**That Sugar Film notes**


Film opens with candy on assembly line, Depeche Mode’s *Just Can’t Get Enough* (1981)

- Gameau started eating healthy to impress his GF; cut out refined sugar completely
- The ave. Australian fam. buys 6 1-kg bags of sugar per week
  - Sugar is so prevalent [in Australian] processed foods, if all the items containing processed sugar on supermarket shelves were removed, just 20% of items would remain.
- Hugh Jackman: The Condensed History of Sugar
  - 8000 BC New Guinea; myth that a man made love to the stalk of a sugar cane & sugar was produced
  - Through trade, went to India
  - 12th century, arrived in Europe; became a status symbol for royalty
  - At the start of the 20th century, sugar was still considered a treat (occasional)
- 1955 US Pres. Dwight Eisenhower had heart attack, & the issue of heart disease became a thing
- 2 Scientists—American Ansell Keys & Brit. John Yudkin—identified 2 diff. causes
  - Keys said fat was the problem
  - Yudkin blamed sugar
- Over next 20 years, a fierce debate; low fat movement (Keys) won
- Industry removed fat from otherwise healthy foods and added sugar to replace the flavor that was lost
- Gameau decided to start eating sugar again: “The only way to get some answers [about the effects of refined sugar on the body].”
- Gathered a team of experts:
  - Chief Sugar Advisor (aka “The Crusader”) author David Gillespie
  - Dr. Ken Sikaris (aka “Professor Blood”), one of Australia’s leading pathologists, to do blood work
  - Nutritionist Dr. Sharon Johnston (aka “The Celtic Food Queen”)
  - Dr. Debbie Herbst (aka “Check Upz”) looks out for his overall health
- **40 t. sugar per day embedded in foods.**
  - Example: 1 serving iced tea contains nearly 9 g sugar
• Gameau’s health at the beginning of the experiment
  o Total daily caloric intake approx. 2300
    ▪ 50% “good fats” (avocado, nuts)
    ▪ 26% protein (eggs, meat, fish)
    ▪ 24% carbohydrates (fresh veggies)
  o Weight 76 kg (167 lbs.), waist circumference of 84 cm (33.07 inches)
  o Blood tests reveal “very healthy liver” & low level of triglycerides
  o Overall, rated slightly healthier than average western male

• Goes shopping, keeping in mind 1 t = 4 g sugar

• The Sugar Family
  o When we eat, food breaks down to glucose, which our body uses for fuel
  o Fructose now everywhere; in all kinds of foods
  o Gameau juices 4 apples to illustrate how easy it is to consume sugar; nature did it right

• Dr. Jean Marc Shwarz: Beverages deliver a massive amt. of sugar to the liver very quickly, & there’s a consequence

• DAY 12: first weigh-in
  o 79.3 kg (gained 3.3 kg in 12 days)
  o Dr. Herbst alarmed—not bc of weight gain, but bc fat was all around his belly: visceral fat

• DAY 18: Liver function test shows rise in ALT levels
  o When the liver cells release ALT, it’s a sign they are damaged or dying; signs of a fatty liver
  o What also happens is that this liver fat is sent out into the blood stream as triglycerides; can lead to weight gain, heart disease, diabetes, etc.

• After sugar enters the body, it splits into 2 parts—fructose & glucose—both which make their way to the liver
  o The glucose is efficiently metabolized & is either used immediately or stored for later
  o Fructose is not efficiently metabolized; is so rarely found in nature that the human body has not evolved to process it efficiently
    ▪ it’s pushed out into the blood stream, whether needed or not
    ▪ if it’s not needed, immediately turns to fat
- some of the fat stays in the liver, giving the eater an increased chance of insulin resistance & diabetes

- The more glucose in the blood, the more insulin released;
- While it’s in the blood dealing w/ the glucose, insulin tells the fat cells to **HOLD ONTO** the fat; actually turns off the body’s fat burning processes
- When we eat lots of sugar (carbs), we’re putting fat into our bodies or our fatty liver, plus, bc of all the glucose, we maintain the level of insulin—which tells all the fat cells to hold onto all the fat
- **We can’t burn off fat when insulin is around dealing with all the sugar**

Gary Taubes, investigative science journalist and author of *Why We Get Fat: And What To Do About It* (2010):

- Chronic diseases rel. to obesity & diabetes, heart disease, many cancers, gout, hypertensions, possibly Alzheimer’s

Gameau wakes up feeling drained; has mood swings. GF says she notices his attention is reduced; he’s distracted, which is not like him.

- Psychologist Nick Allen says what they’re describing is what research has shown: high concentration of energy followed by a crash.

Thomas Campbell, retired NASA physicist:

- Brain & body run on glucose.
  - If the levels are constantly going from high to low, then one’s mental function is unstable.
  - If the glucose level is stable & not fluctuating, one has more clarity

Nutritionist Sharon Johnston’s diagram of sugar & mood changes:
Gameau wonders how a diet heavy on sugar affects children at school
• David Wolfe (Health, Eco, Nutrition, and Natural Beauty Expert, author) believes high-sugar diet has affected kids’ behavior, mental health issues, neurological illnesses

In the 1950s, the indigenous people of Australia (Aboriginal) consumed equivalent of 2-3 small candies’ worth of sugar in a year.
• In 2008, Coca Cola claimed that Australia’s northern territory was their highest selling region, per capita; due in part to the Aboriginal stores.
• In 2007, town of Amata’s population of just under 400 people consumed 40,000 liters of soft drinks.
• Early deaths (heart & liver diseases, hypertension, diabetes) traced to high-sugar diet

John Tungku Tregenza (“The Chainsaw”), Aboriginal Community Development Worker
• When Tregenza arr. in 1972, approx., 10% of peeps’ diet came from store; now he estimates 90%
• Tregenza says for variety of reasons:
  o intro. of foreign grass that took over plains & drove away native plants/animals
  o 40 yrs. ago, lived mostly on emus, kangaroos, turkey, wild tomatoes & beets
  o whites brought in “sweet things”
• Tregenza & colleagues est. health council
  o removed deep fryers & Coke, added free H2O coolers, & hired nutritionist
  o started educational program for kids incl. videos & posters
  o in short time, Amata had lowest sugar consumption rate in region
• Gov’t cut funding; 1st to go was the nutritionist
• Coca Cola still gone, but peeps consuming massive amts. sugar
  o dialysis, heart disease, asthma, diabetes, kidney failure, obesity in babies

Gameau meets w/ his nutritionist Dr. Sharon Johnston (00:41:30)
• in 1 month gained 5+ kg; waist 91 cm (increase of 7 cm)
• Gameau eating & snacking more & finding it hard to “feel full”
• Johnston: bc eating <protein, >sugar, not “good fats”

Gameau arr. in US
• Jamba Juice smoothie → 139 g sugar (34.75 t.)
  o equivalent sugar in “real fruit” would be 30 lemons, 4 peaches, 9 limes, & 30 strawberries
• 1st thing Gameau notices about American food: will be hard to stay under 40 t. sugar
• not just sugar in foods, high fructose corn syrup
  o “primary delivery system” is soda, which adds 4,000 t. sugar per/yr. to ave. Am. diet
• 1980s sugar industry “did their best” to make sure people didn’t associate high fructose corn syrup with sugar.
Other names for sweeteners:

- Turbinado, fruit juice concentrate, evaporated cane juice, cane juice crystals, molasses, organic coconut palm sugar, & agave
- **ANY SUGAR** has equal effect on your health

**Barbourville, Kentucky** (Eastern Kentucky, poorest region in the state)

- In the Great Cola Wars of the 1990s, Pepsi won in this area
- Mountain Dew their most popular product (1.25-liter bottle contains 37 t. sugar & 40% more caffeine than in Coke
- Dentist Edwin Smith, D.M.D., travels the state in a mobile dentist office (in an RV provided by Pepsi), educating & treating children.
  - Smith coined term “Mtn. Dew Mouth”
  - some kids start at age 3 or 4, some in baby bottles
  - some drink as many as 10 Mtn. Dews per day
- Smith explains that it takes the oral cavity about 20 minutes to cleanse itself; if a person drinks one every 20 minutes, the mouth has no chance to clean
- **NOTE:** Although Pepsi furnished the RV, does not fund education efforts

**Gameau goes to NYC**

- Pulitzer Prize-winning author **Michael Moss** (*Salt Sugar Fat: How the Food Giants Hooked Us*) says companies will do just about anything to keep consumers confused about food ingredients
- Talks about **Howard Moskowitz** (today the Chair of iNovum marketing firm) as a “legend in the food industry.”
  - In 1970s, when Moskowitz was developing a flavor for Dr. Pepper, he started with 61 levels of sweetness
  - Discovered the “optimum level of sweetness”
  - “Behind closed doors,” was referred to as the “Bliss Point”
  - Moskowitz says now, 45 yrs. Later, sugar is in pasta sauce, cereals, sodas, etc.
- Moss says that use of Bliss Point exploits children; training them to think everything should be sweet tasting

Gameau tries taste test with the Miracle Berry and lemon, apple cider vinegar, & chili pepper

**DAY 35:** Gameau finding exercise harder; his motivation has plummeted

- Has zits & fat tummy (can’t fit into his new shorts)
- Sharon Johnston says acne is prob. his liver reacting to sugar intake
- intercuts w/ Aaron Matheson, Wellness Leader (speaking from the label of a healthy looking bottle) saying that peeps with high processed sugar diet can have bags under eyes & feel drawn & lethargic
Gameau, wanting to find out effects on brain, goes to Oregon Research Institute

Grp. of scientists there perform FMRI on him

Images of Gameau drinking milk shake

Photos of his brain show release of dopamine

• this is result of evolution; when sweets were rare, brain saw it & said, “Get that!”
• next, opioids (beta-Endorphins) released
• subject feels terrific ( same areas of the brain light up as when subjects use nicotine, cocaine, & sex), but the ‘high’ doesn’t last long
  o can create subconscious or mindless habits that are easily triggered
  o also, fructose
• fructose also affects appetite control centers
• the “glucose half” affects our moods
  o

Eric Stice, one of the Oregon scientists (appearing on 1st a donut box, then a soda bottle)

• Emerging findings: The more you eat high-sugar foods, the more you desire high-sugar foods
• Rats in studies work harder for sugar than for cocaine

• In boardrooms of food giants, the word addiction is a “dirty word.”
• Footage of self-help groups for overeaters in which people are being fat-shamed
• Narration speaks of how our society looks at fat & obese people and blames them for a lack of self-control
• Voiceover of some faceless woman saying, “When it comes to eating, fat people are very stupid.”

Gameau says more calories in fats than in sugars; he’s eating the same amt. of calories as b4 experiment, but his liver is turning to fat, his belly’s getting bigger, something’s happening to his brain, and he doesn’t usually feel full.

Gary Taubes, Investigative Science journalist & author of Why We Get Fat (intercut so he’s on a TV screen above a woman who’s working out on a treadmill):

• The sugar industry pushed the idea of a-calorie-is-a-calorie bc otherwise they’re in the same position the tobacco industry was in when all the findings were publicized

DAY 45: Gameau has gained 6 kilos (15 lbs.)

In 1970s, a report written by the sugar industry—the thesis was that no evidence of sugar’s connection to disease—released and latched onto as science.

Gameau talks to Dr. John Sievenpiper, Li Ka Shing Knowledge Institute, University of Toronto. Sievenpiper’s source of funding is “unrestricted funding” from Coke.

1 week later, Sievenpiper is the keynote speaker at a Fructose symposium sponsored by Coke

That Sugar Film notes
Gameau heads back to Australia

Voiceover narration:
• Says he’s adjusted to the diet, but he’s not nearly as efficient, his fuse is shorter, and he often feels exhausted
• If someone eats sugar “all the time,” they may not realize how cloudy/fuzzy their mind is
• Society has changed; 200 yrs. ago, no culture existed that had this much sugar

Gameau’s Final [Health] Verdict

Liver
• ALTs: Went from [before study] being 20 below safety zone to being 20 above safety zone

Triglycerides
• Went from .08 to 1.5 — the risk point
• This can also indicate unhealthy cholesterol (LDL)

Weight Gain
• 8.5 kg (18.74 lbs.)
• added 7% to total body fat
• waist increased by 10 cm (almost 4 inches) — visceral fat

Most Enlightening to him
• Calorie intake was the same; big difference bet. healthy fats & processed sugar
• It’s not the calories, it’s the source of the calories

1st week giving up sugar:
• Headaches, messed up sleep patterns, moodiness, sugar cravings
• Knew from previous experience this wouldn’t last (after 2 mos., felt great)

Gameau’s Parting Advice:
• Once fructose removed from diet, your body’s natural appetite suppressants work again
• In supermarkets, turn right or left; avoid the middle bc of processed foods
• Fatty liver can be reversed
• If we educate today’s children, perhaps they can avoid making the same mistakes we made.
• Refined sugar:
  o Once you give it up, it takes awhile but your palette will readjust (artificial sweeteners keep your cravings alive)
  o Men should have no more than 9 t. per day
  o Women should have no more than 6 t. per day
  o Not solely to blame, but it plays a huge role