Thumb and Finger Sucking Habits: From Freud to Linus

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Thumb and Finger Sucking Habits

• A common and typically harmless behavior of infancy and childhood

• 23-46% of children between 1-4 years

• ~ 19% after 5 years of age have habit

• ~ 5% over 5 years have a chronic habit
• **Thumb sucking as a transitional comforting behavior.** [Winnicott, 1953]

• **Wolf & Lozoff (1989)** report that children who fall asleep with parents present are less likely to have a sucking habit or an object of attachment.

• **There are reports that thumb sucking habits are uncommon in certain groups (e.g., Inuit Eskimos).** [Levine, 1998]
Many adverse effects have been reported to be related to a thumb sucking habit

• Dentoalveolar change is the major oral consequence:
  - Proclined Maxillary Anterior Teeth
  - Retroclined Mandibular Anterior Teeth
  - Anterior Open Bite

• Other reported oral effects with little evidence:
  - Posterior Crossbite
  - Narrow High-Arched Palate
  - Angle Class II Malocclusion
  - TMD symptoms
  - Atypical Root Resorption
Many adverse effects have been suggested to be related to a thumb sucking habit.

Dentoalveolar changes can occur in the primary dentition from a thumb sucking habit. However, if the habit stops before the eruption of the permanent incisors, the dentoalveolar effects observed in the primary dentition are not seen in the mixed dentition.
Many adverse effects have been suggested to be related to a thumb sucking habit

"The habits of sucking the thumb, lip, or tongue, so frequently formed by young children, while rarely causing displacement of the deciduous teeth, will if persisted in during the eruption of the permanent incisors, cause marked malocclusion. Fortunately the habit of thumb-sucking is usually broken before any marked evil effects result ...."

Many adverse effects have been suggested to be related to a thumb sucking habit

• Reported psychological consequences:
  - Parents may criticize, ridicule, or punish
  - Decreased peer acceptance
  - Mother’s rate 11-16 year olds as more moody, depressed, and high strung if they were persistent thumb suckers as children.

• Other reported miscellaneous associations:
  - Alopecia
  - Increased risk of accidental poisoning
  - Thumb deformation*
  - Thumb irritation
  - Mucosal Trauma

*[Reid & Price, 1984]*
Historical Controversy over the Nature and Treatment of Thumb Sucking

“I believe that the association of the manifestation into which we have gained insight through psychoanalytic investigation justifies us in claiming thumb sucking as a sexual activity.”
- Freud (1918)

Freud also noted that thumb sucking habits sometimes were associated with habits involving a rubbing contact with sensitive parts of the body.
Historical Controversy over the Nature and Treatment of Thumb Sucking

At an ADA meeting, Pearson (AJO, 1948) warned that forcibly stopping the habit could have undesirable effects (e.g., “sexual frigidity” in later years).

Korner & Knight (Angle Orthod, 1955) warned that use of dental appliances to stop the habit could cause new symptoms which included: night terrors, day wetting, sleep disturbances, refusal to eat solid foods, and belligerent irritability.

See also, Skinazi, J Clin Orthod (2000) [e.g., “erogenous,” “fetishism” and “… need to release pent-up energy”]
Historical Controversy over the Nature and Treatment of Thumb Sucking

“Inductive reasoning and teleology are no firmer bases for claims by many psychologists that dire personality defects may result from attempts to break finger habits, even during the time it is normal to expect such habits. Claims of frustration, psychic trauma, habit transference, behavior problems, or at the very least, maladjustment, are frequent in the literature. ….. Our study has not borne out claims of psychological disturbances as a result of placing interceptive appliances. Not a single case of habit transference has been documented, as yet.”

Is there a relationship between thumb-sucking and psychopathology?

Child Behavior Checklist and the Eyberg Child Behavior Inventory were given to 3 groups of kids (ages 4-14).

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[Friman et al., J Pediatric Psychol, 1994]
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Including, “no elevation in the CBCL sex problems subscale for thumb-sucking children.”

“... results provide little support for the theoretically derived notion that thumb-sucking is necessarily a symptom of psychopathology.”

[Friman et al., J Pediatric Psychol, 1994]
Historical Controversy over the Nature and Treatment of Thumb Sucking

There are **NO** convincing data to support the idea that children with thumb sucking habits have any associated symptoms of psychopathology (see Friman, et al., 1994) or that treating the habit will lead to symptom substitution. **YET,** ........

“Simply removing the symptom by aversive therapies or other suggested interventions will not deal satisfactorily with what may be causing the need to suck non-nutritively. We merely may be substituting symptoms if we do not pay serious attention to those underlying anxieties.” Shelov (1995)
When to Treat and Why

This decision is made on an individual basis after evaluating the ratio of potential risks to benefits. Here are general recommendations.

- Rarely treat before age 5
- Don’t treat infrequent habit w/out adverse sequelae
- Postpone treatment if life stress or major loss
- Malocclusion in mixed or permanent dentition
- Alopecia (concurrent habit)
- Thumb / finger deformity
- If child requests treatment
- Despite reassurance is wnl, parents insist.
Contemporary Treatment Recommendations

1) Initially ignore the sucking behavior.

2) Treat initially with a less invasive behavioral approach.

3) If behavioral approach is ineffective, consider intraoral crib therapy.

Social Validity?
Social Validity

“Social validity refers to the acceptability of an intervention to the persons most closely connected to it and its results. Experience has shown that not all effective interventions are accepted, despite their effectiveness.”

(Baer, 1986)
Thumb Sucking and Dental Appliances

Haryett (1967, 1970 AJO) studied 65 children (> ~5 yrs old) who had a thumb sucking habit. After 10 months of treatment, he assessed whether the habit was still present or had stopped.

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3 years later, 2 of 22 crib-treated patients were sucking (9%)
Haryett (1967, 1970 AJO) studied 65 children (> ~5 yrs old) who had a thumb sucking habit. After 10 months of treatment, 36 children assigned to ineffective treatment conditions were still sucking and so they were assigned to treatment with a crib with spurs for either 3 or 6 months duration. Patients were contacted 3 years later for follow-up.

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Thumb Sucking and Dental Appliances

Haryett (1967, 1970 AJO) investigated crib therapy with spurs versus without spurs to treat thumb sucking. Following 10 months of treatment, he waited 6 weeks and assessed whether the habit was still present or had stopped.

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Thumb Sucking and Dental Appliances

Haryett (1967, 1970 AJO) investigated crib therapy to treat thumb sucking. Side-effect data were collected during both studies.

- Mothers report kids have significantly greater restlessness and sleep disturbances with spurs than without spurs.
- Upset (8/22 = 36%; 14/56 = 25%)
- Speech difficulty (13/22 = 59%; 37/56 = 66%)
- Eating difficulty (e.g., peanut butter, apples, corn) (9/22 = 41%; 28/56 = 50%)
- Soreness from crib (20/55 = 36%, Exp #2 only)
- Broken Appliance (3/55 = 5%, Exp #2 only)
Thumb habit and anterior open bite
Crib with spurs
Anterior open bite starts to close
Anterior open bite continues to close
Anterior open bite is closed with crib
Crib designs with and without spurs
Fig 1. Anterior open bite due to thumb sucking. Amy S., 11 years old.
Fig 4. Appliance cemented in place (occlusal view).
“The idea came from the equine industry, where a bit with copper rollers is used to distract irritable horses.” (Haskell & Mink, 1991)
Bluegrass appliance designs
Retrospective Data on Bluegrass Appliance

30 patients (age 4:10 to 20:11) who completed Bluegrass treatment had records reviewed.

- 93% patients (n=28) treated successfully
- 76% patients treated in 36 weeks (9 months) or less with recommended length of treatment 4 months after habit has stopped.
- 20% (n=6) had to have appliance re-inserted from breakage, improper placement, or distortion after placement. [Recommend using 0.036 gauge wire.]

Recommend trying “easier and less expensive” behavioral treatment before placing a dental appliance.

Bluegrass design (with roller) with spurs on a W-arch for expansion, with fixed-removable design for in-office adjustment.
Intraoral Appliances for Thumb Sucking Habits

1) Crib should be kept in for ~10 months
2) Adding spurs to the crib does not enhance effectiveness for treatment of sucking habit (maybe for tongue position)
3) Bluegrass Appliance (little data)

Adverse effects include: upset, speech difficulty, eating difficulty, soreness, broken appliances. (Appliances are not 100% effective.)
Behavioral Treatments for Thumb Sucking Habits

1) Stopping goods things when sucking occurs (Baer in 1962 - cartoon stops; contingent reading)

2) Restraint for response prevention with fading

3) Aversive taste treatment with fading

4) Awareness Enhancement Device
Sara is 3 years old. She hit the reader when reading stopped. Treatment did not generalize beyond nap time.

Knight & McKenzie, JABA, 1974, 7, 33-38
Rosie is 6 years old. “I know why you’re not reading ....”
Treatment generalized to all settings.

Knight & McKenzie, JABA, 1974, 7, 33-38
Jennifer is 8 years old and sucks her finger while holding a soft blanket named “sucky.” When reading stops, she says “Read, I’m getting mad ….” Treatment generalized to all settings.

Knight & McKenzie, JABA, 1974, 7, 33-38
Restraint System for Response Prevention (with Fading and Rewards)

Use devices that limit access to thumb or fingers. Reward children for not removing the device. After consecutive non-sucking days, fade the devices away by using smaller ones. Habit occurs … start at beginning and repeat.

- Mitt (or boxing glove, sock)
- Thumb-post (or T-Guard)
- Ace bandage
- Sleeping sack
- Facemask

Fade with tongue blade, small bandaid, cotton gauze
Commercially Available Mitt

Thumbuddy’s Quit-Mit, Inc.
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<th>Monday</th>
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Keep a daily record for 6 weeks or more, until you have stopped thumbsucking. Show your dentist.
Thummb habit and anterior open bite
Mitten restraint for habit treats open bite
Mitten restraint for habit closes open bite
Custom-made Thumb-post

Watson & Allen,
J Am Acad Adolesc Psychiatry, 32(4), 830-834, 1993

Fig. 1. Circumferential thumb-post.
Commercially available thumb-post

Introducing A Gentle Way To...

STOP THUMBSUCKING.

How can I help my child? The answer is T-GUARD.

T-GUARD is the only non-invasive, gentle treatment that is clinically proven to be effective.

Ask your dentist about this innovative new method to combat the negative dental, oral-facial and emotional effects of thumbsucking. Ask for T-GUARD. IT REALLY WORKS!
NOTEWORTHY—

★ UNIQUE THUMB COVER WITH LOCK BAND TO DETER CHILD FROM THUMBSUCKING

1. PRODUCT NAME: T-GUARD

2. COMPANY NAME, ADDRESS, & TELEPHONES: MED et al DEVELOPMENT
   4400 Morris Park Drive, Suite M
   Charlotte, NC 28227 U.S.A.

3. COST: $59 per Kit. (2 Thumb covers, 50 bands, instructional video, & safety scissors for removal)

4. EVALUATION SUMMARY:
   Safe, kind, low cost way to help children overcome thumbsucking. CRA evaluation shows high success (90%) so far with test group. Advantages: (A) Difficult for child to remove once placed, which is necessary feature, (B) Adaptable to almost all childrens' hands, (C) Multicolored bands add "fun" to procedure. Main disadvantages are cooperation of child & parents needed for successful habit change & device can abrade skin on thumb. Rated excellent or good & purchase recommended by 83% of Evaluators.
HOW TO PLACE T-GUARD ON YOUR CHILD’S HAND

Directions below are for both hands.

1. Insert the plastic bracelet (b) into the retaining slot on the cylinder assembly. The cylinder and bracelet should rest on your child’s hand as shown.

2. Next, engage the smaller slotted flap of the clear cylinder assembly into the appropriate slot* of the larger side to permit comfortable yet secure attachment of the cylinder over the thumb and around the wrist (see arrow). The device should move freely, but your child should not be able to slide it off the thumb.

* The slotted flaps should intersect below the heel of the hand, directly on the wrist.

3. To secure the bracelet around the wrist, thread the colored plastic bracelet through the appropriate slot on both the large and the small slotted flaps. Select appropriate buttonhole — finger should fit easily under the bracelet.

4. The last step is to lock the bracelet using the plastic snap. Once closed, the bracelet cannot be removed except by cutting. You should check the fit of T-GUARD before securing the device with the snap button.

Unconditional Warranty on all components for the period of treatment.

5. To remove T-GUARD, simply cut the colored bracelet with a provided pair of round-ended scissors. NEVER cut the clear plastic portions of the cylinder assembly. Please dispose of discarded colored bracelets properly.

http://www.thumbguard.com/Thumbguard.html
Keep ‘em Healthy

Stop Thumb Or Finger Sucking In 3 Weeks!
Help your child “break the habit”—without yucky nail polishes or expensive appliances. These rubber guards eliminate the pleasurable sensations of sucking, which can lead to permanent teeth deformations. Dentist invented. For ThumbGuard (2 covers, 60 bracelets), choose Small 3-4 yrs., Medium 5-6 yrs., or Large 7-15 yrs. For FingerGuard (1 cover, 50 bracelets), choose Small 3-5 yrs. or Large 6 yrs. and up. Both include informative CD-Roms. For health reasons, we cannot accept returns on opened packages.

#07848 ThumbGuard™ $ 69.95
#12512 FingerGuard™ $ 69.95

Proven to help 9 out of 10 kids!
Out of 225 digit sucking patients, Graber (1958) found that: 77% sucked the thumb only, 15% other fingers only, and 8% thumb and fingers.
Handaid for thumb or custom-order for fingers

http://www.yourhandaid.com
Thumbusters - <http://stopthumbsucking.net/>
Clothing restraint:


Fig 1. Ace™ Bandage wrapped from mid-arm to mid-forearm.
Fig 2. Child falling asleep while sucking thumb with Ace™ Bandage in place.
A 14 year-old female with cerebral palsy and a learning disability was successfully treated for finger sucking with 1-h / day for 12 months with fading. The boy had autism and other habits. (Taylor & Walker, 1997)
Taste Treatment for Thumb Sucking (with Fading and Rewards)

1) Apply tastant to fingernail at morning, bedtime, and contingent on sucking.
2) After 7 days of no sucking, stop morning application (fading).
3) After 7 more days, stop bedtime application.
4) Provide rewards for not sucking.
5) Habit occurs re-start regimen from the beginning.
Taste Treatment for Thumb Sucking


He reviews treatment alternatives for habit cessation, discusses side-effects and costs. If Malava Stop is chosen, he gives them the bottle as a gift. At one month follow-up”almost every patient will have discontinued the habit ..”
Data from Friman et al., (1986) demonstrate an aversive tastant used in the treatment of thumb-sucking.

Friman & Libowitz (1990) treated 22 children (ages 4-11) using the aversive tastant protocol. At 1-year follow-up, 20/21 patients no longer had a sucking habit and 1 patient was missing.
Awareness Enhancement Device (AED) is used in the treatment of thumb-sucking.

Stricker, J.M., et al., JABA, 34, 77-80, 2001
The volume of the AED had to be increased (i.e., Prime)

PI: Joseph A. Himle
Company: Hamztec, LLC
NIH (NIMH): 1R41MH077362
Year: 2007 - 2008
“When the patient keeps the digit inside the mouth, the alarm starts from the reminder to remind the child, and when the child takes the thumb out of mouth, the alarm stops automatically due to the flexible nature of contact heads” (p. 296)

Treating Thumb Sucking and Concurrent Habit

If you treat a sucking habit, will interest in a concurrent attachment object decrease? [see data from Haryett et al., (1967) and from Friman et al., (1990)].

What happens to thumb sucking if you prevent the concurrent habit? [See Friman, 1988].
Thumb Sucking and Concurrent Habits

Haryett (1967, AJO) observed that 31 of 65 children with a thumb sucking habit also had a concurrent habit (e.g., hair, blanket). He found that treating the sucking habit with a crib caused the concurrent habit to cease.

<table>
<thead>
<tr>
<th>Concurrent Stops</th>
<th>Concurrent Continues</th>
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<tbody>
<tr>
<td>Stop Thumb</td>
<td>10</td>
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<td>Continue Thumb</td>
<td>2</td>
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0                              19
Concurrent Habits - What Would Linus Do With His Blanket If His Thumb-sucking Were Treated?

Friman, 1990
American Journal of Diseases of Children.
Vol. 144, (12)
pp. 1316-18
"In the third (and final) withdrawal session Sue, after having sucked her thumb for an extended period of time, angrily told her parents not to leave the doll on her bed because it made her suck her thumb."

Friman, J. Behav. Ther. & Exp. Psychiat, 19(4), 301-304, 1988
Treating Thumb Sucking and Concurrent Habit

5-year old treated with thumbpost for sucking habit to stop concurrent trichotillomania (Allen et al., 1992)

3-year old treated with aversive tastant for sucking habit to stop concurrent trichotillomania (Knell & Moore, 1982)
Friman & Hove. Apparent covariation between child habit disorders: Effects of successful treatment for thumbsucking on untargeted chronic hair pulling. JABA, 20(4) 421-425 1987
What about Pacifiers?

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<tr>
<th>Risk or Benefit</th>
<th>Level of Evidence/Conclusion</th>
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<td>Adjunctive pain relief</td>
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FYI: There is a reported increase in otitis media (AOM) with pacifier use but not with thumb sucking. The reason for this association is unclear.
“The hygiene hypothesis suggests that childhood exposure to microbial organisms reduces the risk of developing allergic diseases. The effects of thumb-sucking and nail-biting habits are likely to increase microbial exposure, but their effect on allergic diseases are unknown. ... Children who sucked their thumbs or bit their nails between ages 5 and 11 years were less likely to have atopic sensitization at age 13. This reduced risk persisted until adulthood. There was no association with asthma or hay fever.” (Lynch et al., 2016)

[Although this is a modifiable risk factor, altering it may not be desirable!]


See also
What about Pacifiers?

Table 1  Summary of Major Risks and Benefits of Pacifier Usage and Conclusions Based on the Evidence

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What about Pacifiers - AOM?

An experiment was conducted where parents of children <18 months of age were advised to limit pacifier use versus a control group of parents without counseling on pacifier use.

- 21% reduction in continuous pacifier use from 7-18 months of age in experimental group.
- 29% reduction in AOM age in experimental group.
- Both groups showed children who did NOT use a pacifier continuously had 33% fewer AOM episodes than children who did.

SIDS prevention suggests benefit from pacifier use for all sleep episodes up to 1 year of age (see, Hauck et al. Pediatrics, 2005).

What about Pacifiers - SIDS?

Dr. De-Kun Li, who led research on SIDS published in the British Medical Journal (2005), found an association between pacifier use and a reduction in SIDS. In an interview by David Biello (2005), Li felt that “‘The bulky handle sticks out … If you have the bulky handle, even if the baby wants to bury [its] face in soft bedding, [it] can’t.’ Plus, babies who sucked their thumb still benefited from pacifier use whereas, if sucking alone was responsible for the preventive mechanism, the thumb should have been enough.”

A meta-analysis by Hauck et al. (Pediatrics, 2005) concludes that “we recommend that pacifiers be offered to infants as a possible method to reduce risk of SIDS. The pacifier should be offered to the infant when being placed for all sleep episodes, including daytime naps and nighttime sleeps.” Also recommended use in infants up to 1 year of age and beginning after breastfeeding has been well-established in breastfed infants.

An RCT (Jenik et al., J. Pediatr., 2009) showed that pacifier use at 15 days of age did not change the prevalence of breastfeeding at 3 months of age.
Always place your baby on his or her back for every sleep time.

Always use a firm sleep surface. Car seats and other sitting devices are not recommended for routine sleep.

The baby should sleep in the same room as the parents, but not in the same bed (room-sharing without bed-sharing).

Keep soft objects or loose bedding out of the crib. This includes pillows, blankets, and bumper pads.

Wedges and positioners should not be used.

Don’t smoke during pregnancy or after birth.

Breastfeeding is recommended.

Offer a pacifier at nap time and bedtime.

Avoid covering the infant’s head or overheating.

Do not use home monitors or commercial devices marketed to reduce the risk of SIDS.

Infants should receive all recommended vaccinations.

Pregnant woman should receive regular prenatal care.

Supervised, awake tummy time is recommended daily to facilitate development and minimize the occurrence of positional plagiocephaly (flat heads).
“Interventions for the Cessation of Non-Nutritive Sucking Habits in Children” was published (2015) in the Cochrane Database of Systematic Reviews.

The authors’ concluded that “This review has highlighted the need for high quality trials evaluating interventions to stop non-nutritive sucking habits to be conducted ...” (p. 2). They recommended that “… although it is not possible to draw definitive conclusions from the data, in the case of a digit sucking habit, given that the use of aversive tasting substance requires no clinical input, is a non-invasive, low risk procedure, is cheap and can be carried out by parents in the home setting, it is likely to continue as first line of treatment despite little evidence to support it.” (p. 24)

Concluding Thoughts

An orthodontic practice-based research network is well-suited to investigate the treatment of digit-sucking habits. There are a variety of methods for treating this habit and many seem to work. Comparative Effectiveness Research is needed to determine how different methods compare on:

- Therapeutic Effectiveness
- Cost Effectiveness
- Side-Effects
- Patient Acceptance
- Social Validity
- Quality of Life