAY n SAVE



H Baby Mirror

Clear, distortion-free mirror is constructed from safe acrylic plastic. Attaches easily to crib or playpen with Velcro straps! 12" x 18" 1469 \$19.99

APPENDIX B

HUMAN FACTORS EVALUATION
OF PROVISIONS WHICH ADDRESS
CRIB TOY STRANGULATIONS
IN THE TOY SAFETY VOLUNTARY STANDARD



JULY 1987

Shelley Waters Deppa
Engineering Psychologist

CPSA 6 (b)(1) Cleared

☒ No Mfrs/Private Labels or
Products Identified

☐ Excepted by _____

☐ Firms Notified _____

☐ Other Processed _____

U.S. Consumer Product Safety Commission
Division of Human Factors

NOTE: This document has not been
reviewed or accepted by the Commission.

Initial SW Date 11-27-87

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EXECUTIVE SUMMARY

This report is a human factors evaluation of provisions which address crib toy strangulation hazards in the toy safety voluntary standard.

Our evaluation was based on the results of analyzing crib toy strangulation and near-strangulation incidents, identifying product characteristics contributing to accidents, and relating these characteristics to human characteristics using professional/technical literature on child development, anthropometry, and types/mechanisms of strangulation.

I. INTRODUCTION

In the past, efforts to reduce the likelihood of strangulation on crib gyms were on a case-by-case basis. In the early 1970's, the Food and Drug Administration (FDA) became aware of the death of an infant who fell forward onto a crib gym elastic cord which tightened around her neck as she twisted and fell. In response to this death, a provision to limit the length of strings to less than 12 inches was included in the voluntary standard on toy safety. Then, in the early 1980's, CPSC became aware of two deaths when infants' clothing became caught on crib gym protrusions. In response to these deaths, CPSC requested that the voluntary standard include a labeling provision to remove crib gyms from the crib when infants are capable of pushing up on hands and knees.

Strangulation cases continue to occur, both in different ways and on other toys attached to the crib. Therefore, the Children's and Recreational Products Program Team initiated a project to evaluate provisions which address strangulation hazards with crib toys in the American Society for Testing and Materials Standard Consumer Safety Specification on Toy Safety, F963-86.

Our report evaluates, from a human factors perspective, provisions which address crib toy strangulation hazards in the toy safety voluntary standard. This evaluation is based on the results of analyzing strangulation and near-strangulation incidents, identifying product characteristics contributing to accidents, and relating these characteristics to human characteristics.

II. INCIDENTS

The CPSC Division of Hazard Analysis identified strangulation-related incidents involving toys attached to cribs or playpens¹, which, for the purpose of this paper, are called "crib toys". Commission data files reviewed included the National Electronic Injury Surveillance System (NEISS), death certificates, in-depth investigations, consumer complaints, and newspaper clippings. Through NEISS, none of the injuries involving crib toys were due to strangulation. While incidents from sources other than NEISS do not constitute a statistical sample or include all incidents that occurred, they nevertheless provide insight into how children can strangle on crib toys.

A total of 49 crib toy incidents were identified, which included 30 deaths, 1 severe brain damage, and 18 near-misses, occurring from 1973 through April 1987. These included both toys intended to be attached to cribs, and ~~other~~ toys which consumers attached to cribs by adding cords or by hanging toys over crib corner post extensions.

A. Types of Toys

Information was available on the type of crib toy in all but 7 cases. We have classified these toys into the following types:

1. Crib Gyms (28 cases, including 14 deaths and 1 severe brain damage)

These toys are usually strung across a crib's width with the two ends attached to opposite sides. They are sometimes called "exercisers", or "kickers". Objects attached to crib gyms, such as pull cords, squeakers, rotating spokes, rattles, etc., are intended to be manipulated by the child, as well as to provide visual and sometimes auditory stimulation. Several ~~of these~~ were toys, such as rattles, which consumers tied onto a cord and hung across the crib.

2. Other Crib Toys (14 cases including 9 deaths)

There are four types of other crib toys:

- a. Suspended Stuffed Toys (4 cases, including 3 deaths)

These toys consist of a stuffed animal suspended by two or more cords which converge at some distance above the toy. In at least three cases,

the suspension cords were looped over the corner post extension and the toy hung into the crib. They are intended for manipulative as well as auditory and visual stimulation, as they are cuddly and make noise when moved.

b. Cord-Activated Toys (4 cases including 1 death)

These toys are attached in one place to a crib side or end rail and hang into the crib. Unlike crib gyms which have several types of objects to be manipulated, these toys only contain pull cords to activate a device in the toy, such as a music box. They provide visual, manipulative, and sometimes auditory play value.

c. Mobiles (4 cases, including 3 deaths)

These toys are attached either to one part of a crib side/end rail, or to the ceiling, and are hung out of reach. In one case the mobile was homemade and hung from the ceiling within reach of the child. These toys provide visual, and sometimes auditory, stimulation.

d. Activity Boxes (2 cases, both deaths)

These toys are attached to one part of a crib by a frame which contains doors, push buttons, rotary knobs, etc. They provide manipulative, visual, and auditory play value.

B. Types of Strangulation

Strangulation is produced by pressure on the neck. According to the technical literature, there are four types of strangulation, depending on how this pressure is produced:^{2 3} Hanging occurs when pressure is exerted on the neck by an external mechanism and tightened by the weight of the victim's body. Postural Strangulation occurs when the victim's neck is suspended over an object and the weight of the body creates pressure on the neck. Ligature Strangulation occurs when pressure is exerted on the neck by an external mechanism, but the weight of the body or head plays no part. Manual Strangulation occurs when the external pressure on the neck is exerted by human hands and the weight of the victim's body or head plays no part.

In the incidents we reviewed, only hanging and postural strangulation occurred with crib toys. Information was present on the type of strangulation in all but 6 cases.

1. Hanging (35 cases including 19 deaths)

In these cases, the external mechanism which applied pressure to the neck was either a crib toy cord or a secondary product around a child's neck which caught on a crib toy protrusion.

a. Crib Toy Cord Entanglement (25 cases including 12 deaths)

In these cases, cords from nearly all types of crib toys wrapped around the child's neck. Most cases occurred in one of three ways. In the remaining eight cases, the type of entanglement was either unknown or was unique to one case. The three ways are:

(1) Detached Toys (7 cases, including 1 death)

~~In all but one case, one end of a crib gym was detached, either intentionally by the parent, or accidentally, from the crib. The other case occurred when a mobile fell into the crib.~~

(2) Pull Cords (5 cases, including 1 death)

Three cases occurred on pull cords of cord-activated toys and two cases occurred on pull cords of crib gyms.

(3) Suspension Cords (5 cases, including 4 deaths)

In all but one case, an infant's head and neck became entangled in the opening created by multiple suspension cords attached to a stuffed animal. The other case occurred on a homemade mobile consisting of toys suspended by individual cords which tangled so that the effect was the same.

b. Secondary Product Entanglement (10 cases, including 7 deaths)

In these cases, usually something worn by the child, such as clothing, pacifier cord, bib, or necklace, was caught on a protrusion of the toy. While over half the cases involved crib gym protrusions, this hazard pattern also occurred on

nearly all types of crib toys - mobile attachment clamp, activity box knob, and cord-activated toy protrusion.

2. Postural Strangulation (8 cases including 6 deaths)

In most of these cases, the child's head and neck was suspended over a horizontal cord. All but one case occurred on crib gyms. The other case occurred on a cord attaching a flexible activity box to a mesh-sided playpen.

III. PRODUCT CHARACTERISTICS

To determine why certain product characteristics have contributed to strangulation accidents, we identified commonalities in crib toy characteristics, and related these characteristics to human characteristics. The results were used to evaluate, from a human factors perspective, applicable provisions of the ASTM Toy Safety standard.

Five product characteristics were most evident:

A. Play Value

1. Human Characteristics

Mobiles are the only type of crib toy not intended to be manipulated by the child; they primarily provide visual stimulation. According to the Guidelines for Relating Children's Ages to Toy Characteristics⁴ ("Age Guidelines"), mobiles are most appropriate for infants in the first six months of life who cannot yet explore objects with hands, feet, and mouth, to help them focus on and follow objects with their eyes. Once infants are able to reach and grasp objects, they are less interested in toys that cannot be touched and manipulated.

All other types of crib toys are intended to be manipulated by the child as evidenced by the toys' characteristics and names. These toys often contain easy-to-grasp parts which produce sound or motion, such as pull rings which activate music boxes or rotate figures. The names "gym," "exerciser," and "kicker," imply that manipulation is intended to enhance motor ability; for example, kicking moveable parts to develop stronger leg muscles, or using easy-to-grasp parts to help pull up to a sitting or standing position. According to the Age Guidelines, infants around 3 months of age begin to reach and grasp, shake, and pull, to create simple effects.⁵

While there is not a definitive age at which children lose interest in manipulative crib toys, we would estimate 12 months of age to be the age at which this type of crib toy use declines, for two reasons. First, by twelve months of age, thumb apposition is complete and the child becomes capable of more complex fine motor skills.⁶ Second, as children's gross motor skills develop, such as standing, climbing, and walking, parents may remove crib gyms, both to make

room for the child to move about the crib, and to eliminate the possibility of a child using the crib gym as a toe-hold to climb out of the crib. The fact that 38 of the victims in the reported crib toy incidents were from six through twelve months of age, shows that some children are using crib toys at these ages.

Therefore, while non-manipulative crib toys are intended for use by children less than 6 months of age, manipulative crib toys are most appropriate for children from 3 through 12 months of age.

2. Voluntary Standard

The toy safety voluntary standard contains a labeling provision in Section 5.4.1(1) stating that crib gyms with cords shall be labeled "From birth to 5 months". There is an inconsistency about limiting the use of manipulative toys to children less than five months of age. Since a child cannot manipulate the toy until three months of age, the toy would only be useful to the child for two months. Further, since the child development literature indicates that children from 3 through 12 months of age obtain the maximum benefit from the toy, it is questionable whether parents would follow the label and remove the toy just when a child is beginning to play with it. In the accident data, where such information was reported, three incidents occurred on toys that had statements in the instructions warning about using the toy as a crib gym when children reach 5 months of age. Two of these incidents involved victims over 5 months of age.

The voluntary standard does not contain a labeling requirement for non-manipulative toys.

B. Installation Height

1. Human Characteristics

Since mobiles are the only type of crib toy not intended to be manipulated, they are the only crib toys designed to be hung out of reach of children. In this context, "out of reach" depends on both the age of the child and on the height adjustment of the crib mattress. During the first year of life, children's gross motor skills change dramatically.⁷ Before five months of age, infants are unable to lift their bodies off the mattress, except perhaps to hold the head and chest off the mattress for a few seconds while on the stomach. Around five months of age, infants begin to push on hands and draw up knees while on the stomach.

Around seven months they begin to raise to a sitting position, and to pull themselves to a standing position, using objects for support. On the other hand, mobiles should not be hung so far from children that they cannot see the toy. According to the Age Guidelines, children under 3 months of age cannot focus on objects more than 14 inches from their eyes.⁸ Therefore, mobiles hung higher than this distance may not be seen by the child.

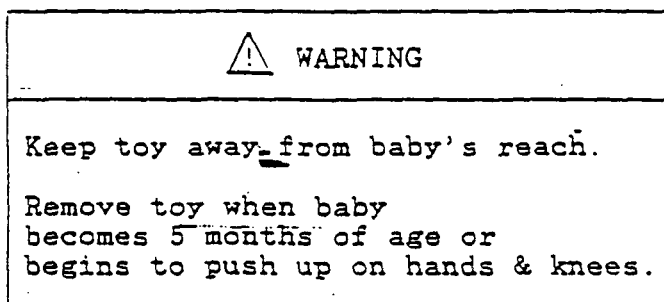
All other types of crib toys are intended to be within reach of children, as they are intended for manipulation. Installation height is important for three reasons. First, these crib toys are intended for children who are developing, but have not yet mastered, skills. For example, children are learning to push themselves up on hands and knees, but may fall over onto the horizontal cord of a crib gym. They do not have the cognitive ability, strength, or motor skills, to push themselves off the cord.

Second, a common misconception is that children cannot strangle if their body weight is supported. In fact, infants can die when their heads and necks are suspended over, or entangled in, objects, even though most of their body weight is supported by the mattress. This is because obstruction of the airway may not be a prerequisite for death. Strangulation can occur in any of the following ways:^{9 10} blockage of the airway by elevation of the base of the tongue against the pharynx, compression of the jugular veins (veins leading from the head), or occlusion of the carotid arteries (arteries leading to the head). The amount of force required for death is very small: hanging can occur from virtually any position, including positions where the feet or knees are supported by a surface and the entire body weight is not involved; and compression of the jugular veins in the neck requires as little as 2 kg (4.4 lb) of force, less than one third the weight of a 50th percentile 5 month old infant.¹¹

Third, crib gym suspension height is a factor in postural strangulation due to the distribution of body masses. Specifically, horizontal suspension members at approximately the same height as fully raised crib side rails would be unlikely to strangle a child, since the distribution of body and head masses would cause the child's head/neck to spontaneously rotate off the member. Conversely, with lower horizontal members, the body weight would not assist in rotating the head/neck off the member.

Therefore, the following product characteristics could reduce the risk of strangulation:

First, since non-manipulative crib toys, such as mobiles, are intended to be installed out of reach of children, designs which cannot be inadvertently located within reach of the crib occupant could prevent strangulations. In addition, since "out of reach" changes as the child grows older, toys containing the following permanent label on both the packaging and the product may also have a lower likelihood of strangulation:



Ideally, since mobiles would be out of reach, they could not present a strangulation hazard. However, 3 out of 4 cases with mobiles involved children 7 or 8 months of age. In one incident, an 8 month old child died when his clothing caught on a mobile attachment clamp. The mobile had both a label on the product and instructions accompanying the product stating to remove mobile from crib and mount on wall when baby is 5 months old or begins to push up on hands and knees. We believe it is foreseeable that some people will continue to leave mobiles in the crib after the child is 5 months of age, even if a label is on the product, for two reasons. First, a musical mobile is likely to be one of the child's first toys, since no manipulative skill is needed. A child may become accustomed to being soothed to sleep by the mobile's music. Then, even though the child becomes older and interested in other toys, the music may still be used to soothe him/her at bedtime. Second, in addition to play value, we think some people will view a mobile as a nursery decoration to be left in the room, even if the child appears to lose interest in it. The mobile, in a sense, fulfills the parent's desire to have a pretty room, rather than the child's need for a toy. Therefore, mobiles which are also designed to reduce

the potential for strangulation even if a child can reach the toy, would be safer.

Second, manipulative toys with horizontal suspension members that can only be installed at or above crib rail height could reduce the risk of strangulation. This is based on the fact that we are aware of only one incident of a child strangling when his/her head was suspended over a straight crib side or end rail, and the facts in this incident are unclear.

Third, both non-manipulative and manipulative toys with warnings in the instructions that crib mattresses should be placed in one of the lower positions, and that crib drop sides should be up, would reduce the likelihood of strangulation.

2. Voluntary Standard

The voluntary standard contains two provisions addressing installation height. First, Section 5.4.1(2) states that crib gyms with cords shall be labeled "CAUTION: To prevent possible entanglement injury, remove toy when baby begins to push up on hands and knees." Since infants attain the capability to manipulate the toy within two months of when they attain the capability to push up on hands and knees, it is questionable whether this provision would be effective.

The second provision addressing installation height is Section 6.3 which states that instructions for proper assembly, installation, and use, be provided with crib gyms and include the following information: a) Crib gym is not intended to be "mouthed" and should be positioned clearly out of reach of baby's mouth; b) Highest mattress position may allow gym to be too close to baby. Second or lower position is more appropriate; and c) Crib drop side should never be lowered with gym in place and baby unattended.

The voluntary standard does not contain a requirement that crib toys have horizontal suspension members that can only be installed at or above crib rail height. In addition, the voluntary standard does not specify that instructions should separate all safety messages from extraneous information, such as child development information, miscellaneous games, and advertisements for other products, and present these safety messages first. One mother who received a lengthy booklet glanced at its cover, put it away to be read "at a later date", and then forgot about it. It was only

after her child strangled on the crib toy that the mother remembered receiving the booklet.

The voluntary standard does not contain any requirement for addressing the installation height of non-manipulative crib toys.

C. Cords

1. Human Characteristics

In all cases, except hanging by a secondary product caught on a crib toy protrusion, cords were present on crib toys and contributed to accidents. In this context, we are using the term "cord" to mean a slender flexible material such as string, elastic, yarn, plastic strap, ribbon, monofilament, etc. Cords are used for attaching toys to cribs, for activating parts of toys, as in pull cords, and for suspending toys. Three properties of cords affect strangulation hazards - flexibility, length, and orientation. In addition, multiple cords can also contribute to strangulation.

Flexibility is a factor in two ways. A cord can tangle and form a loop, such as around the child's neck. In addition, if the cord is loosely attached to the crib by its two ends, it can droop into the crib. We believe that children will have more difficulty in freeing themselves from a drooping cord than from a rigid bar. A drooping cord molds to the shape of a child's small neck and prevents a child's large head from rotating off it, much as the crib headboard cutout and accordion gate v top edge allowed children's necks to enter but prevented children's heads from spontaneously exiting.

Length of cords is also an important factor in two ways. First, strings longer than a child's neck circumference can encircle the neck. The 50th percentile neck circumference of infants between the ages of 4 and 6 months is 8.3 inches.¹² In fact, one entanglement incident occurred on an 8 inch pull cord and an entanglement death occurred on a 9 - 10 inch pull cord. Second, it is not necessary for a cord to extend around the entire circumference of the neck for strangulation to occur, particularly in postural strangulations. External marks on victims indicate that cords which exert force only on anterior portions of the neck can cause death, thus a length about half of the neck circumference may be involved. In three of the postural strangulation cases, the marks on the neck were 2.4, 3.5, and 4.3 inches long. The shortest cord

involved in postural strangulation was approximately 2-1/2 inches long.

Orientation of cords is also a factor in strangulation accidents. A difference exists in type of strangulation between vertical and horizontal crib toy cords. While vertical crib toy cords were involved in the various types of hanging/entanglement incidents, horizontal cords were involved in the postural strangulation cases and tended to be shorter.

In addition, the presence of multiple cords can also contribute to strangulation hazards. In 5 cases, resulting in 4 deaths, an infant's head and neck became entangled in the opening created by multiple suspension cords attached to toy(s).

Therefore, the following product characteristics would reduce the likelihood of strangulation:

First, since horizontal cords of almost any length can cause strangulation, horizontal suspension members that are rigid would lower the risk of strangulation. The potential for postural strangulation on rigid horizontal bars would equal the potential for strangulation on crib side rails. We are aware of only one incident of strangulation when a child suspended his/her head and neck across a straight crib side or end rail, and the facts in this incident are unclear.

Second, since vertical cords long enough to encircle a child's neck can cause strangulation, vertical cords that are less than 6 inches in length would reduce the likelihood of strangulation. This is based on the circumference of a child's neck, approximately 8 inches, minus 25 percent of the neck circumference to allow for tissue compression. This approach of allowing for tissue compression was used in developing the crib headboard cutout test fixture and the accordion gate/enclosure opening test fixture.

Third, perimeters of crib toy openings, formed either by multiple cords, or by cords combined with other portions of the toy to which the cords are attached, that are less than 14 inches in their most extended state, would also lower the risk of strangulation. Since an opening has to be large enough to fit over the head before it can encircle a child's neck, this dimension is smaller than the perimeter of a child's head both in the top-of-head first entry (back of head-ear-face-ear perimeter) and in the face first entry (top of head-ear-chin-ear perimeter). According to

anthropometry data, the 5th percentile a) head circumference for a 0 - 3 month old is 14.6 inches, and b) Ear-to-Ear Over Top of Head Arc Length (9.3 inches) plus Ear-to-Ear Under Chin Arc Length (5.6 inches) is 14.9 inches.¹³ Therefore, a perimeter of less than 14 inches will prevent entry of a child's head in the opening.

2. Voluntary Standard

The voluntary standard has two requirements addressing cord length. First, the voluntary standard contains a safety requirement in Section 4.13.1 that limits the length of cords on crib toys to less than 12 inches. Horizontal cord-postural strangulation cases can occur on cords of almost any length. Vertical cord-hanging/entanglement cases can occur on cords longer than the circumference of a child's neck. Therefore, a 12 inch limit does not preclude either of these potential hazards.

Second, the voluntary standard has a safety requirement in Section 4.13.1 that if a cord can tangle to form a loop, the perimeter of the loop shall be less than 14 inches. While this provision is adequate to prevent loops from fitting over the head, it does not address openings formed by multiple cords or by cords in combination with other portions of the toy to which cords are attached.

D. Pull Rings

1. Human Characteristics

The presence of rings on pull cords can contribute to strangulation accidents. In one case, a child died when his arm caught in the ring. As he rolled over, the string encircled his neck. A pull ring can enable a child to strangle on a pull cord shorter than the neck circumference because the net effect of a child's hand or arm caught in a ring is to pull the cord to the horizontal orientation. A solid handle attached to the pull cord, rather than a ring, might have prevented this accident.

2. Voluntary Standard

The voluntary standard has a requirement in Section 4.13.3 stating that self-retracting pull cords on toys for children under 18 months of age shall not retract when a weight of 1 or 2 lb is attached, depending on

the type of cord. This provision does not address the presence of pull rings.

E. Protrusions

1. Human Characteristics

Protrusions were present in all cases of hanging by a secondary product caught on a crib toy. In at least three deaths, the protrusions were very small - a mobile attachment clamp, a cord-activated toy protrusion, and an activity box knob.

As with installation height, the problem with protrusions occurs because the users of crib toys are developing, but have not yet mastered skills such as kneeling, sitting, and standing. They often struggle to attain these positions, only to fall over uncontrollably, hooking anything in their way. In addition, once caught, these children are unable to free themselves, lacking both cognitive ability as well as fine motor skills.

Therefore, crib toys without hazardous protrusions would have a lower likelihood of strangulation. However, we recognize the difficulty in identifying these protrusions, as past attempts to develop a performance requirement to identify hazardous protrusions, such as the crib corner post extensions which can catch children's clothing, have been unsuccessful.

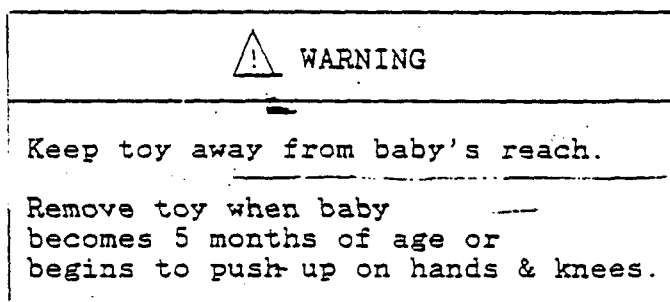
2. Voluntary Standard

There are no provisions in the toy safety voluntary standard addressing the potential for a protrusion on a crib toy to become a catch point for clothing or for a cord around a child's neck.

IV. CONCLUSIONS

Almost any type of crib toy can present some type of strangulation hazard. While it is difficult to entirely eliminate all strangulation hazards from crib toys, we have determined that those toys having the following characteristics would be less likely to result in strangulation than the crib toys involved in the incidents we reviewed:

1. Non-manipulative crib toys, such as mobiles, which cannot be inadvertently located within reach of the crib occupant.
2. Non-manipulative crib toys, which attach to a crib, that contain a permanent label on both packaging and product stating:



3. Manipulative crib toys with horizontal suspension members that are rigid and can only be installed at or above the height of crib side rails.
4. Crib toy vertical strings that are less than 6 inches.
5. The perimeter of crib toy openings, formed either by multiple cords or by cords in combination with other portions of the toy to which cords are attached, that are less than 14 inches in their maximum extended state.
6. Crib toys without protrusions which can catch or hold a cord or part of clothing.
7. Crib toys with instructions which include warnings that crib mattresses should be placed in one of the lower positions, and that crib drop sides should be up. In addition, instructions which separate safety messages from informational messages, and present the safety messages first.

The voluntary standard, on the other hand, contains provisions which human factors principles cannot support. Specifically, the standard relies on a label advising parents to remove the toy when, according to child development literature, the toy would be

of most use to the child. In addition, the standard contains a cord length requirement which has no relationship either to anthropometry or to mechanisms of strangulation.

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4. Goodson, Barbara Dillon, and Bronson, Martha B., Guidelines for Relating Children's Ages to Toy Characteristics, prepared for U.S. CPSC, October 17, 1985., p. 29.
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6. Caplan, Frank, The First Twelve Months of Life, The Princeton Center for Infancy and Early Childhood, Bantam Books, 1973, p. 232.
7. Caplan
8. Goodson, p. 29.
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10. Line
11. Snyder, R.G., Spencer, M.L., Owings, C.L., and Schneider, L. W., Physical Characteristics of Children as Related to Death and Injury for Consumer Product Design and Use. Highway Safety Research Institute, the University of Michigan, prepared for U.S. CPSC, May 31, 1975, p. 53.
12. Schneider, L.W., Lehman, R.J., Pflug, M.A., Owings, C.L., Size and Shape of the Head and Neck from Birth to Four Years, Transportation Research Institute, The University of Michigan, prepared for U.S. CPSC, January 1986, p. 138.
13. Schneider, pp. 75, 129, and 132.

APPENDIX C

UNITED STATES GOVERNMENT

Memorandum

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

JUN 22 1997

TO : Elaine Tyrrell, OPMB
Through: Dr. Robert D. Verhalen, AED, Epidemiology

FROM : Debbie Tinsworth, EPHA DKT

SUBJECT: Strangulation-Related Incidents Involving Crib Toys

This memorandum provides data on crib toy-related strangulations or near-strangulations which were reported to CPSC from 1973 through April 1987. It is an update of information provided in our July 2, 1986 memorandum on this subject.

The incidents included in this review are those in which a strangulation-related death, injury, or "near-miss" was reported with a crib gym, mobile, exerciser, activity center, or similar toy which was intended to be strung across a crib or playpen, attached to a cornerpost or siderail, or suspended above an infant. This includes incidents for which the toy was directly involved in the strangulation or near-strangulation, as well as incidents for which the toy was involved as a second product; e.g., strangulations resulting from clothing or other items becoming caught on crib toys.

Commission data files reviewed included the National Electronic Injury Surveillance System (NEISS), death certificates, in-depth investigations, consumer complaints, and newspaper clippings. Through NEISS, about one or two injuries involving crib gyms or mobiles are reported each year; however, none of these have involved strangulations. While incidents from sources other than NEISS do not constitute a statistical sample or include all incidents that occurred, they nevertheless indicate some of the ways in which strangulations may occur to young children.

Excluding homemade products, CPSC has received reports of 45 incidents involving crib toy-related strangulations or near strangulations. These include 26 deaths, 18 "near-miss" incidents in which no permanent injury occurred, and one case reported as involving severe brain damage. A listing of incidents, by the type of toy involved, is provided as an Appendix to this memorandum.

Hazard Patterns

The attached table presents the hazard patterns reported for the various types of crib toys by the severity of the incident.

CPSC 6/2/97 Cleared

11/7/88 925
No More Privileges of

Incidents Classified 925.4

Reviewed by

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NOTE: This document has not been
reviewed or accepted by the Commission.
Date 1/4/85

95

Toys intended to be suspended across a crib or playpen, such as crib gyms or exercisers, were reported to have been involved in 26 of the 45 incidents, resulting in 12 deaths, one case of brain damage, and 13 near-misses. In six cases, products such as clothing, pacifier cords, or a blanket were said to have become entangled in the toy and strangled the infant. Six incidents were reported to have occurred when the toy became detached from the side of the crib or playpen either accidentally or intentionally (so the child could reach the toy more easily), thus allowing the detached cord to become wrapped around the victim's neck. In five cases, the child was said to have been found with his or her neck suspended across the crib toy, possibly when the child fell from a standing or kneeling position and was unable to pull or push off the toy. Two incidents were said to involve infants becoming entangled in pull cords hanging down from the toy. One incident involved a child who became entangled in the coiled springs of a trapeze-type crib exerciser. In six cases, the specific way in which strangulation occurred was not reported.

Toys intended to be attached to the side or end of a crib or playpen were reported to have been involved in six incidents, which included three deaths and three near-misses. Three of these toys, which included musical and animated devices, were reported to have pull cords which became entangled about the child's neck. In two cases, one involving a musical toy and the other an activity center, the child's clothing became caught on a projection on the toy, resulting in strangulation. In one case, which involved an activity center, the child was found with his head between the back of the toy and the side of a mesh playpen, his neck across a looped cord used to attach the toy to the playpen.

Four incidents, including three deaths, involved toys which appear to have been hung from a crib cornerpost. (In one nonfatal incident, it was not specifically reported whether the toy was hung from the crib cornerpost, but it was of the same design as others in this category). In these cases, it was reported that the cords used to suspend the toy became entangled around the child's neck.

Mobiles were reported to have been involved in three incidents, resulting in two deaths and one near-miss. In one case, the child's clothing became caught on the clamp of the toy which was used to attach it to the crib. In another case, the mobile was said to have fallen from its stand into the crib, and one of the toy's strings became entangled about the child's neck. In the third case, the circumstances that led to the child's strangulation were not reported.

Six fatal incidents involved toys of unknown type which were attached to cribs. In one instance, a child was said to have strangled when his necklace became entangled in an overhead crib toy. In five cases, the circumstances were unknown.

Victim Age

The victims were reported to have ranged in age from one month to two years, however, 34, or three-fourths of the 45 victims were from six to twelve months of age. Because of the small number of cases involved, it is not possible to draw firm conclusions about the ages of the victims in terms of each toy type and hazard pattern involved. In terms of developmental information, however, it was commonly reported that the victims were able to push up, pull up, or stand in their cribs at the time the accident occurred. *

Other Information

Where reported, these incidents involved toys produced by 15 different manufacturers. In addition, four fatal incidents were reported with homemade toys which were not included in the table. They involved two homemade toys suspended across a crib, one mobile, and a rattle tied onto a crib.

Cautionary statements were said to be present in four of the cases where such information was reported. Three of the incidents, two of them fatal, involved toys suspended across a crib. These toys, all produced by the same manufacturer, each had cautionary statements included in the toy's instruction booklet, but not affixed to the toy itself. In the fourth case, a fatal incident involved a mobile where it was reported that the cautionary statement printed on the toy was not easily visible, in that the statement was facing the wall of the victim's room.

In several cases, it was reported that the parents were unaware of potential strangulation hazards that exist with crib toys.

Discussion

Based on available data, it appears that infants in the 6 to 12 month age group may be at greatest risk of strangulation with crib toys. At this state of development, children are becoming increasingly mobile and are learning to push up, pull up, stand, and even walk. However, if they become caught on a toy or entangled in the cords or strings of a toy, they may lack the coordination or strength to extricate themselves from a potentially hazardous situation.

One response to this problem was the Voluntary Standard for Toy Safety (PS 72-76, published in 1976) which limited the length of cords on toys intended for use in cribs and playpens. The more recently developed voluntary standard, ASTM F963-86, published April 1986, requires cautionary labeling on both the toy and packaging of crib gyms, kickers, and exercisers in addition to limiting the toy cord length. The labeling addresses entanglement hazards by recommending that such toys only be used until the child is 5 months old or is able to push up on hands and knees. Based on the available data, however, it appears that some modification of these provisions may be needed, possibly in the areas of labeling, string length, and other design requirements. A Human Factors analysis of these data explores these issues in detail.

These incidents also highlight the importance of parental awareness of these hazards. A better understanding of the possible consequences of using these toys may help parents or other caretakers to avoid situations where death or serious injury could occur.

Toy Type and Hazard Pattern, by Severity of Incident

<u>Toy Type and Hazard Pattern</u>	<u>SEVERITY OF INCIDENT</u>		
	<u>Total</u>	<u>Death</u>	<u>Near-Miss</u>
<u>Total</u>	<u>45</u>	<u>26</u>	<u>18</u>
<u>Toys Intended to Be Suspended Across Crib or Playpen</u>	<u>26</u>	<u>12</u>	<u>14^{1/}</u>
Clothing, pacifier or blanket entangled in toy	6	3	3
Toy detached from side, becoming wrapped around neck	6	1	5
Child's neck suspended across top of toy	5	3	2
Entangled in pull cord hanging from toy	2	1	1
Entangled in trapeze hanging from toy	1	1	-
Strangulation/near-miss, manner unknown	6	3	3 ^{1/}
<u>Toys Attached to Side of Crib or Playpen</u>	<u>6</u>	<u>3</u>	<u>3</u>
Entangled in pull cords	3	-	3
Clothing caught on toy	2	2	-
Child's neck suspended across attachment cord	1	1	-
<u>Toys Hung from Crib Cornerpost</u>	<u>4</u>	<u>3</u>	<u>1</u>
Entanglement in toy's suspension cords	4	3	1
<u>Mobiles</u>	<u>3</u>	<u>2</u>	<u>1</u>
Entangled in cords when toy fell in crib	1	-	1
Clothing caught on toy	1	1	-
Strangulation, manner unknown	1	1	-
<u>Toys Attached to Cribs, Types Unknown</u>	<u>6</u>	<u>6</u>	<u>-</u>
Necklace entangled in overhead crib toy	1	1	-
Strangulation, manner unknown	5	5	-

^{1/} Includes one brain damage incident

Source: CPSC Death Certificates, In-Depth Investigations, Consumer Complaints,
and Newspaper Clippings, 1973 - April 1987
U.S. Consumer Product Safety Commission/EPHA

Appendix
Strangulation or Near-Strangulation Incidents Involving
Crib Toys, by Type of Toy

<u>Toys Intended to Be Suspended Across Crib or Playpen</u>	<u>Date of Incident</u>	<u>Age & Sex of Victim</u>	<u>Severity of Incident</u>	<u>State</u>
	1/12/87	2 yr. F	Near-Miss	CT
	12/30/85	7mo. F	Death	CA
	3/15/85	8mo. M	Near-Miss	FL
	10/13/84	10mo. M	Death	MD
	8/8/84	6mo. M	Near-Miss	OK
	3/10/84	12mo. F	Death	ND
	2/-/84	3mo. M	Near-Miss	NJ
	12/-/83	6mo. F	Near-Miss	MA
	9/26/83	10mo. F	Near-Miss	IN
	7/-/82	7mo. M	Near-Miss	NY
	3/11/81	16mo. F	Death	NJ
	12/28/80	12mo. M	Near-Miss	SC
	8/26/80	6mo. M	Death	CA
	4/27/80	7mo. F	Death	AZ
	4/10/80	5mo. M	Death	MN
	12/-/79	9mo. M	Near-Miss	FL
	4/11/79	8mo. M	Death	PA
	8/11/78	10mo. M	Death	PA
	7/11/78	10mo. F	Death	VA
	-/-/78	8mo. M	Near-Miss	AZ
	7/29/77	11mo. F	Brain Damage	MA
	7/4/77	9mo. F	Near-Miss	IN
	1/27/77	10mo. F	Near-Miss	CA
	9/6/76	10mo. M	Death	TX
	2/18/75	7mo. M	Near-Miss	IN
	11/1/73	6mo. M	Death	KS
<u>Toys Attached to Side of Crib or Playpen</u>	9/23/86	14mo. M	Death	MN
	4/25/86	12mo. M	Death	MN
	3/9/86	13mo. F	Death	AK

<u>Date of Incident</u>	<u>Age & Sex of Victim</u>	<u>Severity of Incident</u>	<u>State</u>
1/15/86	10mo. M	Near-Miss	CA
3/25/80	9mo. F	Near-Miss	MA
1/-/76	3mo. -	Near-Miss	TX

Toys Hung From Crib Corner Post

9/17/86	15mo. M	Death	PA
4/-/80	14mo. M	Near-Miss	VA
11/22/79	8mo. M	Death	NY
10/3/79	11mo. F	Death	CA

Mobile

11/23/86	8mo. M	Death	MI
6/25/79	8mo. M	Near-Miss	TX
12/13/78	1mo. M	Death	IL

Toys Attached To Crib, Type Unknown

9/8/82	7mo. M	Death	NY
4/28/79	11mo. M	Death	WI
4/24/79	6mo. M	Death	FL
8/19/76	9mo. M	Death	NY
12/12/75	12mo. M	Death	TX
1/14/74	21mo. F	Death	NH

Source: CPSC Death Certificates, In-Depth Investigations,
Consumer Complaints, and Newspaper Clippings, 1973-April 1987

U.S. CONSUMER PRODUCT SAFETY COMMISSION/EP

**Summary of Petition's Requested Actions with Supporting Incident Data
and Comparison with CPSC's Human Factors Report Conclusions**

Petition Requested Banning Actions*	Number of Incidents**	Number of Deaths	Commission's Human Factors Conclusions
1. Manipulative Crib Toys with horizontal suspension members unless they are rigid and attached at or above crib side rail.	8	6	Conclusion #3
2. Manipulative Crib Toys with horizontal suspension members unless toy has warning label to always attach both ends to opposite crib sides.	6	1	Not in HF Conclusions. If Action #1 followed, Action #2 is not necessary.
3. Crib toys with vertical strings 6" or greater in length.	5	1	Conclusion #4
4. Crib Toys with perimeter openings greater than 14".	5	4	Conclusion #5
5. Crib Toys with protrusions - vertical (rigid and non-compressible) and horizontal.	10	7	HF Conclusion #6 relates to protrusions but does not distinguish vertical from horizontal.
6. Crib Toys with pull rings.	1	1	Not in HF conclusions since only one case involved pull rings.
7. Mobiles located within reach of child not capable of pushing up on hands and knees.	4	3	Conclusion #1
8. Mobiles attached to crib unless contains label warning of strangulation hazard and urging removal when child can push up on hands and knees.	—	—	Relates to HF Conclusion #2, except for the "Strangulation Hazard" warning.
9. Crib Toys unless warning in instructions that crib mattress should be in one of lower positions and crib drop sides should be up.	—	—	Conclusion #7
10. Crib Toys unless warning in instructions are presented first, and separated, and easily distinguishable.	—	—	Conclusion #7

*Each of the ten requested actions is expressed by the Petitioners as a ban of certain crib toys.

** The incident data, which includes the deaths, used by the Petitioners to support their requested Actions were taken primarily from Commission's Human Factors Report which includes four homemade toys. The Petitioners also include two types of toys not included in the Human Factors Report: crib mirrors and crib music boxes with wind-up mechanisms.

Human Factors Staff Discussion of Differences Between Petition Requested Actions HF Report Conclusions

The petition is based largely on the two Commission staff analyses described in the briefing memorandum. Of the 10 actions requested in the petition, 8 are closely related to the conclusions expressed in the Human Factors (HF) report. The HF report does not include 2 of the toy types included in the petition - crib mirrors and crib music boxes with wind-up mechanisms. The requested actions expressed at numbers 2, 5, 6, and 8 in the preceding table differ from the HF conclusions. The differences, as discussed below, are not considered major.

The petition Action #2 requests a ban on manipulative crib toys with horizontal suspension members unless the toy contains a warning to always have the toy attached to opposite crib sides to prevent a child from strangling on an unconnected end. This was not included in the HF conclusions. If the petitioners' Action #1 (horizontal suspension members must be rigid and attached at or above crib side rails) is followed, the HF staff believes that Action #2 would not be necessary.

Rigid suspension members attached to the crib on only one side cannot become wrapped around a child's neck like flexible (i.e., strings, cords, etc.) suspension members can. In addition, parents may be less likely to leave a bar unattached at one side because it would be in the way.

The petition Action #5 requests a ban of crib toys with protrusions. It distinguishes between vertical and horizontal protrusions. The HF conclusions would support Action #5; however, the HF conclusions do not distinguish between vertical and horizontal protrusions.

The petition Action #6 requests a ban of crib toys with pull rings. The HF report does not contain conclusions on pull rings, although the staff is aware of one case, a death, associated with pull rings.

The petition Action #8 requests a ban of mobiles attached to a crib unless the product contains a label warning of the strangulation hazard. The HF report's conclusion #2 relates to a warning label for non-manipulative crib toys which would include mobiles. However, it does not include the "strangulation hazard" in the warning label. The HF staff believes that if all of the other Human Factors conclusions were followed, this strangulation hazard for mobiles may not exist.

A Listing of Commission Documents Containing
Safety Information on Crib Toys

Publications Geared to Consumers

1. Product Safety Fact Sheet "No. 43: Crib Safety -- Keep The On the Safe Side", Revised October 1985.
2. "The Safe Nursery: Buyer's Guide", February 1989
3. "Tips for Your Baby's Safety", September 1985
4. Product Safety Fact Sheet "No 47: Toys", Revised August 1986
5. Consumer Product Safety Alert: "CPSC Warns of Strangulation with Crib Toys", August 1986
6. "Protect Your Child", 1986.

Documents Prepared for Use by Manufacturers, Importers, and Distributors

1. "Crib Gyms: Summary of Mandatory and Voluntary Standards"
2. "Toys with Strings and Elastics: Summary of Mandatory and Voluntary Standards"

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Memorandum

To : Elaine Tyrrell, OPM
Thru : Paul H. Rubin, AED, Economic Analysis
From : Carolyn Kennedy, ECCP *May for CK*
Subject: Ligature Strangulation -
Toy Crib Accessories

Griffith 20 MAR 1987

I am attaching some market information on toy crib accessories.

Although the team identified these products as crib mobiles and crib gyms, I have expanded the report to include various similar products.

If there are any questions, please contact Dale Ray, 492-6962.

Market Summary: Toy Crib Accessories

Types:	Toy crib accessories include: crib mobiles; crib gyms, kickers, swags, exercisers; entertainment, animated toy, activity and musical boxes.
Annual production:	Varies since many manufacturers do not produce consistently over years; many products are crafted or made from patterns, books or kits by individuals.
Retail prices:	\$7.00 to \$36.00 for manufactured items.
Average useful life:	Limited with each child, but possibly used successively by many.
Number in use:	Approximately 350,000 crib gyms; Approximately 800,000 crib mobiles.

Available Information on Toy Crib Accessories

Toy crib accessories have been identified in 22 deaths and 14 non-fatal incidents among infants between November 1973 and May 1986. In nearly all of the reports, the incidents were hangings or entanglements because of strings, clothing or other objects. This report addresses products such as crib gyms, crib mobiles, kickers, swags and exercisers that have been associated with reports of ligature strangulation incidents.

Although many of these toy crib or playpen accessories are called mobiles, they can be distinguished by the following descriptions. Crib mobiles are generally recognized as toys suspended from strings above the crib. The crib gym, kicker, swag and exerciser, often strung from one side of the crib to the other, can be made of soft and flexible toys on a string or hard plastic and rubber toys on a rigid bar. Other products such as entertainment, animated toy, activity and musical boxes are affixed to either the side, head or foot panel of the crib and hang or sit on the rails. These boxes may have strings or other movable parts.

Crib mobiles and gyms are manufactured by a variety of companies which may produce other products, such as infant furniture and children's toys. Additionally, many crib gyms and mobiles are not mass produced items: some are sold at craft shows; others are made by the consumer from kits and patterns. Since mass production by companies has not been consistent over recent years and since many products are crafted or made from patterns, books, and kits by individuals, annual production is difficult to estimate.

Similarly, identification of manufacturers or suppliers is difficult. The Bureau of Census reported that in 1982, under the Standard Industrial Classification Code, 39444 31 for "infant toys, not elsewhere specified," there were eleven companies with annual shipments of \$100,000 or more. It can not be determined how many of these produce toy crib accessories. Industry sources indicate that there are probably at least 25 companies which currently produce or supply toy crib accessories. Industry spokespersons state that the leading manufacturer may hold more than 50 percent of the market. Another major manufacturer apparently plans to discontinue manufacturing infant toys in 1987.

Manufacturers report that toy crib accessories are designed to have a limited useful life with one child, but may often be used by successive users, each for a short period of time. Their longevity is increased because these crib accessories are mostly visual products and rarely handled by infants.

American Baby, Inc. commissioned Bruno and Ridgway Research Associates to conduct a survey on the purchase and usage of infant products in 1984. The survey was based on a national probability sample of 3600 recent and expectant mothers, and represented the general distribution of births. Even though that survey collected information about the incidence of some crib accessories, none of this specific information was included in the published report. However, some of the unpublished data revealed that 9.6 percent of recent or expectant mothers owned crib gyms. Crib mobiles were owned by 21.6 percent of recent or expectant mothers.^{1/} Assuming that the number of annual births for years since 1984 is unchanged, roughly 3.6 million infants are born each year. Thus, approximately 350 thousand crib gyms and 800 thousand crib mobiles are expected to be in use by infants. These calculations include both new and old products.

An informal survey of several Washington, DC area retail stores revealed toy crib and playpen accessory prices ranging from just under \$7.00 to \$36.00. However, many retailers discount these prices. Many of the products packaged by manufacturers and suppliers carry a recommended age-use label. Although some of the larger companies comply with the required language, the observed labels varied. For example, some labels suggest use for "ages 3 months and up, "or" birth to 12 months," or to "remove when child pulls up." One manufacturer suggests that its crib mobile could be used in the crib from birth to 5 months or out the crib from birth to 12 months.

Some of the unpackaged crib gyms purchased with crib beddings and accessories at craft shows are unlabeled. None of the patterns packaged by the major pattern-producing companies carries the label; the same is true of the packaged kits.

^{1/} It is not clear in the report or from the survey instrument whether respondents distinguished crib mobiles from other types of toy crib accessories.

Sources consulted: American Baby Magazine; Playthings (Directory Issue); JPMA (Show Directory); Business Trend Analysts
U.S. Market for Infant Products, 1986;
Store visits to Toy-R-Us, G Street Remnant Store (Patterns, Craft books), F.A.O. Schwartz, various dept. stores; Census of Manufactures; telephone contacts with manufacturers, Bruno & Ridgway Research Associates and American Baby, Inc.



LOG OF TELEPHONE CONVERSATION

DATE: June 6, 1989

WITH: Mr. Douglas Thomson
Toy Manufacturers of America
(Chairman, ASTM Toy Safety Task Group)

LOG ENTRY SOURCE: Colin B. Church
Office of the Executive Director

DISCUSSION:

Mr. Thomson phoned in response to my recent letter noting ASTM staff's recommendation to convene a meeting of the ASTM Toy Safety Task Group and the CPSC staff's desire to discuss crib toys and balloon safety issues at such a meeting. He advised the following:

- He did not plan to call a meeting of the Toy Safety Task Group and had advised Kathie Schaaf of the ASTM staff accordingly.
- He, along with selected crib toy manufacturers, would travel to CPSC, upon request, to discuss crib toy safety issues.

His rationale for the above re crib toys included:

- No new related injury data on crib toys;
- Without new data there are no clues on how to make crib toys safer; and
- the ASTM Toy Safety Task Group includes manufacturers and distributors of all kinds of toys, so there is no need to call everyone together to talk about crib toys only.

His rationale for the above re balloons included:

- New warning labels now appearing at retail;
- Labeling done in response to a direct request of ex-Chairman Scanlon who wrote a letter saying the labeling looks great;
- Acting Chairman Graham has indicated that TMA's work has been wonderful;

- He (Doug Thomson) has resolved all but one negative vote to the proposed balloon standard;
- The same labeling is being used as appears on pacifiers -- "Conspicuous and Legible"; and
- It seems inappropriate to start all over again with such little negative comment.

In response to my inquiry, Mr. Thomson advised that the last meeting of the ASTM Toy Safety Task Group was in 1986, and the standard would be up for review and reaffirmation in 1991.

I advised Mr. Thomson that the CPSC Vulnerable Populations and Emerging Hazards Team strongly desires a full Task Group meeting to discuss CPSC staff concerns. Further, I advised that I was unaware of any recent change in the CPSC staff's position, however, I would review his comments with the Team and promptly get back to him.

LOG OF MEETING

SUBJECT: ASTM F15.22 Task Group Meeting on Toy Safety

DATE OF MEETING:

February 28, 1990

PLACE:

ASTM Headquarters
1910 Race Street
Philadelphia, PA

LOG ENTRY SOURCE:

Elaine Tyrrell, EXPB

COMMISSION REPRESENTATIVES:

Elaine Tyrrell, EXPB

NON-COMMISSION REPRESENTATIVES:

(see attached)

SUMMARY OF MEETING:

The Task Group (TG) meeting was convened by David Miller, President of TMA and Interim Chairman of F15.22, who initiated the round of introductions of all in attendance. Mr. Miller reviewed the agenda items to be covered during the meeting (see attached) and announced that the voluntary standard meeting on nitrosamines in pacifiers would follow this meeting during the afternoon. He planned to allow the F15.22 meeting to continue until 1:30 P.M., if needed. It was needed.

Balloon Labeling

Before discussions on balloon labeling could begin, Rose Daugherty, ASTM, had copies of the 10 ballots (representing 6 negatives on the Task Group ballot, 2 negatives on the Main Committee ballot, and 2 abstaining ballots with negative comments*) reproduced for each member present. TG members were given an opportunity to ready this material before discussion and resolution of the negatives and comments took place.

Mr. Miller started the discussion by explaining that the balloon labeling program, which his predecessor at TMA, Mr. Thomson, had developed in conjunction with balloon manufacturers, had been balloted for inclusion in the ASTM F963-86 "Standard Consumer Safety Specification on Toy Safety" at the TG and main

* Four of the negative TC ballots had been withdrawn prior to the February 28 meeting.

committee levels simultaneously, for expediency. (The balloting took place December 16, 1988, with a receipt deadline of January 16, 1989). Mr. Miller stated that there were a large number of balloon deaths on record at CPSC and TMA wanted to get labels on the packages as soon as possible.

As the discussion of the negatives began, several questions were raised which the TG members thought balloon manufacturers, who had been involved in drafting the original voluntary labeling program, could answer. It was determined that none were present. The bullet points below summarize the TG's discussions of the negatives and comments submitted for balloon labeling provisions.

- o Include a rationale for the balloon labeling provisions. The revised draft will contain the rationale developed for the Voluntary Balloon Labeling Program. Included in that rationale will be a description of the CPSC incident data and time frames.
- o Include a sentence providing the scope and purpose of the provision. This sentence will be similar to that included in CPSC staff's abstaining comments. The scope was expanded to provide labels not only on balloon packages but also on retail display containers provided by importers and manufacturers.
- o Revise the signal word for the label to WARNING instead of SAFETY WARNING.
- o Revise the language of the warning label to include the sentence, "Discard broken balloons immediately."
- o Revise Section 5.2 of F963-86 to indicate that this Section applies in all respects to the balloon labeling provisions except that balloon labeling will use the signal word WARNING instead of CAUTION.
- o Reference the draft ANSI Z535.4 standard for product safety signs and labels in the toy safety voluntary standard.

The current labeling provisions have been withdrawn from the TG and Main Committee ballots. The revisions summarized above will be incorporated and the new labeling provisions for balloons will be balloted again, probably at the TG and main committee levels, simultaneously. ASTM expects the new ballot to be mailed out by the end of March.

Industry Comments on Crib Toy Petition

The second item on the agenda covered the Task Group's discussion of the CPSC petition on crib toys that was submitted by the New York State Attorney General's Office (NYSAGO) and the Consumer Federation of America (CFA). Mr. Miller stated that the

CPSC had requested this item to be included on the agenda. Ms. Tyrrell reviewed the petition and the CPSC data used by the petitioners to support the requested actions. She stated that the staff's evaluation of the issues in the petition was scheduled for transmittal to the Commission in a briefing package at the end of April and that it was premature to talk about specific options or recommendations at this time. A TG member asked if the Task Group could review the briefing package before it was sent to the Commission. Ms. Tyrrell explained the CPSC's policy that such packages were sent to the Commissioners before being released to the public. However, their comments on the package could be submitted and included as an addendum to the staff's briefing package and/or included in the public briefing with the Commissioners. This was agreeable with the TG members. Ms. Tyrrell stated that the Commission was interested in their position on the petition issues and that she would take this information back to CPSC and include it in the briefing package.

Mr. Locker told the TG that the labeling provisions and string length provisions in the existing voluntary standard were drafted and included in the voluntary standard with concurrence of the CPSC staff, based on data available prior to 1986 (the year the voluntary standard was republished). He said this same data was looked at by Shelley Deppa who then determined that the 12" string length should be 6". The petition, he said, was based on this same data, not new data, as presented in a Human Factors report prepared by Ms. Deppa. The Human Factors study, he asserted, is the opinion of one person, Shelley Deppa. Mr. Locker asked Ms. Fise, one of the petitioners, if the petition is based on other or more current data. Ms. Fise responded that the petition was based on Ms. Deppa's Human Factors report.

Before discussion of the 10 requested actions in the petition started, Ms. Tyrrell explained how docketed petitions were processed at CPSC; i.e., using "off the shelf," readily available information. She told the TG that there were about 7 cases (5 deaths) that occurred during calendar years 1986 and 1987. She reported that there have been 12 Section 15 cases covering 1987 - November 1989. She provided the details of these cases as contained in the various CPSC annual Holiday Toy Safety Reports. She said 4 of these cases were still open and that she could not provide more details for these. Mr. Miller requested information about the 8 cases and Ms. Tyrrell told him she would provide copies of the pertinent information from the Holiday Toy Safety Reports.

TG members stated their concern over a possible ban of crib gyms. They stated that if crib gyms are banned or manufacturers stop production, parents will resort to their own devices - which may be more hazardous. To support this position, they noted that some of the cases in the Human Factors report involved homemade products. Mr. Miller stated that warning labels would address the strangulation hazard with crib gyms and parents should remove

them from the crib environment when the child reaches 5 months. Parents, he said, should use other toys in the crib at that time. Ms. Tyrrell pointed out the staff's concern that a crib gym was intended for manipulative play and doubted parents would be willing to remove these toys at 5 months when a child has just begun to really play with them. Mr. Miller reiterated that there are other toys the parents can use in the crib at that time and that the label addresses the entrapment/strangulation hazard presented by crib gyms.

Mr. Miller asked if there were any comments on the petition of a general nature. There were none. He then proceeded to review each of the 10 items requested by the petitioners. Below is a summary of the discussions for each of the 10 requested actions.

1. Petitioners' Request: "Ban crib gyms and other manipulative crib toys (including but not limited to suspended stuffed toys) that require horizontal suspension members, unless the horizontal members are rigid and can be attached at or above the height of the crib side rails and such horizontal suspension members do not create a vertical protrusion hazard."

TG Discussion: The TG would like to see new data which would support the need for this requested action. Mr. Locker reiterated that the existing voluntary standard provisions for crib gym caution labels address this issue and that any changes should be supported by new data.

2. Petitioners' Request: "Ban crib gyms and other manipulative crib toys (including but not limited to suspended stuffed toys) that require horizontal suspension members unless such products contain a permanent and conspicuous warning stating:

WARNING

Always use with both ends attached to opposite crib sides. Child could strangle on unconnected end."

TG Discussion: The TG would like to see cases where the existing label would be inappropriate. Mr. Locker said the standard's current labeling is all that is needed. Ms. Besson said that if #1 is followed, do you need #2. Ms. Fise said #2 is needed because of what may be attached to crib gym bars.

3. Petitioners' Request: "Ban crib toys that contain vertical strings that are six inches or greater in length."

TG Discussion: Mr. Locker said this would be difficult for musical instruments and that a definition of the kinds of toys involved is needed. Mr. Miller agreed that "crib toy" was too broad a category. Ms. Fise referred the TG to page 6 of the petition for definitions. Mr. Locker said the same data used to support the 12" string length provisions in the standard are now being used to support a 6" length.

4. Petitioners' Request: "Ban crib toys whose "perimeter crib toy openings," formed either by multiple cords or by cords in combination with other portions of the toy to which cords are attached, are greater than 14 inches in their maximum extended state."

TG Discussion: Mr. Miller agreed that this was not clear in the voluntary standard and that a better definition was needed.

5. Petitioners' Request: "Ban crib toys that contain protrusions that can catch or hold a cord or part of clothing. This ban would apply to crib toys that have any rigid and non-compressible vertical protrusions and to crib toys that have horizontal protrusions of such a length that could catch clothing or a cord."

TG Discussion: The TG members believe "protrusion" needs to be defined. They believe that it is not possible to eliminate all protrusions from crib toys.

6. Petitioners' Request: "Ban crib toys with "pull rings", grasping rings or rings attached to pull cords."

TG Discussion: The TG members believe the scope is too broad. They questioned whether there was really a hazard with pull rings.

- 7&8. Petitioners' Request: "Ban mobiles that are located within the reach of children not capable of pushing up on hands or knees."

"Ban mobiles attached to the crib unless they have a permanent and conspicuous label on both the product and packaging warning of the strangulation hazard and urging removal of the mobile and all attachments when child can push up on hands and knees."

TG Discussion: Mr. Miller said the voluntary standard doesn't require labels or information in the instructions for mobiles. He said perhaps the standard should require these things for mobiles to be consistent with crib gyms.

9. Petitioners' Request: "Ban crib toys that fail to contain a conspicuous warning statement in their instructions that crib mattresses should be placed in one of the lower positions and that crib drop sides should be up when the toys are attached."

TG Discussion: Mr. Miller said the scope for this one was too broad. The TG members questioned whether or not there is any hazard with toys attached to the side of cribs. They discussed whether information should be in the instructions with the toy or with the instructions accompanying the crib. Mr. Locker will look into this issue further.

10. Petitioners' Request: "Ban crib toys whose warning statements are not presented first, and are not separate and easily distinguishable from informational and marketing messages contained in the instructional literature."

TG Discussion: Mr. Miller said this issue is addressed in the voluntary standard but needs to be made clearer.

Mr. Miller said that as President of TMA, the issues noted above where the TG members believe changes could be made would be discussed at the next industry safety standards meeting and a position and recommendations developed for review by the ASTM TG. It was reiterated that the TG would like to review the briefing package when its available to the public and I agreed that it would be provided.

Mr. Miller said the next meeting of the ASTM should be scheduled after the TMA industry meeting. The timeframe was suggested as between 30 and 60 days from now.

As it was 1:30 p.m., the meeting was adjourned.