

(Rapid) early weight gain: Catchup growth or weight acceleration?

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Ellyn Satter Institute Position Statement Eating Management to Prevent and Treat Child Overweight Ellyn Satter, MS, RD, LCSW, BCD

The position of the Ellyn Satter Institute is that the clinical definition of child overweight is not high weight per se, but growth acceleration: abnormal upward weight divergence for the individual child. Based on this clinical definition, each child is compared to only him- or herself, not to statistical cutoff points established for the purpose of population-wide evaluation. This definition avoids labeling as overweight the child whose weight, weight-for-height or BMI are above a certain percentile but is growing consistently. It also allows identifying for early intervention the child whose measurements fall closer to the mean but is nonetheless diverging from his or her previously established growth pattern.

Defining child overweight as growth acceleration reframes prevention. Rather than avoiding overweight, the emphasis becomes supporting each child's normal growth. Thus, child overweight can be prevented from *here* with appropriate feeding. Growth acceleration can be created by examining the underpinnings and antecedents of the divergence, restoring positive feeding and letting the child's own capability with energy and growth regulation resolve the problem. Each child has a powerful and resilient ability to eat the right amount of food in order to grow in accordance with his or her genetic endowment. However, each child needs appropriate support from parents and other care providers in order to be able to eat and grow well—to manifest that genetic endowment.

Throughout the growing up years, feeding demands a division of responsibility, with parents and other care providers providing appropriate food and children being allowed to eat as much or as little as they want of what these groupings provide. Depending on the child's stage of development, the division of responsibility plays out in different ways.

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[ESI Position Statement Child Overweight](#)

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Rapid early infant weight gain Obesity

Stettler *et al.*, (2005), Baird *et al.* (2005),
Ekelund *et al.*, (2007), Chomtho *et al.*, (2008),
Leunissen *et al.*, (2009), Larnkjaer *et al.* (2010)
↑ W/A z scores early in life associate with ↑ BMI and
body fat later in life.

Druet *et al.* (2012)

Infant weight gain correlates with weight later on.

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Rapid early infant weight gain Obesity

Plagemann (2005)

Faster weight gain during first week of life associates with
30% increased risk of adult overweight.

Ong & Loos (2006)

Rapid weight gain from 1 to 2 years of life associates
with 60% increased risk of adult overweight.

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Rapid early infant weight gain Reality check

- Growth tends to track
- Fast-growing infants tend to be big adults
- Children of bigger mothers tend to be bigger
- Data simply describes normal growth

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Objectives

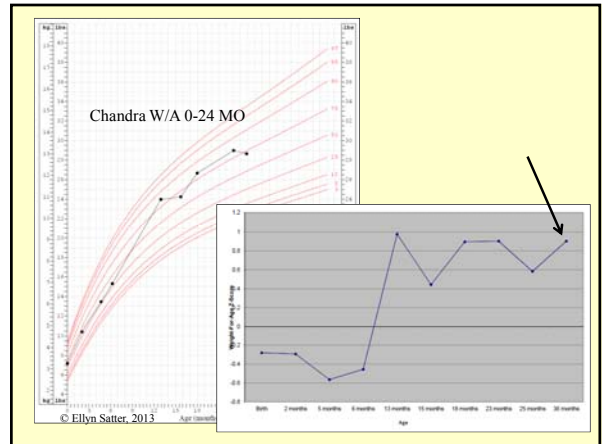
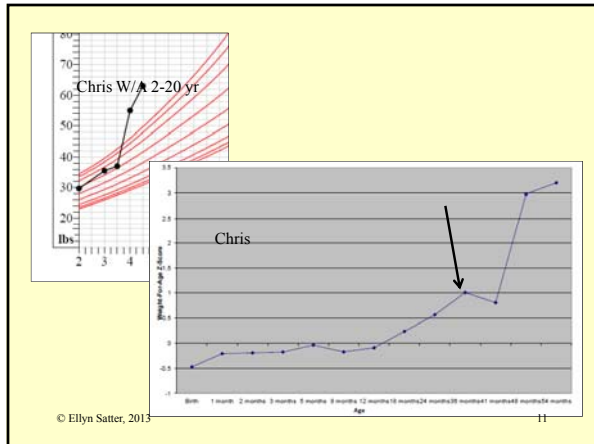
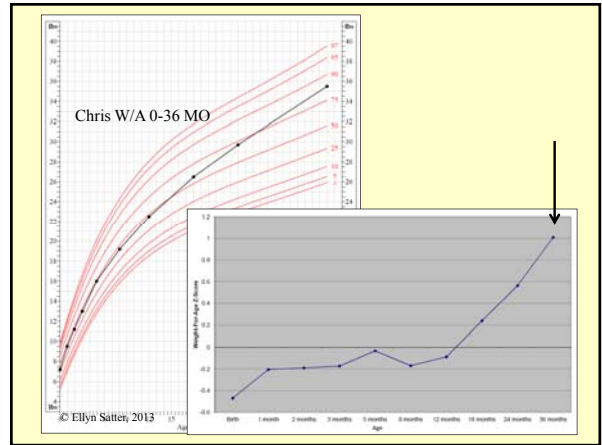
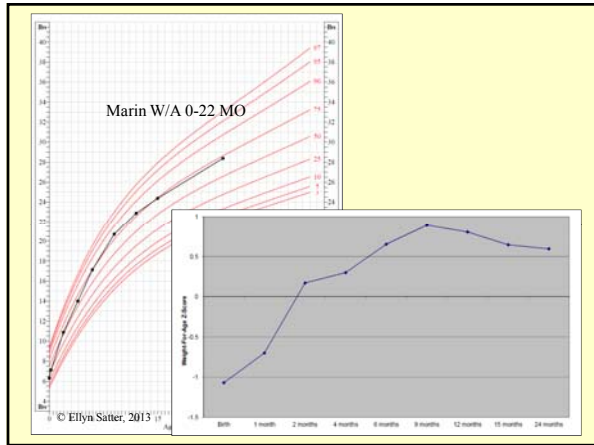
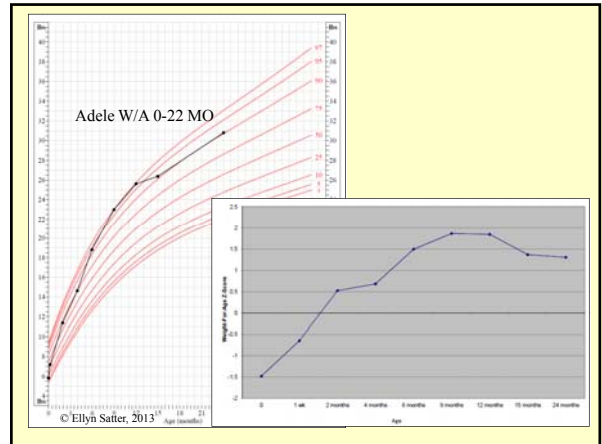
- [Differentiate between normal catchup growth and weight acceleration.](#)
- Describe the role of feeding dynamics in supporting optimal weight gain.
- Demonstrate the assessment of feeding/growth problems.
- Demonstrate fdSatter based intervention

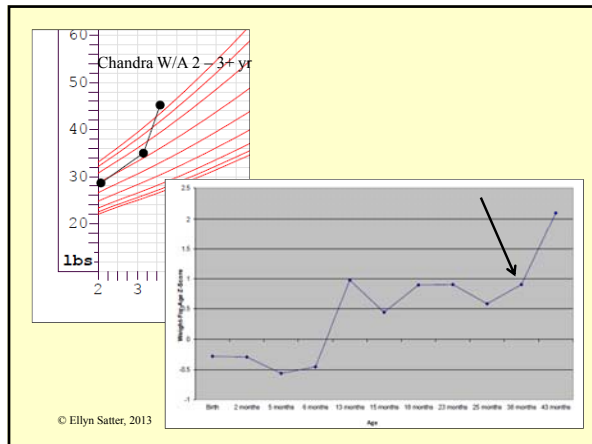
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Researcher	Rapid Early Weight Gain Definition
Eid et al. 1970	W/A \geq 90 th percentile at 6 weeks, 3 mo, and 6 mo of age
Ong et al. 2000	\geq 0.67 \uparrow in W/A z-score at birth, 2 y, and 5 y
Stettler et al. 2003	\geq 1.00 \uparrow in W/A z-score at 4 mo, 12 mo, and 7 y
Baird et al. 2005	Obesity definition varied - measured between 3 months and 2 years of age
Stettler et al. 2005	Change in W/A z score between 8 d. and 112 d of age
Leunissen et al. 2009	Change in W/A z score $>$ 0.5 z score in first 3 mo

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CATCHUP GROWTH OR WEIGHT ACCELERATION?

Catchup growth

- Consistent at any level
- Divergences smooth
- Divergences level off

Weight acceleration

- Inconsistent
- Divergences abrupt
- Growth sharply crosses percentiles
- Leveling off is delayed

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The data is only the beginning.

To properly interpret growth data, you need the back-story.

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Review:

Raising Children with Special Needs to be Competent Eaters, Ssn 1: Assessment

[ESI special needs webinar](#)

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INTERVENTION STARTS WITH ASSESSMENT

- Problem is established; complicated
- Cause is unclear, likely to be multiple

Satter, E. *Your Child's Weight*, Appendix E, Assessment of Feeding/Growth Problems

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WORKING HYPOTHESIS

- Whatever the underlying issue, distorted feeding dynamics is a primary and/or adjunct cause of the problem
- Feeding intervention will be part of the resolution

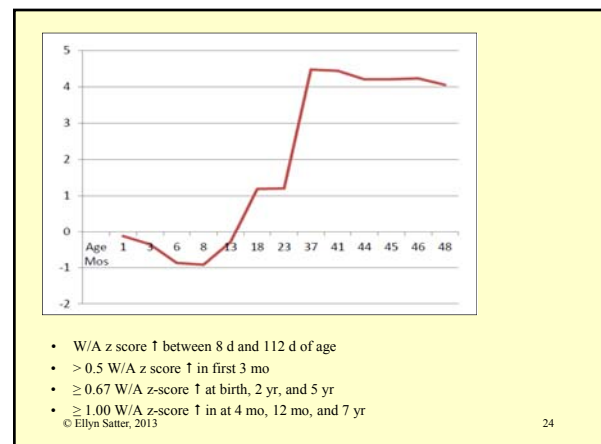
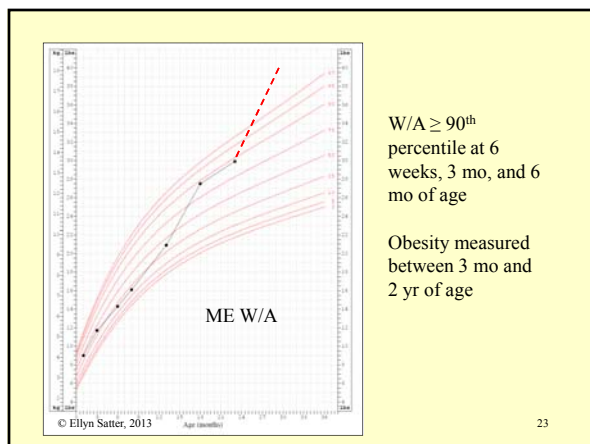
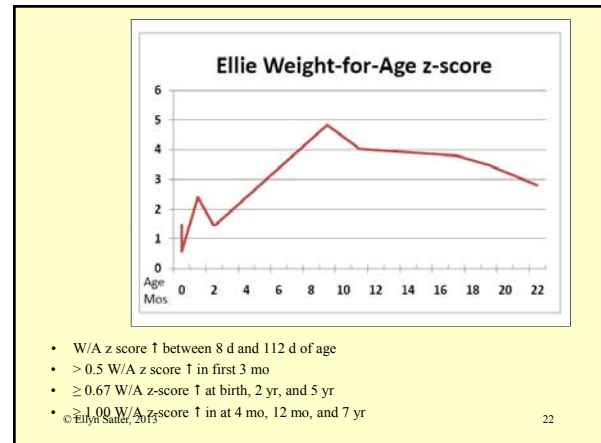
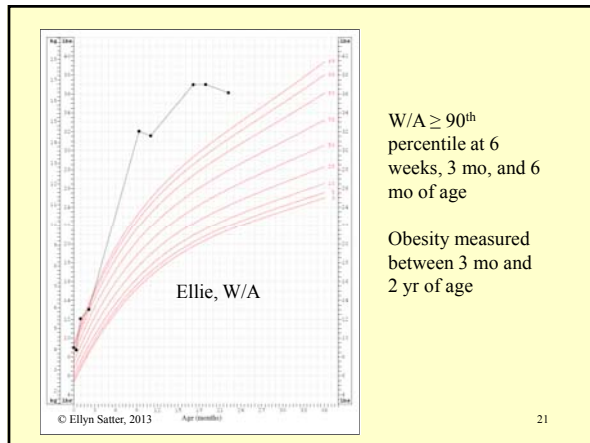
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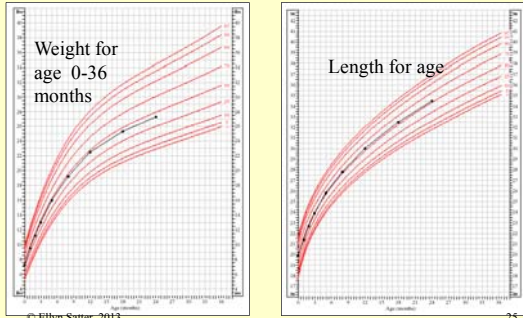
ASSESSMENT CONTENT

- Medical & physical
- Nutrition & food selection
- Psychosocial (parents)
- Developmental (child)
- Feeding dynamics

Ellie and ME



IT IS NORMAL FOR CHILDREN TO GROW NORMALLY



Normal growth can be consistently at the mean

50th %tile w/a



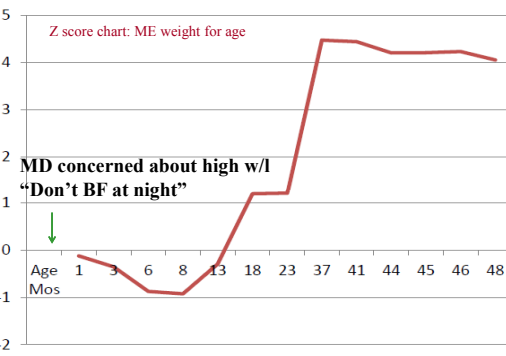
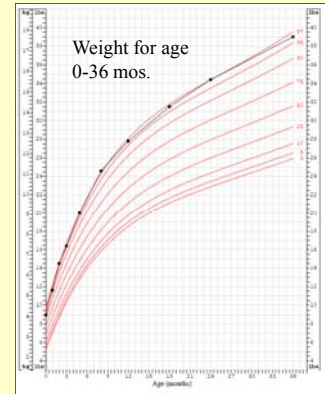
Normal growth can be low and slow

low *consistent* w/a



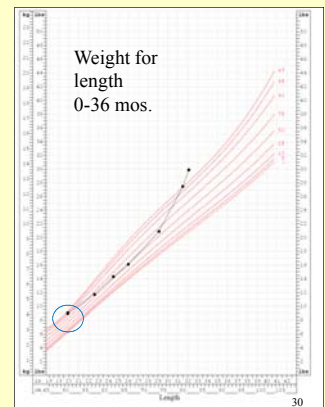
Normal growth can be high and fast

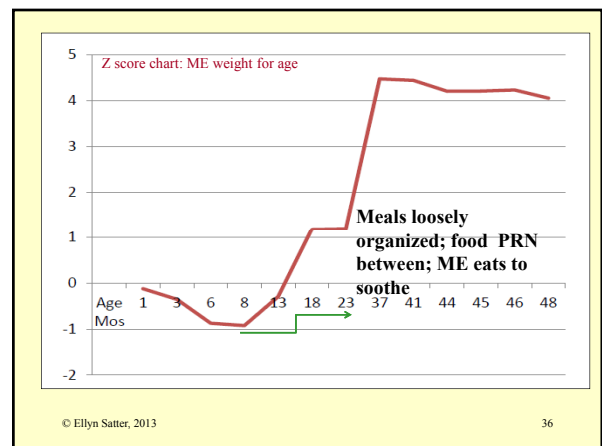
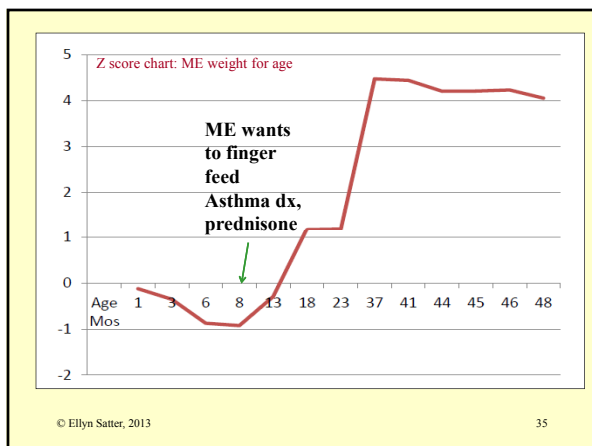
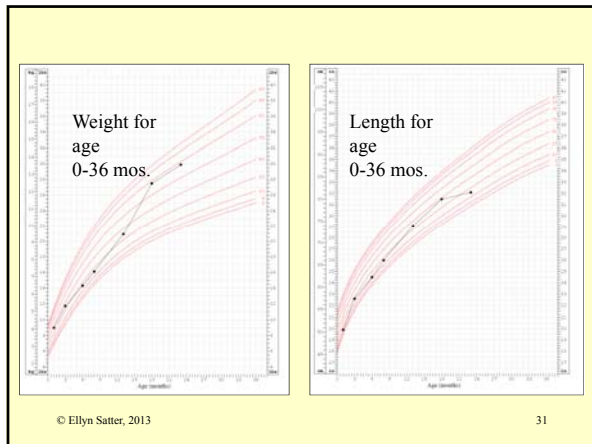
high *consistent* w/a

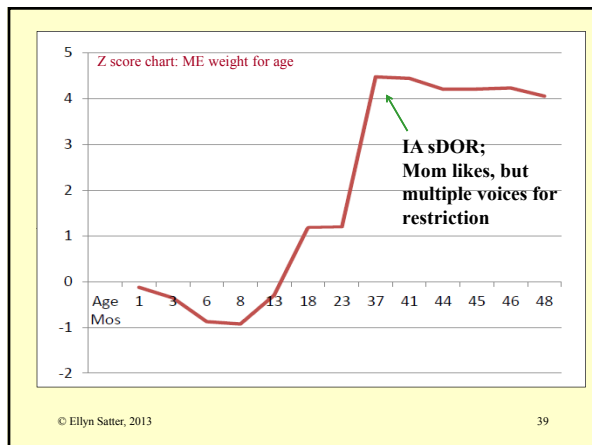
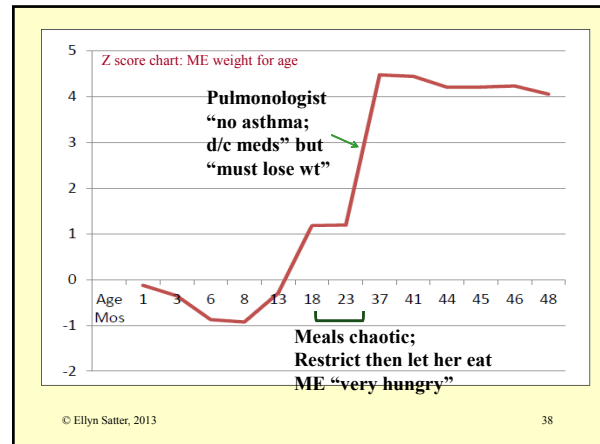
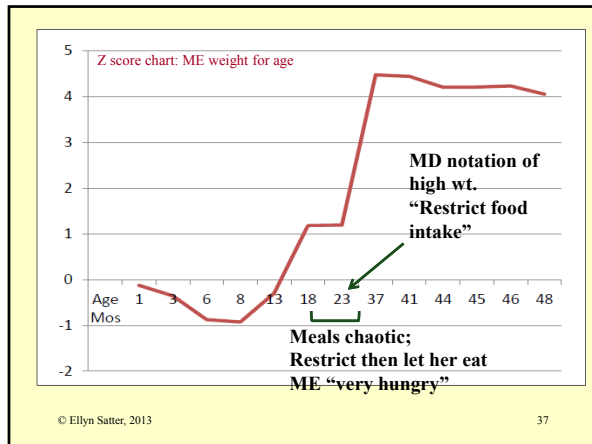


ME was plump at birth.

W/L at 95th %







ME Assessment: Iatrogenic condition

- Misinterpretation of normal growth
- Early restrained feeding (2 weeks) disrupted breastfeeding, undermined internal regulation
- Restrained feeding, and feeding disruption, through 37 months
 - Starting @ 8 mo, ME's food demands overwhelmed her mother's ability to restrict
 - Weight acceleration 8 through 37 months
 - sDOR established & maintained from 37 months

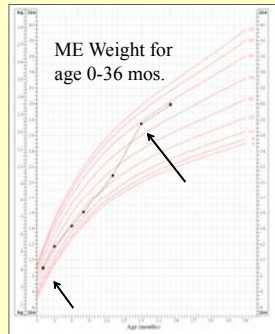
ME Do-over: Role of feeding dynamics in supporting optimal weight gain

- Optimize feeding from birth by establishing and maintaining a division of responsibility in feeding
- Do early identification of feeding problems, weight inconsistency
- Assess using feeding questions
- Establish division of responsibility in feeding
- Let ME grow up to get the body that nature intends for her

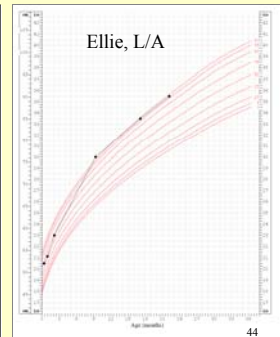
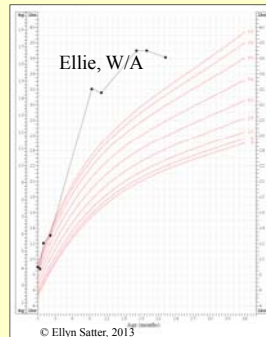
Ask feeding questions

- How is feeding going?
- What advice are you being given about feeding?
- What concerns do you have about your child's eating/growth?
- How would you like feeding be different?

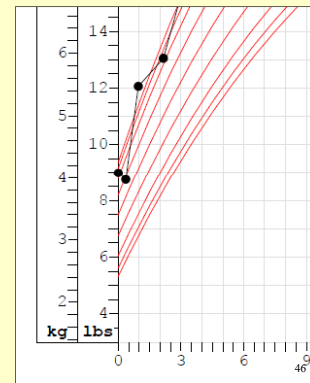
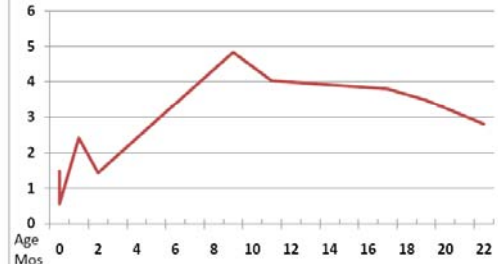
Establish sDOR: Division of responsibility



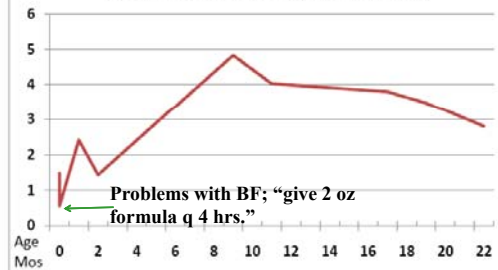
Ellie: Case study



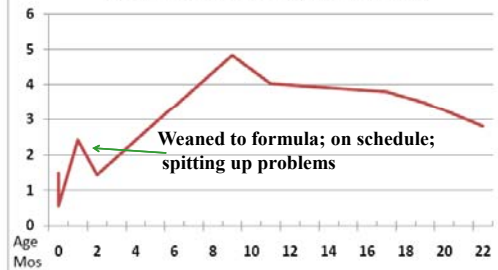
Ellie Weight-for-Age z-score

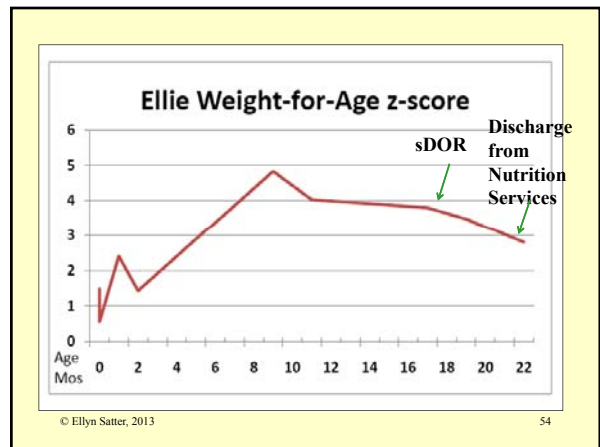
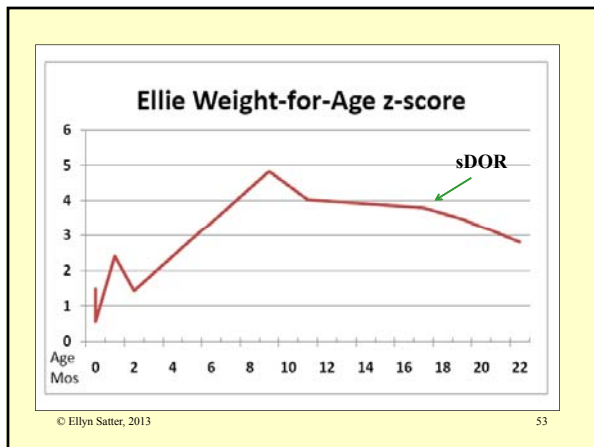
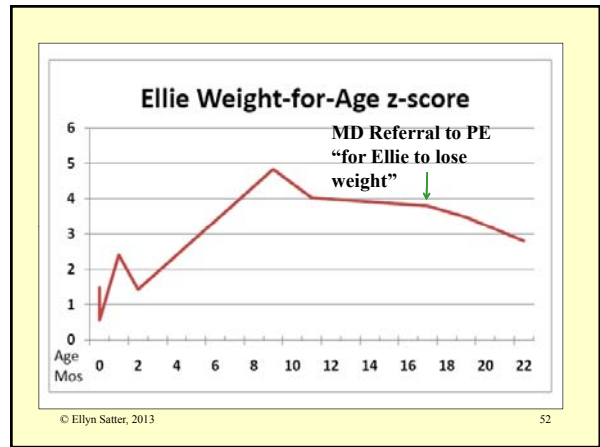
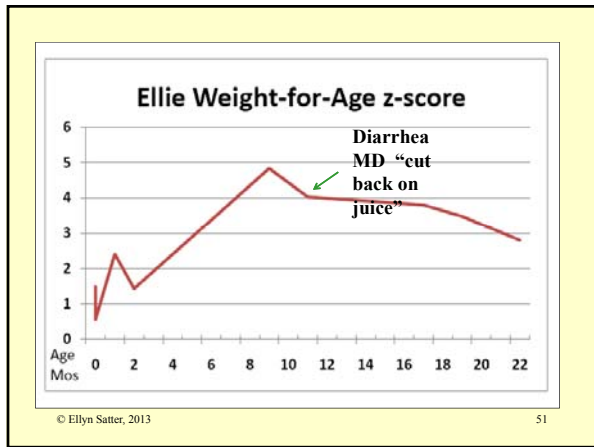
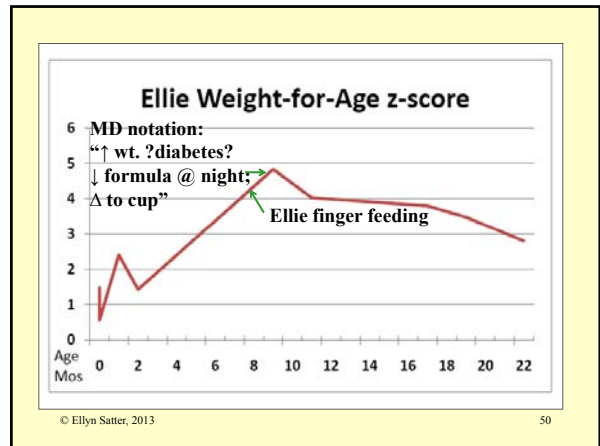
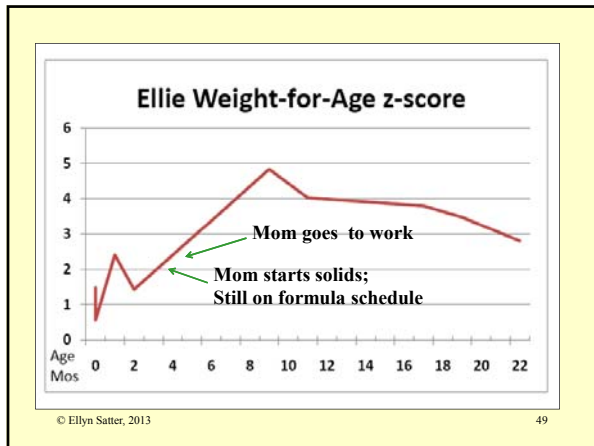


Ellie Weight-for-Age z-score



Ellie Weight-for-Age z-score





Ellie Assessment: Poor feeding practices

- Put on schedule as newborn: disruptive to sleeping and breastfeeding
- Chaotic life circumstances of family; mom feeling guilty and compensating with overfeeding; loose schedule, feeding PRN
- Restrained feeding recommended age 9 to 11 months exacerbated Mom's guilt & inconsistency in feeding
- Pattern continued until intervention at 18 months

Ellie: Feeding dynamics assessment and intervention

Pre-sDOR

- Meals 8 am, 11 am, 7 pm; wherever
- Made to clean plate
- Helping self to fridge in between
- "Eats everything and all the time."

Post-sDOR

- Meals at times Mom determines; at table only
- Ellie determines how much
- Sit down snacks in between L & D and before bed
- 1 gallon of milk lasts 3-4 days instead of 2

Conclusion

Early infant weight gain, childhood obesity and feeding dynamics

- Early weight acceleration (or faltering) is a sign of distorted feeding dynamics
- Throughout life, those distortions can destabilize weight and worsen biological parameters
- At the first sign of weight instability and/or feeding problems, do prompt identification and correction of distorted feeding dynamics