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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

Q of Month: Regularity of Omega-3 Intake? **Our Restless Climate - The Good News:** Squid Thrive with Climate Change; Siberia – New 'Garden State'. **Evolutionary Physical Activity:** Older women 10,000 steps per day not needed. **Evolutionary Biochemistry:** Omega-6 bad for Pregnancy. **Q&A:** All about Whitebait; Fluoride – Update? More about Carbohydrates. **News Flashes:** Dawn-to-Sunset Fasting; Forceful Chewing Stimulates Bone-building Cells; Statins Increase Diabetes Risk; Avocados as 'Carb' Replacement can Suppress Hunger. **Our Savanna-bred Biology:** Obesity – Ancient Anti-starvation trick gone wrong. **Our Food Supply:** Battery Hens – Sunshine Starvation.

Question of the Month

Regularity of Omega-3 Intake?



Salmon fillet with baby spinach salad

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

Q. How important is it to consume the full quota of omega-3 fish-oil every day? Can we miss a day and make it up later?

A. Yes, it would seem so. The "half-life" of fish-oils in both blood plasma and in red blood cells is around three days [1,2].

That is to say, if you eat a full dose one day then, three days later, half of it is still circulating in the body.

In some trials volunteers absorbed up to 4 grams per day of fish oil, giving rise to blood plasma levels of up to 360 mg/litre of EPA. This is even better than the upper reference norm. Moreover, if you are eating fish oils every day, your fatty tissues will build up stores and so provide a buffer for when there is a shortfall.

What about the forager template? In their savanna environment, omega-3 fatty acids were present in almost everything they ate. See **The State of the San's Health, Deadly Harvest, Chapter 1**, page 18 [3]. So quite automatically they had tremendous reserves of omega-3 fatty acids in their tissues.

Nowadays we have to 'medicate' ourselves with deliberate > p4

Our Restless Climate

The Good News

Only 20,000 years ago, there was an ice-sheet ½ mile thick where London and New York now stand. The Earth has been getting warmer since then. So I take the long view on climate change – and a much more nuanced one. In particular it is galling that the gloomsters of the mainstream media focus entirely on the negative impacts and don't celebrate the positive. So here we go...

Squid Thrive with Climate Change



Enlarge: <http://bit.ly/2NAYa9c>

Squid will survive and even flourish under the worst case scenario of ocean acidification, find coral reef researchers at James Cook University, Australia [4].

They find that: "Squid have a high capacity to adapt to environmental changes due to their short lifespans, fast growth rates, large populations, and high rate of population increase." In addition, both their predators >3

Siberia: New 'Garden State'

Ten years ago, in **Climate Cycles: Winners & Losers, Sept 2009** [5], I wrote: "Imagine seeing the frigid wilderness of Siberia ripening into an attractive and productive province growing apple, quince and plum and gourd!" Now scientists from NASA, USA, and Krasnoyarsk Institute, Russia have studied the implications of a warmer Siberia [6] > p3

Evolutionary Physical Activity

Older women: 10,000 steps per day not needed

Older women who took 4,400 steps per day had lower mortality than those taking 2,700; risk of death continued to decrease with more steps up to 7,500 steps per day before levelling off. So finds a study from Brigham and Women's Hospital, Harvard [7].

My View? This suspiciously round number of 10,000 immediately invites scrutiny. In fact there is no basis for it – it was invented by a Japanese pedometer company in the 1960s to frighten people into buying their products.

As I say in **10,000 Steps a Day? July 2014** [8], forager women of any age rarely got up to 10,000 steps per day, and would have averaged around 7,500.

Evolutionary Biochemistry

Omega-6 bad for Pregnancy

We are used to the idea that the modern western diet is wretchedly overloaded with the highly metabolically active omega-6 oils like corn oil and sunflower oil.



They are inflammatory and, in excess over omega-3, are a major factor in a huge range of illnesses.

Now a study finds that pregnant women who do have such imbalances had altered inflammatory proteins in the liver, proteins that contract the uterus and decreased hormone that regulates growth and development [9].

My View? Paleo conformers > p4.

Questions

All about Whitebait



Nicole's whitebait starter [10]
Enlarge: <http://bit.ly/321ziHp>

Q. *I enjoy whitebait – what is it exactly and does it have any particular nutritional advantages?*

A. Whitebait refers to the young of many species of fish, typically between 1 and 2 inches (25 and 50 mm) long. The entire fish is eaten including head, fins, bones, and guts. As such this is very Paleo – foragers used to eat every part of the animal whether fish, flesh or fowl. Certainly there will be all kinds of interesting nutrients that we do not get in the normal course of events. However, the main interests are two:

First, since all the bones are eaten, whitebait of any species is extremely rich in calcium – typically 860 mg/100g. Whereas milk, (which we disapprove of), which the dairy industry touts as a good source of calcium has only **ONE SEVENTH** the calcium content.

Secondly, the most common species of whitebait – herring, sardine, pilchard, and anchovy – are rich in omega-3 fish oils.

Whitebait does have the small drawback: that of restaurants normally served it deep-fried and coated in flour. But it doesn't have to be like that if you cook it yourself: Nicole has had excellent results cooking uncoated whitebait in an air-fryer.

Fluoride - Update?

Q. *The pros and cons of fluoride are being debated a lot today. What is your take?*

A. There is not much to add to **Fluoride - Good or Bad?** [Sept 2013](#) [11].

In summary: fluoride was a common mineral in the savannas of our ancestral homeland – so it is normal to have it naturally occurring in our food supply. Tea is a particularly rich source.

At these levels, the body deals with fluoride quite happily. Indeed it has the reputation of hardening tooth enamel and so was promoted for use in toothpastes.

However, it is possible to have too much of a good thing, and in excess, fluoride is toxic. See: **Poison is in the Dose**, also in [Sept 2013](#). I see that, for example, fluoridated toothpastes now carry the warning not to use them more than twice a day.

It is also why I have been against the fluoridation of water supplies – on two grounds: The first is a matter of principle – we shouldn't have governments subtly medicating us without the option. The second is that we have no control of how much of this potentially toxic substance we absorb.

So my view is to not obsess about fluoride and to just happily accept what shows up quite naturally in our food supply.

Remember – you can't have too little of it, but you **CAN** have too much.

More about Carbohydrates

Q. *I'm confused about the use of the word 'carbohydrates'. Sometimes it is used to describe starches and sugars; sometimes (as in the ketogenic diet) it means green leafy vegetables.*

A. The use and misuse of the word 'carbohydrates' is one of the most vexed issues in nutrition. Technically starches, sugars, dietary fiber, resistant starches, vegetables, salads, and fruit are **ALL** 'carbohydrates'. However, in common parlance, lay people, journalists and even scientists (who should know better) use the word to mean just starches (and perhaps sugars).

Their use of the contraction 'carbs' is often the giveaway. However, I prefer the term that dentists have taken up for these: '*fermentable carbohydrates*'. See **Fake News: "Low-carb diet linked to early death"**. [Oct 2018](#) [12].

On the other hand, ketogenic diet practitioners limit the term 'carbohydrate' to salads and vegetables only!

As an aside, the standard keto diet allows a maximum of some 50g of salads and vegetables – that's just 5% to 10% by weight. There are even no

fruits – that is why the keto diet is grievously deficient in micronutrients. See: **Ketogenic Diet Dangers**, [April 2012](#) [13] and **Ketosis: Devoutly to be wished?** [June 2012](#) [14].

'Dietary fibers' are another huge area of confusion. See: **Defining Dietary Fiber**, [August 2016](#) [15]. On ingredient labels they are included in the category 'carbohydrates' and, in some cases, in the sub-category 'sugars'. But they have quite different properties to sugars and starches – often they are not digested at all and, anyway, have a much lower impact on blood sugar levels.

There are no easy answers. Be vigilant and questioning – don't be taken in by the 'Fake News' headlines like the one mentioned earlier.

Meantime, in everything I write I make it clear what exactly we are talking about.

News Flashes

Dawn-to-Sunset Fasting

In **Ramadan & Fasting**, [Oct 2006](#) [16], I wrote about the Muslim practice of fasting from dawn-to-dusk for the month of Ramadan.

Now researchers have used this opportunity to study the health impacts of this phenomenon [17].

In this pilot study, they drew blood from 14 healthy individual volunteers who fasted (no food or drink) for 15 daylight hours per day over the 30 days of Ramadan.

They found strong improvements in insulin sensitivity, glucose control, cell maintenance, and cell repair.

Say the researchers, these findings show a cost-effective treatment of obesity, diabetes, and fatty liver disease. In addition it tunes up cells and keeps them healthy.

My View? There is no doubt that modest fasting from time to time has beneficial effects on various bodily functions. It helps 'reset' the clockwork and normalize processes that are drifting off message.

The simplest way, in my view is to fast for the 15 hours between the evening meal (at, say, 7:00 pm) and brunch at, say 10.00 am the next day. – or just skip breakfast. See: **Intermittent Fasting Revisited**, [July 2017](#) [18].

Forceful Chewing Stimulates Jaw's Bone-building Cells

Foragers have strong jaw-lines and wide palates with plenty of room for the full complement of teeth.

That is how things are supposed to be. But, since forager times, jaws have been getting weaker. See: **Jaw-dropping Birth of Farming**, [Oct 2017](#) [19].

Things got worse with the Industrial Revolution. The main reason is that foods got ultra-processed and don't need any chewing at all. **Mouthpart Under-development in Westerners**, [Aug 2016](#) [20]

A second reason, as highlighted by paleo-dentist Dr Kevin Boyd, is the move from breast feeding to bottle feeding. See: **Your jaws are what you chew**, [Aug 2011](#), [21].

Now a study has uncovered the mechanism that translates stresses on bones into bone-building [22].

The researchers found that the forces on the jaw-bone stimulated osteocytes (bone cells) to produce the growth hormone "IGF-1".

IGF-1 promoted the creation of new bone-building cells called osteoblasts. It also suppressed the hormone "sclerostin" – that's a good thing since sclerostin depresses bone building.

The researchers say: "increased chewing itself can directly change the shape of the jaw-bone."

My View? There are many good reasons why we should emulate the chewy forager food supply. Improving your jaw-line is another one.

There is clinical evidence that chewing gum is a useful habit to develop jaw muscles, and anecdotal evidence that it helps develop jaw-bone too. See also: **Jaws Change with Age**, [May 2010](#) [23].

Statins Increase Diabetes Risk

Users of statins for up to two years had more than **DOUBLE** the risk of diabetes and **THREE** times the risk after three years compared to those who didn't take statins [24].

The research was done by mining a large database of highly detailed records on patients whose average age was 46.

The researchers are confident that this is a case of statins 'causing' the condition and not simply a correlation

since the longer the statins were taken, the higher the risk of diabetes. Say the researchers: "Doctors should help patients to improve fitness and diet before prescribing statins."

My View? Just so! High cholesterol levels are a disease of **LIFESTYLE**. If you use a drug (statin) to artificially depress them, then that messes with a whole panoply of other delicately tuned biochemical processes. See: **Statin – Two Faced Harlot**, [Mar 2015](#) [25]. But this is not the first time that the Statin/Diabetes link has been found – see **Statins Strongly Linked to Diabetes**, [June 2015](#) [26].

Avocados as 'Carb' replacement can suppress Hunger

Researchers at Illinois Tech, USA, find that replacing refined 'carbohydrates' [sugars and starches] by avocado helps fat people to lose weight [27].

The subjects felt less hungry and also had better insulin and glucose control. They received either half a Hass avocado (70g) or a whole one (140g). The whole one worked better.

Say the researchers: "For years, fats have been targeted as the main cause of obesity, and now carbohydrates [starches & sugars] have come under scrutiny for their role in appetite regulation and weight control."

My View? Join the club! But it is true that dieters are wary of avocados because of their fat (and calorie) content, and it is only too easy to overconsume them.

By the way, these researchers were also guilty of the cavalier way they used the term 'carbohydrates' when they meant 'starches'. See **More about Carbohydrates**, p 2.

Our Savanna-bred Biology

Obesity: Ancient Anti-starvation trick gone wrong

When obese people lose weight, why is it so hard for them to keep it off?

Researchers think they have found one good reason – a 'receptor' molecule called 'RAGE' [28]. It sits on the surface of fat cells and controls fat-burning.

When all is working normally, RAGE, allows energy to be released from the fat cell to meet the demands of the body.

One of its functions is to conserve the release of fat if it senses stress (due to starvation, for example).

It senses this by the presence of Advance Glycation End products (AGEs) which are released under conditions of stress. See: **What are AGEs?** [Jan 2102](#) [29]

However, if it gets turned on inappropriately then it blocks fat burning. Such an occasion is the case of obesity. Obesity also provokes a stress reaction, notably the production of AGEs! These AGEs are then stored up to toxic levels in the body's tissues and are hard to get rid of.

This is a case of 'maladaptive response' where evolution never had to provide for the case of overeating. What to do? It is a lesson not to get too fat in the first place. But if you are fat, you can make the situation less bad by avoiding other sources of AGEs.

AGEs are generated in the cooking of fats and proteins at high heat (frying, roasting, grilling). Combined with sugars, notably fructose, the effect is multiplied. So avoid these cooking methods.

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Squid Thrive with Climate Change

...and their prey will become more sluggish under all climate change scenarios.



My View? Calamari will still be on the menu for our grandchildren!

Continued from Page 1

Siberia: New Garden State



Enlarge: <http://bit.ly/2ZkPs5X>

Siberia is huge – some 5 million square miles (13 million square km) which is 1½ times the area of the entire United States, including Alaska.

The scientists predict that, by 2080, the climate would be much warmer, milder and well watered. Some 25% of

it (1.2 million square miles) would be opened up to arable farming.

The improved climate and vibrant economy would encourage and support a **FIVE-FOLD** increase of population. The only question is, will they be Russians or Chinese? (China shares a long border with Siberia)

Our Food Supply

Battery Hens: Sunshine Starvation

Chicken eggs are a natural source of vitamin D – a vitamin which is sorely lacking in Western populations. The conventional remedy is to say to people that they should get out into the sun more.

Meanwhile researchers wondered about factory chickens – they, too, spend the whole of their lives indoors. Would exposing them to sunshine improve the vitamin D content of their eggs?

The researchers didn't let the chickens run around out-of-doors, Oh no, they installed **UV LAMPS** inside the chicken factory.

But they did find that after only 3 weeks exposure to UV light, the vitamin D content of the hens' eggs increased **THREE- to FOUR-FOLD** [30].

Say the researchers: "This could be an important step in supplying the population with vitamin D."

My View? We always go for free range organic eggs – or better still, farmyard or pasture-fed eggs if we can. See: **Egg Choline Builds Baby Brains**, [Sept 2018](#) [31].

From an ethical point of view, I would much rather battery chickens were banned and chickens get to live the way nature intended.

The idea of medicating us with eggs artificially boosted with vitamin D smacks of a 'fix-it' mentality aimed at remedying the deficiencies of an inhumane industrial production.

But hens can actually **SEE** UV light, and the exposure seemed to please them – so it **IS** a step in the right direction.

And after all we do choose eggs from hens purposefully fed flax-seed to boost omega-3. See **Getting Omega-3 into Eggs**, [Feb 2012](#) [32].

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Regularity of Omega-3 Intake?

...doses of omega-3s. The best way is to consume some 100g fatty fish per day, but not to worry if you miss a day.

See: **Salmon: Fish Oil Content**, [Sept 2018](#) [33]. **How to make good Body-fat**, [March 2010](#) [34]

Continued from Page 1

Omega-6 bad for Pregnancy

...need not worry – omega-6 oils definitely flash red! See: **Fatty Acids and the Ancestral Diet**, *Deadly Harvest*, [Chapter 4](#), page 105 [35].

Held over for next Month

- Human Species Brain Shrinkage
- Paleo Chef Chris Burt
- Nicole's Blood Work

Spreading the Word

UPCOMING EVENTS: Summer Recess

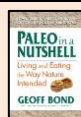
ADVANCE NOTICE: Lecture

Date: Feb 1, 2020

Time: 14:15 – 15:15

Title: The Paleolithic lifestyle for optimum health and fitness. Insights from our evolutionary origins.

At: ARTZ Symposium, Montabaur Castle, nr Frankfurt, Germany.



Paleo in a Nutshell: Geoff's latest work encapsulates, concisely and easily, current thinking on living the way nature intended. www.paleo-nutshell.com



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