

PRENATAL NUTRITION:

*Dairy's Building Blocks for
Baby's Brain Development*



Reminders for today's webinar:

- Having tech issues? Visit <https://support.zoom.us/hc/en-us>
- A copy of the slides are available (link in the reminder email)
- The webinar will be posted to USDairy.com within 7 days
- This webinar was approved by CDR for 1 CEU and by AAFP for 1 CME
- Continuing education certificates will be emailed within 24 hours

Helpful Resources

The First 1,000 Days: Nourishing America's Future



1,000 DAYS

The Importance of Iodine in Prenatal Brain Development

Why is Iodine Important?

Iodine is an essential micronutrient needed to make thyroid hormones, which are important for metabolism, as well as proper brain and bone development during pregnancy and infancy.¹¹

Iodine needs increase by more than 50% during pregnancy and many women of childbearing age are iodine deficient before they even become pregnant.^{11,12}

In particular, women who do not regularly consume dairy foods, eggs, seafood or use iodized table salt, may not consume enough iodine to meet increased needs during pregnancy and lactation.¹¹ This is concerning because prenatal iodine deficiency may lead to irreversible neurocognitive defects and lower childhood IQ.¹¹

Milk, cheese and yogurt are important sources of iodine and pregnant women who do not consume dairy foods may be at risk for iodine deficiency. At about 20¢ per 8-ounce serving, milk is an affordable source of iodine and other essential nutrients important for expectant and breastfeeding moms and their babies.

What Foods Provide Iodine?

FOOD	SERVING SIZE	MICROGRAMS PER SERVING	PERCENT DAILY VALUE (DV)*
Cod, baked	3 ounces	158	105%
Low-fat milk (1%)	1 cup	68	59%
Yogurt, Greek, plain, fat-free	6 ounces	87	58%
Iodized table salt	1/2 tsp	76	51%
Fish sticks	3 sticks	58	39%
Cottage cheese (reduced fat)	1/2 cup	39	26%
Pasta, cooked in iodized salt	1 cup	38	25%
Swiss cheese	3 slices**	36	24%
Crab, canned and cooked	3 ounces	32	21%
Egg, hard-boiled	1 egg	26	17%
American cheese	3 slices**	18	12%
Cheddar cheese	3 slices**	15	10%
Shrimp, pre-cooked	3 ounces	13	9%
Salmon, baked	3 ounces	14	9%
Soy beverage	1 cup	15	7%
Almond beverage	1 cup	<1	1%
Non-iodized sea salt	1/2 tsp	<1	1%

How Much Iodine Do You Need?

LIFE STAGE	RECOMMENDED AMOUNT (RDA) (µg)
Pregnant teens and women	220 mcg ¹³
Breastfeeding teens and women	290 mcg ¹³
Birth to 6 months	110 mcg ¹³
Infants 7-12 months	130 mcg ¹³
Children 1-8 years	90 mcg ¹³
Children 9-13 years	120 mcg ¹³
Teens 14-18 years	150 mcg ¹³
Adults	150 mcg ¹³

At about 20¢ per 8-ounce serving, milk is an affordable source of iodine and other important nutrients.¹⁴



NIH National Institutes of Health
Office of Dietary Supplements

Strengthening Knowledge and Understanding of Dietary Supplements

Health Information | News & Events | Programs & Activities | Grants & Funding | About ODS

Health Information

Home > Health Information > Dietary Supplement Fact Sheets > Iodine > Iodine - Health Professional

Iodine

Fact Sheet for Health Professionals

Consumer | Datos en español | Health Professionals | Other Resources

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- Interactions with Medications
- Iodine and Healthful Diets
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- Disclaimer

This is a fact sheet intended for health professionals. For a reader-friendly overview of iodine, see our [consumer fact sheet on iodine](#).

Introduction

Iodine is a trace element that is naturally present in some foods, is added to some types of salt, and is available as a dietary supplement. Iodine is an essential component of the thyroid hormones thyroxine (T4) and triiodothyronine (T3). Thyroid hormones regulate many important biochemical reactions, including protein synthesis and enzymatic activity, and are critical determinants of metabolic activity [1,2]. They are also required for proper skeletal and central nervous system development in fetuses and infants [1].

Thyroid function is primarily regulated by thyroid-stimulating hormone (TSH), also known as thyrotropin. It is secreted by the pituitary gland to control thyroid hormone production and secretion, thereby protecting the body from hypothyroidism and hyperthyroidism [1]. TSH secretion increases thyrotropin uptake of iodine and stimulates the synthesis and release of T3 and T4. In the absence of sufficient iodine, TSH levels remain elevated, leading to goiter, an enlargement of the thyroid gland that reflects the body's attempt to trap more iodine from the circulation and produce thyroid hormones. Iodine may have other physiological functions in the body as well. For example, it appears to play a role in immune response and might have a beneficial effect on mammary dysplasia and fibrocystic breast disease [2].

The earth's soils contain varying amounts of iodine, which in turn affects the iodine content of crops. In some regions of the world, iodine-deficient soils are common, increasing the risk of iodine deficiency among people who consume foods primarily from those areas. Salt iodization programs, which many countries have implemented, have dramatically reduced the prevalence of iodine deficiency worldwide [2,3].

Iodine in food and iodized salt is present in several chemical forms including sodium and potassium salts, inorganic iodine (I₂), iodate, and iodide, and the reduced form of iodine [4]. Iodine rarely occurs as the element, but for this reason, it is referred to as iodide and not iodine. Iodide is quickly and almost completely absorbed in the stomach and duodenum. Iodate is reduced in the gastrointestinal tract and absorbed as iodide [2,5]. When iodide enters the circulation, the thyroid gland concentrates it in appropriate amounts for thyroid hormone synthesis and most of the remaining amount is excreted in the urine [2]. The iodine-replete healthy adult has about 15–20 mg of iodine, 70%–80% of which is contained in the thyroid [6].

Median urinary iodine concentrations of 100–199 mcg/L in children and adults, 150–249 mcg/L in pregnant women and >100 mcg/L in lactating women indicate iodine intakes are adequate [3]. Values lower than 100 mcg/L in children and non-pregnant adults indicate insufficient iodine intake, although iodine deficiency is not classified as severe until urinary iodine levels are lower than 20 mcg/L.

USDA, FDA, and ODS-NIH Database for the Iodine Content of Common Foods

Release 2

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National Institutes of Health

January 2022

U.S. Department of Agriculture
Agricultural Research Service
Beltsville Human Nutrition Research Center
Methods and Application of Food Composition Laboratory (MAFCL)
10300 Baltimore Avenue
Building 005, Room 107, BARC – West
Beltsville, Maryland 20705 Tel. 301-504-0630
MAFCL web site: <http://www.ars.usda.gov/nutrientdata>
FoodData Central database web site: <https://fdc.nal.usda.gov/>

Supported by: National Institutes of Health-Office of Dietary Supplements (NIH-ODS), U.S. Department of Agriculture (USDA), U.S. Food and Drug Administration-Center for Food Safety and Nutrition (FDA-CFSAN)



Questions?

Please enter your questions into the Q&A window.

Continuing education certificates will be sent via email within 24 hours of the webinar.

The full webinar recording will be available next week on USDairy.com.



PRENATAL NUTRITION:

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Baby's Brain Development*



Today's Speakers



Elizabeth Zmuda, DO, FAAP, FACOP
Director of Medical Education
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Elizabeth Pearce, MD, MSc
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Founder, Nutrichicos

Disclosures

Speakers

- Liz Zmuda, DO, FAAP, FACOP
 - NDC Ambassador
- Elizabeth Pearce, MD, MSc
 - Speaker compensation
- Marina Chaparro, MPH, RD, CDE
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National Dairy Council

- Sally Cummins, MS, RD. VP, Nutrition Science & Partnerships
- Megan Maisano, MS, RDN. Director, Nutrition & Regulatory Affairs

Credentialed professionals can submit feedback about the quality of this activity directly to the Commission on Dietetic Registration: QualityCPE@eatright.org



The First 1000 Days

The Foundation for Healthy Brain Development

ELIZABETH ZMUDA, D.O. FAAP FACOP
DIRECTOR OF MEDICAL EDUCATION
OHIOHEALTH DOCTORS HOSPITAL



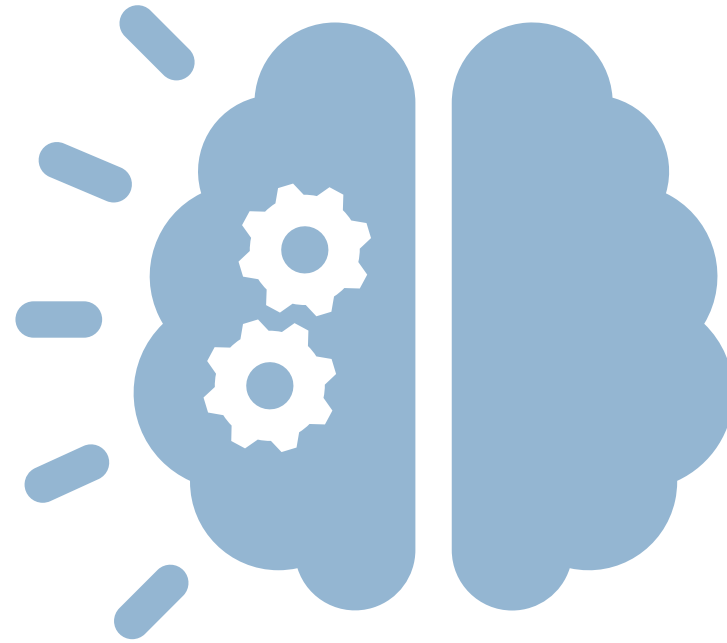
Poll Question

By the 4th week of pregnancy, baby's brain has an estimated 10,000 cells. How many cells does it contain by the 24th week of pregnancy (6 months)?

- a) 500,000
- b) 5 million
- c) 10 million
- d) 10 billion

By 24 weeks of pregnancy, the baby's brain contains ...

10
Billion
Cells



During the first 1,000 days (pregnancy, infancy and toddlerhood), the brain grows **more quickly than at any other time in a person's life**

Agenda

1. The First 1000 Days
2. The Role of Nutrition in Brain Development
3. Guidelines and Recommendations

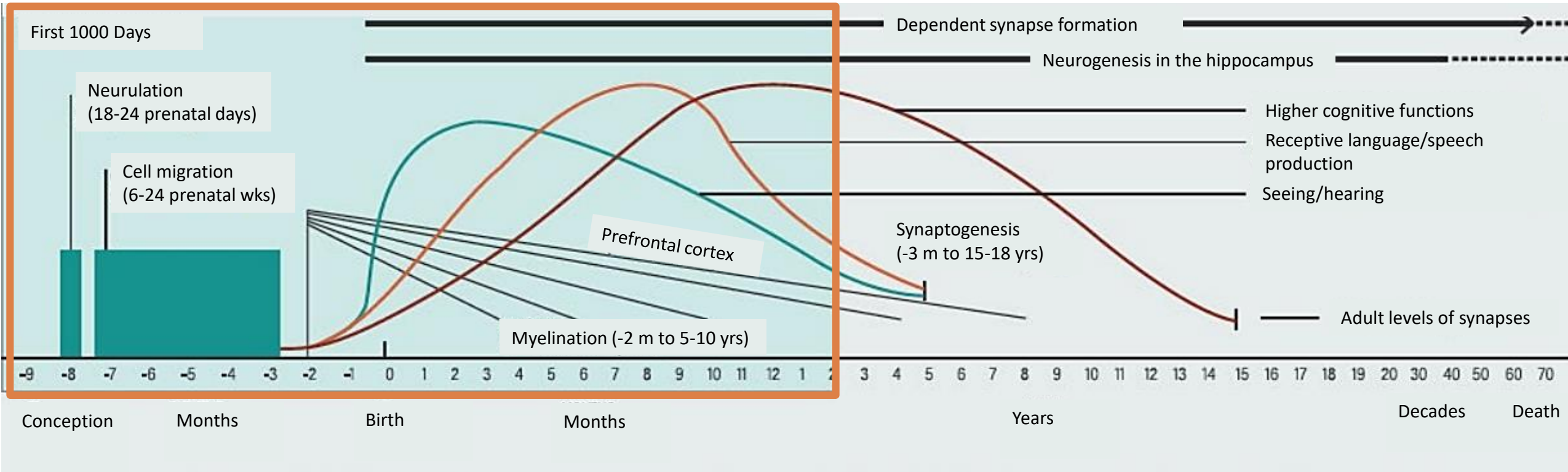
The First 1000 Days



“The 1,000 days between a woman’s pregnancy and her child’s second birthday offer a brief but critical window of opportunity to shape a child’s development.”

1,000 Days®

The 1000 days after conception represent a period of rapid brain growth



Peak growth periods indicate high nutritional demands (and greater potential impact)

Early biological processes have a profound effect on our brain's development

1. Developmental Plasticity

- Capacity to adapt

2. Biological embedding

- Response to the environment

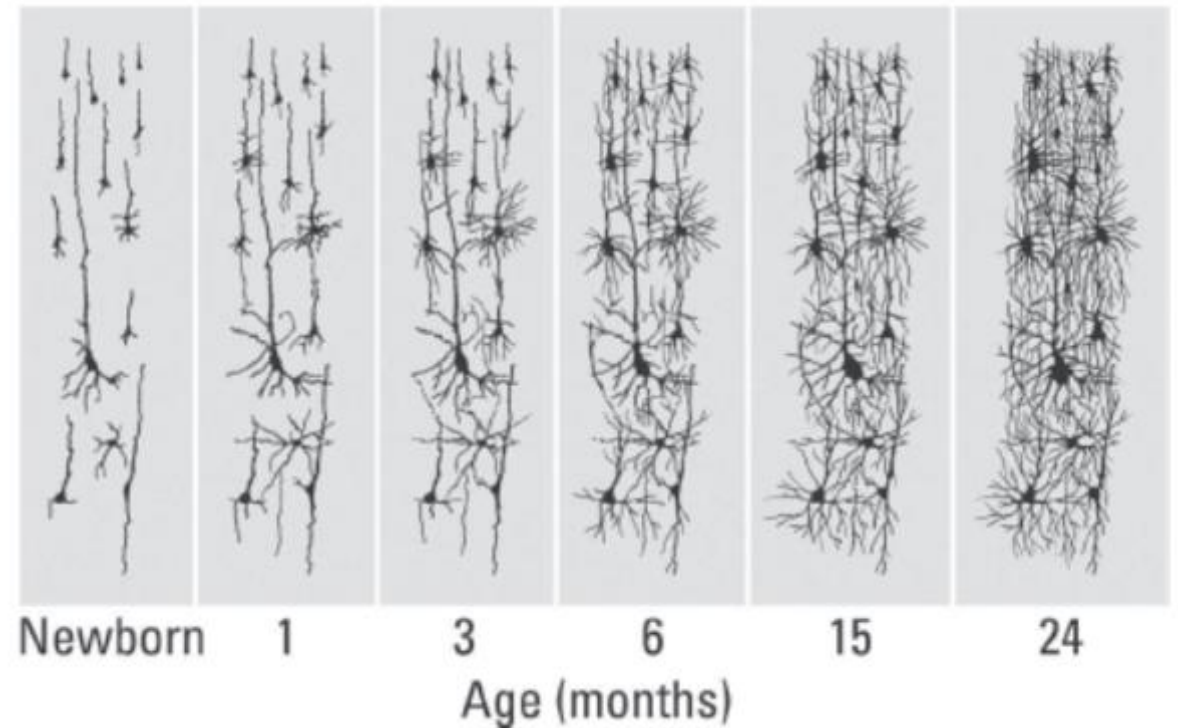
3. Epigenetic Effects

- Interplay of genes and the environment

4. Synaptic Pruning

- Building important connections

Postnatal development of human cerebral cortex



Kolbe & Fantie, 2008

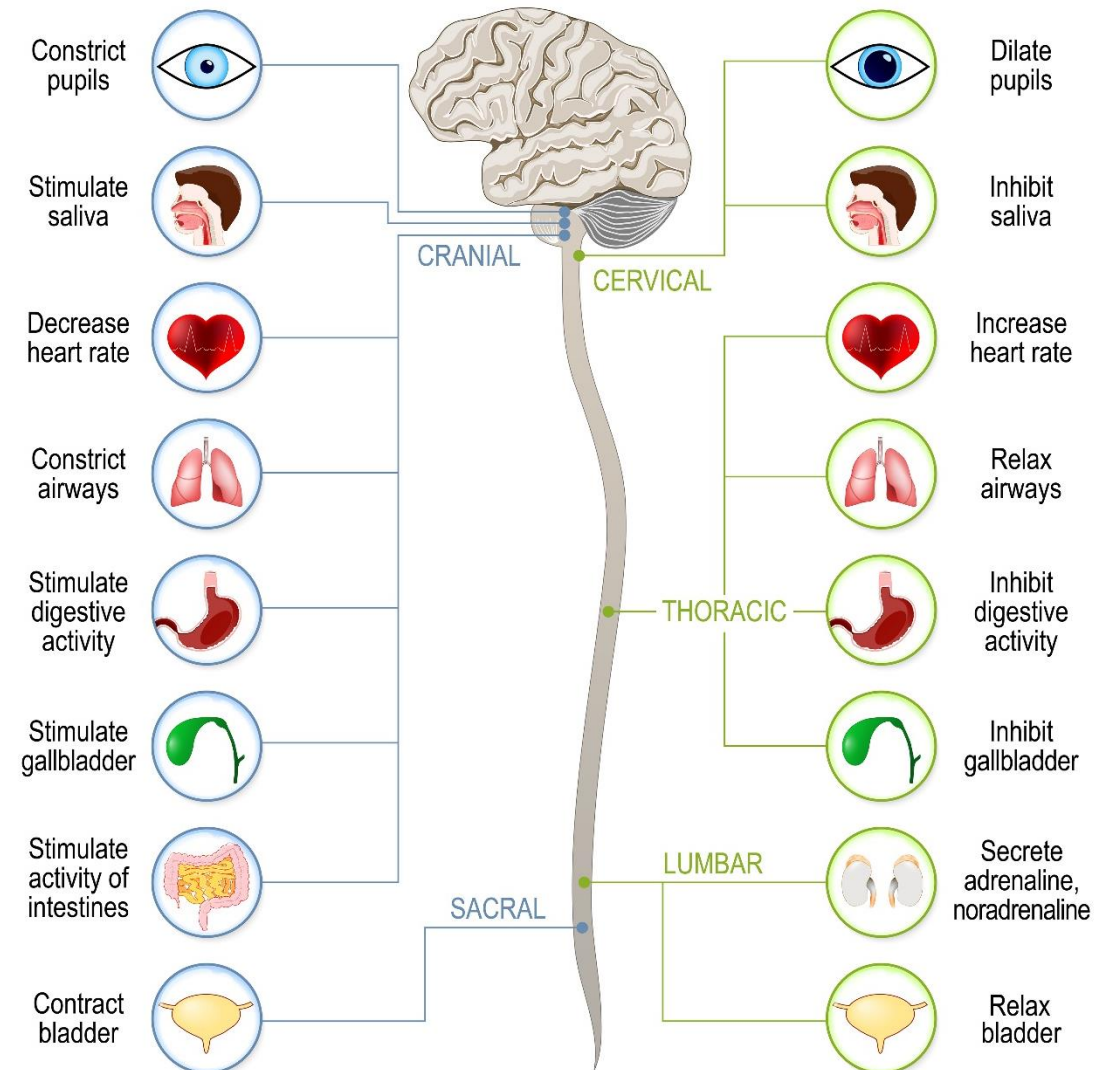
If neurodevelopment is affected, every body system is affected

Mind, Brain, Body Relationship

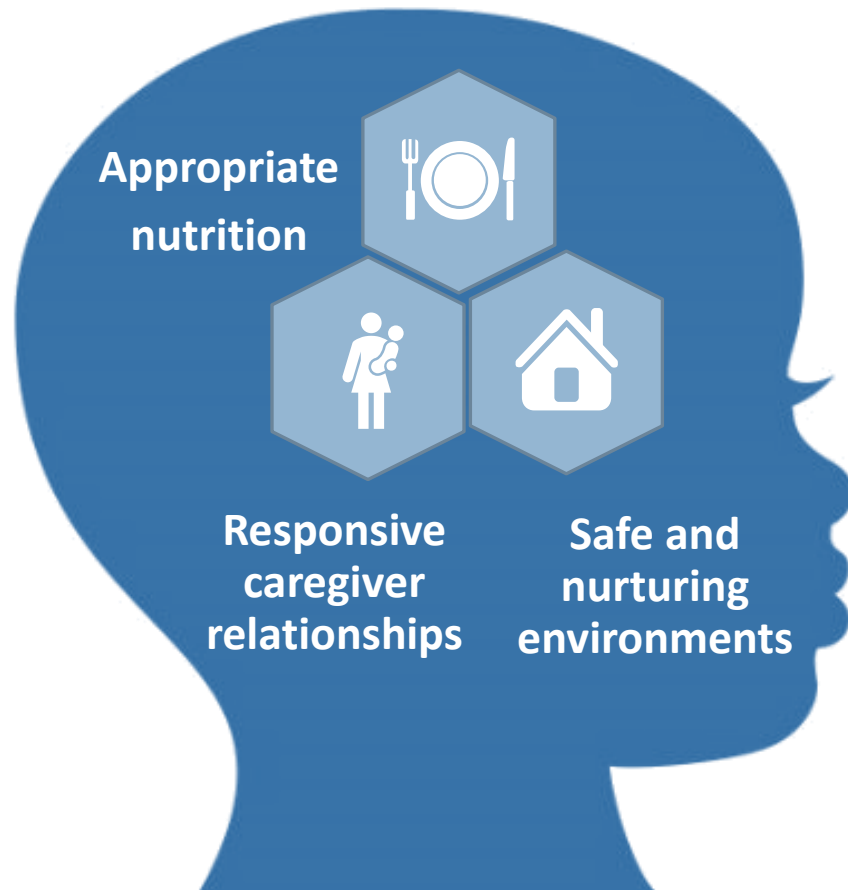
- The brain's purpose is not purely cognitive
- Learning is not purely conscious
- The brain shapes and is shaped by our internal/external environments
- The brain is connected to other major body systems

PARASYMPATHETIC
nervous system

SYMPATHETIC
nervous system



3 fundamental components to neurodevelopment and lifelong wellbeing



When one or more of these components is absent, there can be negative effects on a child's physical, social, emotional and cognitive development.

The Role of Nutrition in Brain Development



Nutrition has a unique role in each phase of the first 1000 days

1000 days

Pregnancy



- Neuron creation, synapses formation, and myelination
- Nutrients fuel baby's metabolism, immune function, organ development
- Maternal diet + weight gain + health and lifestyle habits are 3 significant factors that shape a child's future health

Infancy



- Motor skills and memory development
- Breastmilk supplies a unique variety of nutrients, growth factors and hormones - associated with higher cognitive performance in children (across income levels)
- Learning to eat, responsive feeding helps develop palate

Toddlerhood



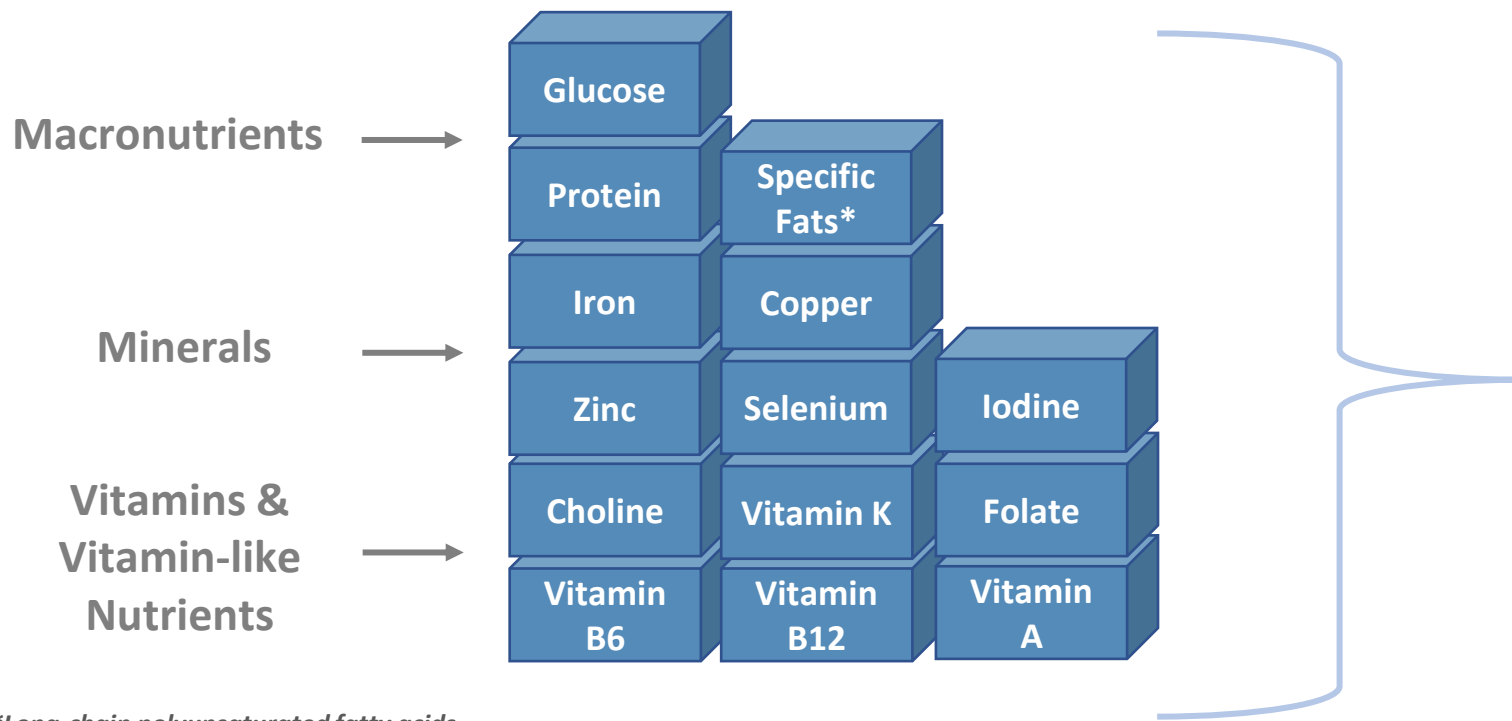
- Language development and rapid synapse formation – highly responsive to environments and susceptible to stress
- Feeding experience, exposure and variety develops lifelong eating habits
- Nutrients fuel growth and appropriate weight gain

Therefore, timing of nutrient deficiencies can have long-term impacts

Nutrient	Age	Critical period	Potential Impact
Protein	Fetus	3 rd trimester	IQ at age 7
	Child	6m-10y	Cognition
LC-PUFAs	Fetus/Infant	3 rd trimester-2m	Development at 18m, neural processing
Iron	Fetus	3 rd trimester	Recognition, memory
	Infant and toddler	6m-24m	Motor skills, depression
Zinc	Fetus	Pregnancy	Novelty preference
Iodine	Fetus	1 st trimester	Mental deficit
	Fetus	3 rd trimester	Verbal IQ, reaction time

All nutrients play a role in early brain development, but some are more important

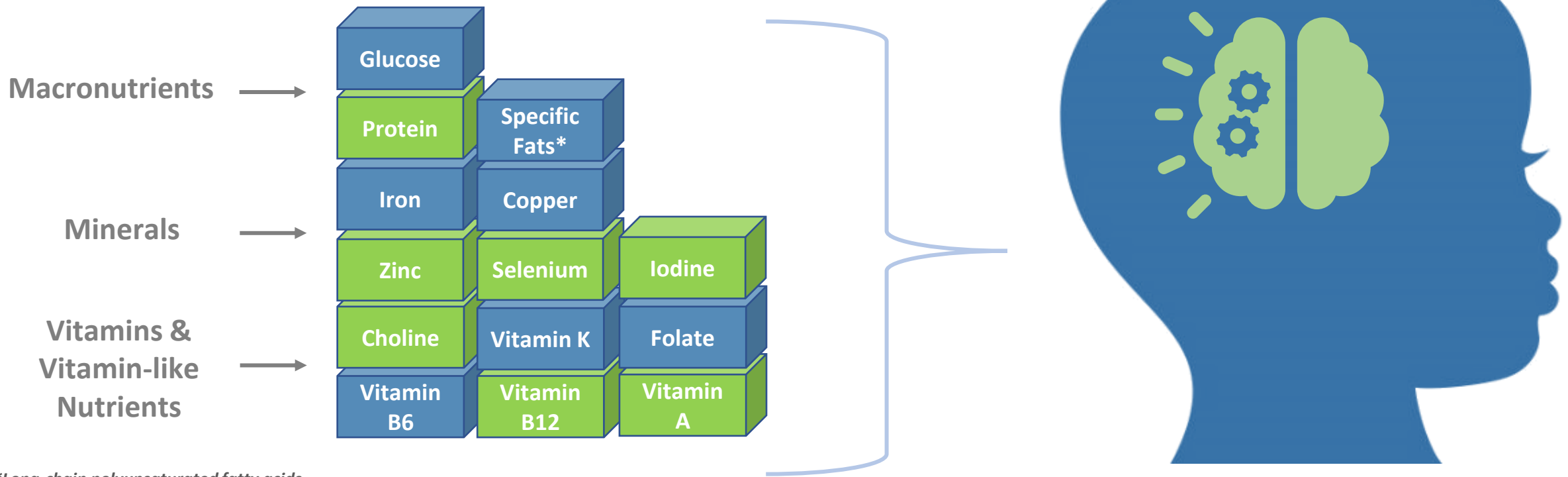
14 Building Blocks for Early Brain Development



*Long-chain polyunsaturated fatty acids

Dairy foods offer 7 of the 14 nutrients important for early cognitive development

Dairy's Building Blocks for Early Brain Development



*Long-chain polyunsaturated fatty acids

1. Schwarzenberg SJ, Georgieff MK, AAP COMMITTEE ON NUTRITION. *Pediatrics*. 2018;141(2):e20173716
2. Georgieff MK, Brunette KE, Tran PV. *Dev Psychopathol*. 2015;27(2):411-423.
3. USDA, ARS. FoodData Central, 2019. fdc.nal.usda.gov

Screening for food insecurity is essential during these critical periods of increased nutrition demand



Food insecurity not only affects the **nutrition status** of mom and baby, but also creates a **stressful and uncertain environment**

- Food insecure infants and toddlers are 2/3 more likely to be at risk for developmental delays¹
- Early macronutrient undernutrition is linked to lower IQ scores, worsened school success, and behavioral dysregulation²
- Burden falls hardest on low-income families and people of color³
- Further contributes to health and economic disparities

1. ThousandDays.org. [The First 1,000 Days: Nourishing America's Future](#).

2. Schwarzenberg SJ, Georgieff MK, AAP COMMITTEE ON NUTRITION. Advocacy for Improving Nutrition in the First 1000 Days To Support Childhood Development and Adult Health. *Pediatrics*. 2018;141(2):e20173716

3. USDA ERS. [Household Food Security in the United States in 2020](#). Sep 2021

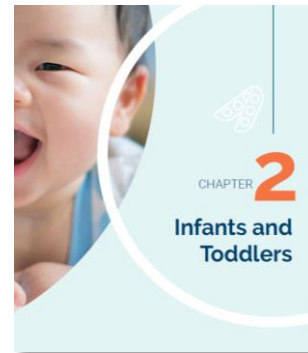
Guidelines and Recommendations



The Dietary Guidelines for Americans takes a life-stage approach



Recognizes unique nutritional needs during prenatal and early life periods



Infants & Toddlers



Pregnant & Lactating Women



The guidelines specify special considerations during the prenatal period



Healthy weight gain

- Natural part of pregnancy
- Complex, looks different for everyone
- Can improve pregnancy outcomes and impact child health



Specific Nutrients

- Nutrients of public health concern still apply (Ca, vit D, potassium, fiber)
- Folate – before conception and 1st trimester to prevent neural tube defects
- Iron – fetal development and iron deficiency anemia prevention
- Iodine – cognitive development
- Choline – brain and spinal cord development



Diet Considerations

- Seafood – 8-12 oz per week, supports cognitive development (DHA, EPA, iodine)
- Alcoholic beverages – abstaining is safest option
- Caffeine – low to moderate amounts (<300 mg/d)
- Dairy & eggs – provide iodine and choline for cognitive development

**Every child deserves a fair start to
reach their full potential.**



The Importance of Maternal Iodine for Baby's Brain Development

ELIZABETH N. PEARCE, M.D., M.SC.





Poll Question

When working with women of childbearing age, do you typically think about iodine?

Many healthcare providers are unaware of iodine's role in prenatal health

3 in 4

U.S. obstetricians and midwives don't recommend or recommend inadequate amounts of iodine during preconception, pregnancy, and lactation¹

Food Components of Public Health Concern for Pregnant Women²

- ✓ Fiber
- ✓ Vitamin D
- ✓ Calcium
- ✓ Potassium
- ✓ Iron
- ✓ Folic acid
- ✓ **Iodine**



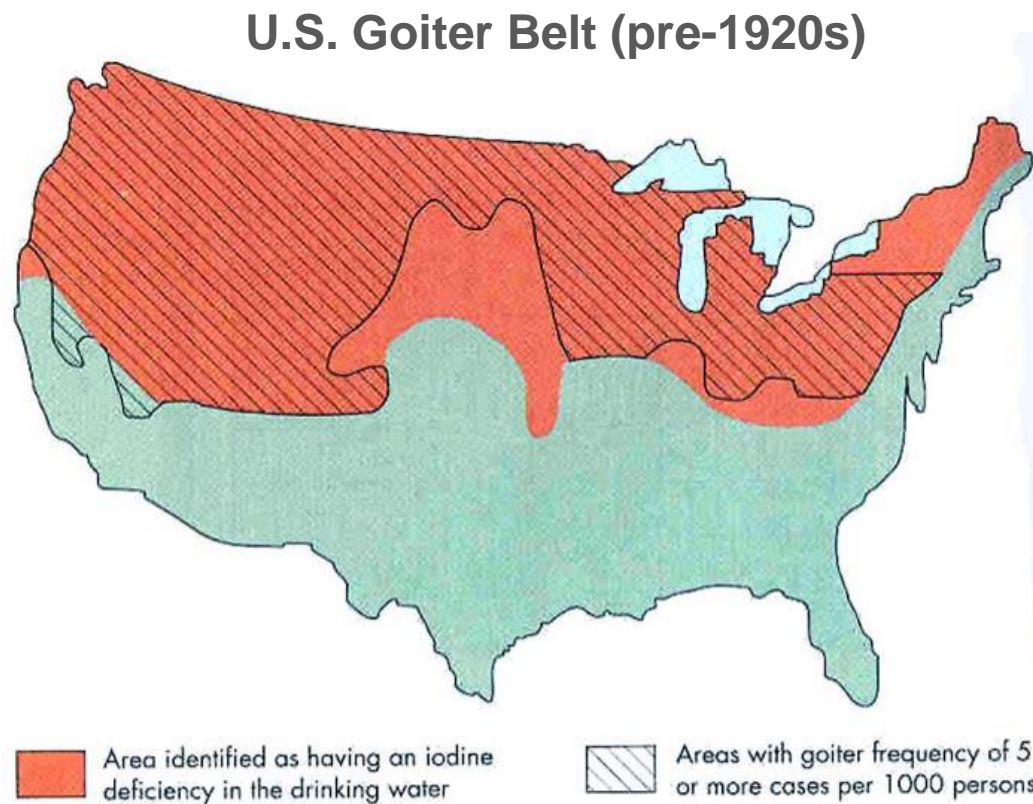
1. Iodine Supplementation in Women During Preconception, Pregnancy, and Lactation: Current Clinical Practice by U.S. Obstetricians and Midwives. *Thyroid* 2017, 27:434-439.

2. Dietary Guidelines Advisory Committee. 2020. *Scientific Report of the 2020 Dietary Guidelines Advisory Committee*. USDA ARS, Washington, DC.



A Brief History of U.S. Iodine

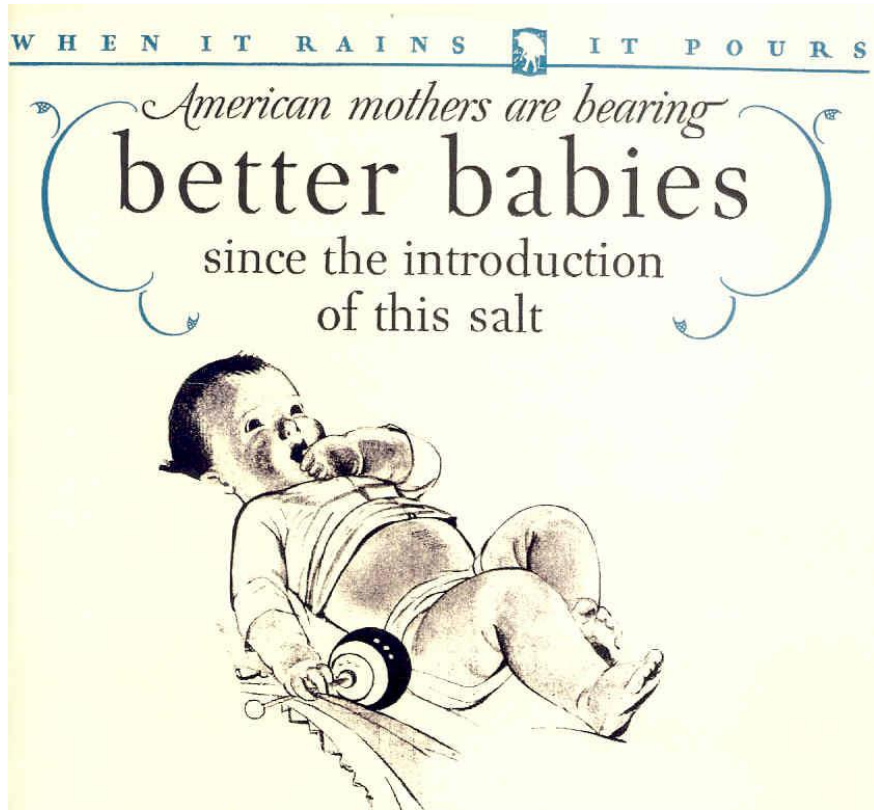
Prior to the 1920s, endemic iodine deficiency was prevalent in the 'Goiter Belt'



26-70%

Children had goiter
in this region

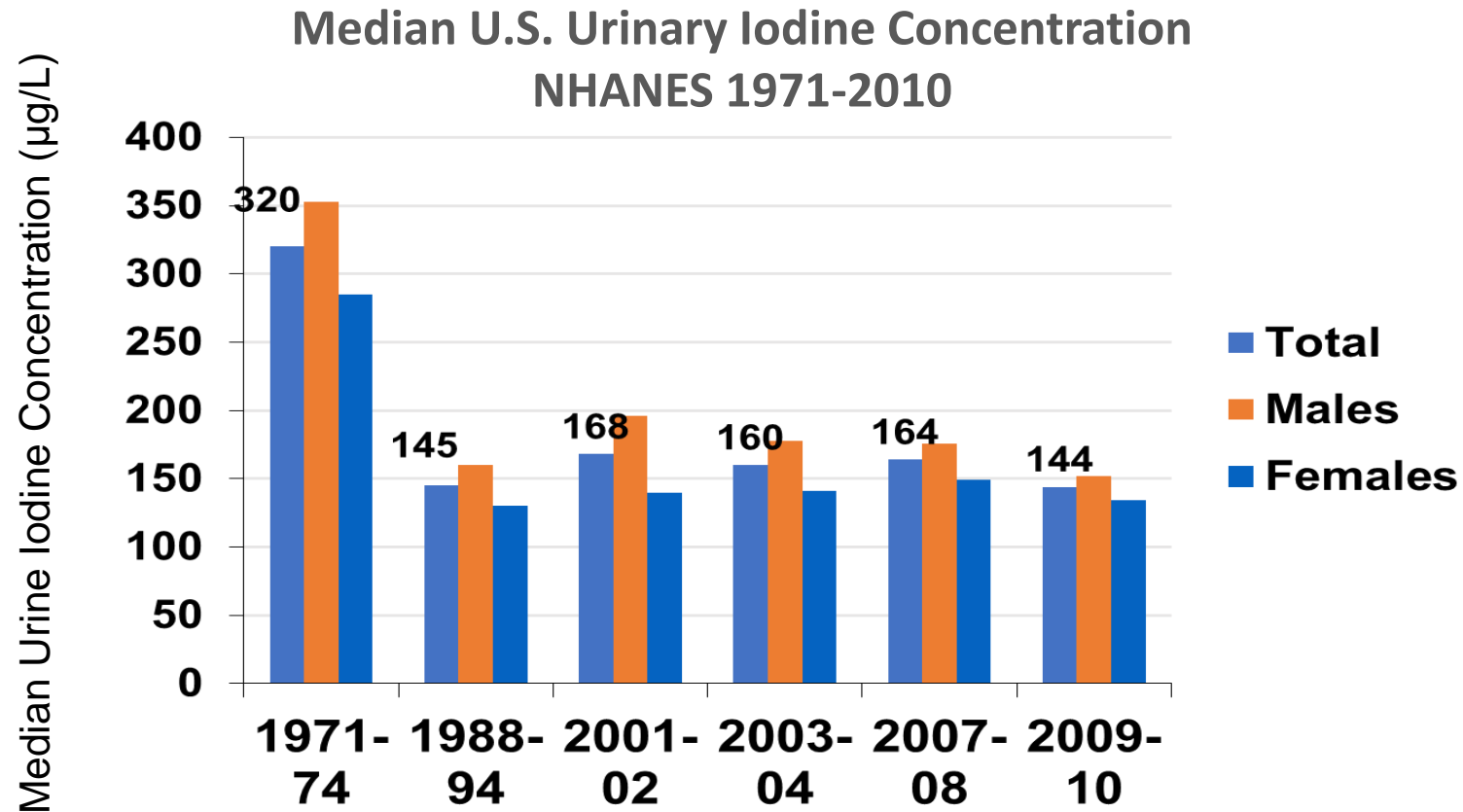
U.S. salt iodization directly improved iodine status and subsequently raised IQ



Morton Salt, 1920s

For the quarter of the U.S. population in iodine deficient regions, salt iodization raised IQ by ~15 points (averaging a 3.5-point increase nationwide)

U.S. iodine status has declined since the 1970s



Changes in food processing and dietary patterns may have reduced iodine intake

Bread iodization



Most breads are no longer iodized

Dairy intake

2%

U.S. population meets dairy recommendations

Alternative salts



Increase is non-iodized salts like sea salt, kosher salt, Himalayan pink salt, etc.

Seafood intake

12%

U.S. adults meet seafood recommendations

Agenda

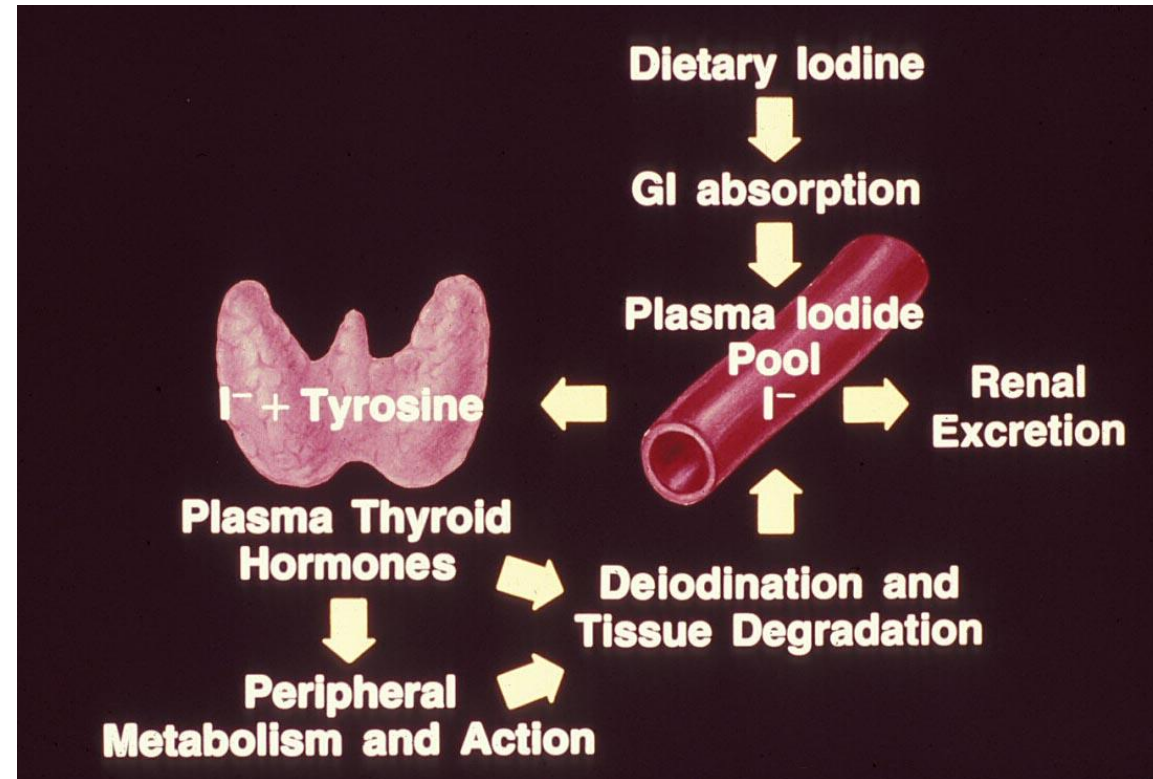
- 1. Role of Iodine**
2. Recommended Intakes and Assessment
3. Iodine Status among Pregnant Women
4. Implications
5. Addressing Iodine Concerns

Iodine is essential for thyroid health

The only known use of iodine is for thyroid hormone synthesis

Thyroid hormones

- ✓ Regulate metabolism
- ✓ Vital for brain development in pregnancy and infancy



Leung & Pearce, 2018

Iodine demands increase during pregnancy



- Increased demand for thyroid hormone
- ↑ 50% = additional 50-100 µg iodine
 - Thyrotropic regulation by hCG
 - Estrogen-mediated TBG increase



Iodide transferred to the fetus



Increased renal iodine clearance (↑ 30-50%)



Increased dietary iodine requirements during pregnancy

Increased iodine demands continue through lactation

- Normal lactating breast ducts concentrate iodine via sodium iodide symporter
- Iodine concentrations are 20-50x higher in breast milk than in plasma
- The only source of iodine nutrition for breastfed infants



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Iodine recommendations increase ~50% during pregnancy and lactation

Recommended Daily Dietary Iodine Intakes

U.S. Institute of Medicine	
	<u>µg/day</u>
0-6 months (AI)	110
7-12 months (AI)	130
1-8 years	90
9-13 years	120
>13 years	150
Pregnancy	220
Lactation	290

Population iodine status is assessed by median UIC

Population Urinary Iodine Values and Iodine Nutrition

Median Urinary Iodine Concentration ($\mu\text{g/L}$)	Corresponding Iodine Intake ($\mu\text{g/day}$)	Iodine Nutrition
<20	<30	Severe deficiency
20-49	30-74	Moderate deficiency
50-99	75-149	Mild deficiency
100-199	150-299	Optimal
>299	>449	Possible excess

For children < 2, UIC ≥ 100 $\mu\text{g/L}$ is sufficient

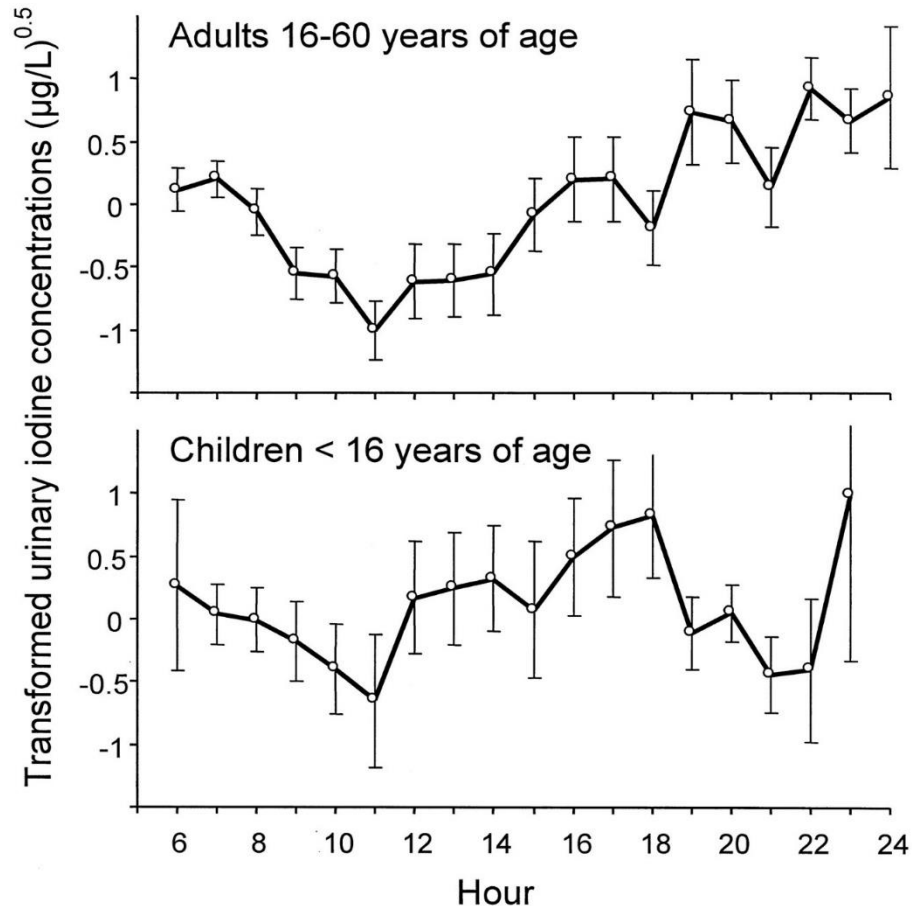
UIC assessment adjusts for pregnancy and lactation

Urinary Iodine Values and Iodine Nutrition

Population group	Median Urinary Iodine Concentration ($\mu\text{g/L}$)	
	Optimal	Excessive
Non-pregnant adults and school-aged children	100-199	>299
Pregnant Women	150-249	≥ 500
Lactating Women	≥ 100	

UIC can be used for population, but not individual assessment

Daily Urinary Iodine Concentration



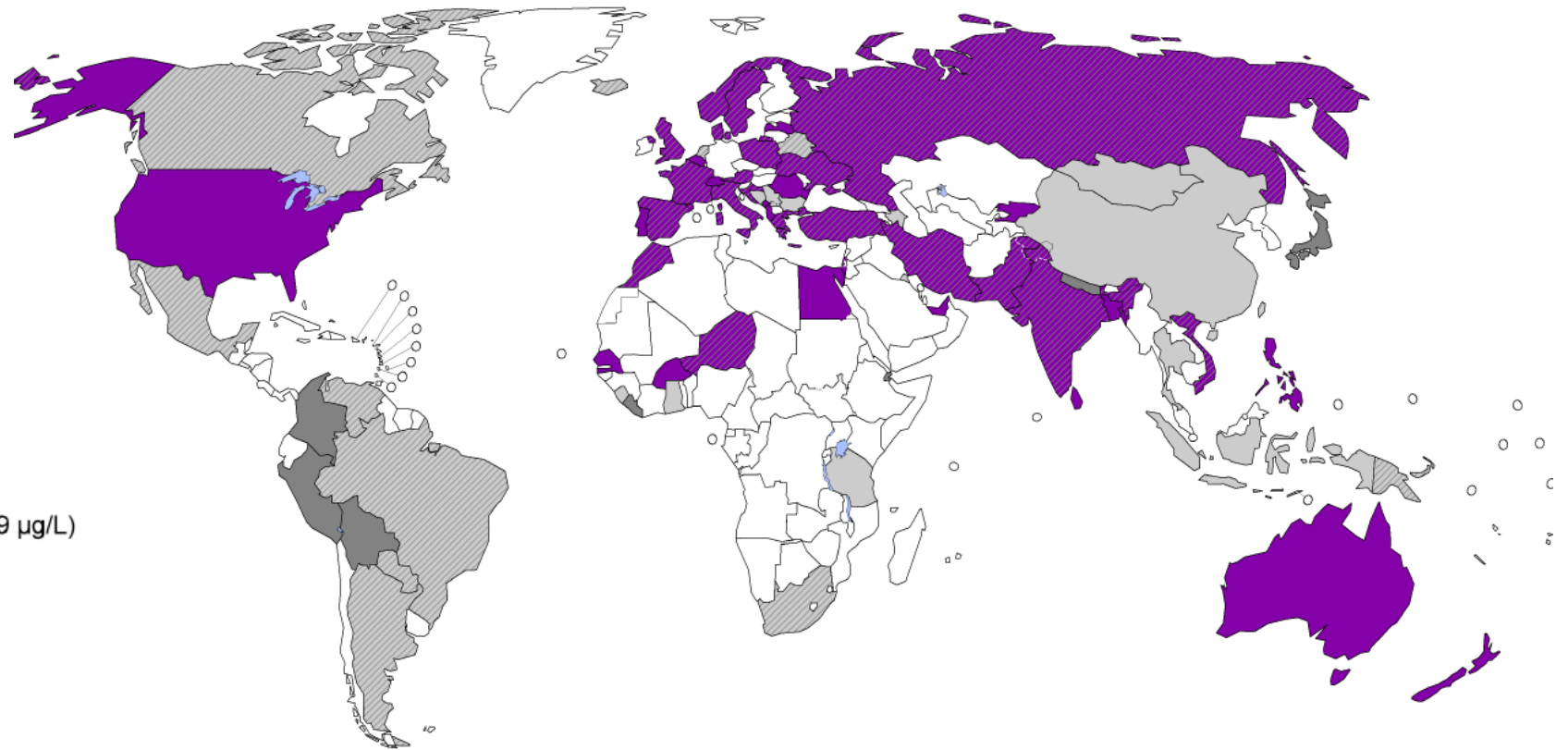
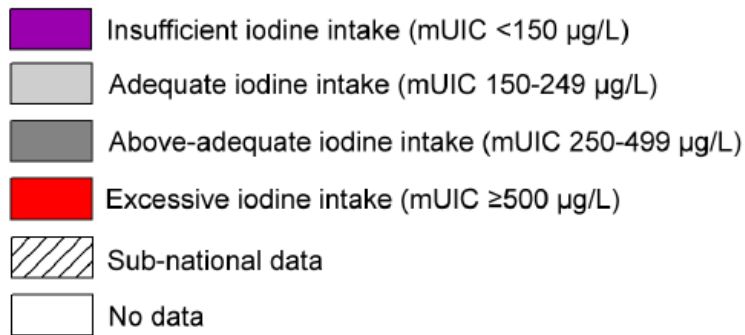
- UIC varies with recent (hours) iodine intake
- 10-12 spot or 24-hour urine samples needed to identify chronic individual intakes with 20% precision

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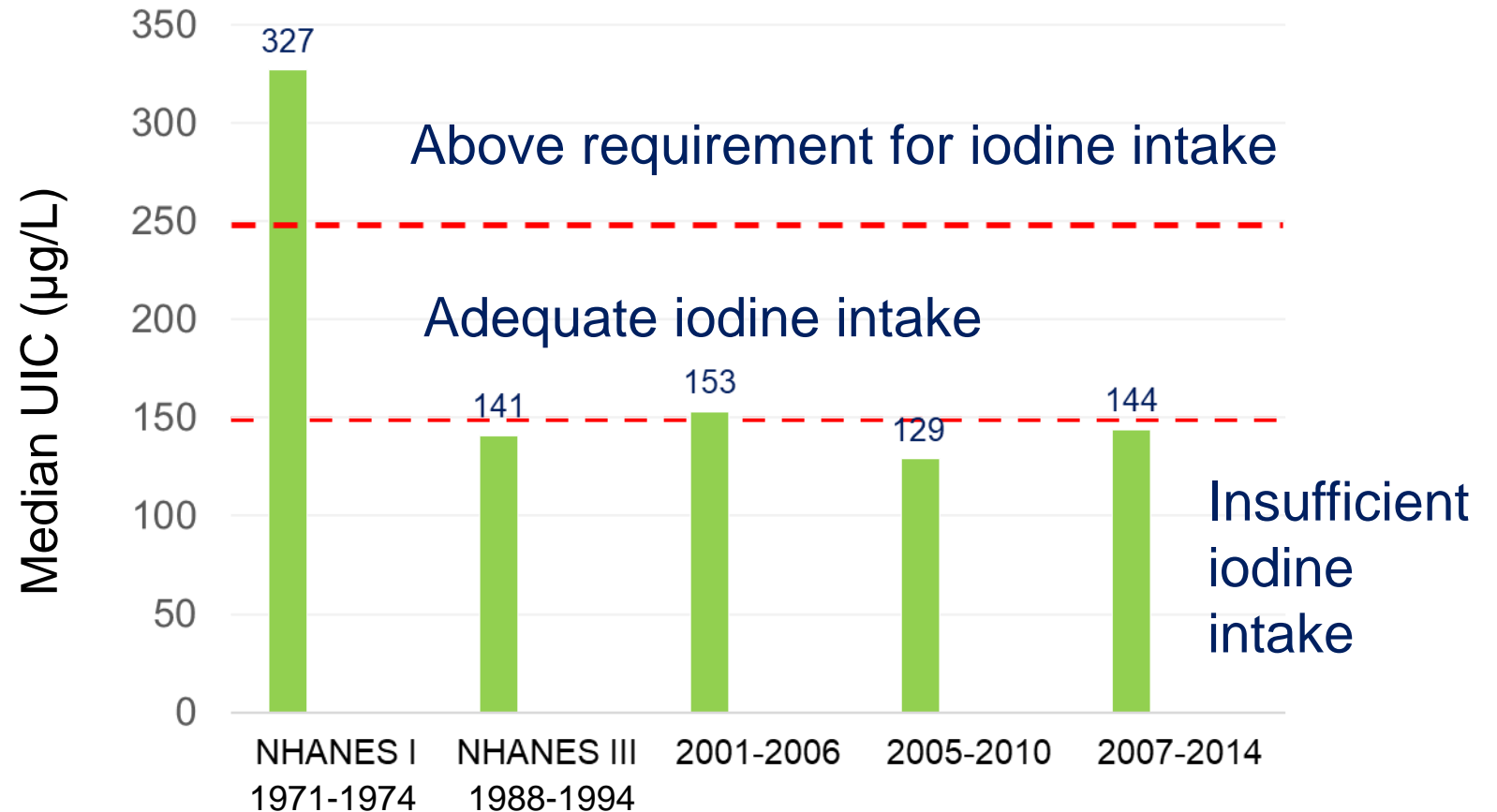
Iodine deficiency is affecting pregnant women worldwide

Iodine Status of Pregnant Women 2017



Pregnant Americans are falling short of recommended levels

Median UIC in US Pregnant Women

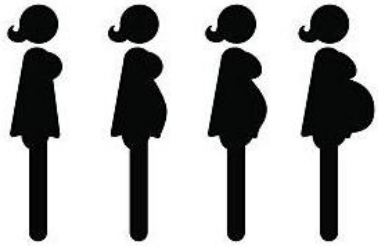


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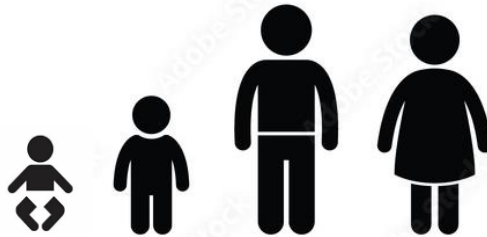
Iodine deficiency is the most **preventable cause of intellectual disability** in the world.

There's a broad spectrum of Iodine Deficiency Disorders



FETUS

- Miscarriage
- Stillbirth
- Prenatal mortality
- Infant mortality
- Cretinism



CHILD AND ADOLESCENT

- Impaired mental and physical development

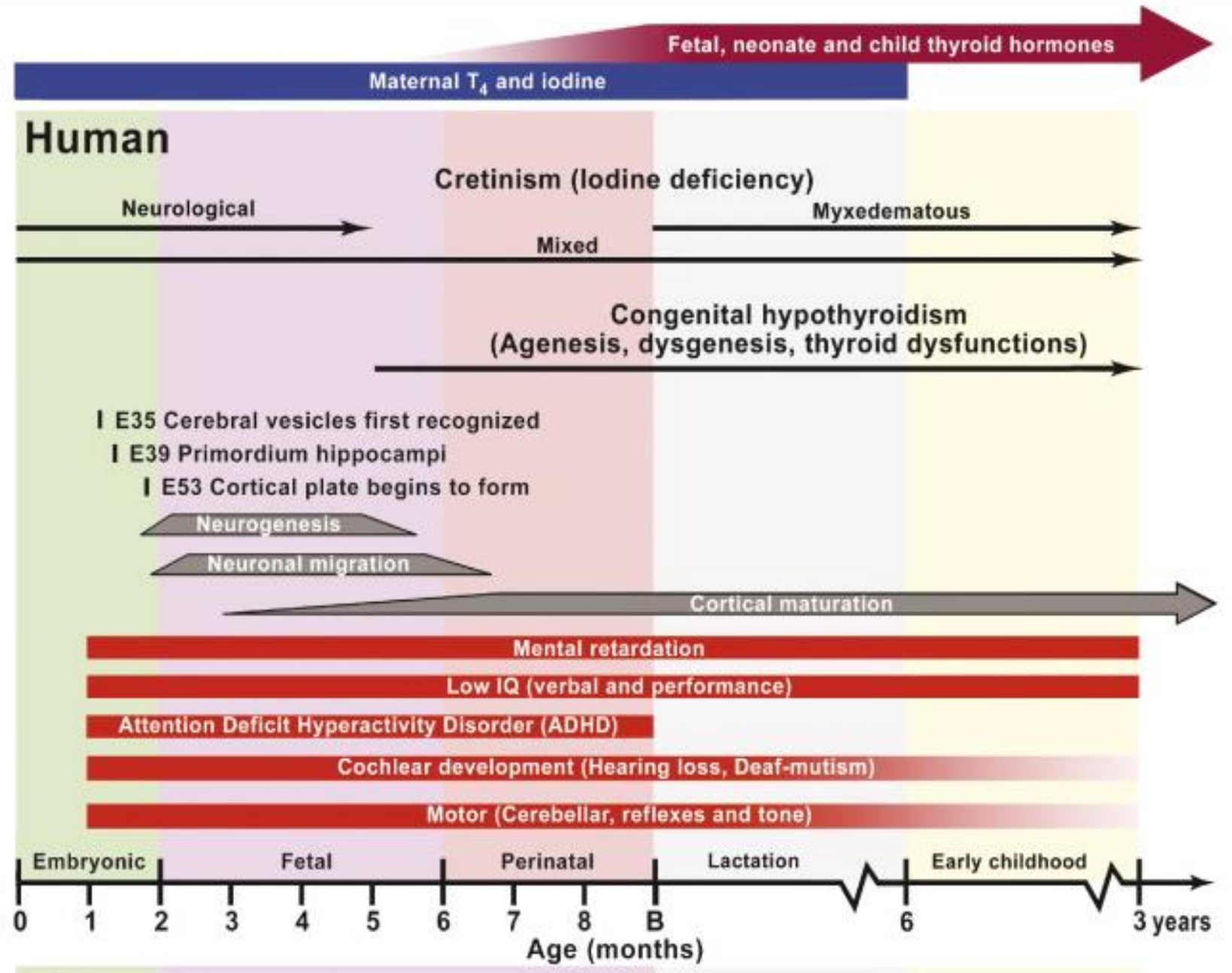


ALL AGES

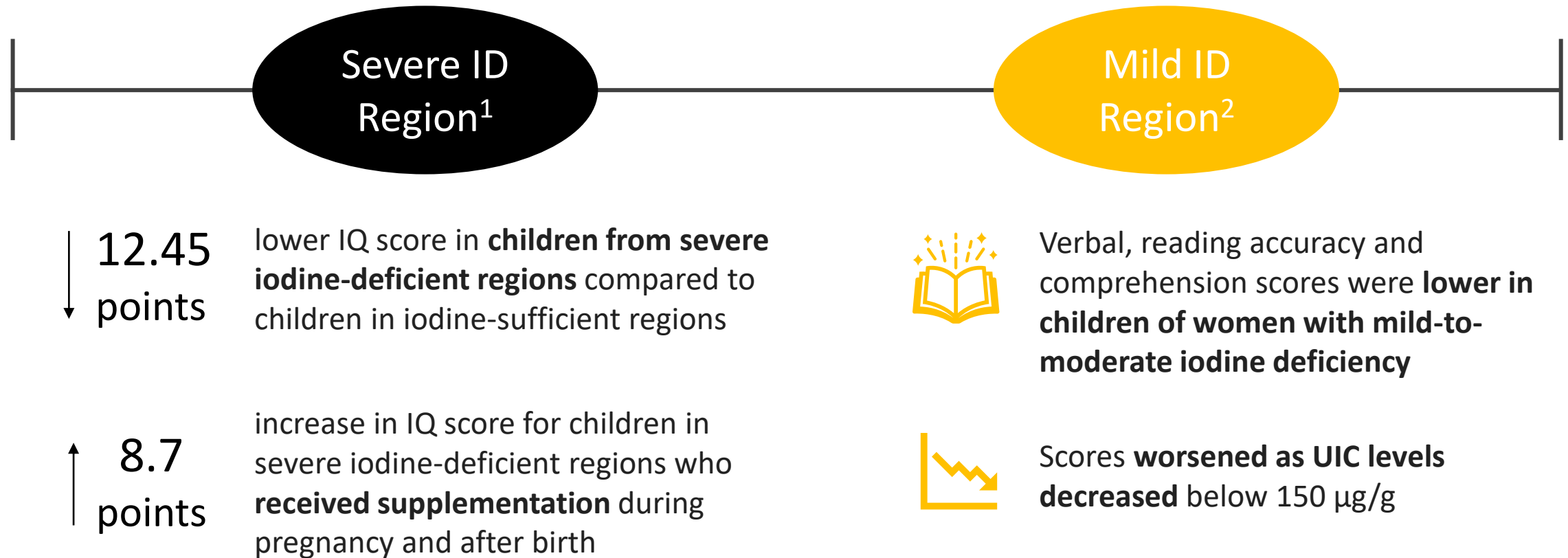
- Hypothyroidism
- Goiter
- Impaired mental function

Iodine status affects cognitive development as early the 1st trimester

... and continues through early childhood.



Effects on cognition aren't limited to severe iodine deficiency

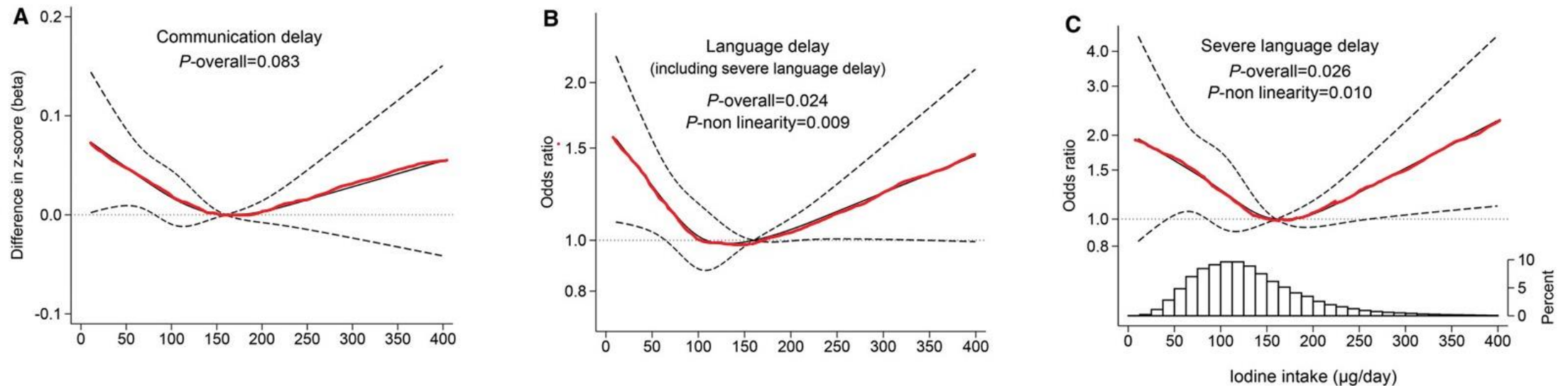


1. Qian M, et al. *Asia Pac J Clin Nutr* 2005;14:32-42

2. Bath SC, et al. *Lancet* 2013;382(9889):331-7

More doesn't always mean better when it comes to iodine intake

Maternal Pregnancy Food Iodine Intake & Child Communication/Language



**<160 $\mu\text{g}/\text{d}$
iodine intake**

associated with lower language and communication scores at age 3

**U-shaped
curve**

shows comparable undesirable effects of excess iodine intake

Agenda

1. Role of Iodine
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3. Iodine Status among Pregnant Women
4. Implications
5. **Addressing Iodine Concerns**

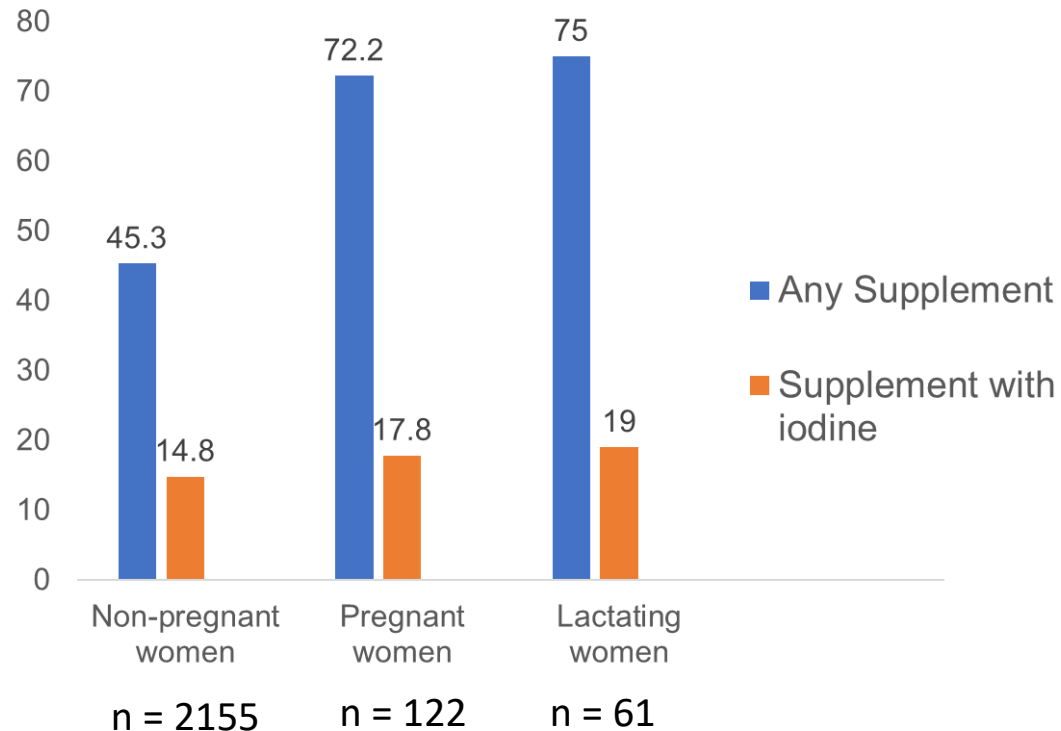
U.S. and European guidelines recommend supplemental iodine for this population

Women who are planning to be pregnant or are pregnant or breastfeeding should supplement their diet with a daily oral supplement that contains **150 µg of iodine.**

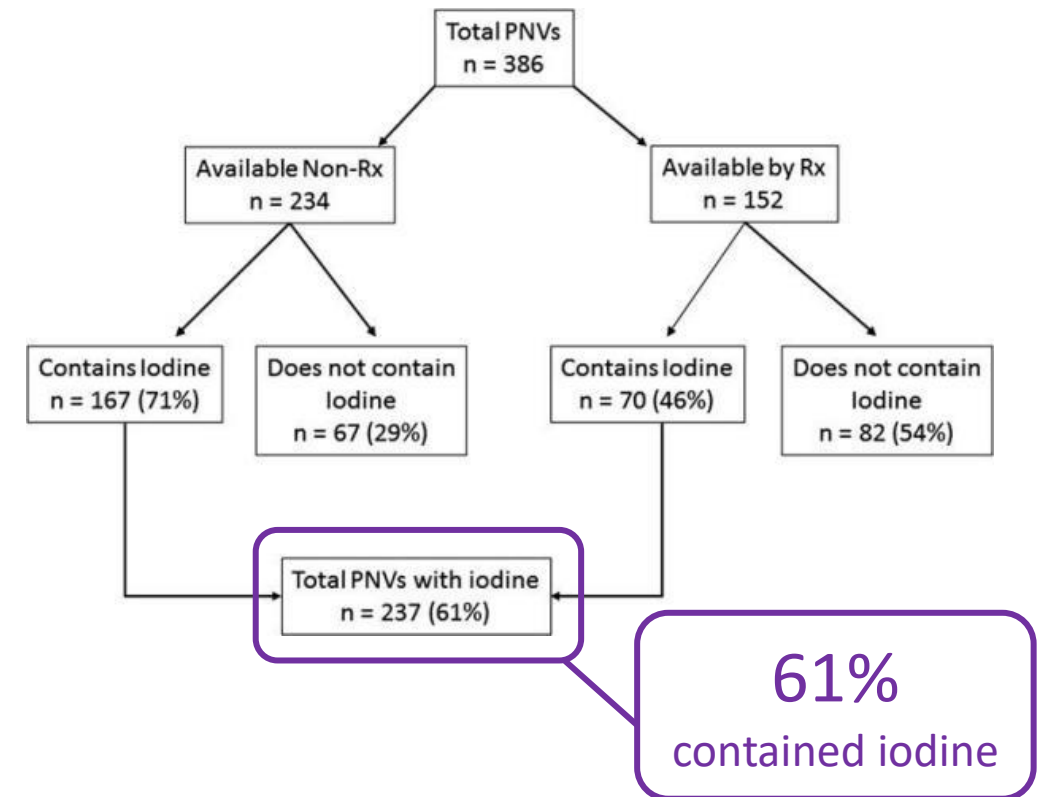


However, supplement recommendations can only go so far

Reproductive-Age U.S. Women Reporting Supplement Use Within 30 Days (NHANES 2011-2014)¹



Portion of US Prenatal Vitamins Containing Iodine²



1. Gupta PM, et al. *Nutrients* 2018;10(7)

2. Lee SY et al. *Thyroid* 2017;27(8):1101-2

Prenatal dietary patterns affect iodine status

Salt intake is not indicative of iodine status^{1,2}

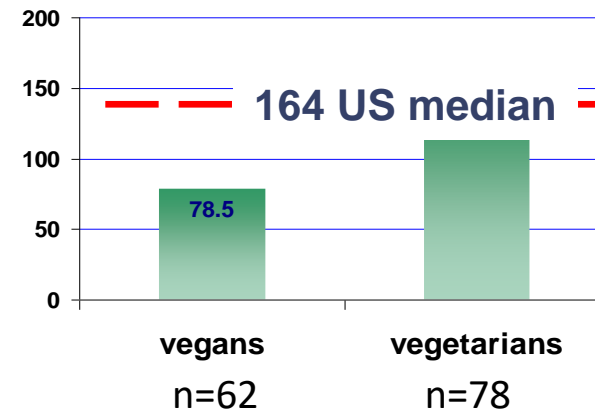
- 77% of sodium intake comes from restaurants and processed foods (not typically iodized)
- ~50% of reproductive-age women never/rarely use table salt
- Adding salt is not typically recommended in US diet

3 servings of dairy helps³

- Meeting recommendations during pregnancy is linked with better consumption of calcium, vitamin D, potassium, B12, choline and iodine
- Pregnant women with the highest dairy consumption were not at risk for iodine deficiency

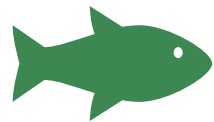
Vegan diets may fall short in iodine⁴

Median UIC in U.S. Vegetarians and Vegans (µg/L)



Optimal for Adults
100-199 (WHO)

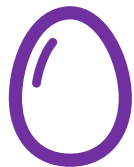
Seafood, dairy foods and eggs offer natural sources of iodine



Cod
105% DV



Cow's Milk
59% DV



Egg
17% DV

What Foods Provide Iodine?^{viii}

FOOD	SERVING SIZE	MICROGRAMS PER SERVING	PERCENT DAILY VALUE (DV)*
Cod, baked	3 ounces	158	105%
Low-fat milk (1%)	1 cup	88	59%
Yogurt, Greek, plain, fat-free	6 ounces	87	58%
Iodized table salt	¼ tsp	76	51%
Fish sticks	3 sticks	58	39%
Cottage cheese (reduced fat)	½ cup	39	26%
Pasta, cooked in iodized salt	1 cup	38	25%
Swiss cheese	3 slices**	36	24%
Crab, canned and cooked	3 ounces	32	21%
Egg, hardboiled	1 egg	26	17%
American cheese	3 slices**	18	12%
Cheddar cheese	3 slices**	15	10%
Shrimp, pre-cooked	3 ounces	13	9%
Salmon, baked	3 ounces	14	9%
Soy beverage	1 cup	1.5	1%
Almond beverage	1 cup	<1	1%
Non-iodized sea salt	¼ tsp	<1	1%

*The DV for iodine is 150 mcg for healthy adults and children over 4.

**Cracker sized slice of cheese

Conclusions

1. Iodine's role in prenatal nutrition is not well known by many women and healthcare professionals
2. Pregnant women and their fetuses are particularly vulnerable to iodine deficiency disorders
3. There are growing concerns about mild iodine deficiency among women during pregnancy and lactation in the U.S.
4. Dairy foods, seafood, eggs, iodized salt, and some prenatal supplements can help women meet their iodine needs



**"ADEQUATE IODINE
NUTRITION
SHOULD BE A RIGHT OF
EVERY CHILD."**

-James P Grant
UNICEF Executive Director 1980-1995





REAL-LIFE APPLICATIONS TO HELP MOMS-TO-BE SUPPORT BABY'S BRAIN DEVELOPMENT

Marina Chaparro, RD, CDE

Registered Dietitian, Diabetes Educator

Founder of Nutrichicos a family-based nutrition practice



AGENDA

EXPECTATION
VS REALITY
PREGNANCY

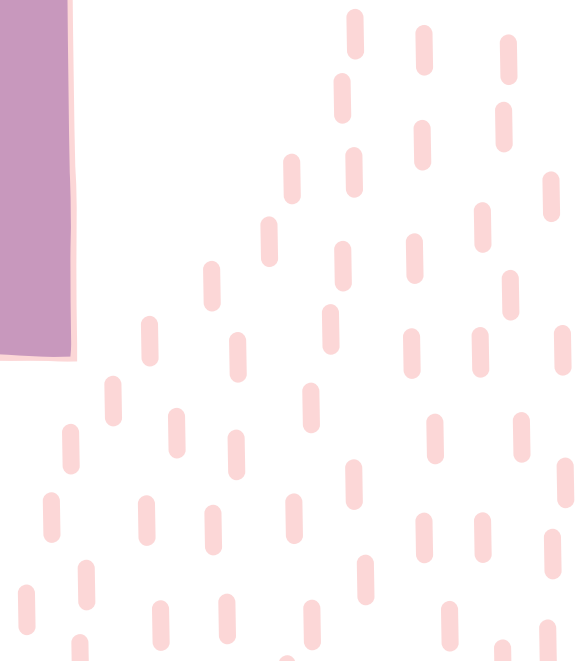
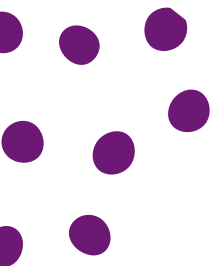
Pregnancy is hard

NUTRITION
TRENDS & AREAS
OF ~~CONCERN~~
OPPORTUNITY

Problem & why it
matters

THE 3 "S"s
SUPERFOODS
SNACKS
SUPPORT

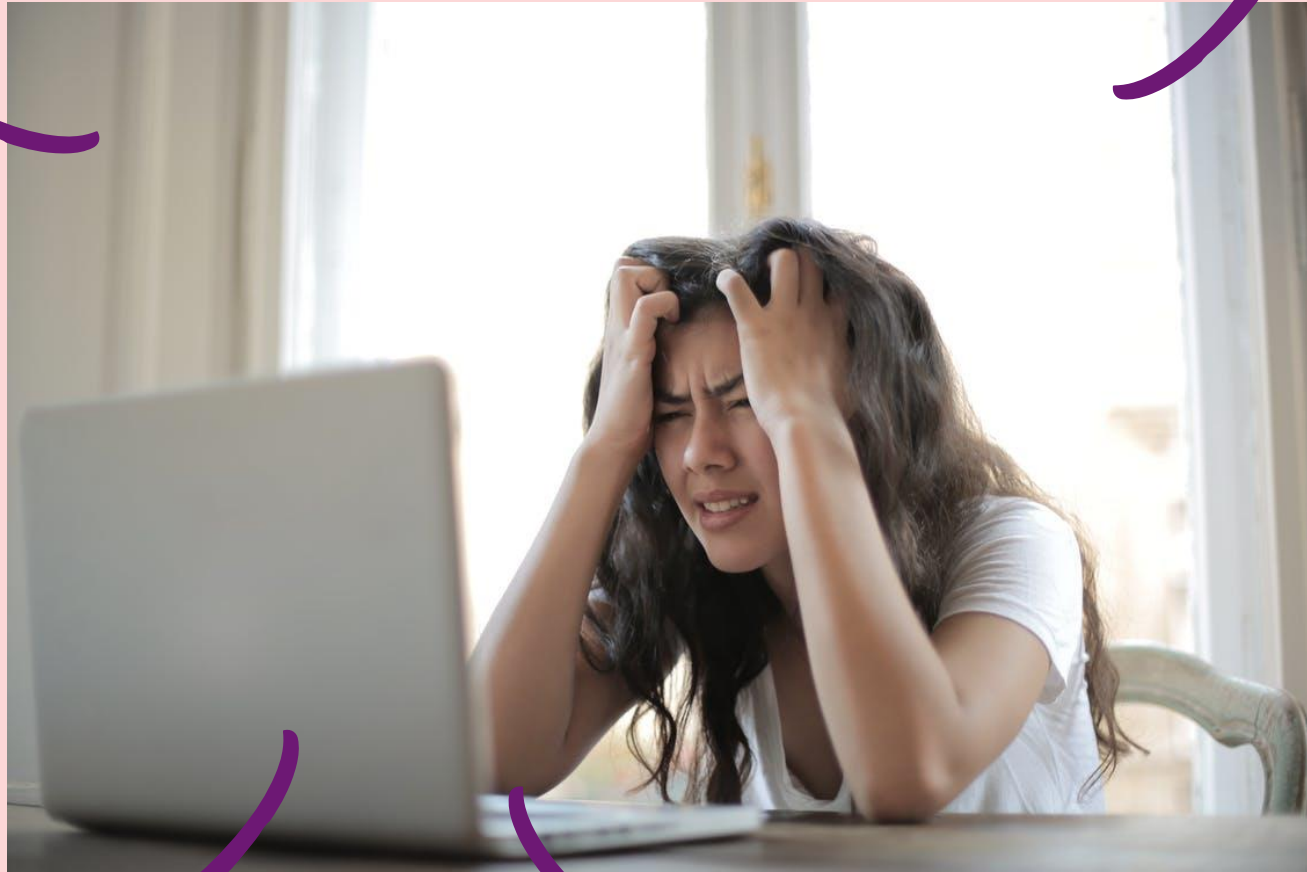
Putting it all
together



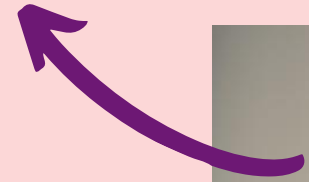
"I'm a mom and RD, and I was overwhelmed during pregnancy..."



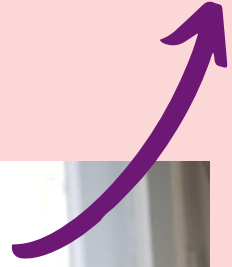
HUHHH?



Careful with fish & seafood



Don't gain too much weight



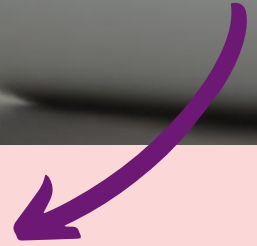
Exercise but make sure it's the right type!



Food safety



Right supplement



No coffee or caffeine!




EXPECTATION VS. REALITY

STARTS HERE ...

ENDS HERE.



INSTAGRAM POLL CASE STUDY



**WHEN YOU WERE
PREGNANT WERE YOU
TOLD ABOUT IODINE?**

SI HAZ ESTADO EMBARAZADA, AGUJA
VEZ TE MENCIONARÍA DEL YODO?



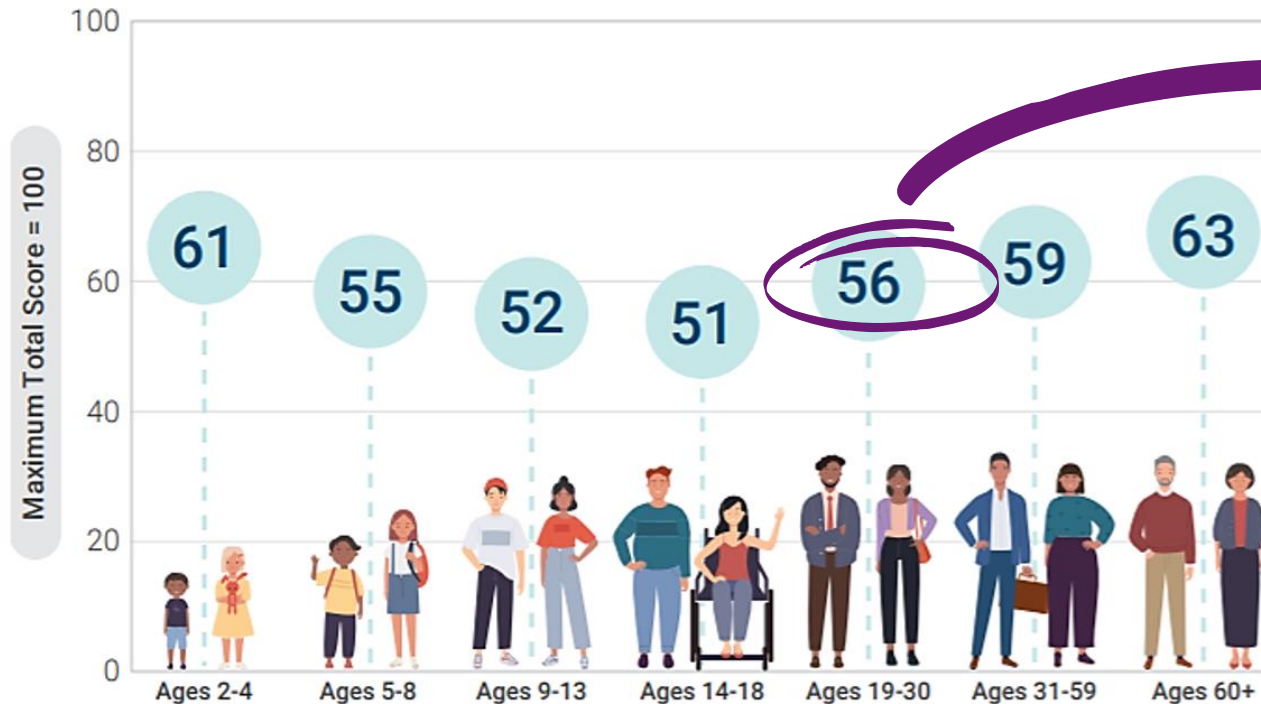
Say whaat? 🤷🤷 Que
que? **86%**

YES! Si! **14%**

STATE OF THE PLATE?

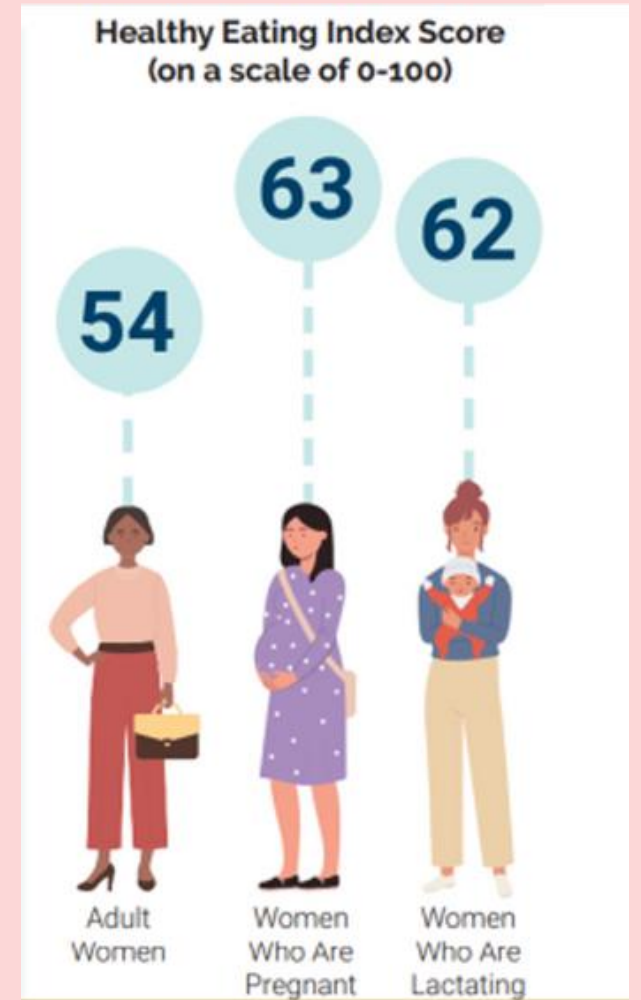
Pregnancy is an opportunity to optimize nutrition

Adherence of the U.S. Population to the *Dietary Guidelines* Across Life Stages, as Measured by Average Total Healthy Eating Index-2015 Scores



NOTE: HEI-2015 total scores are out of 100 possible points. A score of 100 indicates that recommendations on average were met or exceeded. A higher total score indicates a higher quality diet.

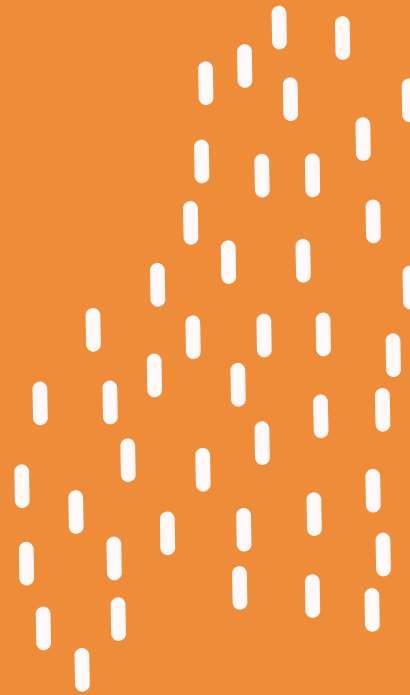
Data Source: Analysis of What We Eat in America, NHANES 2015-2016, ages 2 and older, day 1 dietary intake data, weighted.



The diet quality of expectant and lactating women is significantly higher compared to the diet quality of all adult women

"MY STORY"

"AVOID MILK AND FRUIT BECAUSE THEY HAVE TOO MUCH SUGAR"



"MY STORY"

Key nutrients during pregnancy:

Folate, choline, DHA, iodine,
calcium/vitamin D, protein

- Type 1 diabetes during pregnancy
- Nausea, constipation
- Overwhelmed with information
- Practical nutrition
- Not just 1 nutrient, but wholesome nutrition





PREGNANCY IS A TIME OF SIGNIFICANT PHYSICAL & EMOTIONAL CHANGES

How can "we" providers provide
real & practical solutions?

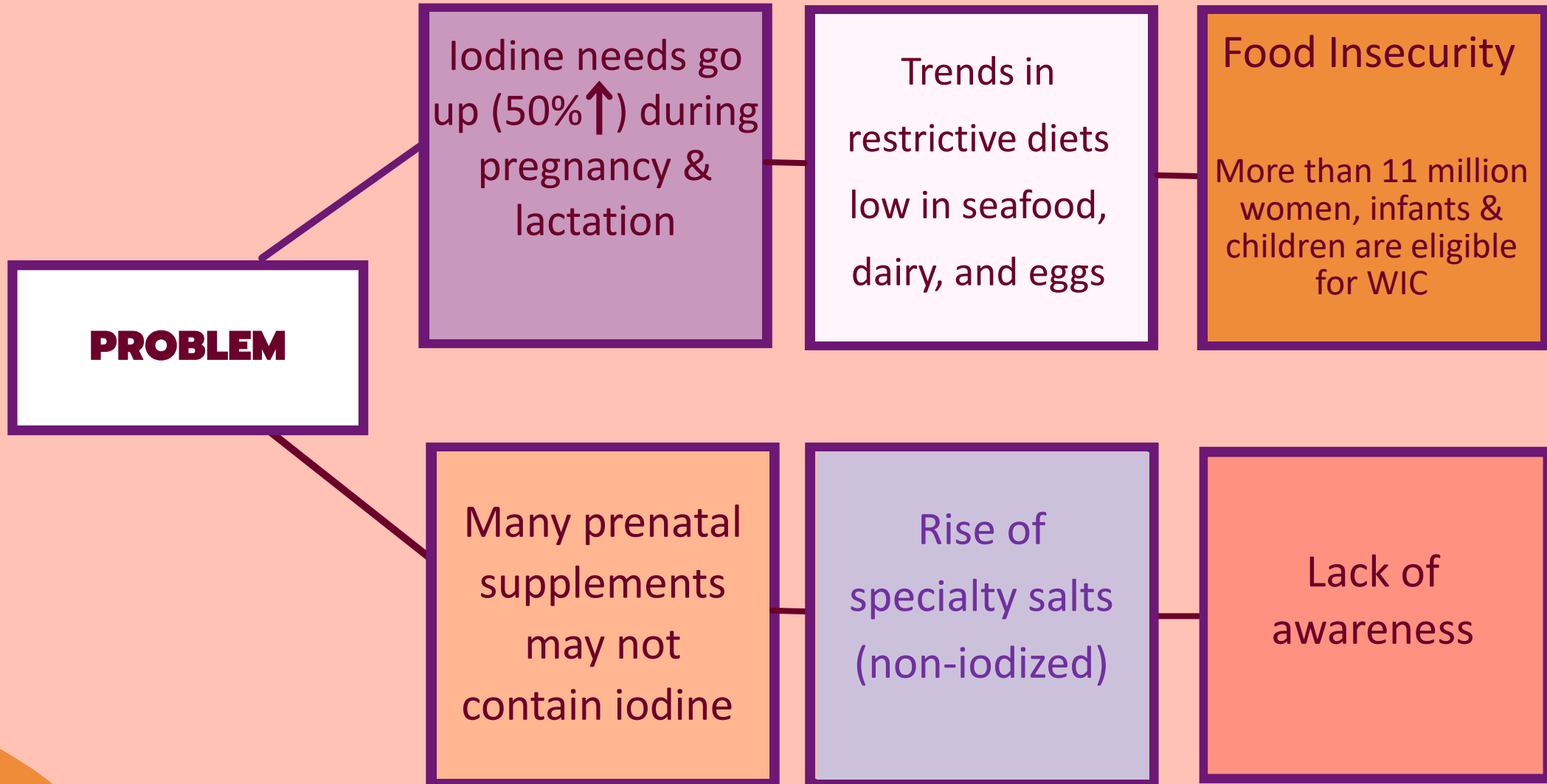


NUTRITION TRENDS & AREAS OF ~~CONCERN~~

Opportunity



What's the problem?



**NUTRITION TRENDS
& AREAS OF
~~CONCERN~~
opportunity**

Restrictive diet trends



Non-iodized specialty salts



Food insecurity



Plant-based milks ~~≠~~ cow's milk nutrition



NUTRITION TRENDS & AREAS OF ~~CONCERN~~ opportunity



Restrictive diet trends

- Diets that restrict dairy, seafood and eggs may increase risk for iodine deficiency
- Most fruits and vegetables are poor sources of iodine
- A 2020 cross-sectional study found vegans had lower levels of iodine, zinc, riboflavin, niacin, and vitamins E and A than omnivores. "Vitamin B12 status was similarly good in vegans and non-vegans, even though the vegans consumed very little dietary B12."
- Proper evaluation by a health professional to help plan & optimize key nutrients during pregnancy is valuable for clients who follow plant-based diets

THE RECOMMENDATION IS NOT...

"Use table salt"

“

Women who are pregnant or lactating should not be encouraged to start using table salt if they do not do so already. However, they should ensure that any table salt used in cooking or added to food at the table is iodized. Additionally, women who are pregnant or lactating may need a supplement containing iodine in order to achieve adequate intake. Many prenatal supplements do not contain iodine. Thus, it is important to read the label.

2020-2025 Dietary Guidelines for Americans

”

Preeclampsia Considerations

- One of the most common & severe pregnancy/postpartum complications
- Rate is 60% higher in black women than white women



BUT RATHER...

- Chose iodine rich food!
- If using table salt, ensure it is iodized
- Get a supplement with iodine

NUTRITION TRENDS & AREAS OF ~~CONCERN~~ opportunity



Plant-based beverages

- Some plant-based beverages may not have the same nutrition profile as cow's milk
- Fortified soy beverage is the preferred dairy alternative by the DGA, however it lacks iodine
- Some have added sugars
- Whole milk offers fat, calories and essential nutrients to fuel baby's brain development and growth spurts
- Healthcare professionals should work with clients who choose not to consume cow's milk to ensure they are consuming other sources of critical nutrients like iodine

COW'S MILK VS. PLANT-BASED ALTERNATIVES

What Foods Provide Iodine?^{viii}

FOOD	SERVING SIZE	MICROGRAMS PER SERVING	PERCENT DAILY VALUE (DV)*
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Salmon, baked	3 ounces	14	9%
Soy beverage	1 cup	1.5	1%
Almond beverage	1 cup	<1	1%
Non-iodized sea salt	¼ tsp	<1	1%

USDA, FDA, and ODS-NIH Database for the Iodine Content of Common Foods Release 2

Prepared by:
Janet M. Roseland¹, Judith H. Spungen², Kristine Y. Patterson¹,
Abby G. Ershow³, Jaime J. Gahche³, Pamela R. Pehrsson¹

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U.S. Department of Agriculture

²Center for Food Safety and Applied Nutrition
U.S. Food and Drug Administration (FDA)

³Office of Dietary Supplements
National Institutes of Health

January 2022

2022 Iodine Database
USDA, FDA, ODS-NIH

LACTOSE INTOLERANCE



DAIRY FREE



Lactose-free milk is real dairy milk just without the lactose



Live active cultures
Supports lactose digestion
Role in immunity & gut health



Hard cheeses (e.g., Cheddar, Swiss, Colby, etc.) contain very little lactose

NUTRITION TRENDS & AREAS OF ~~CONCERN~~ opportunity



- **6 tsp** pink Himalayan salt needed to reap benefits of trace mineral content¹
- **¼ tsp** iodized salt provides 51% DV iodine²
- DGA recommends **≤ 1 tsp** table salt per day (~2300 mg sodium)³

Halo effect of specialty salts

- Specialty salts are trending
- They're often marketed to be "healthier"
- There's lack of awareness of iodine in table salt and its benefits
- Huge price difference



\$\$-\$\$\$



\$

NUTRITION TRENDS & AREAS OF ~~CONCERN~~ opportunity



- Serves **about half** of all infants born in the U.S.²
- Participation associated with:³
 - Improved birth outcomes
 - Better child cognitive development
 - Purchase of healthier foods
 - Improved diets for pregnant women and children

Food insecurity¹

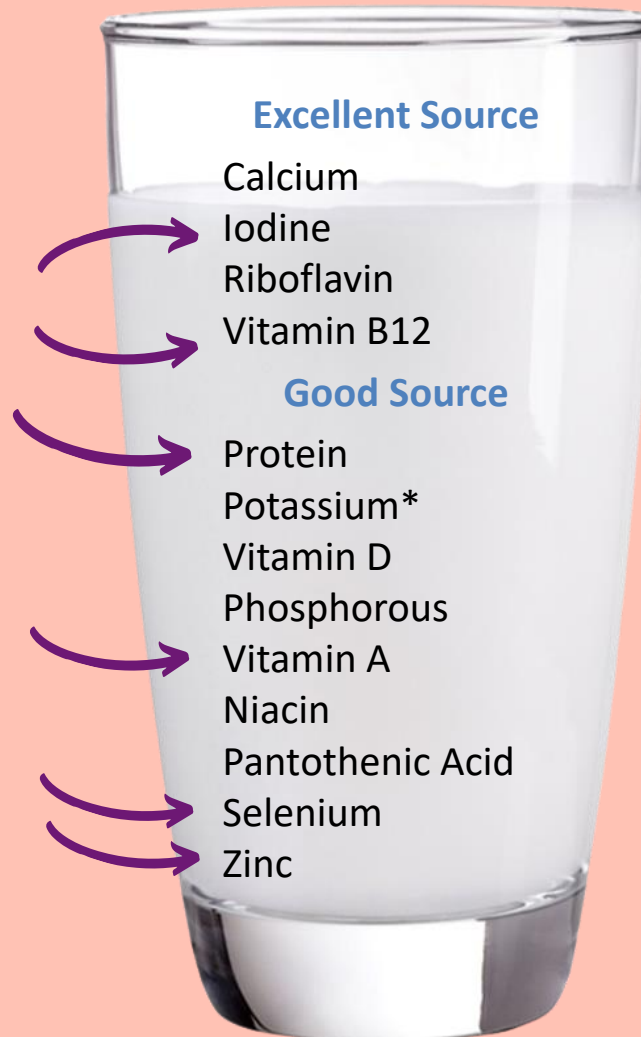
- Substantial public health concern. **Affects 15% of households with children.** Higher rates for single-parents and for Black and Hispanic households
- Message is not "You need to buy expensive foods from high end supermarkets to get good nutrition." But rather ***"Nutritious food can be affordable, versatile & taste good"***
- Healthcare providers should screen and offer information on resources (WIC, SNAP, etc.)

→ *"Within the past 12 months, we worried whether our food would run out before we had money to buy more."*
[Often true, Sometimes true, or Never true]

DAIRY'S NUTRITION PROFILE IS TOUGH TO MATCH: PRACTICAL, NUTRITIOUS & AFFORDABLE

- ✓ 13 essential nutrients
- ✓ Brain-supporting nutrients for baby
- ✓ Practical
- ✓ Versatile
- ✓ Easy to digest, especially as nausea hits

BRAIN NUTRIENTS



= 20¢ PER SERVING

*FDA's Daily Value (DV) for potassium of 4700 mg is based on a 2005 DRI recommendation. In 2019, NASEM updated the DRI to 3400 mg. Based on the 2019 DRI, a serving of milk provides 10% of the DRI. FDA rule-making is needed to update this value for the purpose of food labeling

THE 3 "S"s

- "SUPERFOODS"
- SNACKS
- SUPPORT



"Superfoods"

KEY NUTRIENTS OF PUBLIC HEALTH CONCERN FOR MOMS-TO-BE

CALCIUM



IODINE



POTASSIUM



FIBER



IRON



FOLATE

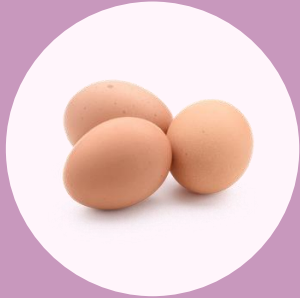


VITAMIN D



Superfoods

Addressing common myths/misperceptions



Myth	Reality
Cholesterol, Food safety	<ul style="list-style-type: none">• Moderate egg consumption (1 per day) is not associated with CVD¹• Fully cooking and properly storing eggs ensures food safety• Offers protein, choline, iodine, selenium, vitamin B12, pantothenic acid²



Myth	Reality
Lactose, Inflammation, Food safety	<ul style="list-style-type: none">• Dairy products come in lactose-free forms with the same nutritional benefits• Evidence shows dairy is not inflammatory, but can be anti-inflammatory³• All US cheese and milk is pasteurized, but pregnant women should be mindful of imported cheese, farmer's market cheese, and any raw milk products



Myth	Reality ⁴
Mercury, Food safety	<ul style="list-style-type: none">• Many low-mercury options!• Fully cooking and properly storing fish ensures food safety• Offers brain building nutrients – omega-3s, protein, iodine, vitamin B12²• Offers other health benefits – heart health, bone health, weight, some cancers

SNACKS





S NACKS

- Great way to optimize nutrition – particularly prenatal nutrients of concern & fill in gaps
- Small, frequent meals help with pregnancy nausea
- Make them hearty: *Fat, Fiber, Protein*
- Focus on key nutrients that will provide satiety yet easy to carry/on the go
- Focus on adding nutrition!





SUPPORT

Culturally relevant meal ideas, resources, & more!



SUPPORT

On-the go meal ideas rich in iodine

Iodine ~292mcg



131mcg



16mcg



56mcg



~5mcg



84mcg

BREAKFAST

- Overnight oats with Greek yogurt, 2% milk fruit & chia seeds

SNACK

- Cheese stick + high fiber granola bar

LUNCH

- Leftover pasta with iodized salt, mozzarella cheese, kiwi & energy ball

HEARTY SNACK

- Trail mix with fruit, nuts and dark chocolate

DINNER

- Instant pot carnitas tacos with cheese, salsa, rice & beans

SUPPORT

OUR JOB AS PROVIDERS

- Screen for at-risk women:
 1. Do you eat dairy? Seafood? Eggs?
 2. Do you use iodized salt?
 3. Does your supplement have iodine?
 4. Have you worried about/experienced food running out before you could afford more?
- Help women & moms-to-be navigate through these issues
- PROVIDE evidence-based recommendations
- Resolve misperceptions
- Provide solutions! MAKE IT WORK FOR THEM!!



RECAP...

Pregnancy is hard!



Iodine needs increase by 50%. Women who do not regularly consume dairy foods, eggs, seafood are at risk for deficiency.

Areas of opportunity: Demystify nutrition trends, counsel on restrictive diets, plant-based beverages, iodine foods, salt use, accessible/affordable nutrition.

Focus on the 3 S's: Superfoods, Snacks, Support. Eat food, not nutrients! Not just about 1 food, but how to optimize nutrition and focus on eating patterns.

Make it work for them! Accessible, culturally relevant & practical.

Thank you!



DAIRY

NOURISHES LIFE

Helping
people thrive
across the lifespan

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Questions?

Please enter your questions into the Q&A window.

Continuing education certificates will be sent via email within 24 hours of this webinar.

The full webinar recording will be available next week on USDairy.com.

