



Food Systems, diets nutrition and the double burden: Influences and opportunities for action

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Stakeholders Consultation on Adolescent Girls' Nutrition: Evidence, Guidance, and Gaps

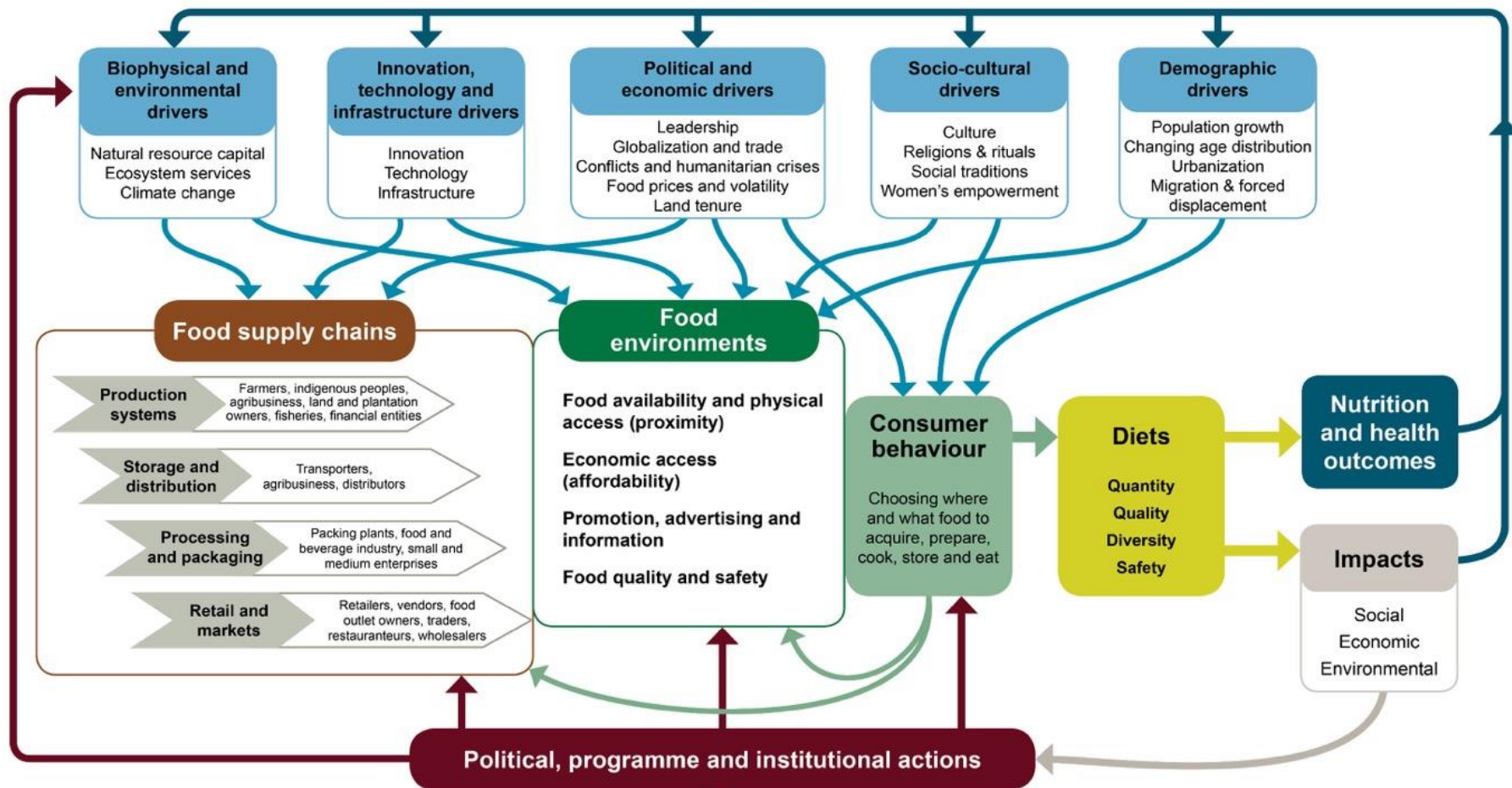
October 30–31, 2017



Objectives

- Understand the three interacting elements of the food system (food supply chain, food environments, and consumer behavior) and how they influence dietary patterns and the multiple burdens of malnutrition.
- Highlight opportunities for action to address the multiple burdens by improving the quality of the food environment and to orient adolescent behavior towards healthier diets.

Food System Framework



HLPE 2017 Report Nutrition and Food Systems

Many micro-food environments across different food systems

Access	Affordability	Promotion	Information
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Pattern 3

Receding famine smallholder, rural



Food is produced close to home

Short or long distances to informal, traditional markets or traditional-to-modern markets

Staples are inexpensive

Oils, sugars, perishable foods (particularly animal source foods) are expensive

Branding and advertisements on posters and signs in stores, on buildings, billboards

In print newspapers

Verbal promotion on radio

Some information provided on food product labels and on shelves at stores

Inconsistent information, with little to no access in some areas. Some public health campaigns

Pattern 4

Modernized, rural, and peri-urban, urban societies



Food deserts in some rural and urban areas

Supermarkets, modern markets, traditional-to-modern markets

Meals away from home, street food, fast food restaurants

Processed foods are inexpensive

Fast foods are inexpensive

Specialty foods, fruits and vegetables, and seafood are expensive

High level of food promotion on billboards, in print, on television, and on the internet

Celebrity and athlete sponsorship

A lot of information provided on food labels, shelves at stores, and menus with ingredient lists, health claims

Widespread public health campaigns

Pattern 5

Educated, mainly urban



Supermarkets, modern markets, modern-to-traditional markets, farmer's markets

Meals away from home, gourmet fast food casual, and sit down restaurants

Lots of choice in close proximity

Food is affordable

High premiums for specialty foods and locally produced, organic products

High level of food promotion of billboards, in print, on television, and the internet

Athlete, celebrity sponsorships

Social networks promote food lifestyles

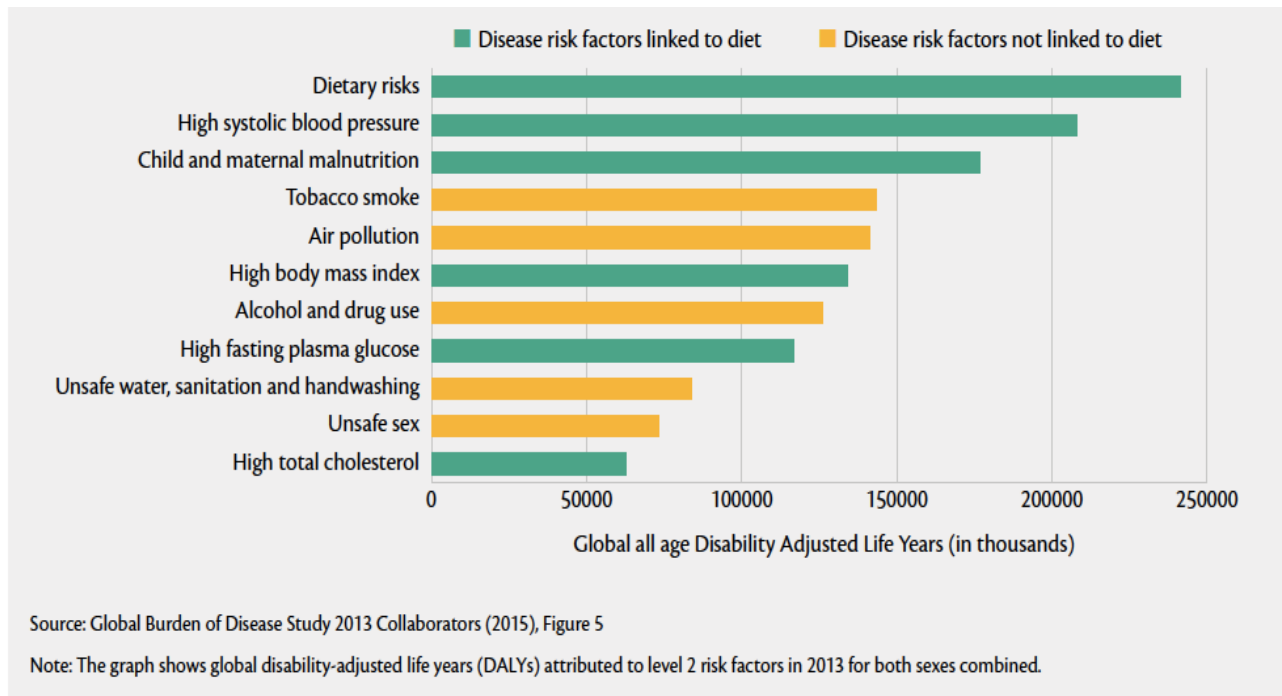
A lot of information provided on food labels, shelves at stores, and menus with ingredient lists, health claims

Widespread public health campaigns

Personal searches seek info on weight loss and health

HLPE 2017

Food environments influence diets, and diets influence disease outcomes



Global Panel 2016 Foresight Report; GBD 2013

Major Dietary Concerns of Adolescents

- Spend less time eating with the family and more time with peers, and away from home
- Skipping breakfast
- Consuming sugar sweetened beverages & junk food
- Low or inconsistent meal frequency with increased snacking
- Undernutrition and MNDs (iron, calcium, zinc, folate)
- Overweight and obesity
- Eating disorders



Changes During Adolescence

- Time of physical growth accompanied by hormonal, cognitive and emotional changes
- Body changes associated with puberty, and there are gender-specific nutrient needs

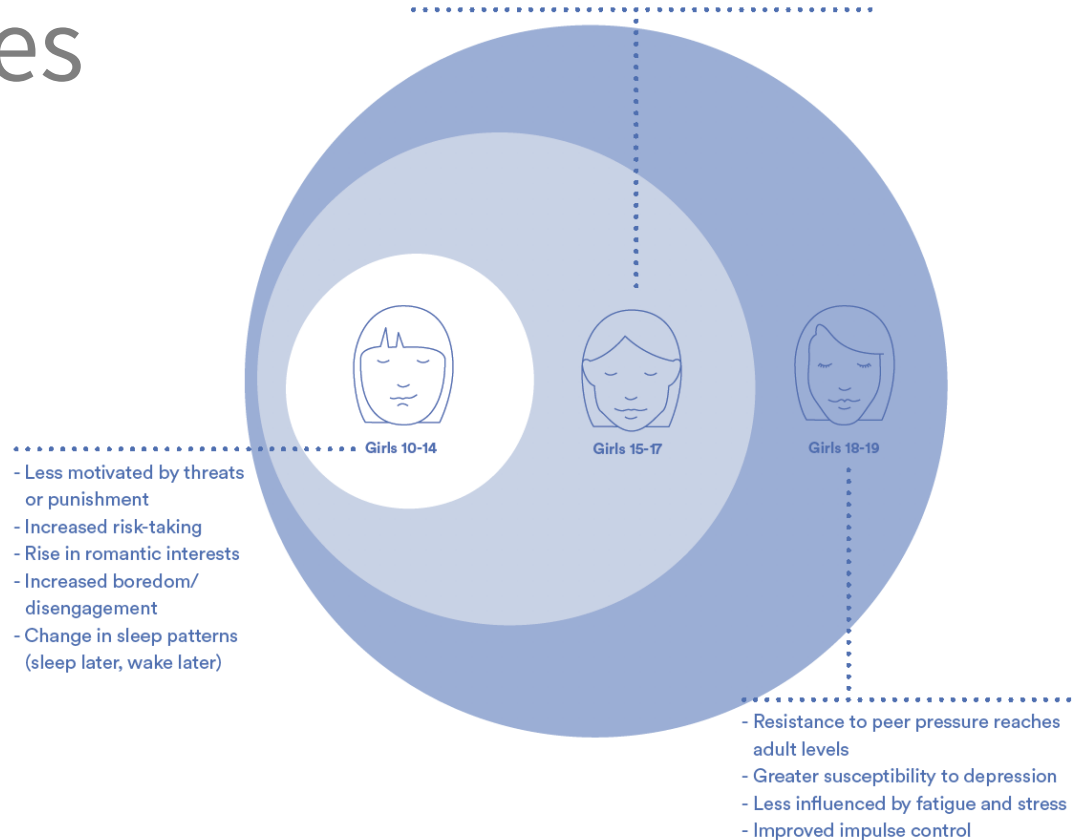
Greater demand for calories and nutrients

Drive for individuation – asserting food choices

Change in lifestyles and food habits

Adolescent girl stages

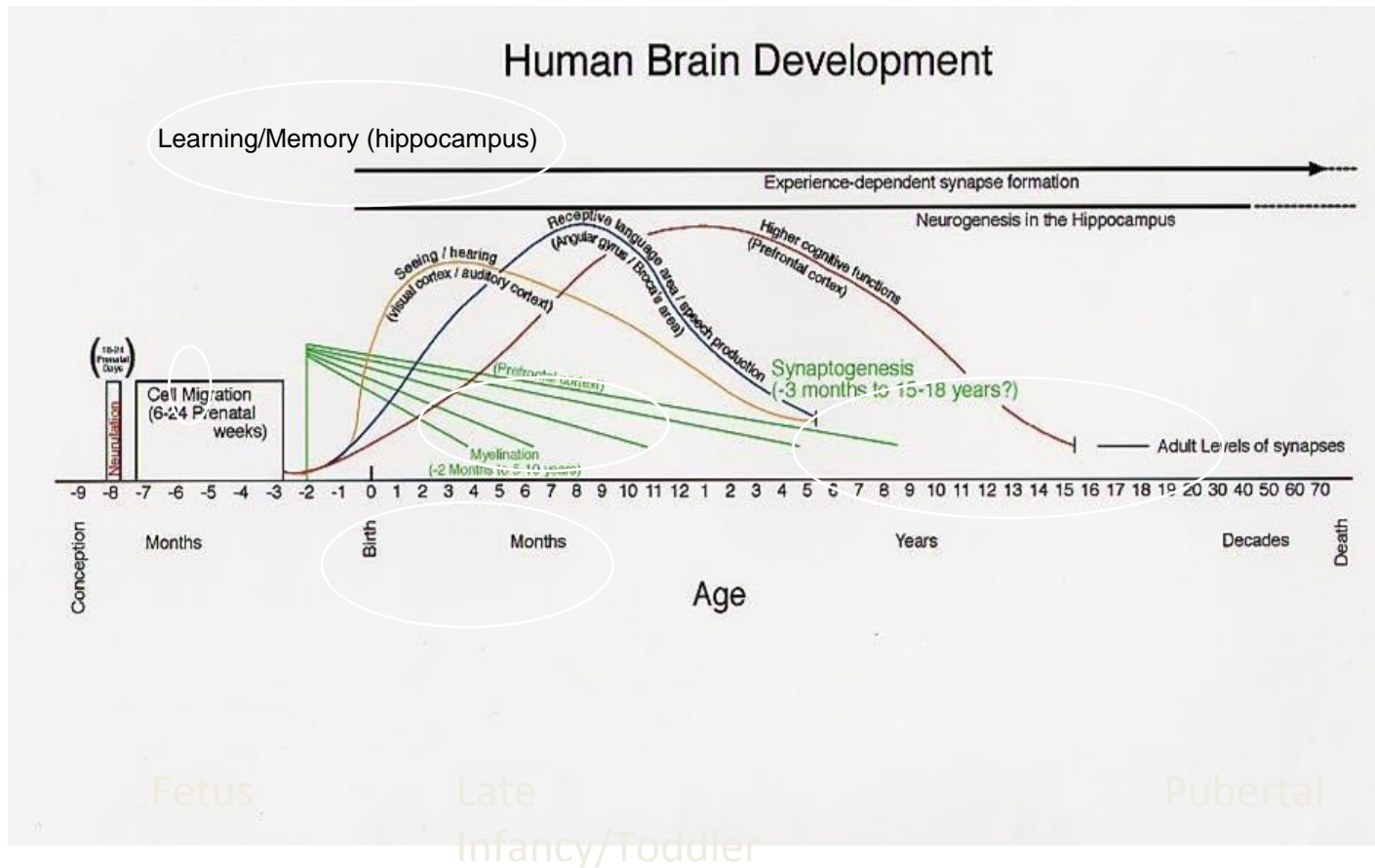
- Puberty completed
- Empathetic skills increase
- Decision-making capacity reaches adult levels, however, decisions tend to be short-term
- Increasing ability to regulate emotions
- Social support becomes increasingly important



² Based primarily on: Braams et. al., 2015; Crone et. al., 2012; Dahl, 2016; Harden et. al., 2015; Hauser et. al., 2014; Kenroot, 2010; Steinberg, 2014, Spear, 2012

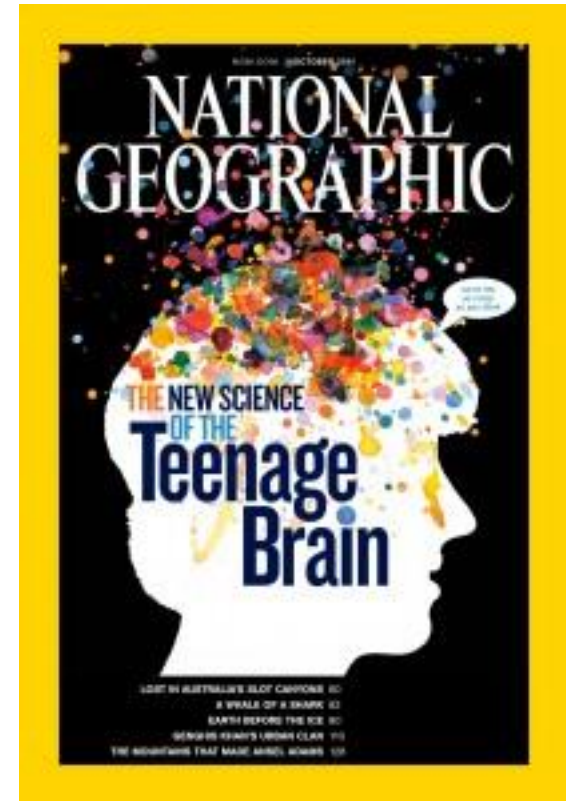
Blum et al Adolescence: Age and Stage

Brain continues to develop...

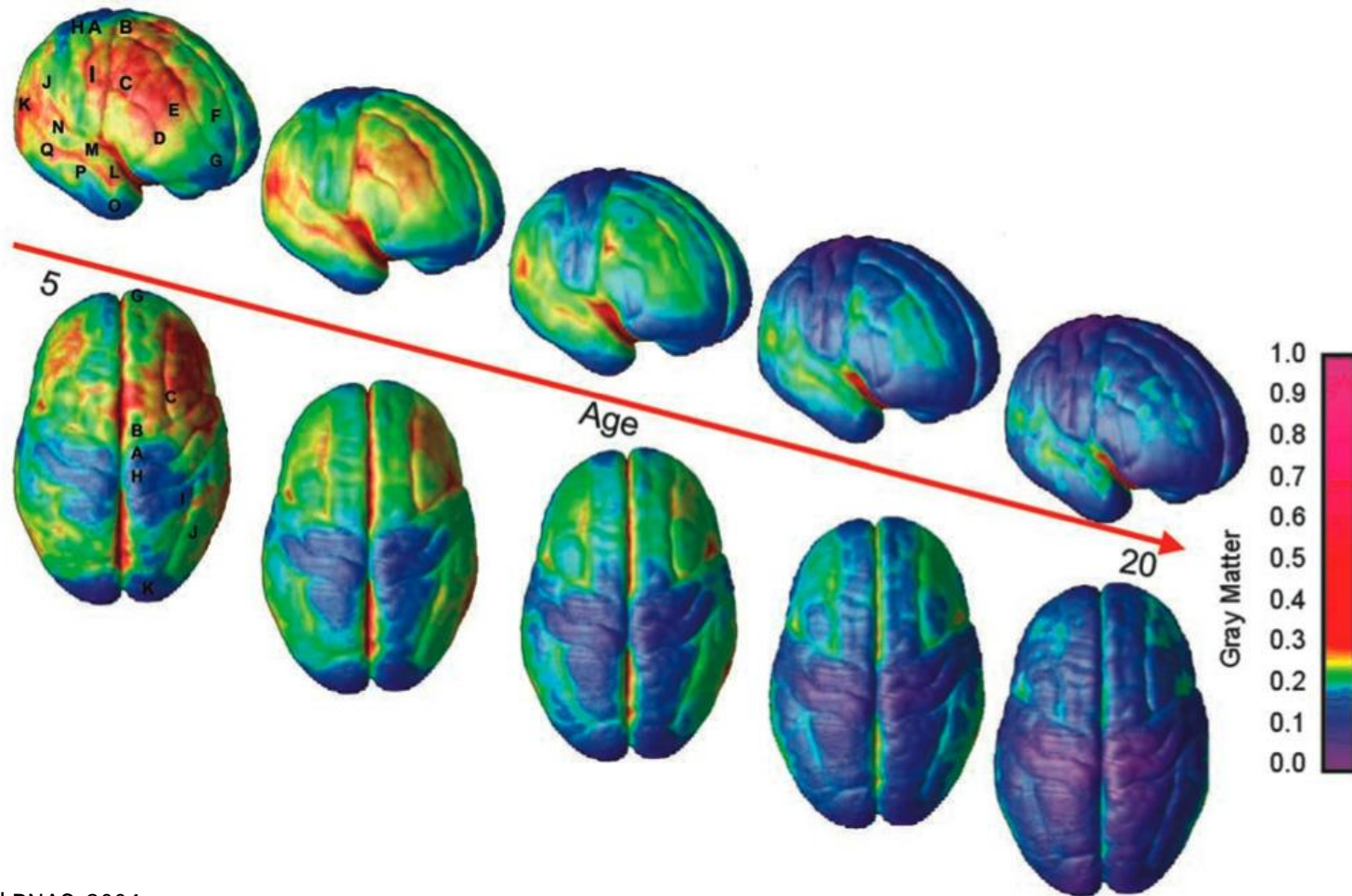


Brain Growth in Adolescence

- Early Childhood - Maximum Brain grows as “Frontal circuits” related to organization and planning.
- Adolescence - Brain grows in the rear of the brain linked more to language learning and spatial understanding. Thus brain development continues.
- Myelination of the prefrontal cortex continues in adolescence.
- Dynamic time of growth and change – plasticity and sculpting.



Adolescent Brain Sculpting



Gotgay et al PNAS, 2004

Why focus on sculpting?

- Interaction of Individual and context are key
- Emotional and social factors interact with biology to influence decision-making
- Influence diets, food choices and dietary preferences which shape their own nutritional status into adulthood and their future children
- Food industry has tapped into the adolescent brain...

Eating related behaviors during adolescence are influenced by:

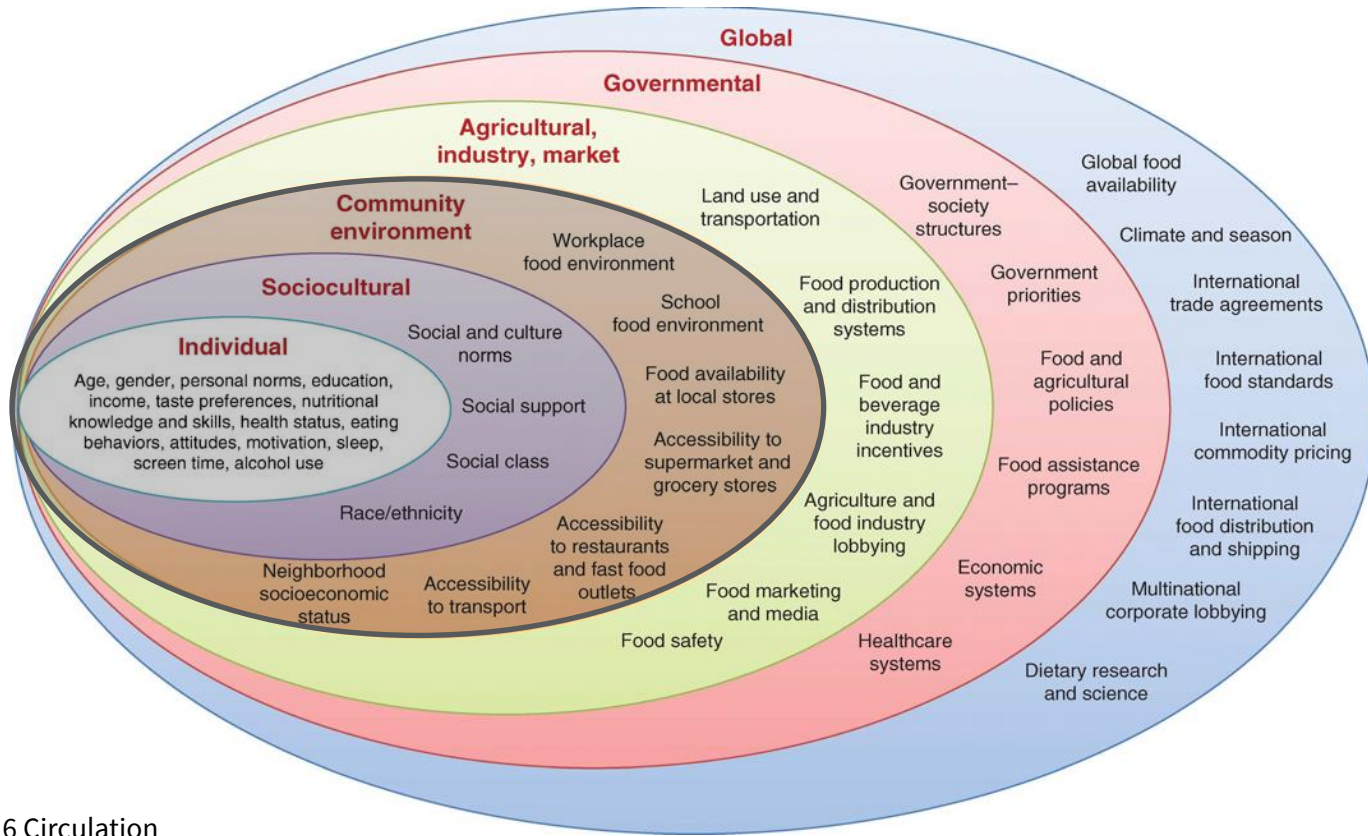
- Peers
- Parental modeling
- Food availability/access
- Food preferences
- Cost, convenience
- Personal and cultural beliefs
- Mass media
- Body image



Eating Habits

- Eating habits of adolescents are not static
- They fluctuate throughout puberty in relation to psychological and cognitive development
- Adolescents lead busy lives
- Many are involved in extracurricular sports or academic activities
- This leaves less time to have structured meals
- Snacking and meal skipping is common

Barriers & opportunities for healthier eating



Mozafarriar 2016 Circulation

(Afshin et al., 2015)

What some studies show, different SES strata

- **Canada**: 65% of adolescents reported self-purchasing foods from fast-food outlets or convenience stores. Close proximity (i.e., less than 1 km) to the nearest fast-food outlet or convenience store in the home neighborhood increased the likelihood of food purchasing from these food establishments ($p < 0.05$). High fast-food outlet density in both home and school neighborhoods was associated with increased fast-food purchasing by adolescents ($p < 0.05$) (He et al 2012).
- **China**: The availability and/or accessibility of home healthy or unhealthy foods were associated with children or adolescents' dietary intakes (Nepper and Chai 2015).
- **Tanzania**: Among adolescent girls, low fruits and vegetable intake, high snacking and soft drinks consumption, and breakfast skipping habits. Number of food stores was associated with high intake of snacks ($P=0.009$) and intake of soft drinks ($P=0.011$). Number of snack places at school was inversely related with fruits intake ($P=0.013$) (Verstraeten 2014).

More Evidence Needed

- Poor dietary behavior is a key factor in the onset of obesity and an important contributor to the global disease burden.
- Despite the accumulation of evidence illustrating unhealthy food practices among young people in LMICs, **the determinants** of their dietary behavior remains poorly understood.
- Interventions targeted to promote healthy dietary practices in our population should develop strategies that:
 - simultaneously address factors at the individual (e.g. knowledge), social (e.g. school staff and peers) and physical environmental (e.g. accessibility) level
 - have a multipronged focus in addressing different dietary behaviors (Verstraeten 2016).

What is recommended to address underweight and obesity?

	Structural	Social marketing	Community interventions including family	Electronic health, mobile health	Schools	Health service sector
Sexual and reproductive health, including HIV	<p>Legislation 18 years as the minimum age of marriage Allow provision of contraception to legal minors Legalise abortion</p>	<p>Promote community support for sexual and reproductive health, and HIV health access for adolescents</p>	<p>Cash transfer programmes, with payments linked to staying in school Positive youth development Peer education</p>	<p>Target knowledge, attitudes, and risk behaviours</p>	<p>Quality secondary education Comprehensive sexuality education Safe schools with clean toilets and facilities for menstrual care School-based health services with condoms and modern contraceptives</p>	<p>Condoms and affordable modern contraception including long-acting reversible contraception Early HIV and STI diagnosis and treatment Male circumcision Antenatal, delivery, and postnatal care Transition to adult care for HIV</p>
Under-nutrition	<p>Fortification of foods—eg, iron and folate</p>		<p>Micronutrient supplements (particularly in pregnancy) Protein-energy supplementation Deworming Cash transfer programme Nutrition education</p>		<p>Micronutrient supplements Healthy school meals</p>	<p>Screening and micronutrient supplementation</p>
Overweight and obesity	<p>Taxation of high-sugar, high-salt, and high-fat foods Front-of-pack nutrition labels Restriction of fast food advertising</p>	<p>Promote physical activity</p>	<p>Create opportunities for maintenance of physical activity in daily life</p>	<p>Interactive or personalised feedback interventions</p>	<p>Multi-component interventions, involving education about healthy diet and increasing opportunities for physical education</p>	<p>Manage comorbidities of obesity</p>

Patten et al Our future: a Lancet commission on adolescent health and wellbeing

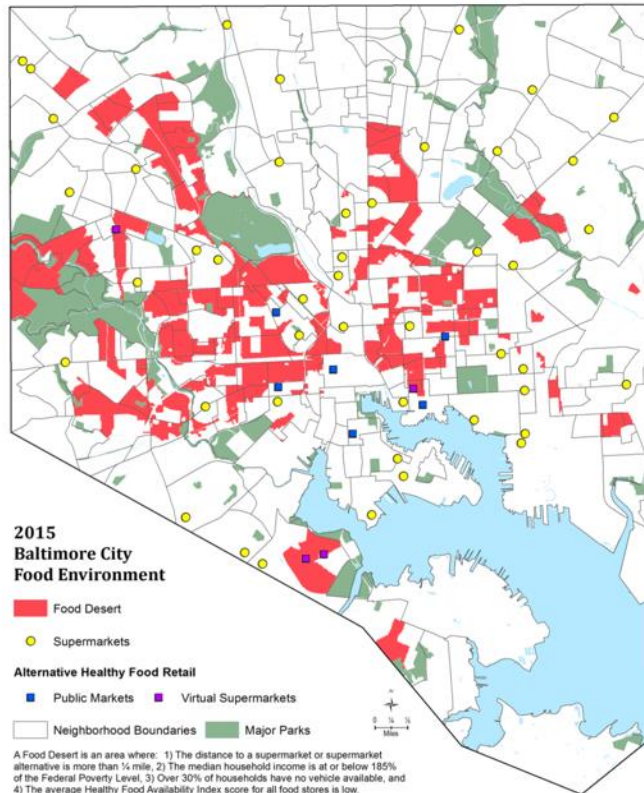


Ways to improve our food environments for adolescents

- Improve the built environment for healthier eating – food swamps, food deserts
- Incentivize retailers and sellers of food through tax breaks
- Reformulate foods – remove trans fats, reduce sugar and salt
- Fiscal incentives such as subsidies or taxes on sugar sweetened beverages or junk food
- Phase out advertising and promotion of unhealthy foods to children and adolescents
- Limit the sale and serving of unhealthy foods in schools or near schools
- Don't allow transnational food companies to promote school events, especially sports!
- Promote healthy eating and introduce new foods (especially vegetables) to young taste buds through school meals (nutrition literacy)
- Nudge and mass media campaigns (smaller trays and plates in school cafeterias)
- Information warning, certifications and safety standards on foods that appeal to teenagers

Issue One: Physical access to food

Food Deserts



Food Swamps

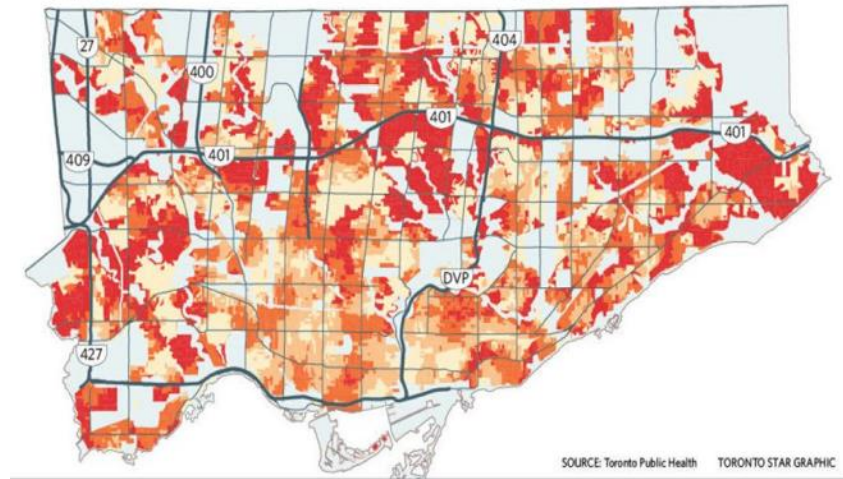
Swamped with unhealthy options?

The index is calculated by dividing the number of "healthier food retail" establishments by the total number of food establishments, multiplied by 100. Those areas appearing darker red reflect a lower index of healthy food establishments.

MODIFIED RETAIL FOOD ENVIRONMENT INDEX

■ Less than 16.6
 ■ 16.7 - 33.3
 ■ 33.4 - 47.8
 ■ More than 47.9
 ■ Non-residential land

BAD ←-----→ GOOD



(Cummins & Macintyre. 2002)

A Potential Solution: Bring food to low-income areas

Milk “Tarakwo Dairies”
In urban slums of Kenya

“Mo Gro” in Native American
Neighborhoods of USA Southwest

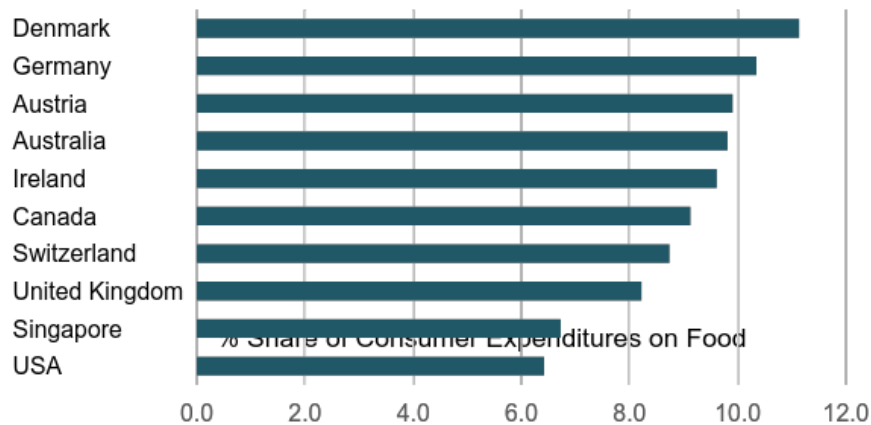
“Arrabars” in African American
Neighborhoods of Baltimore



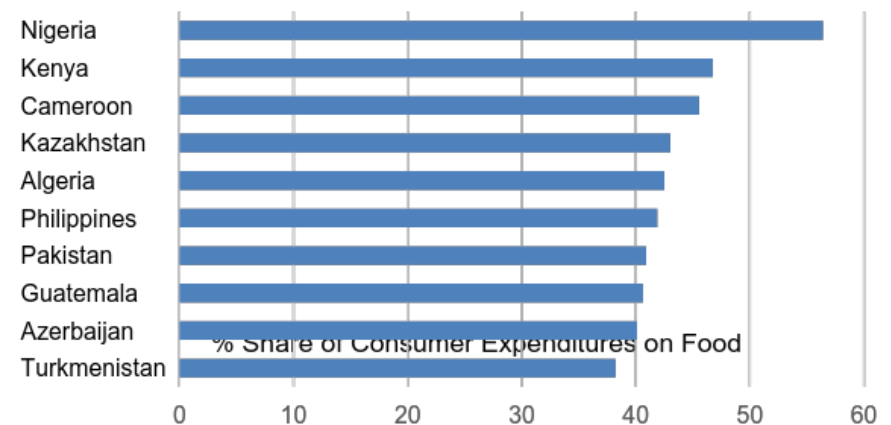
Issue Two: Economic access to food

And many of these adolescent girls, are buying food for their family or have their own children to feed.

Countries in which consumers spend less than 15% of income on food expenditures



Countries in which consumers spend more than 30% of income on food expenditures



A Potential Solution: Taxes & Subsidies

Food/ beverage taxes

Nutrient-focused taxes

Subsidies

Effect on consumption

Strongest evidence for SSB taxes – reduce consumption by same percentage as tax rate.

Reduce consumption of target but may increase consumption of non-target nutrients; may apply to core foods; better if paired with subsidy.

Subsidies increase healthy food intake. Strongest evidence for fruit and vegetable subsidies.

Effects on body weight/disease outcomes

Substitution will affect total calorie intake. Most effective to target sugar sweetened beverages. Limited evidence for disease outcomes.

Disease outcome affected by substitution – nutrient profile taxes less likely to have unintended effects than single nutrient-based taxes.

Subsidies may also increase total calorie intake and body weight. Very likely to reduce dietary NCD risk factors.

Differential effects

May be most effective for low-income populations; may have greater effect on those who consume most.

May be more likely to have regressive effects as more likely to apply to core foods.

Mixed socioeconomic status effects for population subsidies, may benefit wealthy. Targeted low-income subsidies effective.



Pan American Health Organization



World Health Organization
REGIONAL OFFICE FOR THE Americas

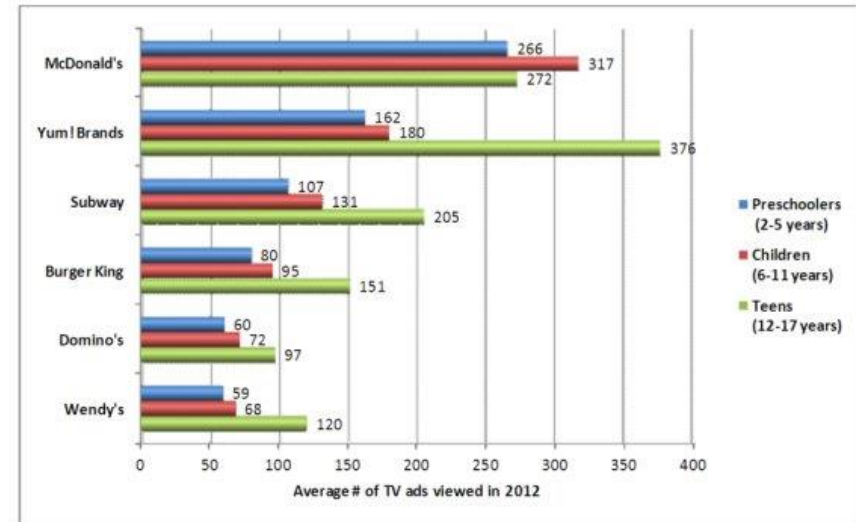


USAID
FROM THE AMERICAN PEOPLE

SPRING

Strengthening Partnerships, Results, and Innovations in Nutrition Globally

Issue Three: Food Advertising to Teenagers



Source: Nielsen (2012)

Rudd Center

A Solution: Front of the Pack Labels in Chile

NUEVOS RANGOS ESTABLECIDOS

La propuesta de Salud señala que deberán tener advertencia los alimentos que posean alto contenido de nutrientes críticos.

Los productos serán rotulados con el mensaje "exceso de" cuando posean los siguientes contenidos de: grasas saturadas, sodio, azúcares y energía.

Reglamento actual

	Energía Calorías por 100 g	Sodio mg/100 g	Azúcares g/100 g	Grasas saturadas g/100 g
Alimentos sólidos	240	400	10	4
Alimentos líquidos	70	100	5	2

Reglamento que se elaboró en 2013

	Por porción	Por porción	Por porción	Por porción
Alimentos	200	300	18	3

Los comestibles que posean altos índices de nutrientes deberán exhibir un signo similar a "pare" que advierta sobre esto.



Si el insumo tiene dos o más nutrientes críticos, el rótulo deberá ocupar el 20% de la cara principal del envase.



FUENTE: Ministerio de Salud.

LA TERCERA



- The labels are one part of a three-pronged approach set in motion by a law passed in 2012.
 - (1) front of the pack black-labeled food
 - (2) Black-labeled food cannot be advertised to children under 14 or include toys
 - (3) Black-labeled food cannot be sold in or near schools.
- It is not the government's intention to regulate the content of food, but to "change the environment" by informing consumers of the fat, sodium calories and sugar in foods.

Issue Four: Food Promotion & Information



official restaurant



A Potential Solution: Nudges & choice architecture

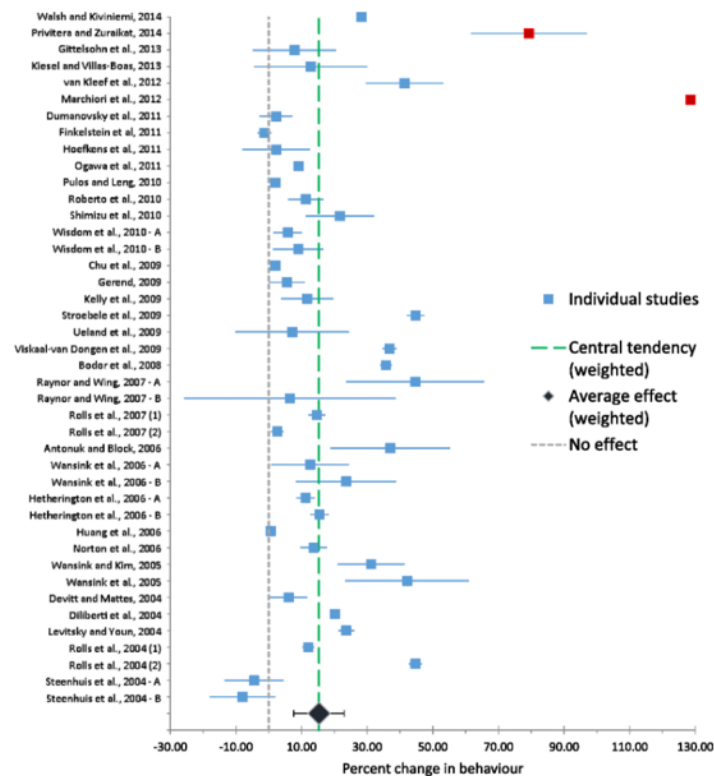
Example:
“default” side
of fries with a
hamburger



Putting fruit at eye level *is* a nudge.

Banning junk food *is not* a nudge.

SR showing nudge interventions on average cause a 15% increase in healthier consumption decisions



Arno and Thomas 2016 BMJ

- Nudging includes positive reinforcement and indirect suggestions to encourage better choices.
- Nudging does not include direct instruction, legislation, or enforcement.
- Nudging alters people’s behavior in a predictable way without forbidding any options.

A Potential Solution: Mass media campaigns



Intakes of fruits increased from 1.5 to 1.7 servings/day and vegetables from 2.6 to 3.1 servings/day



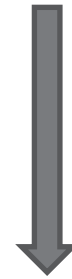
1.5 million New Yorkers who saw the ad campaign said they consequently scaled back on soda consumption



9.3% reduction in using salt at table

Do cooking demonstrations work?

The idea is to bring healthy food and healthy cooking ideas to areas of low-income, rural places with low access to dietary diversity or functional food value chains.



**WHAT IS THEIR
IMPACT?**

Creating Demand

- Time of seeking and gaining independence
- Focus on autonomy issues
- See healthy eating as more autonomy-assertive and social justice-oriented behavior – “taking a stand”
- Public health interventions for adolescents may be more effective when they harness the motivational power of that group’s existing strongly held values
- “Positive youth development” programs are pro-social and inclusive of adolescent girls with the goal to provide opportunities that enhance their interests, skills, and abilities in local food environments

Bryan et al 2016 PNAS



Food Supply Issues

- While the best way to reach adolescents is through the environments in which they engage, they too are food supply actors in many places in the world.
- However, many are leaving food system work, and rural places due to the drudgery and lack of opportunities.
- However how do we get them to be the future food leaders? How do we make working in food aspirational?

How to Reach Adolescent Girls?

- Adolescent girls in many low-income rural places are hard to reach.
- How can we ensure they have agency, and are empowered – social capital?



Platforms to Intervene?

Interventions for adolescent girls: What works?

Interviews with 11 leading voices on adolescent girls and boys suggested the following principles as critical to successful interventions:

Comprehensive approaches that target across thematic areas (focusing on health, education, harmful traditional practices, safety, etc).

Media and digital interventions can challenge the status quo, portray a new reality and provide new role models.

Keeping girls in school increases agency and opportunity.

Engaging parents and gatekeepers in girls' empowerment.

Providing opportunities for girls to **raise their voice and engage in decision-making.**

Blum et al Adolescence: Age and Stage



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THANK YOU!

For more information, please contact:

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