



FOOD SCIENTISTS:
SENSORY-BASED EXPOSURE FOR
INDIVIDUALS WITH A VARIANT OF AVOIDANT
/ RESTRICTIVE FOOD INTAKE DISORDER

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**Duke
Center for
Eating
Disorders**



Outline



Part i

Epidemiology
of Selective
Eating:
Who and
When



Part ii

Phenomenology
of Selective
Eating:
What and Why



Part iii

Treatment
Strategies



Part iv

Future
Directions



PROBLEM 1: DEFINING OUR TERMS

Picky eater

Sensory Food Aversion

Food Neophobia

Sensory Specific Eater

Restrictive Eater

Fussy eater

ARFID



BEHAVIORS

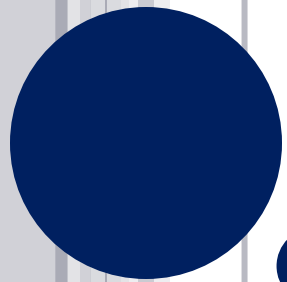
- Restricting intake of food type (particularly of vegetables)
- Having strong food preferences
- Being unwilling to try new foods
- Eating a limited amount of food



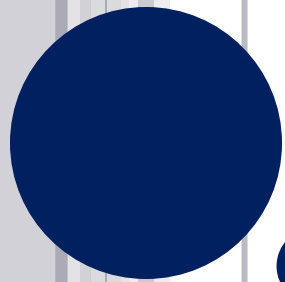
DOES SELECTIVE/SENSITIVE EATING FALL WITHIN ARFID?

- Eating or feeding disturbance resulting in:
 - Nutrition deficiency
 - Growth deficiency
 - Dependence on enteral feeding or nutritional supplements
 - Interference in psychosocial functioning





ANSWER: IT COULD



MYTH #1

“He’ll grow out of it”

IS SENSITIVE EATING JUST A PHASE?

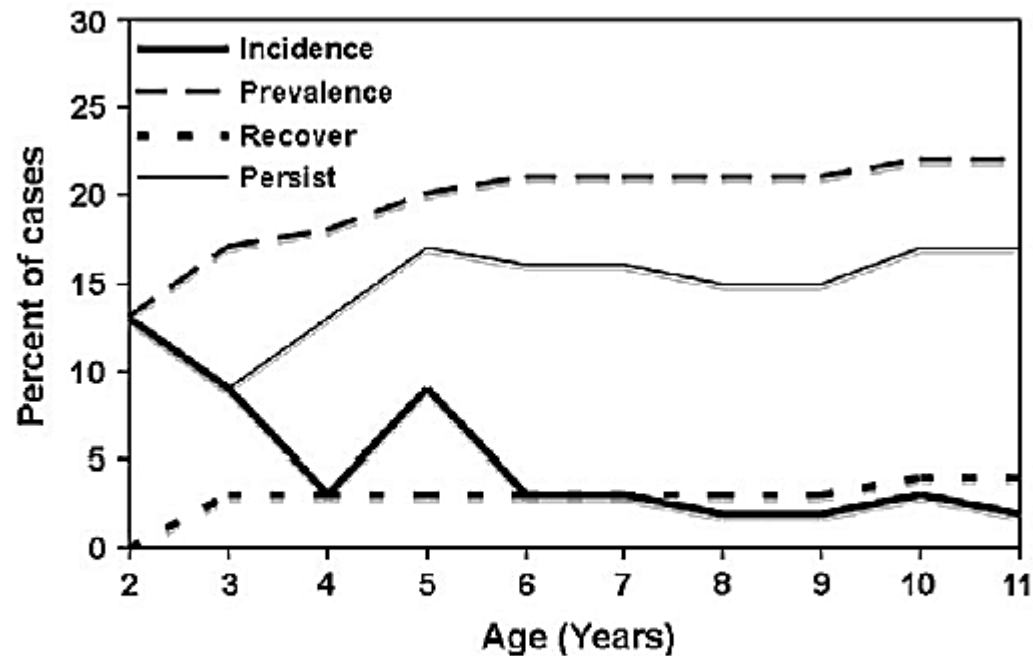
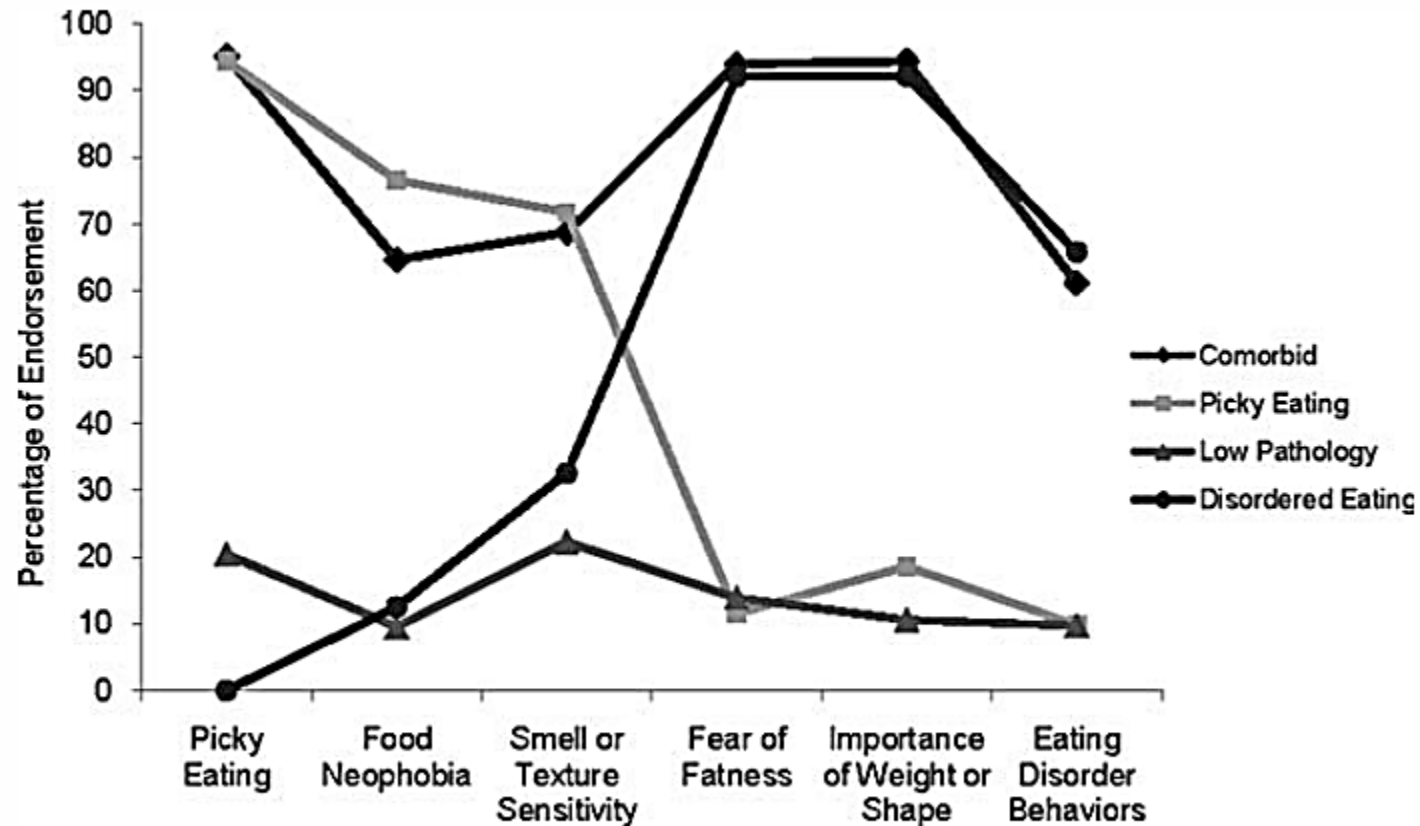


Fig. 1. Point prevalence and incidence of picky eating from 3 to 11 years of age expressed as percentages, i.e. rates per 100 children.

ARE ANY ADULTS SENSITIVE EATERS?



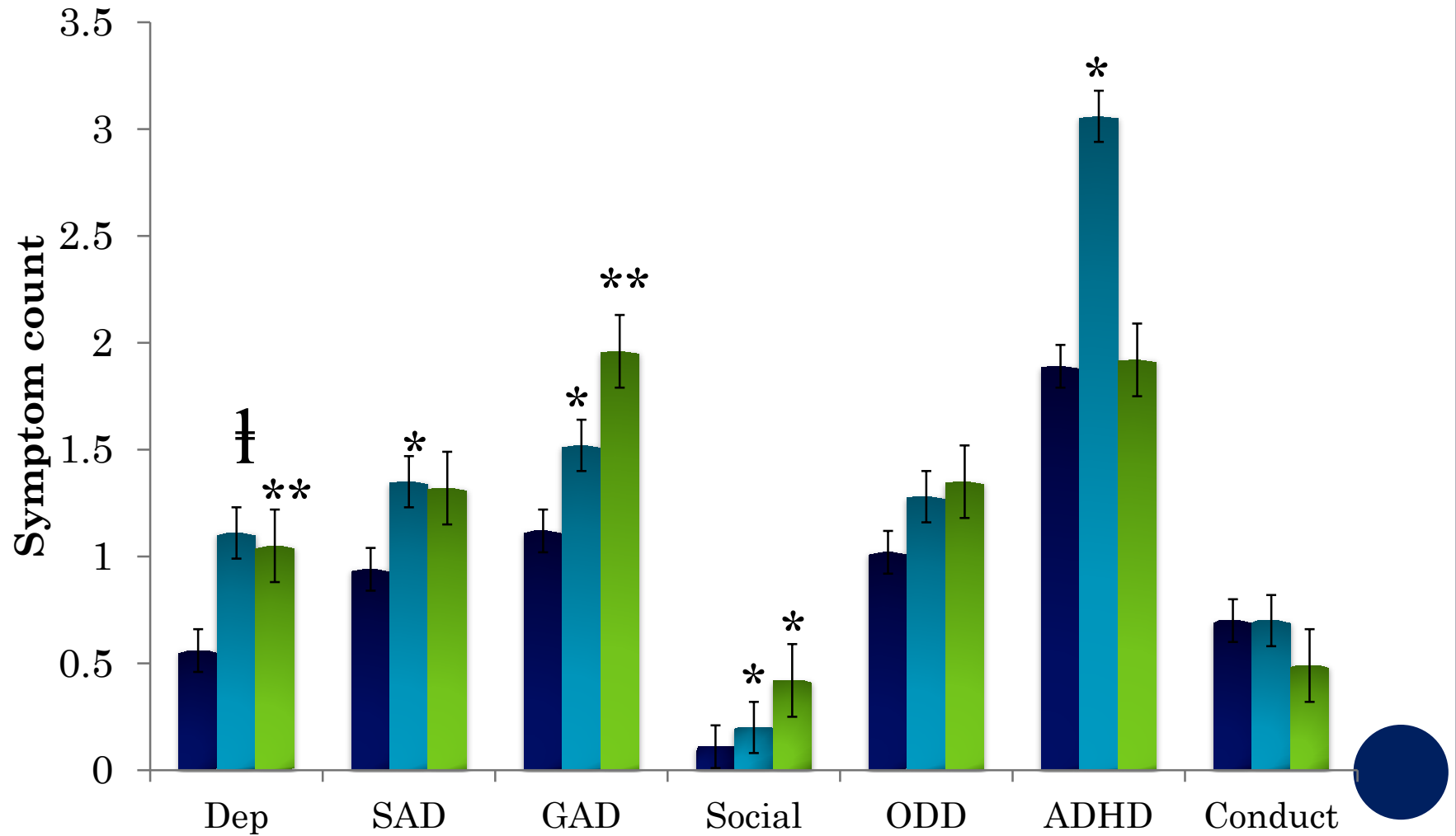


WHEN SHOULD WE WORRY?




RESULTS

■ No picky eating ■ Moderate ■ Severe



* = $p = .05$; ** $p = .01$, ‡ = $.001$

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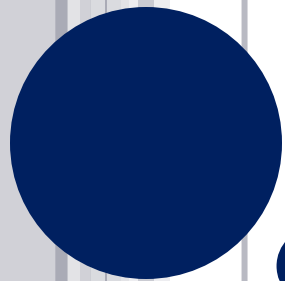
**FOR A SIGNIFICANT SUBSET,
SENSITIVE EATING PERSISTS AND
CONTINUES TO IMPAIR
FUNCTIONING.**

Take Home (1)

A decorative vertical bar on the left side of the slide, consisting of several thin, light gray vertical lines and a large, solid dark blue circle. To the right of this circle are four smaller dark blue circles of varying sizes, arranged in a vertical line.

**SENSITIVE EATING MAY A
MARKER FOR CHILDREN THAT
WOULD BENEFIT FROM EARLY
INTERVENTION**

Take Home (2)



MYTH #2

“Just let him get hungry enough”

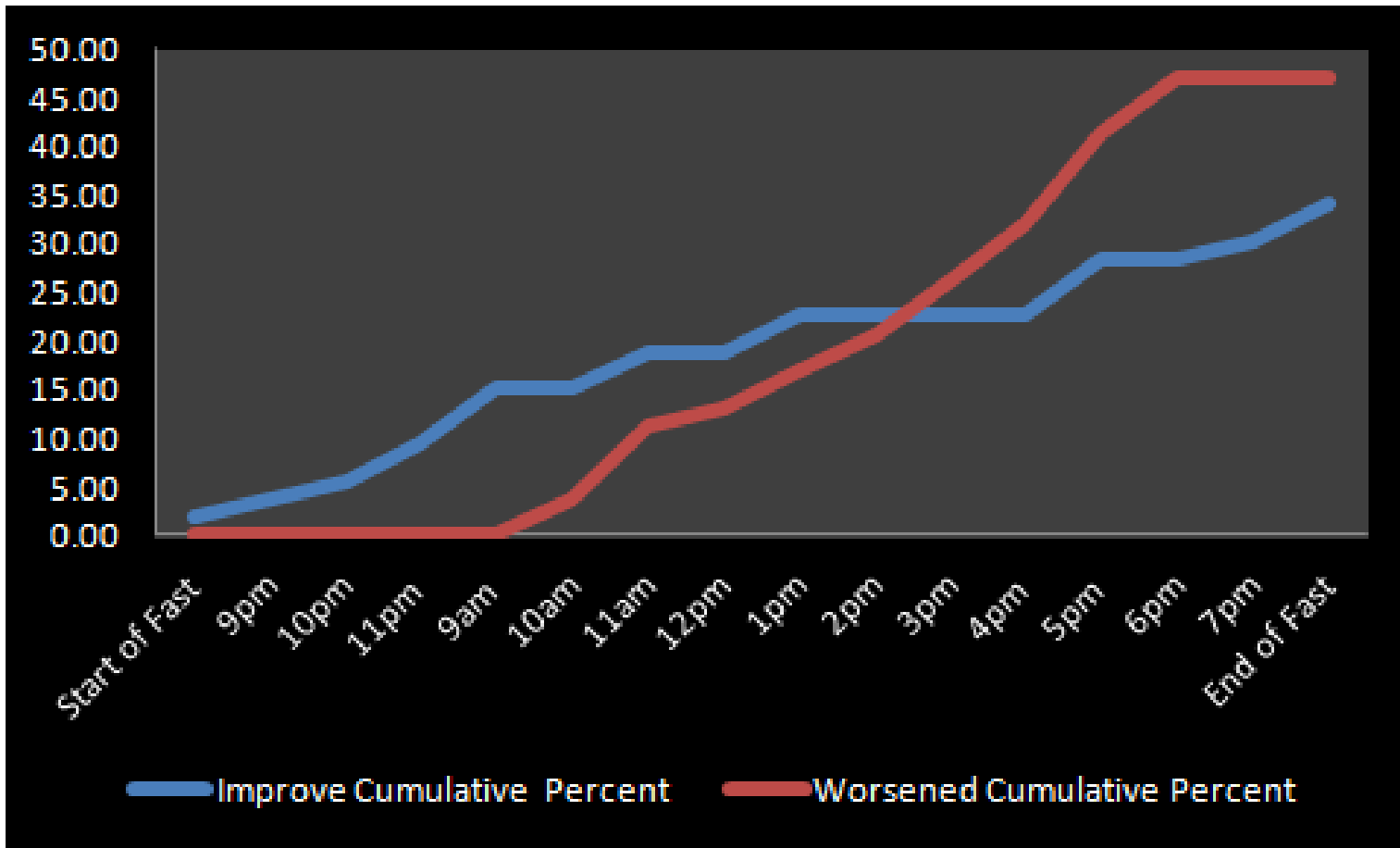


THE IMPOSSIBLE TASK

I have yet to talk to any parent for whom “starving them out” – either was effective or – if it resulted in a few bites of a new food – this food was later rejected.




FASTING STUDY



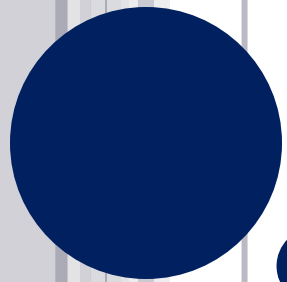
52 students. 52% male.



A decorative vertical bar on the left side of the slide, consisting of several thin, light gray vertical lines of varying thicknesses. To the right of these lines are five dark blue circles of different sizes, arranged in a roughly vertical line that curves slightly to the right.

**TRYING TO HAVE A FOOD STAND-
OFF AND STARVE THEM OUT
WON'T WORK**

Take Home (3)



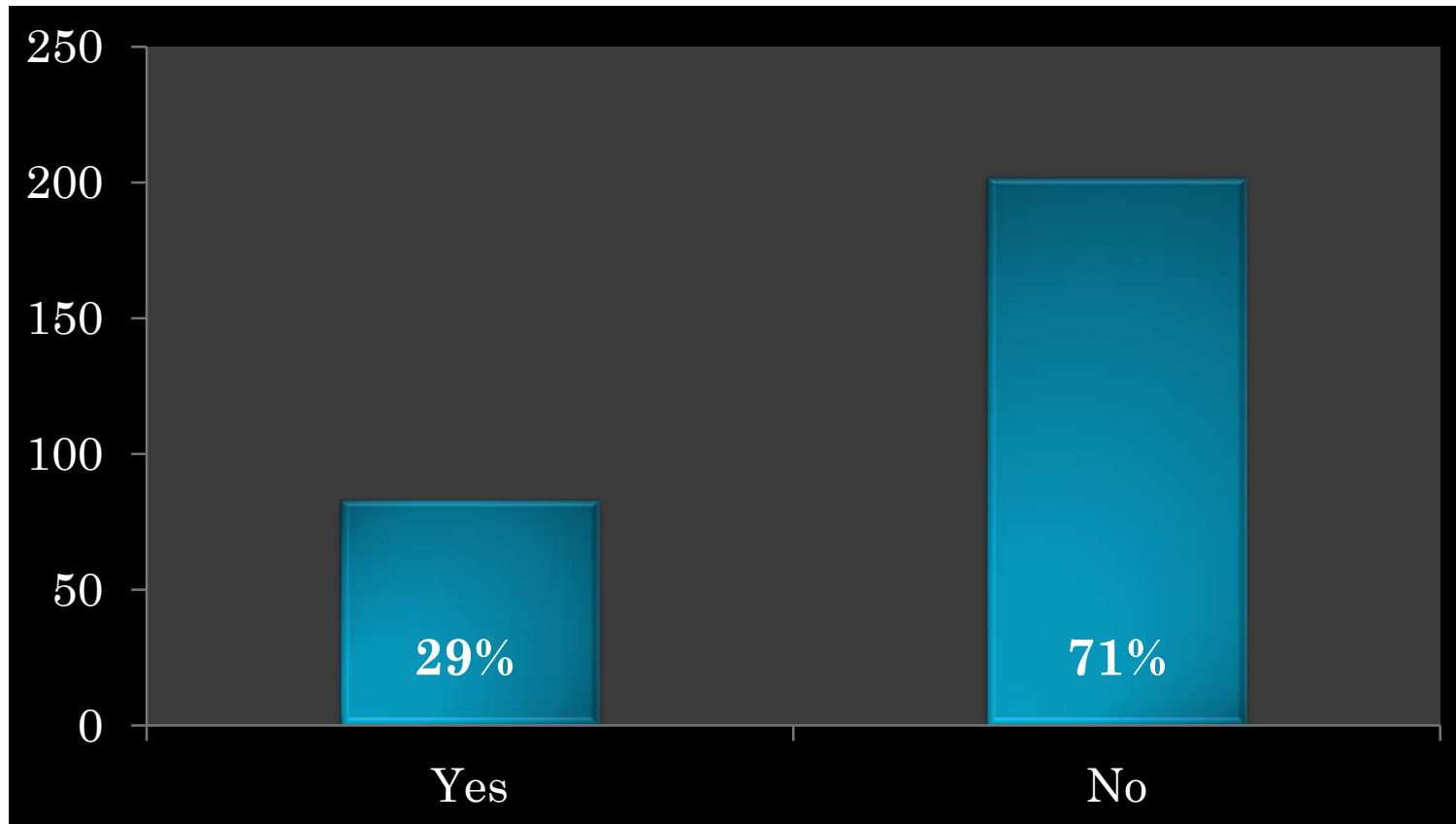
THE CASUALTIES



THE PARENTS



PARENT SATISFACTION WITH HEALTHCARE



Do you think the medical profession has been supportive of your concerns?



Outline



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Part ii

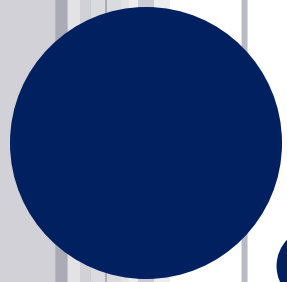
Phenomenology
of Selective
Eating:
What and Why



HARSHAW, 2008

‘...counterintuitive conclusion that, despite their critical role to survival, the phenomena of hunger, thirst and satiety are not “innate,” “hard-wired” or genetically “programmed,” but are instead the product of individual development.’





LEARNING NOT TO EAT



Pain

- GERD



Muscle Tone

- Suck rate

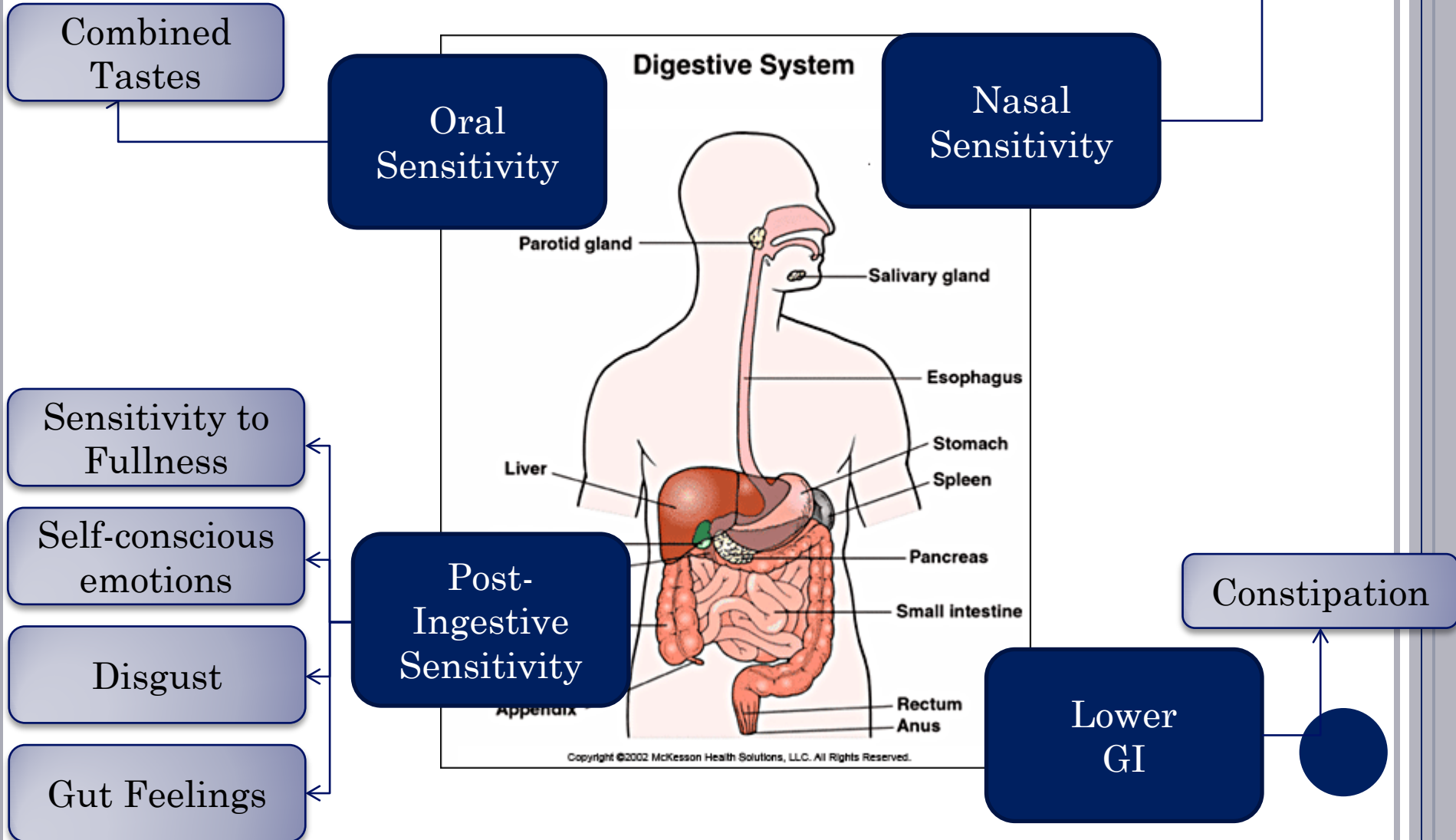


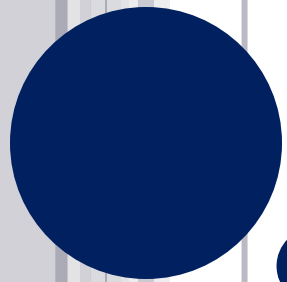
Respiration

- Postural Tone



AN ORGANIZATION SCHEME



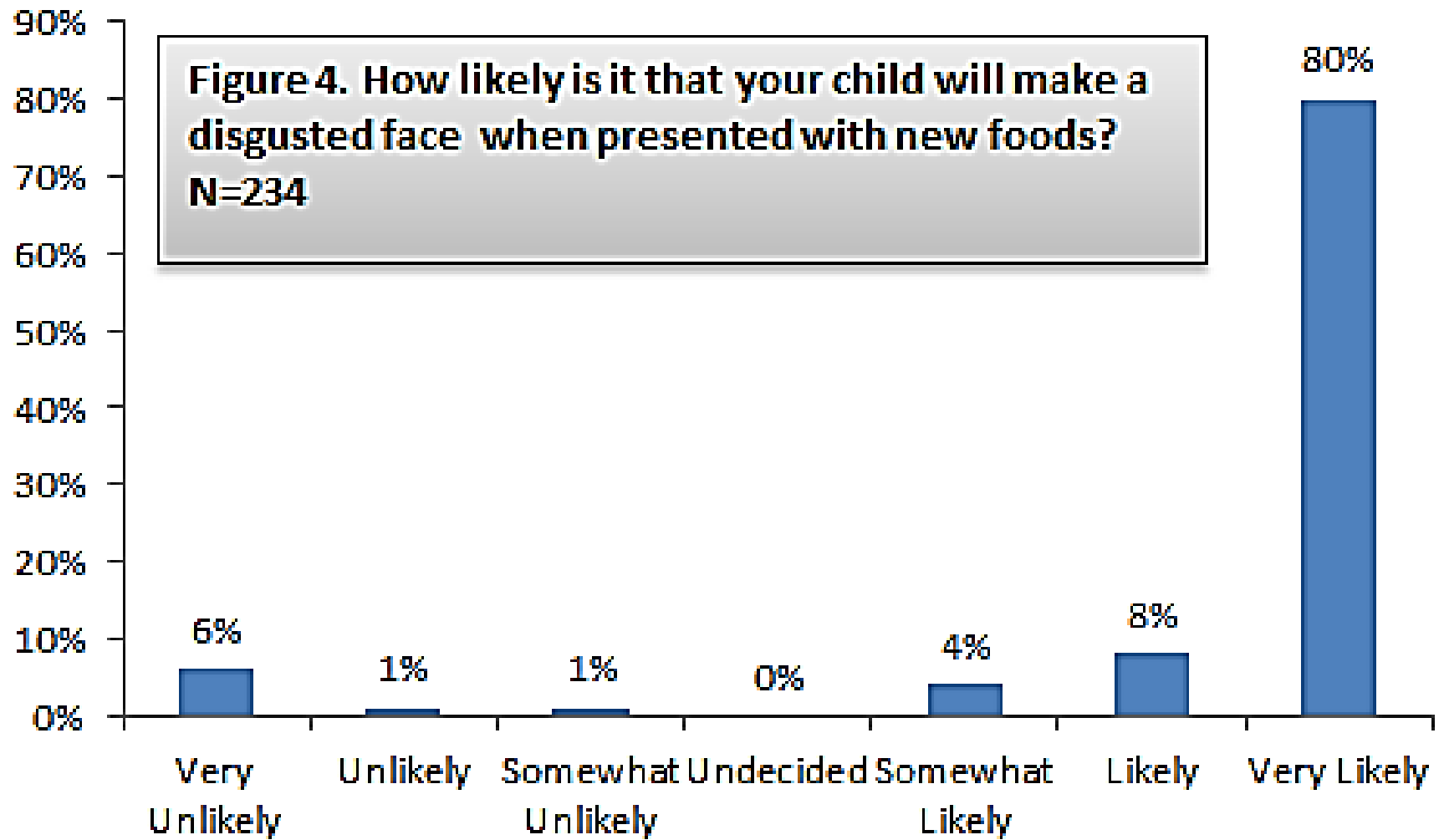


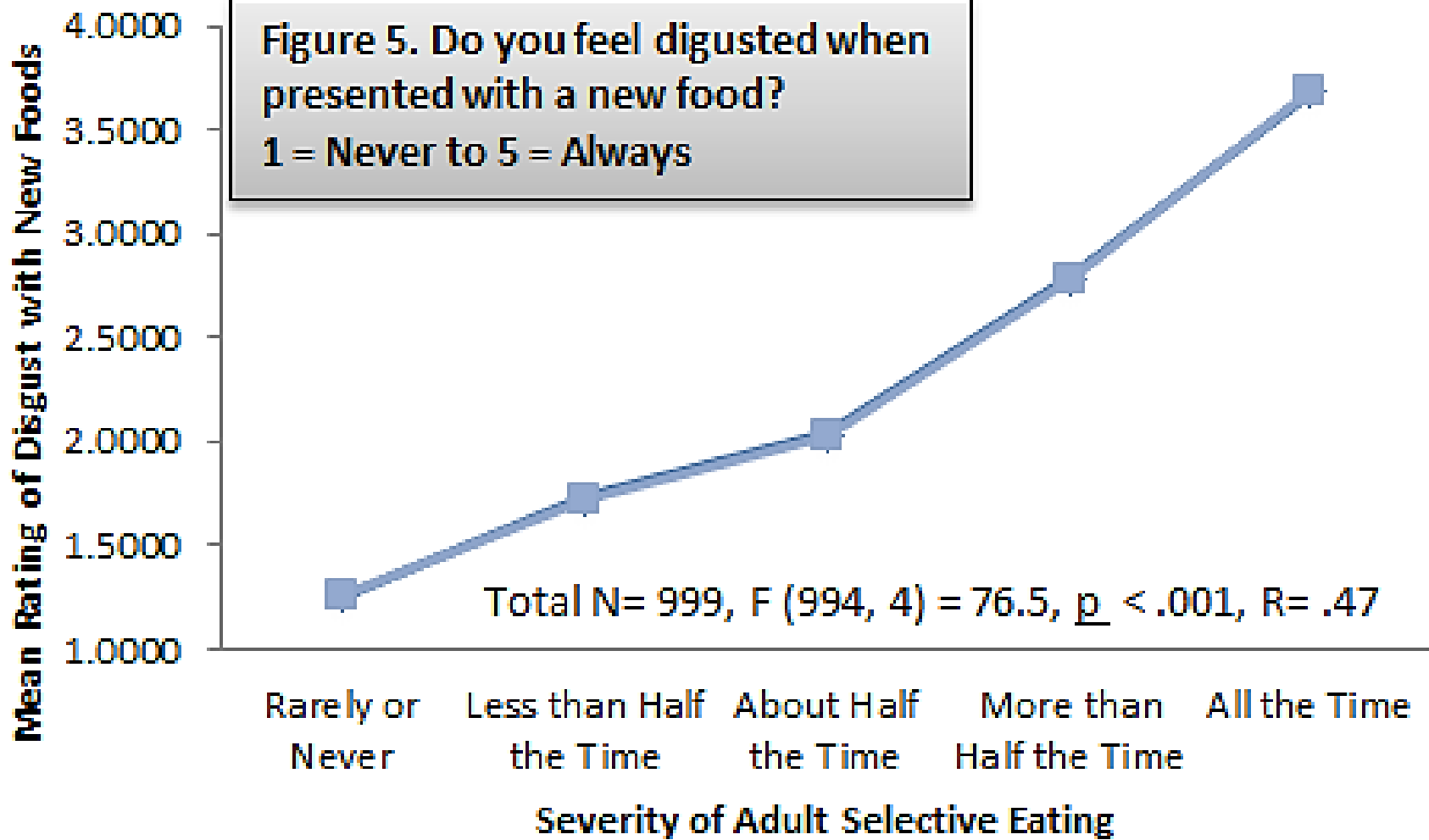
DISGUST



Figure 4. How likely is it that your child will make a disgusted face when presented with new foods?

N=234





The left side of the slide features a vertical decorative element consisting of several thin, parallel grey lines of varying shades. To the right of these lines is a cluster of five dark blue circles of different sizes, arranged in a roughly vertical line that curves slightly to the right. The largest circle is at the top, followed by a smaller one, then a medium-sized one, a very small one, and another medium-sized one at the bottom.

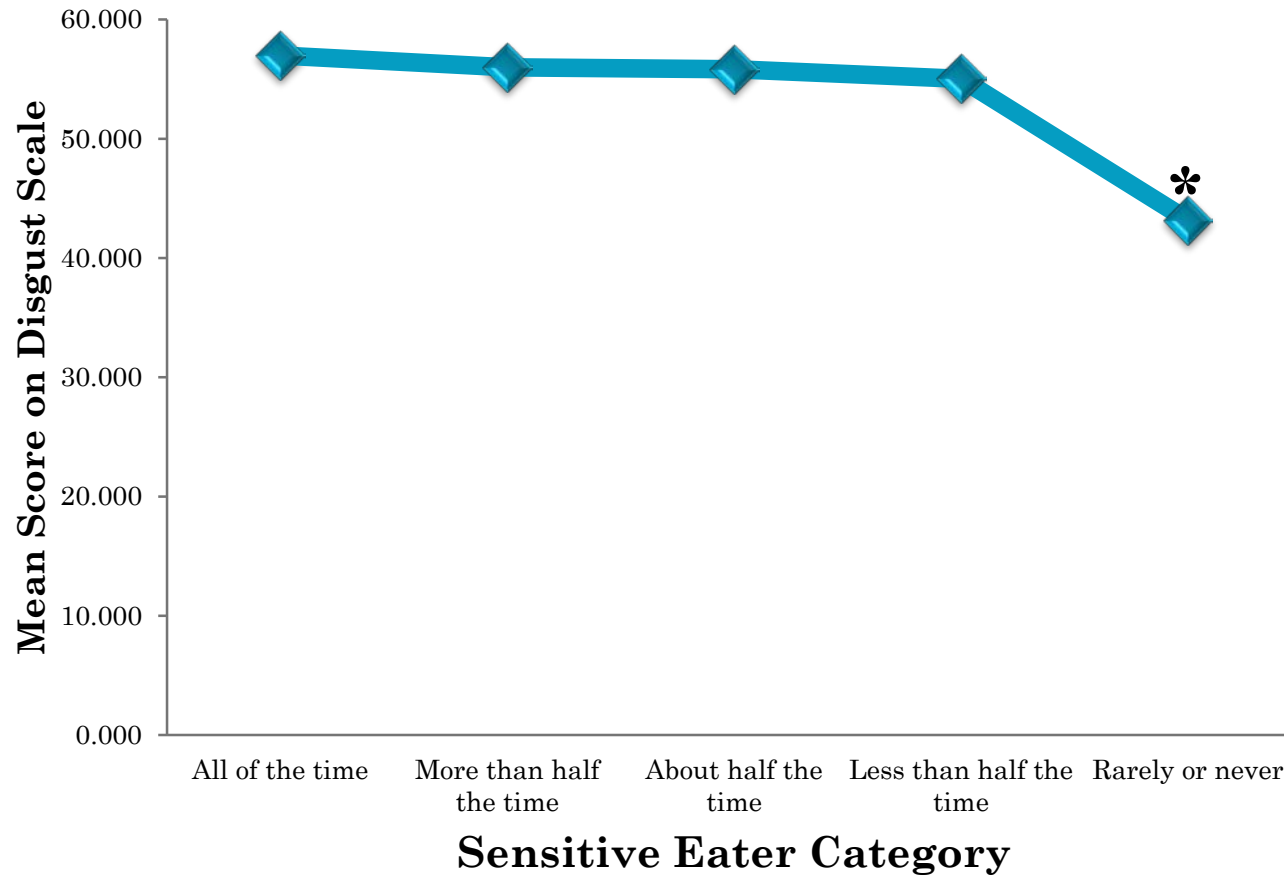
LIMITATIONS OF EXISTING THEORY

ASSESSMENT OF DISGUST SENSITIVITY

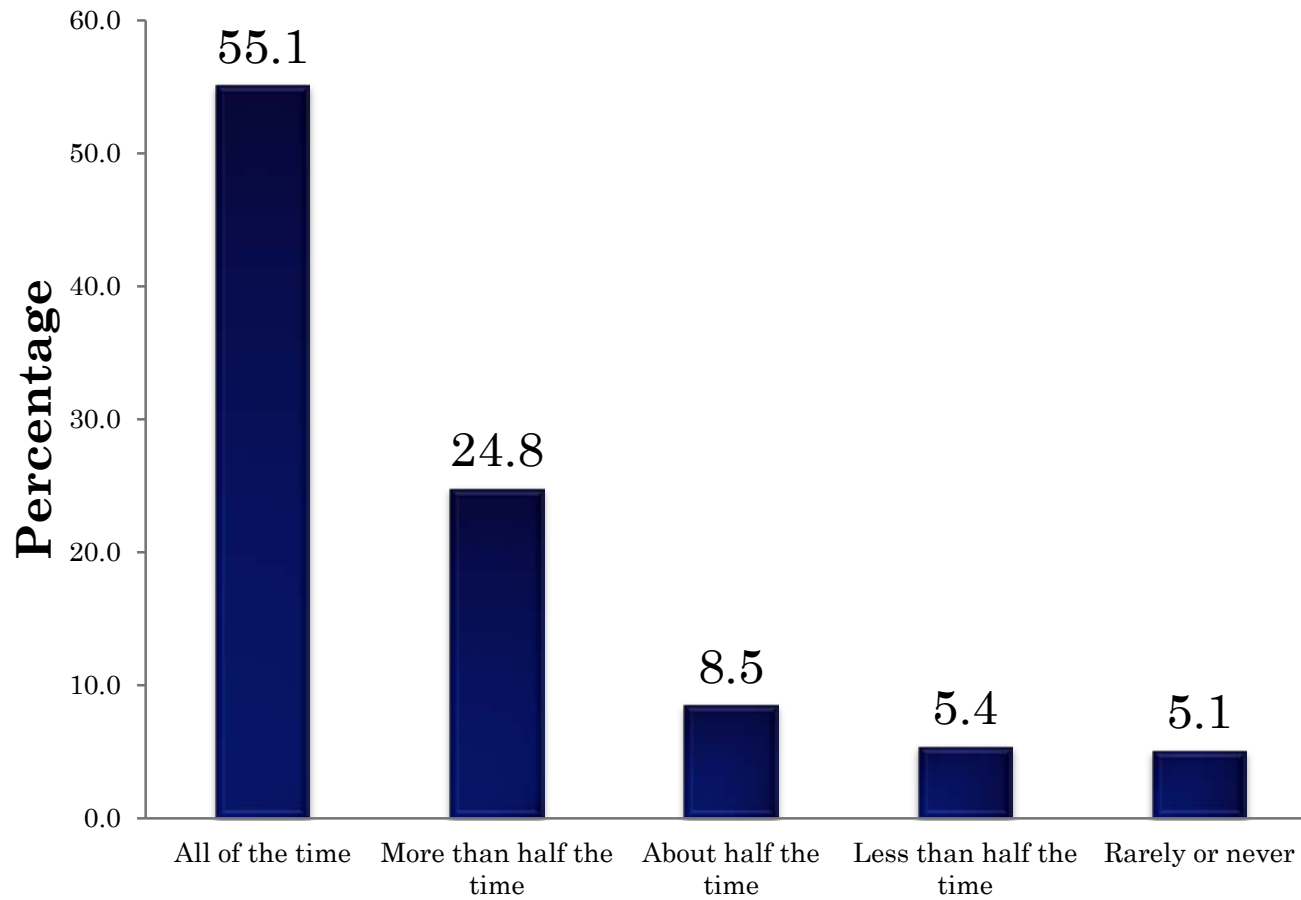
- I might be willing to try eating monkey meat, under some circumstances.
- It would bother me to be in a science class, and to see a human hand preserved in a jar.
- It would not upset me at all to watch a person with a glass eye take the eye out of the socket.



SCORES ON DISGUST SCALE



GAGGING




Do you gag when you try a new food?



A decorative vertical bar on the left side of the slide, consisting of several thin, light gray vertical lines of varying thicknesses. To the right of these lines are five dark blue circles of different sizes, arranged in a vertical, slightly irregular pattern. The largest circle is at the top, and the sizes generally decrease as they go down, though there is a small circle between the second and third from the top.

**CURRENT ASSESSMENTS MAY
NOT CAPTURE THE NATURE OF
DISGUST IN SELECTIVE EATING**

Take Home (4)



**SELECTIVE EATERS HAVE A
DISGUSTED REACTION TO
NON-NOXIOUS TASTES:
*STRONG “GUT FEELINGS” AND
SENSORY AVERSIONS THAT
MAKE EATING CHALLENGING***

Take Home (5)

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NOVEL INTERVENTION STRATEGIES



**A WORD ON VALIDATION AND
POSITIVE REINFORCEMENT...**

A decorative vertical bar on the left side of the slide, consisting of several thin, parallel vertical lines in shades of gray. To the right of these lines are five dark blue circles of varying sizes, arranged in a roughly vertical, descending sequence from top to bottom. The largest circle is at the top, and the sizes decrease as they go down.

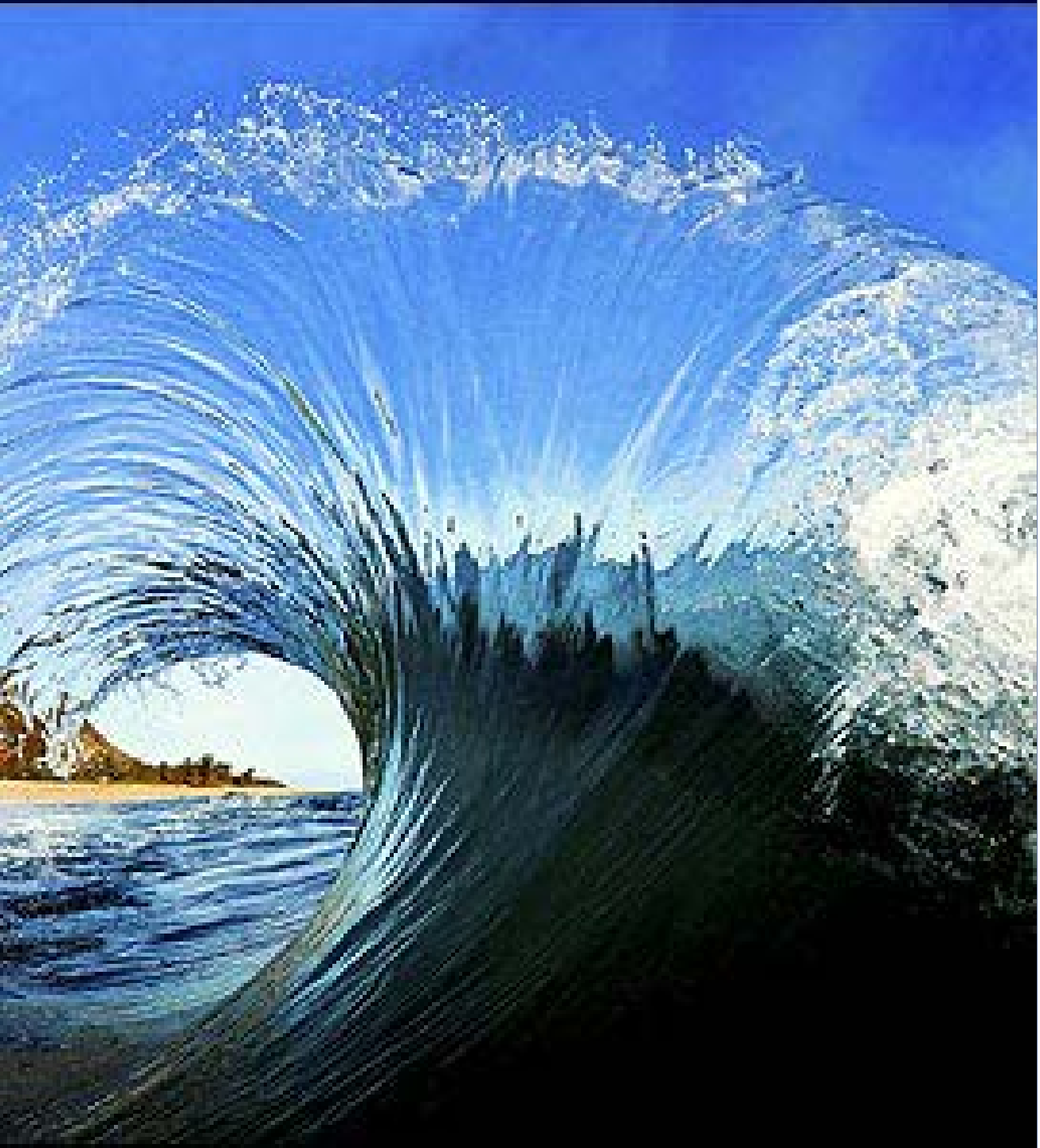
PROCESS ISSUES: EMOTIONAL CONTEXT

The How:



SURF YOUR WAVE





SURF YOUR CHILD'S WAVE





PROCESS ISSUES: MEAL CONTEXT

The How:

FAMILY MEALTIMES

- **The SE is not expected to try new foods at mealtimes**
- **The SE is expected to join the family at dinner and to remain at the table until everyone is finished.**
- **If the SE does initiate trying a new food at a meal time, he earns bonus points.**
- **The SE is served a very small portion of the same foods as the other family members on a separate small plate.**



A decorative vertical bar on the left side of the slide, consisting of several thin, light gray vertical lines of varying thicknesses. To the right of these lines are five solid dark blue circles of different sizes, arranged in a roughly vertical, descending sequence from top to bottom. The largest circle is at the top, followed by a smaller one, then a medium-sized one, a very small one, and finally a small one at the bottom.

DIFFERENCES BETWEEN FEAR AND DISGUST CONDITIONING

EVALUATIVE CONDITIONING

- Acquired likes or dislikes for a given stimulus
- Although learned fear is reduced as a result of extinction procedures, learned dislike is resistant to extinction (evaluative conditioning).
 - That is, a residual dislike of the CS remains, even though it is no longer feared (e.g., Vansteenwegen, Francken, Vervliet, De Clercq, & Eelen, 2006).



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DISGUST CONDITIONING AND RECONTEXTUALIZATION

The What:

Systemizers



EXAMPLES OF SYSTEMS

B. An example of a *natural* system: a plant

INPUT → OPERATION → OUTPUT

Rhododendron Mildly alkaline soil Light blue petals

Rhododendron Strongly alkaline soil Dark blue petals

Rhododendron Acidic soil Pink petals

C. An example of an *abstract* system: mathematics

INPUT → OPERATION → OUTPUT

3 Squared 9

3 Cubed 27

3 Inverse 0.3

D. An example of a *social* system: a constituency boundary

INPUT → OPERATION → OUTPUT

New York Inner city Small number of voters

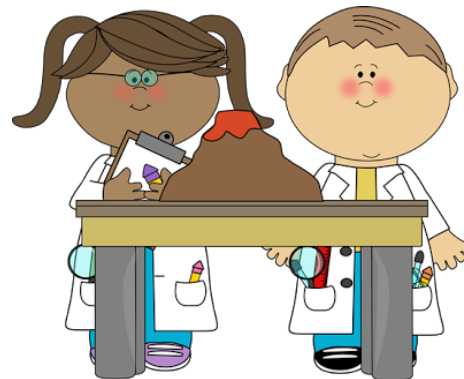
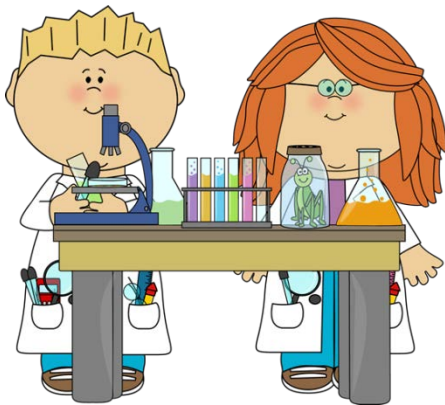
New York Whole city Medium number of voters

New York Whole state Large number of voters

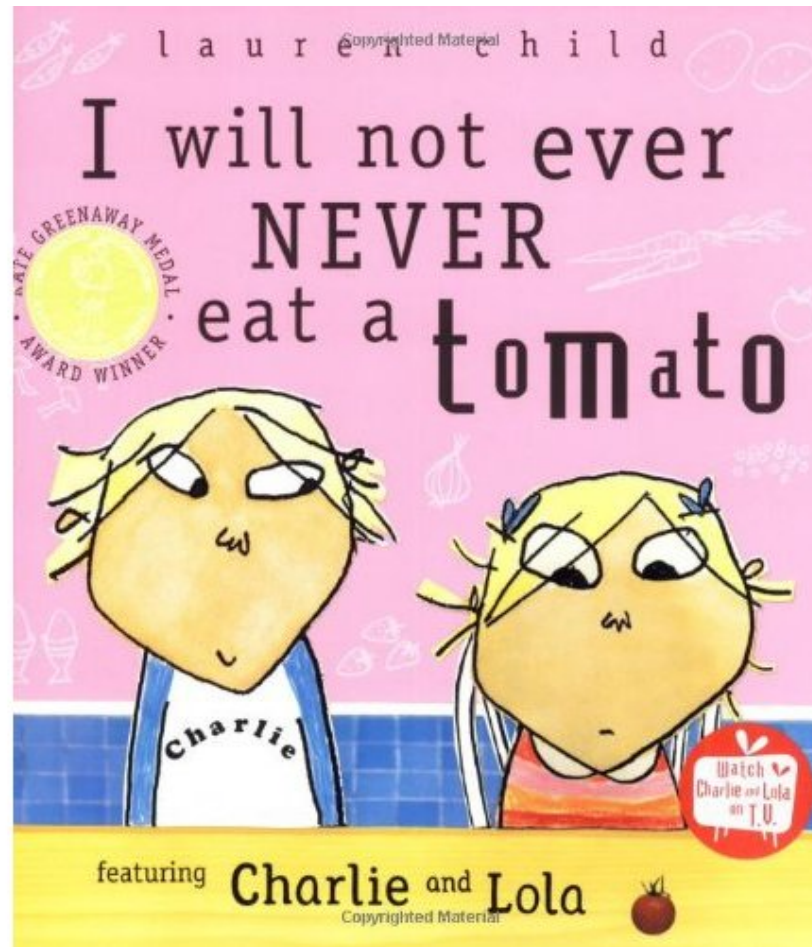


FOOD SCIENTISTS

- Recontextualizing tasting via science and curious investigation
- Objective observer
- Deliberate manipulation
- Irrelevant if the food is liked or not



RECONTEXTUALIZATION



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ONLINE SELECTIVE EATERS-ASSOCIATIVE CONDITIONING?

Legomany 3448 has changed the conversation topic to "Food #1"

Family 🙄 my life

y 3448 🧐 = My Life

Sollew 😊 = my life

y 3448 🧐 + 🍌 = My Life

Family 😞 the other day this was one of my friends 😞 but he is better now 😊

Sollew I want a new 📱 because I dropped mine.

Today is a ☀️ day. I hope it won't ☁️.

Andy and Ian like to 🧑

Family 🐻 + koalas = me

y 3448 /topic Food #2

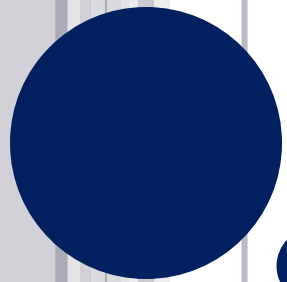
Legomany 3448 has changed the conversation topic to "Food #2"



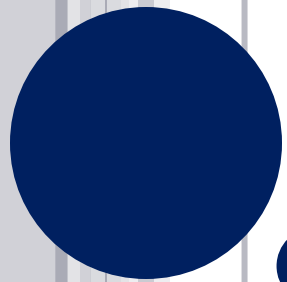
SUMMARY

- Selective eaters are sensitive people
- If we can catch them early and teach them to capitalize on (and not be afraid or disgusted) their sensory super-powers, we will help to develop some wonderful individuals.





THE END OF PART 1



THE PREPARATION

Letting them know what to expect...





ESTABLISH REALISTIC EXPECTATIONS

- Make the steps so small that the child feels able to master them
- Have a “chaser”
- Use a jelly bean as your index of success

Setting up the palette:

- Patients are asked to build their own palettes which means they open up packaging, and break/cut food up to a preferred bite size using bite chart to put on the palette
- Foods that are not used are cleared from the table along with any other unnecessary objects
- Palette is used because of white color, lack of negative associations, wells prevent foods from touching, and portion control





MAKE IT WORTH IT

- Use of short term and long term rewards increases the rewarding value of food – which in this case, is what we want
- Even if just doing it for the prize, we are increasing the number of trials with food (increasing familiarity), improving nutrition status, and increasing opportunities for liking new foods
- Bites equal points, points equal prizes
- Rewards for spontaneous bites
- Differential rewards for repeats versus new trys





TEACH RELAXATION/PLAY EXERCISES

- Lazy Cat or some other kind of progressive muscle relaxation
- Bubble breathing.. Using bubbles to work on breath..Big bubbles for slow belly breathing
- Stations- Active Self-regulation:
 - Station 1: Clap Your Hands 4 Times, Then Stomp Your Feet 4 Times
 - Station 2: Do 5 Jumping Jacks, And Then Make A Silly Face
 - Station 3: Run Around the Room 3 Times, And Then Clap Your Hands 3 Times
 - Station 4: Wiggle Your Fingers, Reach For The Stars, and Then JUMP Up and Down 4 times.





FIGURE OUT OUR FOODS

- Goals are to use current foods to map sensory profile
- Get a sense of daily patterns



Foods I LIKE	Foods I MAYBE would try	Foods I WILL NOT try
French fries	A different brand of French fries	Turkey meat
Pancakes		

*1 bite of a new food = 5
points*

*1 bite of a food that has
already been tried = 3 points*

*A lick of a new food = 1
point*

And so on....

GENERATE LIST OF "MAYBE" AND "NO WAY" FOODS

- **Food Journal: Tracking tool**
- Points: Children earn points for each time they try a food. Points are then traded in for a desirable experience, decision, or object
- **Like, Maybe, No Way**
- Like: Food that is currently being eaten or a food tried in session the child found favorable
- Maybe: Food that a child maybe curious about or food tried in session that child still needs to learn more about
- No Way: Food that a child is worrying about appearing in session or causes a severe visceral response



Color

Food
Group

Texture

Food
Group

SENSORY MAPPING OF CURRENT FOODS

- Goals are to use current foods to map sensory profile
- Get a sense of daily patterns





RAISE HOPE FOR THE POSSIBILITY OF MAYBE FOODS

- Map sensory patterns of current foods onto sensory patterns of MAYBE foods
- Derive a list of foods that is logical to the child because of sensory links



Food Investigation

Today you will be working as a food scientist to break down the characteristics of each new food. You will be reporting on a few key points:

1. What color is the food (or what color is it closest to?)		
2. What is the food's shape?		
3. What does it feel like?		
a. Smooth b. Bumpy c. Sticky d. Wet e. Prickly f.		
4. What temperature is it?		
a. cold b. hot c. room temperature d.		
5. What does the smell remind you of?		
a. flowers b. dirt c. grass d. forest e. chocolate f. vanilla g. strawberry	g. fruit/citrus h. perfume i. garbage j. poo k. pee l. house cleaner m. bubble gum	n. a bakery o. cotton candy p. mint



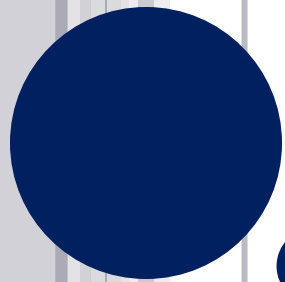
TEACH TO BE A FOOD SCIENTIST

Give the child options to narrow their sensory experience

Allow the child full range to express all that she or he notices

The child is always right as his observations reflect his sensory experience





**PUTTING ALL THE PIECES
TOGETHER**



STEPS IN A FOOD SCIENTIST SESSION

(before) : choose your foods

Relax/Play

Prepare your palette

Remind of the point and prize agreement

Take out the journal

Relax/Play

Sample and record

Avoid the gag

