A Scientific Look at the Impact of Sugar

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FDLI

A Scientific Look at the Impact of Sugar

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September 26th, 2019

Presentation outline

- Sugar consumption
- What is sugar?
- What happens to sugar in the body?
- How does sugar impact health?

Sugar consumption

- Sugar contributes significantly to energy intake in the United States
- Sugar is believed to play an important role in obesity, diabetes, and cardiovascular disease
- Current levels of consumption have increased compared to prior generations

Sugar consumption

- Sugars have always been present in the human diet
- Sugars are now present in a wide range of foods and beverages and sugars are often “hidden”
- Sugars are added to foods for a variety of reasons, some unrelated to taste
    - For example: browning, preservation, texture

Recommendations for Added Sugar

- World Health Organization (as per 2015 guidance) recommends that added sugar comprise less than 10% of total daily calories

Example: 2,000 calorie diet

→ *maximum of 200 calories from added sugar (50 g)*

39 g 15 g 4 g 20 g

Recommendations for Added Sugar

- The American Heart Association (as of 2010) recommended an upper limit of 6 teaspoons per day for women and 9 teaspoons per day for men.
  - This is ~100 calories from added sugar (25g) for women and ~150 calories from added sugar (37.5g) for men

1 teaspoon = 4 grams
(16 calories)

Key controversies

- Do calories from sugar uniquely contribute to weight gain and cardiometabolic disease risk?
- Or is it simply that high-sugar foods and beverages contribute excess calories?
- Does the source of sugar matter? What about sugar from natural sources, such as fruit and dairy?

Presentation outline

- Sugar consumption, current recommendations
- What is sugar?
- What happens to sugar in the body?
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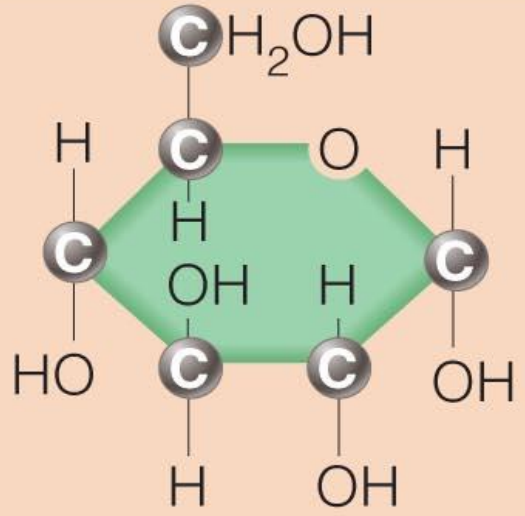
What is sugar?

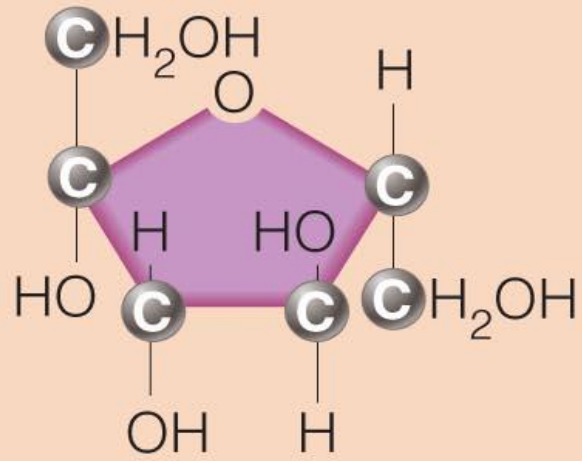
- Simple carbohydrates are referred to as “sugars”
    - **Monosaccharides**
      Glucose
      Fructose
      Galactose
    - **Disaccharides**
      Maltose
      Lactose
      Sucrose

Monosaccharides



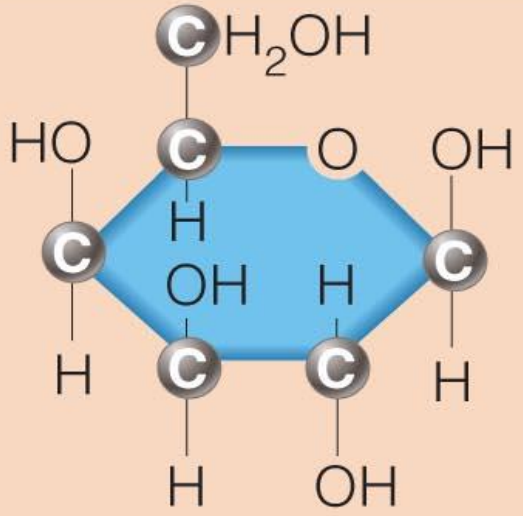
Glucose

Most abundant sugar molecule in our diet; good energy source



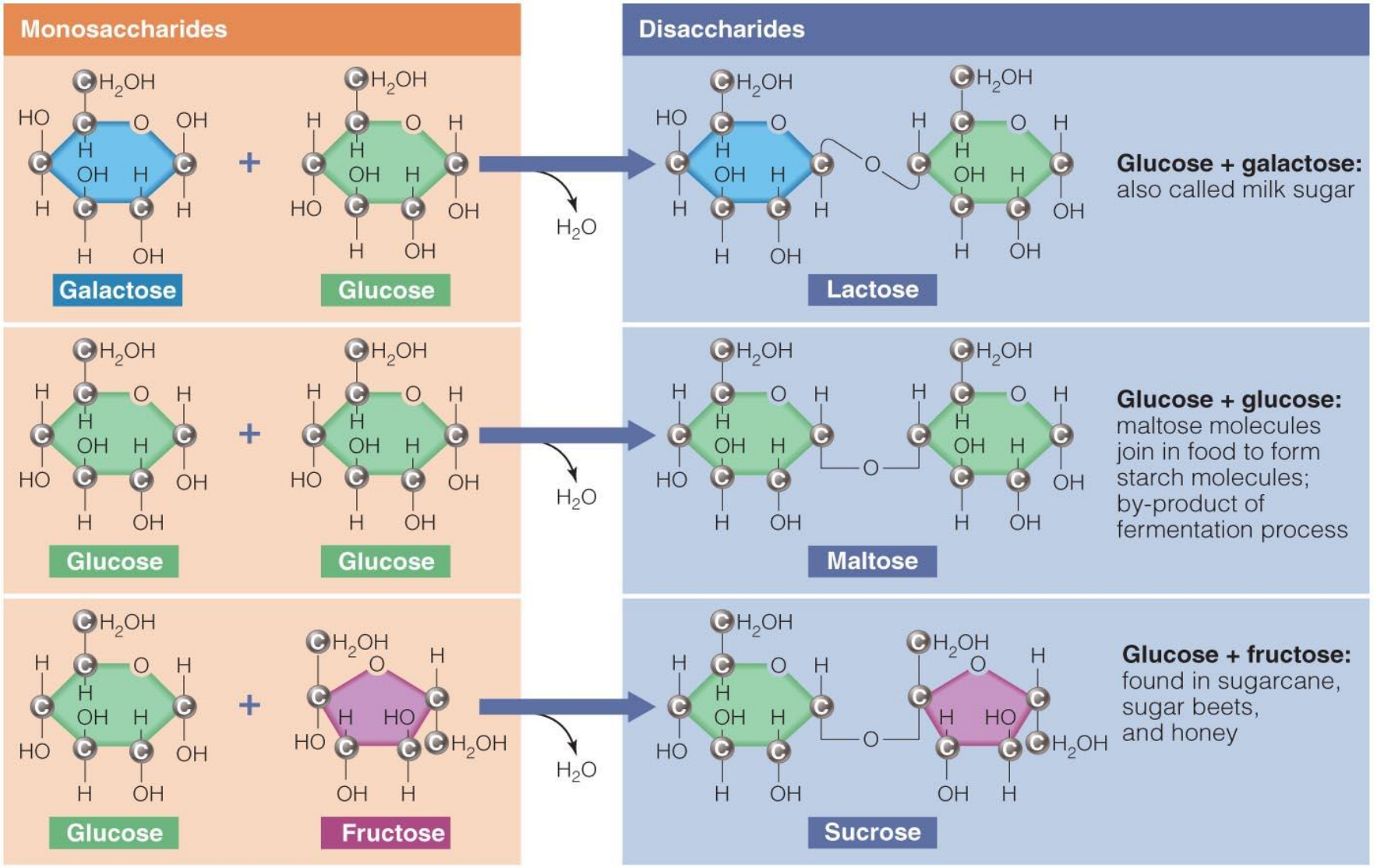
Fructose

Sweetest natural sugar; found in fruit, high-fructose corn syrup



Galactose

Does not occur alone in foods; binds with glucose to form lactose



Where we find simple carbohydrates?

Naturally occurring sugars

- Naturally occurring sugars are comprised of monosaccharides glucose and fructose and dissaccharides lactose and sucrose
  - Sugarcane and sugar beets are key sources of sucrose
  - Fruits are a key source of fructose
  - Lactose is exclusively present in milk
  - Honey contains both glucose and fructose, as does agave

Added sugars

- Sugars added to foods or beverages during processing or preparation
  - Example: sugar-sweetened beverage or adding honey to your oatmeal
- Chemically identical to natural sugars

Common sugars in food

- Sucrose
  - Table sugar
  - Contains glucose and fructose

- High Fructose Syrup
  - Synthetically made from corn
  - Comprised of glucose and sucrose
  - Liquid form, free monosaccharides
  - Different amounts of fructose depending on type

Common sugars in food

- Honey
  - Made from the nectar of flowers
  - Composition varies greatly based on geographic & botanical origin
  - Contains fructose and glucose
  - Less water content than HFCS

- Agave
  - Plant-based sweetener
  - Also contains glucose and fructose but > 2X fructose

So many names for added sugars

- Anhydrous dextrose
- Brown sugar
- Cane juice
- Crystal dextrose
- Confectioner's powdered sugar
- Corn syrup
- Corn syrup solids
- Dextrose
- Evaporated corn sweetener
- Fructose
- Glucose
- Fruit juice concentrate
- Fruit nectar
- High-fructose corn syrup (HFCS)
- Honey
- Lactose
- Liquid fructose
- Malt syrup
- Maltose
- Maple syrup
- Molasses
- Nectars (e.g., peach nectar)
- Pancake syrup
- Raw sugar
- Sucrose
- Sugar
- Sugar cane juice
- White granulated sugar

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What happens to sugar in the body?

- Dietary carbohydrates are primarily absorbed as monosaccharides: glucose, fructose, or galactose
- Glucose is the main source of fuel for the body
- Galactose and fructose are converted to glucose or to other energy substrates, such as fatty acids

Fructose

- Fructose is metabolically different from glucose:
  - Fructose bypasses rate limiting step of glycolysis
    - Substrate for hepatic de novo lipogenesis
    - Promotes triglyceride synthesis

Presentation outline

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- What is sugar?
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Sugar and health

Added sugars and sugary drinks linked with major public health problems such as:

- Obesity
- Type 2 Diabetes
- Cardiovascular Disease
- Hypertension
- Dental Issues

Sugar and health

- Observational studies show associations between sugar and obesity
- SSB consumption is consistently associated with development of type 2 diabetes and related chronic diseases
- In randomized controlled trials, reducing added sugars lowers body weight

Sugar and health

- Reducing sugar intake is a relevant component of obesity prevention and treatment

- Current scientific evidence supports current public health guidance to reduce intake of added sugars/sugar-sweetened beverages

Sugar and health

- Key areas for future research include:
  - Examining effects of different sugars on health
  - Elucidating biological mechanisms underlying relationship between added sugar intake, weight gain, and metabolic disease
  - Identifying effective strategies for lowering added sugar in individuals and populations

Thank You

Hot Topic: Sugar Litigation

Maia Kats

Kaplan Fox Kilsheimer LLP

The Backdrop

- 71.6% of American adults (age 20 and over) are overweight
- 39.8% of American adults (age 20 and over) are obese
- More than 100 million adults are diabetic or pre-diabetic
- That number will reach 50% soon
- https://www.cdc.gov/nchs/fastats/obesity-overweight.html
  https://www.cdc.gov/media/releases/2017/p0718-diabetes-report.html

The Role of Sugar

- High sugar consumption in SSBs links with weight gain, type-2 diabetes, cardiovascular disease, and dental carries
- What's high?
- The American Heart Ass'n recommends a limit of 6 tsp of added sugar per day for adult women and children, and 9 for men
- One typical 12 oz. can of soda has approx. 7 tsp of added sugar and a 20 oz. bottle has approx. 16 tsp

What Leading Health Authorities Say About SSBs

- **FDA**: "***[S]trong and consistent evidence***" shows an ***association between sugar drinks and excess body weight*** in children and adults. 81 Fed. Reg. at 33,803 (emphasis added) (citing the findings of the 2015 DGAC).

- **CDC**: "Frequently drinking sugar-sweetened beverages ***is associated with weight gain/obesity, type 2 diabetes, heart disease, kidney diseases, non-alcoholic liver disease, tooth decay and cavities, and gout, a type of arthritis***. ***Limiting the amount of SSB intake can help individuals maintain a healthy weight*** and have a healthy diet." CDC, ***Get the Facts***: *Sugar-Sweetened Beverages and Consumption* (last updated April 7, 2017) (emphasis added). *See also* CDC, *Beverage Consumption Among High School Students—United States, 2010* (June 17, 2011), https://goo.gl/aAD5ba (***sugar drinks are a "factor contributing to the prevalence of obesity among adolescents*** in the United States" (emphasis added)).

- **World Health Organization** ("WHO"): "Current evidence suggests that increasing consumption of sugar-sweetened beverages is associated with overweight and obesity in children. Therefore, ***reducing consumption of sugar-sweetened beverages would also reduce the risk of childhood overweight and obesity***." WHO, *Reducing Consumption of Sugar-sweetened Beverages to Reduce the Risk of Childhood Overweight and Obesity*, https://goo.gl/5pDE9K (last visited Feb. 8, 2018) (emphasis added). *See also* WHO, *Reducing Consumption of Sugar-sweetened Beverages to Reduce the Risk of Unhealthy Weight Gain in Adults*, https://goo.gl/Pn46gt (last visited Feb. 8, 2018) (same, for adults).

Health Authorities Con't

- **Institute of Medicine** ("IOM"): "[R]esearchers have found ***strong associations between intake of sugar-sweetened beverages and weight gain***"; "***their link to obesity is stronger than that observed for any other food or beverage*** . . . ." IOM, Accelerating Progress in Obesity Prevention: Solving the Weight of the Nation at ch. 6, p. 169 (2012), https://goo.gl/pZRas8 (emphasis added).

- **American Heart Association** ("AHA"): "***There is a robust body of evidence that SSB consumption is detrimental to health and has been associated with increased risk of CVD mortality, hypertension, liver lipogenesis, [type 2 diabetes], obesity, and kidney disease***." Linda Van Horn et al., *Recommended Dietary Pattern to Achieve Adherence to the American Heart Association/American College of Cardiology (AHA/ACC) Guidelines: A Scientific Statement from the American Heart Association*, 134 CIRCULATION e1, e8 (2016), https://goo.gl/rr9or6 (emphasis added). "Therefore, it is recommended that children and adolescents limit their intake of SSBs to 1 or fewer 8-oz beverages per week (Class I; Level of Evidence A)." Miriam B. Vos et al., *Added Sugars and Cardiovascular Disease Risk in Children: A Scientific Statement from the American Heart Association*, 135 CIRCULATION e1017, e1033 (2017), https://goo.gl/35a4H1.

- **American Public Health Association** ("APHA"): "***Consumption of [sugar] drinks is a significant contributor to the obesity epidemic and increases the risk of type 2 diabetes, heart disease, and dental decay***." APHA, *Taxes on Sugar-Sweetened Beverages* (Oct. 30, 2012), https://goo.gl/XGdrMZ (emphasis added).

- **American Diabetes Association** ("ADA"): "***The American Diabetes Association recommends that people should avoid intake of sugar-sweetened beverages to help prevent diabetes***." ADA, *Diabetes Myths* (last edited July 5, 2017), https://goo.gl/DUxU2u (emphasis added).

What Do We Lawyers Need to Know?

- It's risky to extrapolate from (or rely on) the research on SSBs linking them to disease to show widespread medical harm caused by sugar.
- Courts are not buying this extrapolation (nor should they because causation for SSBs – the how – is not yet established, just the link)
- The blockbuster sugary cereal cases are a case in point.

The Lesson of *Truxel v. General Mills*

- In *Truxel*, 2019 WL 3940956 (N.D. Cal. Aug. 13, 2019), the court dismissed the plaintiffs' amended complaint without leave to amend.
- Plaintiffs had sued GM across a score of its cereals claiming that sugar is "toxic to the body" and that GM's generalized marketing around well-being and health was deceptive given high sugar content.
- When Plaintiffs' cited SSB research in support, GM reminded the court:

  > "the scientific studies cited by Plaintiffs [] purport to demonstrate that added-sugar in [SSBs] may lead to certain health harms, but none of the studies demonstrate that the added sugars in cereals cause the same health harms."

- The court noted this and also explained that in each instance, labeling on the FOP indicated grams of sugar per serving, concluding thus that no reasonable consumer would be mislead as to sugar content.

But Beware, *Truxel* Isn't a Free Pass

- Many other cases about sugar are successful.

- For example, *Milan v. Clif Bar*, 2019 WL 3934918 (N.D. Cal. Aug. 20, 2019)

  where the same court denied Clif Bar's health MTD, permitting plaintiffs to proceed with their UCL claims based on generalized health representations in the context of excessive sugar (37% of calories).

- In rejecting CB's preemption defense, and denying its MTD, the Court noted that while FDA's Rule setting 10% as a daily reference value for added sugars:

  > "did note that 'some added sugars can be included as part of a healthy dietary pattern,' the rule also emphasized that 'the DRV for added sugars should not be viewed as a recommended amount for consumption,' and '[w]e also have scientific evidence to support limiting calories from added sugars to less than 10 percent of calories.'"

So Too - Cheerios Protein

- Same defense counsel (Biderman)
- Litigation in NDCal settled in 2018
- Cheerios Protein effectively marketed as all the goodness of Cheerios with the benefit of more protein
- But has only a smidgen more protein and 16 or 17x the added sugar
  - 33% sugar by weight
  - 66% of added sugar cap per day for women per AHA guidelines – not taking into account "overpour" averages

Settlement Cheerios Protein

New label will amend red dot to include only the protein from the cereal itself and not include the protein from milk

Will highlight the greater sugar content by dramatically enlarged the text “sweetened whole grain oat cereal” on FOP

And Jamba Juice

- Sued in 8/2018 for deceptive marketing of smoothies
- Settled in 5/2019
- According to its 10-K Report, JJ's business strategy is "to position [itself] as a leading global health and wellness, lifestyle brand . . . to meet the needs of today's increasingly *health-conscious . . . consumer*."
- Claims made from "whole fruits and veggies"
- Are "good for you," "nutritious," and "healthy"

Marketed vs. True Profile Caribbean Passion

Whole mango, strawberry, peach, orange passion fruit	**Passion Fruit-Mango Juice Blend, which is made of pear juice and white grape juice, and orange sherbet** **There is no whole passion fruit, mango or orange**
Healthy, nutritious, and good for you	**95 grams, or approx. 23 tsp of sugar, in a large (with upsell)**


jambajuice • Follow
jambajuice 😍😍😍 This lil guy's mama gets it: Blending is better! There's only goodness in this cup #iJamba
toniluciano Sooo cute!!!
rashin_saghafi @roza.saghafi
chloe_waitforit @showtimetnb
jamie.allen70509 having his smoothies#Goodstuff
mariana_fonsec 😍😍😍😍
ohhsandoval 😘😍😍😍
zar_che @bay_toe84
miyalxve Adorable!!
kristinrandolph @kaitopp
1,949 likes
JULY 15, 2017
Add a comment...

- “Kids deserve the best. We blend it for them. Whole fruits and veggies give them real nutrition.”
- “Drink your greens”
- One on-line ad reposted a news article touting the benefits of blending whole fruits and veggies as opposed to smoothies blending fruit juices

And Naked Juice

- Settlement of EDNY complaint
- Manufactured by PepsiCo, Naked Juice labels emphasized high profile ingredients over predominant ingredients
- Allegation: Gave the false impression that, for example, kale blazer was as nutritious as pressed kale
- Contained 34 g of sugar (8+ teaspoons)
- Commendable effort by PepsiCo


THE ONLY KALE,
KALE WOULD DRINK
IF KALE DRANK KALE
TWEETS BY KALE
LEARN MORE
VEGGIES
kale blazer
dark leafy goodness
Naked
100% JUICE
kale blazer
endorsed by kale
loved by all™

Target Ads


Naked
KALE BLAZER
KALE FLAVORED BLEND OF 8 JUICES WITH OTHER NATURAL FLAVORS
190 CALORIES PER BOTTLE
NON GMO

New Label

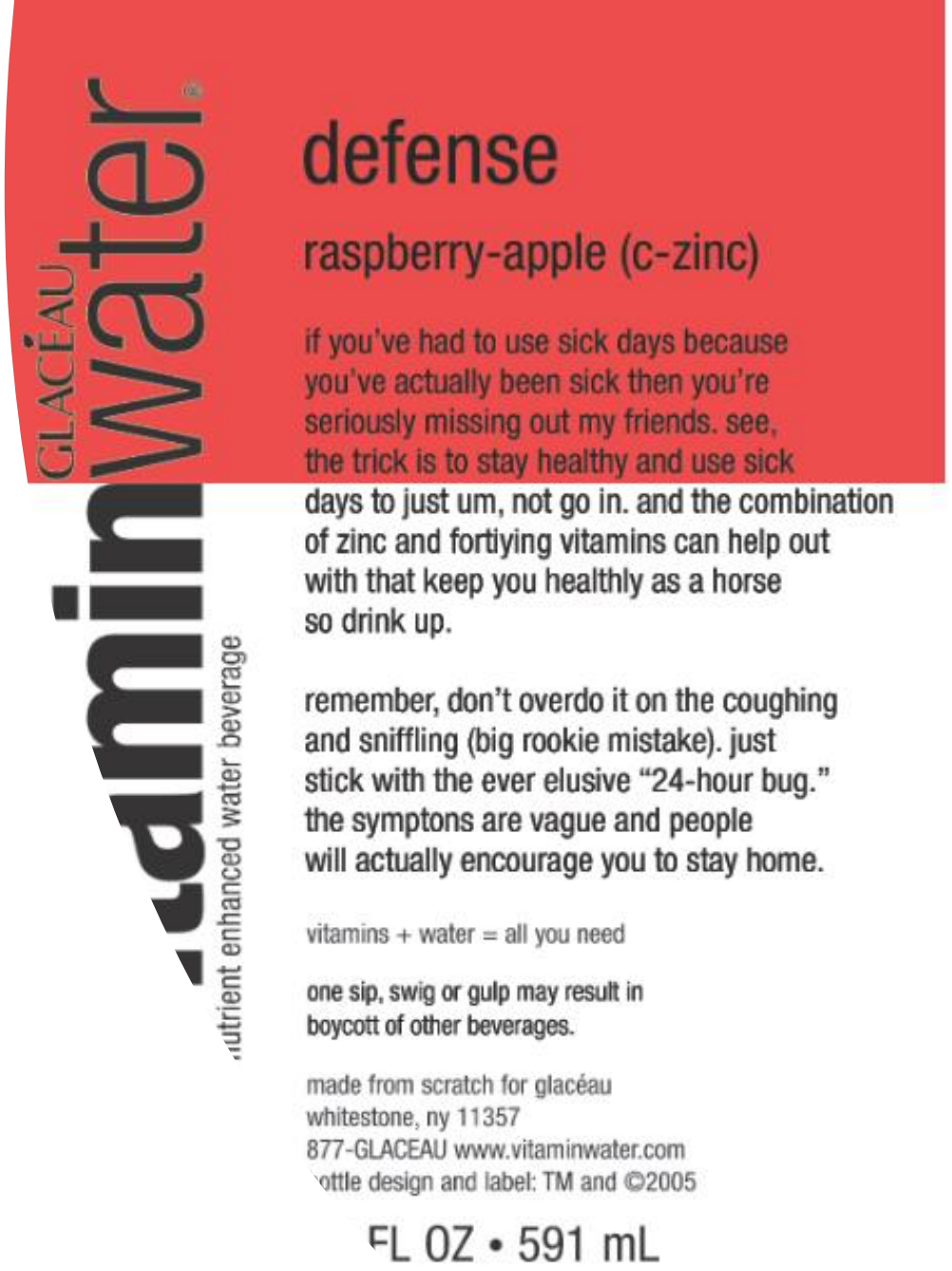
Remedy of Transparent Labeling

Reformulation
(not part of settlement)

- And now we have: Half Naked

Vitaminwater

- “vitamins + water = all you need”
- Forgot the sugar
- Also prohibited health claims like, “keeps you healthy as a horse” - and



So What's Different Between Truxel & the Others?

- Care with the science
- Narrow tailoring of the litigation and joinder with other elements of deception

A Cautionary Note on ABA v. SF

- Beyond the scope of this presentation
- But a cautionary note is warranted. Three relevant decisions have issued
  - Trial Court – upheld the warning based on the science
  - 9th Circuit Panel – Two of three judges disagreed, finding science did not warrant the warning
  - En banc decision – Vacated earlier science-based decision and held that the warning was unduly burdensome
- Scientific conclusions of the two 9th circuit judges adopted representations of FDA positions by industry advocates that were instantly challenged.

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A Scientific Look at the Impact of Sugar

Presented by Kurt D. Weaver

September 26, 2019

Legal Causation

- Causation or proximate cause is defined by the **“substantial factor test”:** was the defendant’s conduct (or product) a substantial factor in bringing about plaintiff’s harm? [Kentucky]

- Does it “directly and in natural and continuous sequence produce or contribute substantially to produce such injury so that it can reasonably be said that, ***but for*** the negligence, the injury would not have occurred? [Florida FSJI 401.12(a)]

- The evidence must be sufficient to ***tilt the balance from possibility to probability.***

In Re Mirena IUS Levonorgestrel-Related Products Liability Litigation, 387 F.Supp.3d 323 (S.D.N.Y. 2019)

- To establish **causation**, plaintiffs must offer admissible expert testimony regarding both **general causation** and **specific causation**.

- General causation is *whether a substance is capable* of causing a particular injury or condition in the general population, while specific causation is *whether a substance caused a particular individual's injury.*

- Absent admissible evidence that a theorized event has occurred, or could occur, in real life (that is, evidence of general causation) there is no basis to opine that it caused a particular accident (that is, specific causation).

Scientific Evidence

Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 592-594 (1993)

- An expert "is permitted wide latitude to offer opinions, ***including those that are not based on firsthand knowledge or observation.***"

- [A] rule which represents 'a most pervasive manifestation' of the common law insistence upon 'the most reliable sources of information,' is *premised on an assumption that* ***the expert's opinion will have a reliable basis*** *in the knowledge and experience of his discipline."*

- ***"[G]eneral acceptance*** can yet have a bearing on the inquiry. . . .
  - ***Widespread acceptance*** can be an important factor in ruling particular evidence admissible and 'a known technique' which has been able to attract only minimal support within the community' may properly be viewed with skepticism."

Association vs. Causation

- Scientific studies that show ***an association*** between a factor and a health effect do **not** necessarily imply that the factor causes the health effect.
  - Many such studies are preliminary reports that cannot justify any valid claim of causation without considerable additional research, experimentation, and replication.

- It is important to note that ***no single study of any type can justify a claim*** that factor X causes health effect Y. Instead, any new finding must be considered in conjunction with the entire body of scientific evidence on the topic to determine whether causality is likely.
  - "People are not big rats."

Distinguishing Association from Causation: A Background for Journalists, AMERICAN COUNSEL ON SCIENCE AND HEALTH (Oct. 29, 2007)

Total Sugars and Added Sugars

Nutrition Facts Label: Final Rule

81 Fed. Reg. 33,742 (May 27, 2016)

Added Sugars

- The limit for calories from added sugars to less than 10 percent of calories is a reference that is appropriate for use as a DRV (dietary reference value).

- "Rather than basing a declaration of added sugars on an association with risk of chronic disease, a health-related condition, or a physiological endpoint . . . We are considering a declaration in the context of how it can assist consumers in maintaining healthy dietary practices by providing them information . . ."
  - *"We are using a different paradigm."*

Nutrition Facts Label: Final Rule

81 Fed. Reg. 33,742 (May 27, 2016)

Added Sugars

- "The consumption of added sugars and their impact on health continues to be an area of great interest to the scientific community and to consumers. We intend to monitor future research that may impact the labeling of added sugars."

Comment 145 Response

Nutrition Facts Label: Final Rule

81 Fed. Reg. 33,742 (May 27, 2016) **- Comment 196 - Warning Statements**

- WARNING: THIS PRODUCT CONTAINS A SIGNIFICANT AMOUNT OF ADDED TEASPOONS OF SUGAR WHICH STUDIES HAVE LINKED TO OBESITY, TYPE II DIABETES, CARDIOVASCULAR DISEASE AND CERTAIN CANCERS. CONSULT YOUR PHYSICIAN ABOUT AN APPROPRIATE DIET WITH A REDUCED AMOUNT OF ADDED SUGAR.

- WARNING: ADDED SUGAR IS ADDICTIVE. IT CAN LEAD TO OBESITY, OBESITY CAN LEAD TO DIABETES, HEART DISEASE, ETC.

AMA AMERICAN MEDICAL ASSOCIATION

- "[Response] We decline to revise the rule as suggested by the comments. The statements are not consistent with our review of the evidence . . . Furthermore, some added sugars can be included as part of a healthy dietary pattern."

Scientific Report of the 2015 Dietary Guidelines Advisory Committee U.S. Department of Agriculture, Agricultural Research Service, Washington, DC (Feb. 2015)

- Question 6: Added sugars and their relationship to disease
  - Obesity: Cannot determine dose response relationship
  - Type 2 Diabetes: Insufficient high-quality data to determine dose response relationship
  - CVD: Some evidence of association of higher risk or increased risk factors

- "The individual is at the innermost core of the social-ecological model. In order for policy recommendations such as the *Dietary Guidelines for Americans* to be fully implemented, motivating and facilitating behavioral change at the individual level is required."

WHO Essential Nutrition Actions

Sept. 4, 2019

Summary of Key Evidence

* * *

"Excess calories from foods and drinks that are high in free sugars also ***contribute to*** unhealthy weight gain, which ***can lead*** to overweight and obesity. Recent evidence also shows that free sugars ***influence*** blood pressure and serum lipids, and ***suggests*** that a reduction in intake of free sugars reduces ***risk factors*** for cardiovascular diseases.

Public Health Community Advocacy

- Excessive amounts of sugar are harmful to people . . . industry is aware of that harm, and to the extent they are packaging the product as nutritious, with that knowledge, that is going to be an area for ***litigation exploration***.

Bloomberg Law, Sept. 22, 2016

American Beverage Ass'n., et. al, v. San Francisco

(N.D. Cal. & 9th Cir.)

American Beverage Ass'n., et. al, v. San Francisco

(N.D. Cal. & 9th Cir.)

- Scientific Issue: SSB → "contributes to obesity, diabetes, and tooth decay"
- Legal Issue: Did the ordinance violate the First Amendment?
  - Is the compelled disclosure "purely factual," "noncontroversial," and "not unjustified or unduly burdensome"?
- Three judge panel: Ikuta, Seabright*, and Nelson (concurring–burden)
- *En Banc* Rehearing **Granted**

Appellate Reminders

- *En banc* rehearing will not be ordered unless: (1) necessary to secure or maintain uniformity; or (2) a question of exceptional importance is involved. [FRAP35(a)]

- *"The three judge panel shall not be cited as precedent by or to any court of the Ninth Circuit."* 880 F.3d 1019 (2018)

- "The *en banc* court does not review the original panel decision, nor does it overrule the original panel decision. Rather, the *en banc* court acts as if it were hearing the case on appeal for the first time." *Socop-Gonzalez v. INS*, 272 F.3d 176, 1187 n. 8 (9th Cir. 2001)(*en banc*).

ABA v. SFO - 9th Cir. Opinions

- *En Banc* Panel: SFO "has not carried its burden . . . that [the warning] is 'not unjustified or unduly burdensome'."

- *En Banc* Panel (11): Thomas, ***Nelson***, Graber, Fletcher, Berzon, ***Ikuta***, Murguia, Christen, Nguyen, Hurwitz, Owens

  - Ikuta: Controversial
  - Christen, Thomas: Controversial
  - Nguyen: Right result, wrong legal standard

Science in Advertising ?

Truxel v. General Mills Sales, Inc.,

2019 WL 3940956 (N.D. Cal. Aug. 13, 2019)

- "any amount above approximately *5% of daily calorie* intake – greatly increases [disease]"
- "deceptive because they are incompatible with the significant dangers of the excessive added sugar consumption"

- "Plaintiffs' theory of the case . . . was recently determined to be an untenable application of the reasonable consumer standard. [citing *Clark v. Perfect Bar, LLC*, 2018 WL 7048788 (N.D. Cal. Dec. 21, 2018)]

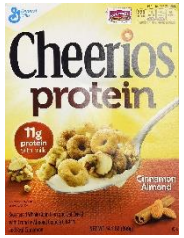
- "In this regard, there is no consensus on just how much sugar is healthy for consumption." "Defendant is under no obligation to warn its consumers that certain levels of sugar may be associated with poor health results."

Other Cases

Complaint only – ND Cal. Alleged advertising deception; mediated resolution

Complaint only – EDNY Alleged regulatory violations and advertising deception

5 year agreed settlement



ND Cal. Alleged misleading labeling; MTD denied on 1 of 3 claims

"[T]he Court is skeptical that a reasonable consumer would be mislead . . ."

Large MDL – EDNY Alleged advertising deception

Hadley, et al. v. Kellogg Sales Co., No. 16-cv-4955 (ND Cal. Filed Aug. 26, 2016)

- Various claims addressing "Heart Healthy" and other *express* "health and wellness" claims on products; and misleading by omitting the health effects of added sugar

- Deep into class and merits issues; class certified August 17, 2018
- Court: "[T]he instant action does not seek redress for any physical harms caused by Kellogg's packaging statements. Instead, Plaintiff 'is seeking to recover for the economic injury caused by Kellogg representing that its . . . foods are healthy.'"
- *Daubert*, Summary Judgment heard on papers; rulings (Aug. 13, 2019)

Krommenhock, et al. v. Post Foods, LLC, No. 16-cv-4958 (ND Cal. Filed Aug. 26, 2016)

- Challenge to "health and wellness" claims on 34 products rendered false and misleading by the amount of added sugar included
- Plaintiffs' experts: Robert Lustig and Michael Greger

- Added sugar is toxic when consumed at amounts in the typical American's diet; opine that *"there is a scientific consensus that added sugar causes a range of diseases"*
- Lustig: "I would say at this point in time it is still a minority view" and "not generally accepted"
- *Daubert* Argument: October 9, 2019 - 2 p.m. PST

Plaintiff Experts in Litigation

Asbestos	Tobacco		Food
			
David S. Egilman, M.D. (Brown)	Stanton A. Glantz, Ph.D. (UCSF)	Robert N. Proctor, Ph.D. (Stanford)	Robert H. Lustig, M.D. (UCSF)

Who's next?

What type of “linkage” exists?

- Is there adequate legal causation?
  - General causation and specific causation
- Does the balance tilt from possibility to probability?
  - Substantial factor? “But for” causation?
- Experts:
  - Does the scientific argument have a reasonable basis?
  - Is there general or widespread acceptance?
- Causation ≠ “associated” “contributes” “suggests” “influence”

The Future Frontier of Fructose and Food?

WARNING: ADDED SUGAR IS ADDICTIVE. IT CAN LEAD TO OBESITY, OBESITY CAN LEAD TO DIABETES, HEART DISEASE, ETC.

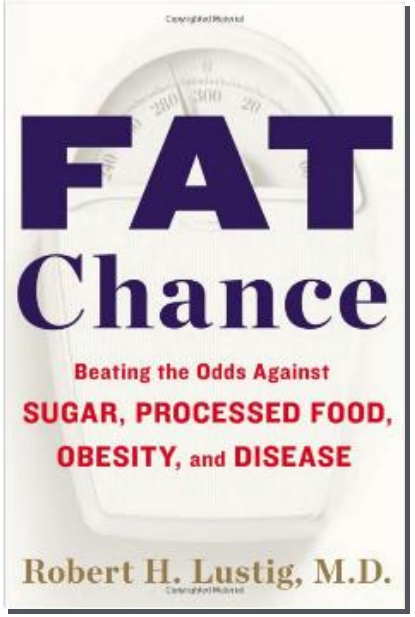
Chapter 5: Food Addiction – Fact or Fallacy

"Doctors are starting to come around to the concept of food addiction. Nora Volkow, the head of the National Institute on Drug Abuse (NIDA) is on record supporting the concept of food addiction. Yet not everyone is sold on the idea that obesity and addiction are related."

* * *

"I've laid out the data that demonstrate that fat and salt increase the appeal of the fast food meal, but it's the sugar and the caffeine that are the true hooks. We'll come back to this time and again throughout the book, as this is where the action is."

(at 62-63)



S.F., as parent and Natural Guardian of S.E.F., an infant v. Archer-Daniels-Midland Company, et al., 594 Fed. Appx. 11 (2d Cir. 2014)

- High-fructose corn syrup is toxic and caused Type II diabetes
- Defendants ADM, Cargill, Ingredion, Tate & Lyle, Roquette America

- "High insulin blocks leptin signaling which causes the hypothalamus to register a false sense of 'starvation.' *The fructose in HFCS therefore 'tricks' the brain into wanting more food and stimulates excessive and continued consumption."* (Complaint ¶27)

- Rule 12(b) motion granted on causation and "not unreasonably dangerous."
  - "The studies . . . naturally arrive at the same conclusion: it is the *over-consumption* of *fructose* that may lead to increased obesity and other adverse health effects."

Krommenhock, et al. v. Post Foods, LLC, No. 16-cv-4958 (ND Cal. Filed Aug. 26, 2016) [*Accord Hadley*]

Expert Report & Declaration of Robert Lustig, MD, MSL

> And after a while you're consuming a whole lot to get nothing — this is the phenomenon of tolerance, which is one-half of addiction.[12]

Expert Report & Declaration of Dr. Michael Greger, M.D. FACLM

> Like drugs of abuse, sugars are substances found in nature, but in much smaller concentrations, and may only become addictive when extracted and concentrated by modern industrial processes.[81]

> Which foods may be the most addictive? A sugary breakfast cereal[87] beat out candy, cheese, soda and bacon in a study of reported addictive-like eating behaviors.[88] Glycemic load, more than just the quantity of sugars, was found to be a key factor.

Truxel v. General Mills Sales, Inc.,

2019 WL 3940956 (N.D. Cal. Aug. 13, 2019)

may result in overeating. And while glucose suppresses ghrelin, thus reducing hunger, fructose has no effect on ghrelin.

3. The Addiction Response

37. Research shows that, for some people, eating sugar produces characteristics of craving and withdrawal, along with chemical changes in the brain's reward center, the limbic region, which can be similar to those of people addicted to drugs like cocaine and alcohol.[23] These changes are linked to a heightened craving for more sugar.[24] This can create a vicious cycle leading to chronic illness.

Is Science Getting Sweeter?

- Mullee, et. Al., *Association Between Soft Drink Consumption and Mortality in 10 European Countries*, JAMA INTERNAL MED. (online: www.jamainternalmedicine.com) (Sept. 3, 2019)
- E. Chazelas, et. al., *Sugary drink consumption and risk of cancer: results from NutriNet-Sante -- prospective cohort*, BRITISH MEDICAL JOURNAL, 365:12408 (July 2019)
- M. Westwater, et. al., *Sugar Addiction: the state of the science*, EUR J. NUTR. 55 (Suppl. 2) 555-569 (July 2, 2016)
- A. Figueiras, et. al., *Exploring the consumption of ultra-processed foods and its association with food addiction in overweight children*, APPETITE, 135:137-145 (Nov. 12, 2018)

Questions?

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A Scientific Look at the Impact of Sugar

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FDLI