



The Bond Effect The Bond Effect The Bond Effect

The Science and Art of Living the Way Nature Intended

The Bond Briefing

www.TheBondEffect.com



Rational, evidence-based comment for an intelligent general public and for all health professionals. Independent of commercial pressure, we say exactly what we think.

Evolutionary Brain Wiring: Meal is Mouthwatering – Why? **Evolutionary Physical Activity:** Lifelong Physical Activity Works. **Did you Know?** Arabic Script Numbs Brain. **Imminent Event:** Geoff Speaks: Oxford, Nov 10, 2010. **Q&A:** How Much Fish For Infants? Inside Info on 'Low Density' Diet; How Much Fish Oil in Tuna? Cooking With Splenda – or Diabetic Jam. Sweeteners and Hunger. **Unintended Consequences:** Calcium Tablets & Heart Attack. **Sunshine is Human Food:** Tanning is Nature's Dimmer; Skin's Self-Repair Mechanism. **Hints:** Finding the Right Priority; Getting Kids to Eat Vegetables. **Cancer Watch:** Breast Cancer Risk Tied to Grandmother's Diet; Vegetable Diversity/Lung Cancer. **Amazing popular Delusions:** Scientific Consensus – a Herd? **Web Update:** Geoff's Audio Downloads.

Evolutionary Brain Wiring

Meal is Mouthwatering - Why?

We salivate at the thought of an impending tasty meal. Dogs routinely slobber just before their dinner is dished up.

This illustrates an important point: humans, in common with many other creatures, have brains which trigger gastric secretions just at the thought of an upcoming meal.

Indeed, the Russian scientist, Ivan Pavlov in 1902 famously went one stage further and showed that dogs would salivate just at the ringing of a bell that the dogs had learned to associate with meal-time.

Pavlov called this salivating phase "psychic secretion". Now it is called "cephalic secretion" (from the Latin word for head).

Many hormones are triggered at the mere thought, taste or smell of food. So far 13 have been identified and more are expected.

The most important is insulin, closely followed by pancreatic hormones, gall bladder hormones and appetite hormones [1].

For example, the pulse of insulin triggered by the thought of a meal can have a peak close to that of real meal, but it lasts only a few minutes rather than a couple of hours [2] [Full Art.](#)

This is called the Cephalic Phase Insulin Response (CPIR). See "Sweeteners and Hunger", p. 2.

Continued: Why humans have cephalic responses, page 4

Evolutionary Physical Activity

Lifelong Physical Activity Works



Senior active skiers have twice the oxygen-uptake capacity of seniors who do not exercise [3]. Karolinska Institute, Sweden studied seniors who are still active skiers, some of them Sweden's skiing champions in their 90's. The results for the active seniors are comparable to values for men who are 40-50 years younger but who do not exercise.

"Humans can maintain a high level of physical work capacity and thereby better quality of life even at advanced ages," says Per Tesch, professor of sports science.

Our View? Just so. But it's not only skiing that has this effect – the season only lasts a few months! Any sustained intense activity will do.

You still have to eat right. Jim Fixx, the founder of jogging, ran 12 miles a day but dined on fast food and died of a heart attack aged 52 [4] [Link](#), [5].

Did You Know?

Arabic Script Numbs Brain



All those little dots and squiggles in Arabic numb the right brain (which uses an overall view to process letters) leaving the left brain to decode the minutiae on its own.

Researchers at Haifa University, Israel find that reading Arabic is much harder to learn for kids – and is slower and more error-prone for adults – compared to scripts like ours or Hebrew which mobilize both right and left sides of the brain [6].

Imminent Public Event

Geoff to Speak at Oxford Uni.

ILLUSTRATED PUBLIC TALK

Date: Weds, November 10, 2010 at 7:30 p.m.

Title: Degenerative Diseases Like Cancer, Diabetes, Heart Disease, Osteoporosis are Optional: *How we know, what is going wrong today, and what we can do about it.*

At: Green Templeton College, Oxford University, UK.

<http://www.gtc.ox.ac.uk/>

For: The Speedwell Trust

Info: Mary Perryman:
Tel: +44(0)1865-552688
mary.perryman@speedwellbeing.org.uk

See also our 'events' page:
www.naturaleater.com/events.htm

Questions

How Much Fish for Infants?

Q. How many portions of oily fish a week are recommended for infants? National guidelines say no more than 2 portions per week but, my toddler loves it. Is mercury a problem?

A. It would be perfectly normal to feed infants aquatic creatures every day. That is almost certainly how it happened in our ancestral past. And, as I described [last month](#), clearly infants bodies came to rely on the omega-3 class of oils, EPA and DHA, that they contain.

The mercury question really muddies the waters. Mercury is quite naturally present in aquatic creatures since the dawn of time. So we could expect our bodies to have a way of dealing with it.

Many studies have examined fish-eating tribes. In particular they study the stages when the brain is at its most vulnerable: as a fetus and then, less critically, in the first few years of life. They find no adverse effects [7,8].

Researchers suggest that "the beneficial influence of other nutrients in fish counter any adverse effects of mercury on the developing nervous system." [9] In particular, selenium and the fish-oils are beneficial [10].

My View? I concur with the view expressed by researchers in the field: the beneficial effects of fish consumption are great and known – and the body knows how to detoxify the mercury.

See also: "Pregnant Women Should Eat Fish After All" - [October 2007](#), and: "Mercury in Fish" [August 2009](#)

Inside Info on "Low Density" Diet

Q. I saw a magazine article saying that it is a good idea to eat a low density diet. What do you think?

A. Absolutely! – That is exactly what I've been hammering home for all these years.

In 'The Ideal Human Feeding Pattern', *Deadly Harvest*, [Ch 6](#), I specify that principle feature of

the human diet is to consume "High Volumes of High-Fiber, Low-Density Foods".

I go on to say: "Our evolutionary past designed our digestive systems to have high volumes of plant food passing through them. These non-starchy plant foods were, by nature, low density: that is, they had few calories for their volume..."

How Much Fish Oil in Tuna?

Q. I have read that, whilst fresh tuna is an oily fish, something in the canning process means that tinned tuna is no longer 'oily' - is this true?

A. No. But most forms of tuna are not particularly rich in fish-oils. The best is bluefin. This table shows the rankings. The figures (which are averages of a variety of factors) are grams of fish-oil per 100 grams of fish.

Salmon	2.1
Herring	2.0
Pilchard	1.5
Sardine	1.5
Tuna, bluefin	1.5
Mackerel	1.2
Trout	1.1
Tuna, white	0.8
Tuna, skipjack	0.2
Tuna, yellowfin	0.1

Cooking with Splenda - or Not

Q. I made my first batch of chia flour cookies using the recipe on the package. I substituted 1 cup of Splenda for 2 cups of sugar.

A. Diabetic fruit jam would be an alternative to Splenda. But not, perhaps, diabetic orange jam (marmalade) – its flavors do not blend well with chia.

Splenda measures cup for cup like sugar – so whatever amount of sugar your recipe requires just substitute the same amount of Splenda® Granulated Sweetener.

Sweeteners and Hunger

Q. Is it true that artificial sweeteners increase hunger and so help cause weight-gain?

A. The short answer is, on the whole, no.

In the early days, doubts were raised by studies on rats. In rodents sweeteners do provoke a sharp increase in insulin leading to hypoglycemic hunger in rodents [11,12].

But this is one instance where, for evolutionary reasons, rats are not a reliable model for what happens in humans.

Most studies on humans indicate that artificial sweeteners have little or no effect on hormone secretion compared to sugar [13,14,15,16].

This is when sweeteners are actually swallowed as part of a food intake. But does the simple taste of sweetness trigger any reaction?

Mostly there is no evidence that it does. However, one study found that swilling the mouth with a saccharin solution and spitting it out did generate a small pulse of insulin [17].

A similar response was observed with diabetics consuming Aspartame. Its taste generated a small pulse of insulin which was enough to cause a hypoglycemic reaction after the diabetics exercised intensively [18].

My View? In the great scheme of things, and compared to sugar, artificial sweeteners only contribute in a small way to hungry feelings and then only in special circumstances.

See "Mouth-Watering Meal", p 1.

Unintended Consequences

Calcium Tablets & Heart Attack

Calcium tablets are ineffective in reducing bone fractures and they increase the risk of heart attack by 30%. (Wow!) So finds Professor Cleland, of Hull University, UK [19] [Article](#).

He cautions that since calcium tablets do no good and yet also do harm, their use is "unwarranted." However calcium obtained from food is fine.

My View? Just so. Live like we say: it is futile to second-guess the intricate workings of our bodies. See [Next Month](#): "Drink Milk – Get Osteoporosis".

Sunshine is Human Food

Tanning is Nature's Dimmer



Tanning has evolved multiple times in middle and high latitude humans as a mechanism to safely soak up the right dose of ultraviolet (UVB) radiation. As UVB radiation increased in spring, the skin darkened. As UVB waned in winter so did the tan [20].

Today we defeat this mechanism if we live and work indoors and avoid the sun. Everyone needs to ensure that they tan to the rhythms of the seasons.

Skin's Self Repair Mechanism

As one might expect, nature has evolved ways to deal with UVB radiation. Cells in the epidermis, so-called keratinocytes, have "remarkable strategies" to prevent and repair UVB damage to the DNA, proteins and membranes. [21].

Hints and Tips

Finding the Right Priority

Much of what I do is helping people to find the right priority in their efforts to live right. We only have so much energy and time and we need to make sure that we apply them where they have the best effect. Similarly, policy-makers want people to know how best to save energy.

But a new study finds that people harbor huge misconceptions about the effectiveness of their actions [22] [Full Article](#).

For example, most people think that "turning out lights when leaving the room" is the single most important thing they can do to save energy – but in reality the saving is pitiful. Other futile overrated behaviors included slower freeway driving, and unplugging chargers and appliances when not in use.

People commonly think that recycling glass bottles saves a lot of energy. But it still uses 2,000 times as much energy to recycle a glass bottle as to recycle an aluminium can.

Very few cited buying decisions that would REALLY cut energy consumption dramatically, such as more efficient cars, more efficient appliances, or weather-proofing homes.

Curiously, in this study, the most clueless prioritizers were the eco-conscious and, less surprisingly, the least numerate.

So it's a challenge for all of us to realize the RELATIVE importance of things – especially when our health is at stake.

Getting Kids to Eat Vegetables

In a Bangkok, Thailand, experiment to get kindergarten children to eat more vegetables, they planted vegetable seeds, took part in vegetable tasting parties, cooked vegetable soup, and watched Popeye cartoons. (Famously Popeye downed a can of spinach to give him super-human strength.)

Vegetable intake doubled and the types increased from two to four [23]. Other strategies include:

- Sitting next to children and eating the same foods - it makes them feel special.
- Tasting parties – an enjoyable way for children to compare tastes of fruit and vegetables.
- Involve children in food preparation.

Cancer Watch

Breast Cancer Risk Tied to Grandmother's Diet

A rat study found that pregnant females on a high fat diet not only sharply increased breast cancer risk in their daughters but also in the daughter's daughters [24].

The high fat diet switches on genes that get transmitted from generation to generation – an "epigenetic effect".

Maybe your grandmother had a high fat diet? All is not lost! It is not inevitable that you will get the disease – Live like we say,

and you can not only overcome the higher risk but also reduce it to close to zero. See "Bad Genes Don't Doom Us", [April 2010](#).

Vegetable Diversity/Lung Cancer

The more VARIETY in vegetables consumed, the less likely you are to get lung cancer [25] [Full Art](#).

Says Dr Steven Hecht, University of Minnesota, USA: "This is one of the first studies to evaluate diversity of vegetables. They contain many different bioactive compounds, and it is important that you not only eat the recommended amounts, but also consume a rich mix of these bioactive compounds".

My View? I couldn't have said it better myself! See my site: www.beatcancernaturally.com .

Amazing Popular Delusions

Scientific "Consensus" a Herd?

"The concept of consensus in science seems innocuous, but it conjures up dangerous possibilities. ... A Law of Nature is not decided by a referendum... nor even by a committee of the Great and Good." - Professor Brian Ridley, Research Professor of Physics, Essex University, writing in [The Salisbury Review](#).

[Last month](#), I talked about Herd Mentality and here Professor Ridley is making an important point: even scientists stampede in herds – often in the wrong direction.

For example, not long ago the scientific "consensus" was that the Earth is flat; that the Earth is the center of the universe; and that it is all right for doctors to deliver babies with cadaver-stained hands.

It took courageous mavericks like Columbus, Galileo and Semmelweis [26] to prove the consensus wrong.

In this instance Professor Ridley's article is a salty debunking of the current climate-change madness that has gripped many scientists, politicians and lay public alike. [27] [Full article](#). Now, even the BBC is having doubts! [28].

I only labor this issue because humans have lived through tremendous periods of climate change already: the aborigines made it to Australia 60,000 years ago thanks to sea levels that were 480 feet (150 m) lower than today and which, thereby, opened up land-bridges through the islands of Indonesia.

The Vikings optimistically colonized a warmish 'Green' Land 1,000 years ago – only to be done in by a mini ice-age 450 years later.

2,000 years ago the Romans grew grapevines in southern Britain, something that is barely possible even today in our supposedly overheated world.

As Prof. Ridley observes: "One thing is scientifically sure about the climate – it changes. The record shows that a serious change of climate needs no help

from mankind, and, what's alarming, is that it is largely unpredictable."

Web Update

Geoff's Audio Downloads

We have uploaded a number of new audio files to the website. Click on "[Listen to Geoff](#)" in the banner.

From Page 1 Evolutionary Brain Wiring

Meal is Mouthwatering - Why?

But why would humans have cephalic responses when many creatures do not, including our closest relatives, chimpanzees, and gorillas?

The answer seems to be that humans, in common with animals such as dogs and pythons, have evolved to handle discrete meals.

Discrete meals pose a challenge for the body because they disturb

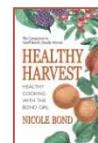
the steady state ("homeostasis") of the body's biochemistry.

Cephalic responses are the body's way of buffering and mobilizing for sudden challenges to homeostasis, such as alterations to blood alkalinity, glucose metabolism, and electrolyte balances.

Grazers like gorillas and horses do not shock the system in the same way and so do not have cephalic responses.

This is interesting confirmation that humans did not evolve as continuous grazers [2].

Recipe



No recipe this month. Plenty more in Nicole's cookbook, [Healthy Harvest](#).

SUBSCRIBE TO THIS BRIEFING!

\$18 Electronic (with active hotlinks). \$59 Hard copy.

email: admin@Naturaleater.com

Tel: +357 99 45 24 68 Skype: gvlbond

Twitter: www.twitter.com/savvy eater

Facebook (Geoff): www.facebook.com/naturaleater

Facebook (Group): <http://tinyurl.com/Bond-FB-Group>

LinkedIn: <http://cy.linkedin.com/in/naturaleater>

- 1 Appetite. 2000 Apr;34(2):206-13. Nutritional implications of the cephalic-phase reflexes: endocrine responses. Teff K et al.
- 2 Appetite. 2008 Mar-May;50(2-3):194-206. Epub 2007 Oct 24. Anticipatory physiological regulation in feeding biology: cephalic phase responses. Power ML, Schulkin J.
- 3 Per Tesch; Integrative Physiology of Exercise; American College of Sports Medicine: Miami Beach; Sept 22 2010.
- 4 Natural Eating p. 185
- 5 <http://www.naturaleater.com/newsletter-archive/NEWS-1998/NEWS-1998-06.pdf>
- 6 Neuropsychology. 2009 Mar;23(2):240-54. Language status and hemispheric involvement in reading: evidence from trilingual Arabic speakers tested in Arabic, Hebrew, and English. Ibrahim R, Eviatar Z.
- 7 Does background postnatal methyl mercury exposure in toddlers affect cognition and behavior? Cao Y; Neurotoxicology. 2010 Jan;31(1):1-9. Epub 2009 Dec 5.
- 8 Neurotoxicology. 1998 Apr;19(2):313-28. A Review Of Methyl mercury And Child Development. Myers GJ et al.
- 9 Environmental Health Perspectives Supplements Volume 108, Number S3, June 2000; does dietary exposure to low doses of mehg differ from high-dose exposure?, G J Myers and P W Davidson
- 10 Neurotoxicology. 2008 Sep;29(5):776-82. Epub 2008 Jun 11. Associations of maternal long-chain polyunsaturated fatty acids, methyl mercury, and infant development in the Seychelles Child Development Nutrition Study. Strain JJ et al.
- 11 Diabetes. 1988 Jun;37(6):773-9. Taste-induced changes in plasma insulin and glucose turnover in lean and genetically obese rats. Ionescu E et al.
- 12 Am J Physiol. 1980 Apr;238(4):E336-40. Cephalic-phase insulin secretion in normal and pancreatic islet-transplanted rats. Berthoud HR et al.
- 13 Am J Physiol Endocrinol Metab. 2009 Mar;296(3):E473-9. Epub 2008 Dec 23. Incretin release from gut is acutely enhanced by sugar but not by sweeteners in vivo. Fujita Y et al.
- 14 Am J Physiol Gastrointest Liver Physiol. 2009 Apr;296(4):G735-9. Epub 2009 Feb 12. Effect of the artificial sweetener, sucralose, on gastric emptying and incretin hormone release in healthy subjects. Ma J et al.
- 15 Am J Clin Nutr. 2009 Jan;89(1):1-14. Epub 2008 Dec 3. Nonnutritive sweetener consumption in humans: effects on appetite and food intake and their putative mechanisms. Mattes RD et al.
- 16 Am J Clin Nutr. 1997 Mar;65(3):737-43. Cephalic phase responses to sweet taste. Abdallah L et al.
- 17 Appetite. 2008 Nov;51(3):622-7. Epub 2008 May 10. Cephalic phase insulin release in healthy humans after taste stimulation? Just T et al.
- 18 Is Aspartame Really Safer in Reducing the Risk of Hypoglycemia During Exercise in Patients With Type 2 Diabetes? Annie Ferland et al; doi: 10.2337/dc06-1888 Diabetes Care July 2007 vol. 30 no. 7 e59
- 19 BMJ 2010; 341:c3856; Calcium supplements in people with osteoporosis; Cleland J et al.
- 20 Jablonski NG et al. Colloquium Paper: Human skin pigmentation as an adaptation to UV radiation. Proceedings of the National Academy of Sciences, 2010; 107 (Supplement 2): 8962 DOI: 10.1073/pnas.0914628107
- 21 M. Schafer et al; Nrf2 establishes a glutathione-mediated gradient of UVB cytoprotection in the epidermis. Genes & Development, 2010; 24 (10): 1045 DOI: 10.1101/gad.568810
- 22 Public perceptions of energy consumption and savings; Shahzeen Z. Attari; 10.1073/pnas.1001509107 PNAS September 14, 2010 vol. 107 no. 37 16054-16059
- 23 Chutima Sirikulchayanonta et al. Using food experience, multimedia and role models for promoting fruit and vegetable consumption in Bangkok kindergarten children. Nutrition & Dietetics, 2010; 67 (2): 97 DOI: 10.1111/j.1747-0080.2010.01426.x
- 24 AACR 101st Annual Meeting April 19 2010; Exposure of rat dams to a high-fat or estradiol supplemented diet during pregnancy alters mammary gland morphology and increases mammary cancer risk in their daughters and granddaughters; Sonia de Assis, Ph.D
- 25 Cancer Epidemiol Biomarkers Prev. 2010 Sep;19(9):2278-86. Epub 2010 Aug 31. Variety in fruit and vegetable consumption and the risk of lung cancer in the European prospective investigation into cancer and nutrition. Büchner FL et al.
- 26 In Semmelweis' day (1840's), many women died in childbirth from puerperal fever. He suggested doctors (who often had just been dissecting cadavers) should disinfect their hands before delivering babies. <http://en.wikipedia.org/wiki/Semmelweis>
- 27 <http://www.naturaleater.com/science-articles/Ridley-climategate.pdf>
- 28 www.bbc.co.uk/programmes/b00tmj8