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# The Bond Briefing

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RATIONAL EVIDENCE-BASED COMMENT FOR THE GENERAL PUBLIC & HEALTH PROFESSIONALS. WE SAY EXACTLY WHAT WE THINK

**Epigenetics:** Obesity Programs a Woman's Eggs for Three Generations. **Briefing:** Our Living Gut – part II. **Health Policy:** Diet is shortening U.S. Lifespan. **Q&A:** Role of Dried Fruit in Paleo; Omega-3 Rich Chicken Meat. **Did You Know?** Herpes/Chronic Constipation Link. **News Flashes:** BMI over 20 at age 18: Bigger risk of middle-age heart failure; Stevia Encourages Weight Gain; Sugar Replacement Muffins. **Human Nature:** Interest in Sport: Mars vs Venus – Evolutionary Insights.

## Epigenetics

### Obesity Programs a Woman's Eggs for Three Generations



Even before becoming pregnant, a woman's obesity changes her oocytes (eggs) in such a way that she passes dysfunction down the generations [1]. Even her great-grand-children can blame her for their vulnerability to obesity, diabetes II, and heart disease.

Says Kelle H. Moley, MD, of Washington School of Medicine, St Louis: "This is particularly important because more than two-thirds of reproductive-age women in the United States are overweight or obese."

The study, which was carried out on mice, used a typical western diet, and was HIGH FAT and HIGH SUGAR.

Moley found that the effect is transmitted through the female line by the egg's mitochondrial DNA.

**My View?** We just have no idea what time bomb we have stored up for future generations.

See:

Lifespan Weighed down by Diet, p 2.

BMI over 20 at age 18: bigger risk of Middle-age Heart Failure, p. 2

Diet is shortening U.S. Lifespan. This p.

## Briefing

### Our Living Gut – Part II

[Last month](#) [2] Ideas of gut health have evolved rapidly in the last few years, but there is confusion about what, exactly, constitutes a healthy microbiome. Once again, using our ancient past as a template gives us invaluable insights.

#### Forager Stools

It took a while to get round to it but finally, in 2014, researchers analyzed the bacteria in forager stools [3]. They did it on Hadza folk – a people who are among the last examples of Paleolithic life.

Compared to Europeans they found big differences. In Hadza folk:

- There was almost complete absence of *Bifidobacterium*, strains of which are 'normally' thought of as being 'healthy'. Indeed they are even promoted as a probiotic.
- The bug types are well suited for processing indigestible fibers from a plant-rich diet.
- There is a much richer *variety* of microbes. When variety is low, say the researchers, it allows Irritable Bowel (IBS), colorectal cancer, obesity, diabetes II, Crohn's disease and others to take hold.
- The bacterium, *Treponema*, was abundant among healthy Hadza individuals, whilst in Europeans, the same bacterium has been linked to autoimmune diseases. However, the Hadza suffer no autoimmune diseases. Therefore, say the researchers Stephanie L. Schnorr & Amanda G. Henry of The Max Planck Institute, Leipzig, Germany: "we must redefine our notions of 'healthy' and 'unhealthy' bacteria."

> p.3

## Health Policy

### Diet is shortening U.S. Lifespan

Dr David Ludwig, Boston Children's Hospital, MA, whom we met in [May 2016](#) (Not all Calories are the same), [4] opines in the US doctors trade journal JAMA, that a lifespan tipping point has been passed. [5]

In a kind of arms race, medical technology has been improving at the same rate as people are increasingly trashing their bodies and getting sicker.

Now technology can no longer keep up. People are already having shorter lifespans than previous generations.

Up to 1983, life expectancy increased throughout the United States, and no county had a significant decline. However, between 1983 and 1999, life expectancy DECREASED significantly for men in 11 counties and for women in 180 counties. These counties, mainly in the Southeast and Mid-West, are also the most obese.

Says Dr Ludwig, "This downward trend in longevity will accelerate as the current generation of children— younger and more obese than ever before—reaches adulthood."

"While modern medical care may prevent premature death from diabetes and heart disease among middle-aged adults, it will be overwhelmed when these conditions begin in childhood."

Dr Ludwig reminds us that food affects hunger, hormones, and even genetic expression in ways that cannot be explained by a simple calories in/calories out calculation. >p 4

**Questions**

**Role of Dried Fruit in Paleo**

**Q.** *What is your opinion on the dried fruit and sugar debate. Many Paleo products do contain dried fruit - it varies of course and some Ugg Foods products also include some dried fruit.*

**A.** Fruits in our ancestral diet were very low in sugar: most fruits we have today are high in sugar, and drying only increases the concentration. The purist would consider most dried fruits as NOT Paleo conforming. This is particularly true of dried high-sugar fruits like raisins and dates.

Nevertheless, I take a pragmatic view: in the grand scheme of things, a few raisins (for example) in CONDIMENT quantities (that is, low-glycemic-impact) can be justified by the culinary interest they bring.

**Omega-3-rich Chicken Meats**

**Q.** *What do you think of these new products from the upmarket British grocery chain, Waitrose? They use an algae feed that contains omega-3.[6]*

**A.** It looks like a move in the right direction. 95% of chicken is still factory farmed and is notoriously deficient in omega-3. Chickens are kept in horrendous conditions and fed antibiotics, GMOs and all kinds of rubbish. That is a far cry from their natural diet of seeds, green plants, insects, and worms – such as those wonderful chickens raised on Ampelistra Farm, Greece, *Deadly Harvest*, [Chap 5](#), p 129 [7].

**Omega-3 content**

Waitrose claim that one portion of chicken will give the recommended daily allowance (RDA) of 250 mg. In initial trials, “people eating the chicken for just 5 weeks have increased levels of omega 3”.

**Welfare**

Waitrose claim that they “rear their chickens to their bespoke high welfare standards... plenty of natural light and space ... allowing the birds to have natural behavior.”

**My View?** So far so good. Algae, as such, are not a normal part of a chicken’s diet, but it is certainly better than factory chicken chow.

Secondly, the chickens’ bodies are doing the hard work of elongating and desaturating the algae’s alpha-linolenic acid to convert it into the so-called ‘fish oils’, DHA and EPA – a process that human bodies don’t do well.

Finally, this will appeal to the FRAILTIES and INERTIA in human nature:

You won’t need to change your diet, just change where you shop!

**Did you know?**

**Herpes/Chronic Constipation Link**

Researchers have discovered a surprising link between genital herpes and constipation [8].

They found that genital HSV-1 viruses spread along nerves first to the spinal cord, and then on to neurons in the colon, killing them.

The damage paralyzes the movement of food along the digestive tract, leading to constipation, enlarged colon and disease.

The researchers say that similar viruses like chicken-pox also migrate along nerves to the colon.

Meanwhile, another study found Herpes-7 virus in the nervous system [9]. “Herpes viruses seem to be using the nervous system as a highway to spread themselves.” On the way they are probably messing with the nerves, even attacking the myelin sheath (as in MS).

**My View?** Almost everyone in the population is carrying herpes viruses of various strains. They usually remain dormant or benign. That is, until they sense a vulnerability – like depressed immune function.

**Moral?** Live the way we say and keep your immune system tuned to perfect pitch!

**News Flashes**

**BMI over 20 at age 18: bigger risk of Middle-age Heart Failure**

In Sweden, all 18-year-old men were conscripted into doing National Service. At that time, they were all physically and mentally examined. This is a huge database of reliable information.

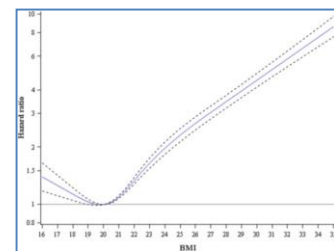
Prof. Annika Rosengren, University of Gothenburg, Sweden, mined this rich resource of over 1.6 million subjects, to follow up what became of them in middle age [10].

In an astonishing discovery, she found that those who had a BMI OVER 20 at age 18 had a sharply increased risk of heart failure in middle age (average age 47).

This applies even to the range 20.1 to 24.0 – normally considered to be healthy. But not it, seems, if you are a teenage youth.

BMI	Risk Increase
18.5 to 20.0	Baseline
20.0-22.5	Plus 22%
22.5 to 25.0	Plus 59 %
25.0 to 27.5	Plus 170%
27.5 to 30.0	Plus 300%
30.0 to 35.0	Plus 550%
Over 35.0	Plus 1,000%

And this is what it looks like as a graph. Note that having a BMI BELOW 20 also increases risk slightly.



Enlarge: <http://bit.ly/2brDoHM>

**My View?** In the young, even a BMI between 22 and 25 has to be considered overweight.

Wow! This is really serious. Childhood OVERWEIGHT – let alone obesity – is storing up staggering ill-health for future populations.

See: *Diet is shortening U.S. Lifespan*, page 2.

**Obesity Programs a Woman’s Eggs for Three Generations**, page 1

**Stevia Encourages Weight Gain Last month** [11] we reported that

‘intense’ artificial sweeteners like Aspartame (Equal, Canderel), Sucralose (Splenda) and Saccharin (Sweet ‘n’ Low, Hermesetas) increase appetite and so, counter-intuitively, tend to encourage weight gain.

At the time we wondered if Stevia, also an 'intense' sweetener, albeit of plant origin, has the same effect. I did not expect to get the answer so soon.

'Yes', says Prof. Susan E Swithers of Purdue University, Indiana, USA. In her experiments on rodents, she found that those fed stevia gained weight far more rapidly than those fed on glucose [12].

What is going on? Under normal conditions of consuming sweet food, the brain sends messages to the digestive system to get ready for a calorie-dense nutrient to arrive. This is the 'cephalic phase response' which triggers many hormonal changes, including increased appetite and insulin secretion. More interestingly, it also causes the body to increase its 'core' temperature dramatically. This increase in temperature consumes significant calories.

(Mind you, this is not free license to consume glucose! With its massive GI of 100, we still have to keep intake to a strict minimum.)

Prof. Swithers, using ingenious measuring devices found that rodents, habituated to stevia intake, did not have this core temperature rise. Their bodies had learned to ignore the sweet taste as a false signal.

So, on stevia (as with the other intense sweeteners) the body simply did not burn as many calories as it would have done on glucose, hence the weight gain.

**My View?** We are learning that there are no easy options when it comes to sugar replacement. Certainly the ARTIFICIAL high intensity ones (Aspartame etc) are beyond the Pale – not only do they trigger overeating and weight-gain, they mess with our gut bugs. (I come to that later in the serialization of *Our Living Gut*.)

Now stevia is suspect. What about the polyols (like xylitol and erythritol)? We still do not know. Xylitol does have calorific value – about two-thirds that of honey – so maybe the body is not confused by it. On the other hand, erythritol has no calorific value so the body might

well react the same way as with stevia. We await more research! Meanwhile check out: *Is Honey all right after all?*, [Nov 2014](#) [13].

#### **Sugar Replacement Muffins**

Muffins are a popular snack in the USA. However, sugar is one of the main ingredients and muffin makers are desperate to avoid its bad name.

Jingrong Gao PhD of Lincoln University, New Zealand has experimented muffin-making using stevia and inulin (a sweetish dietary fiber) as sugar replacement [14].

She found that it was possible to make tasty muffins with good texture and baking qualities using a 50/50 mixture of stevia and inulin. In particular, the product was low-glycemic compared to regular muffins.

**My View?** This is a laudable attempt to make a silk purse out of a sow's ear (it still leaves the wheat flour and fat in standard muffins). In particular, we like the use of inulin, which boosts dietary fiber intake and feeds beneficial gut bacteria. It is low glycemic and has only 25%-35% of the calories of sugar.

Even so, we see that stevia has drawbacks and there are better solutions.

For example [Ugg Foods](#) [15] muffins use xylitol as sweetener. It is also low glycemic and is a dietary fiber. See: *Stevia Encourages Weight Gain*, page 2.

### Human Nature

#### **Interest in Sport: Mars vs Venus - Evolutionary Insights**

Interest in sport is wildly different between males and females. Many social engineers and commentators want to even things up. There's even a Federal law, Title IX, which makes it obligatory for sports organizations to get equal participation of male and female athletes.

However, they may be flogging a dead horse. Probably, females just aren't wired up the same way as males: they just are not so interested.

Prof Robert Deaner PhD of Grand Rapids University, Michigan, finds that sex differences are due to

evolutionary pressures that programmed the sexes differently [16].

For a start, this sex difference occurs in ALL societies, from hunters and gatherers to large modern societies. Males participate in sports at least twice as much as females in both frequency and duration.

Deaner also noted that male and female athletes generally differ in their motivation, notably their competitiveness and risk taking.

According to Deaner, these differences are deep and innate. It is a mistake and perhaps distressful to force women into taking more interest in sport. In this regard Title IX should be reassessed.

Why would evolution have made males like this? As often in male psychology, "cherchez la femme"! Deaner finds that the main driver is male competition: winning males get the women. Secondly, women want males that other men admire. In fact our evolutionary history is characterized by male fighting – from hunter-gatherer one-on-one contests to modern bar-fights [17]. It is an example of sexual selection akin to the peacock's display. See *Deadly Harvest*, [Chapter 8](#), 'Sexual Selection', p 209 [18].

**My View?** Title IX is another example of how well meaning social engineers cross-thread our savanna-bred natures. A LEVELING DOWN of men's programs to the women's level is one perverse effect

**Continued from Page 1**

#### **Our Living Gut - Part II**

But that is just The Hadza's stools – what about other hunter gatherers – are they the same? Yes they are.

Alexandra Obregon-Tito, PhD, of University of Oklahoma checked the Hadza microbiome with that of a tribe 5,000 miles away, the Matses of Peru. They found they had very similar gut-bug profiles [19]. In contrast, they found, westerners have quite different microbiomes. In particular, one bacterial genus is conspicuously absent, our old friend, *Treponema*.

It works for simple agrarian societies too. The microbiota from three traditional agrarian groups in Malawi, Venezuela, and Burkina



Faso were more similar to one another in microbiota diversity and short-chain-fatty-acid (SCFA) production than to their Western counterparts [20]

Say the researchers: "These bacteria have co-existed with humans for millions of years, so their absence in industrialized people is unsettling... These lost bacteria are multiple species that ferment fiber and generate short chain fatty acids (SCFA's), which have anti-inflammatory properties." Could these lost *Treponema* be a factor in the increase in autoimmune disorders in industrialized people? Gut *Treponema* are found in non-human primates [chimpanzees, gorillas and so on] and all traditional peoples studied to date, suggesting that they are symbionts [helpers] lost in urban-industrialized societies."

Here the researchers highlight just a few species of bacteria. But what do we know about the full complement? Until recently, scientists had only identified some 500 species of

bacteria in our guts. I had always thought that this is a gross underestimate: researchers had only been able to count the few species that they knew how to grow in a Petri dish.

More recently, the latest groundbreaking DNA techniques find that there are at least 1,000 species and 7,000 strains of bacteria in the colon (of a westerner) [21]– that's a huge multiple of what was previously thought!

Most significantly: there is a 'long tail' of minor species which, up till now, had remained completely unknown.

But the challenge remains: just how do all these species interact in the battleground of the colon?

Next month: Some answers.

**Continued from Page 1**

### Diet is shortening U.S. Lifespan

In other words the TYPE of calories consumed affects the number of calories burned.

Amongst other measures, we must stop the food industry from "aggressively marketing low-quality

products like corn and wheat" and instead encourage production of high-quality proteins, fruits, vegetables, nuts, and other whole foods. Children must be protected from 'predatory advertising'.

**My View?** "Low quality products like corn and wheat"? Yes, the general public needs to understand that lesson: feeding their children on popcorn, breakfast cereals, pasta and pizza, feeds them RUBBISH!

Feeding your children on pop-corn, breakfast cereals, pasta and pizza, is feeding them RUBBISH!

And again Dr Ludwig is right on the money with childhood obesity. It is a time-bomb set to overwhelm health services, the national budget and, in the view of some, even bring down western civilization.

See: **Obesity Programs a Woman's Eggs for Three Generations**, page 1

### Spreading the Word

#### On-going Program of Talks

This month, private audiences only



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