



The science & art of living the way nature intended

The Bond Briefing

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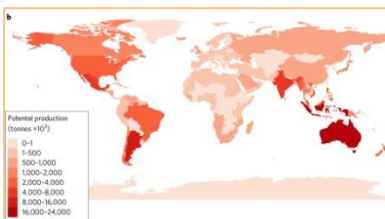


RATIONAL EVIDENCE-BASED COMMENT FOR THE GENERAL PUBLIC & HEALTH PROFESSIONALS. WE SAY EXACTLY WHAT WE THINK

Food Security: Sustainable Ocean Food for All. **Ancestral Gut Health:** Seasonality of Gut Bugs. **Our Sunlit Heritage:** Chrono-nutrition and Sun-Skin Repair. **Questions:** Prickly Pear. **Barmy Headlines:** Cities Older than we Thought! **Ancestral Health:** Our Living Gut – part XIV. **From Forager to Astronaut:** Keeping Mars Pioneers Alive – part II. **Epigenetic Effects – part II.** Supplements, Sunshine Deficiency, High Fat Diet. **From the Journals:** Plant Hormones – the New Micronutrients. **We Practise what we Preach:** Geoff Lung Function Test. **Spreading the Word:** Radio Interview: Humarian; Judging UK Paleo Awards: Report.

Food Security

Sustainable Ocean Food for All



The potential for ocean seafood farming: the redder the better
Enlarge: <http://bit.ly/2gbNjHg>

Wild fish stocks have been declining for decades and the yearly catch has plateaued at 90 million tons. Fish farming has tried to pick up the pace but has suffered from poor husbandry, and grubby and unsustainable methods. I wrote rather gloomily about this in: **Fish Stock Sustainability**, [Aug 2009](#) [1], and in **Farmed Fish Deplete Wild Stocks** [Feb 2006](#) [2]

However, in: **Farmed Salmon Quality Decline**, [Oct 2016](#) [3] I was able to report on the industry's serious efforts to improve its techniques and sustainability.

One major change is a) to enlarge the fish farm pens and b) to move them from stuffy, polluted fjords and lochs to the open ocean. There the fish swim freer and the purifying ocean currents sweep them clean. With these techniques in place, Rebecca Gentry and colleagues at UC Santa Barbara calculate [4] that the world's demand for fish and shellfish can be supplied many times over from just a few 'hot-spots', mainly in the tropics. Also every coastal nation could easily provide for itself; the USA > 3

Ancestral Gut Health

Seasonality of Gut Bugs



Hadza roast tubers
<http://bit.ly/2gNYfW7>

There are two seasons, **DRY** and **WET**, in our hunter-gatherer homeland, the Rift Valley of east Africa. The Hadzas, who still live there, have a diet which fluctuates accordingly.

In the dry season, meat, baobab and tuber consumption play a relatively larger role; in the wet season, berries, tubers, honey and baobabs prevail.

Erica Sonnenberg and colleagues at Stanford University, California, found that the Hadza gut bugs varied seasonally in harmony with the Hadza dietary intake [5]. In particular, a subset of microbial species' populations diminished in the wet season and rebounded in the dry season, when consumption of fiber-rich tubers peaked.

More surprisingly, this bacterial species appears to be the same one that is resoundingly absent in the guts of industrial populations. See **Forager Gut Bugs not like ours**, [April 2014](#) [6] and **Forager Stools**, [July 2016](#) [7]

Sonnenberg wonders if this seasonal ebb and flow of microbes is an important factor... > 4

Our Sunlit Heritage

Chrono-nutrition/Sun-skin Repair

We have reported many times that the skin has many ways of handling ultra-violet rays and repairing any damage they might cause: **Skin's Self Repair Mechanism**, [Oct 2010](#) [8]; **Sunscreen in our DNA**, [July 2015](#) [9]; **How Skin Resists UV Damage**, [2011 04](#) [10].

Now we have another surprising angle. Dr. Takahashi, of Howard Hughes Medical Institute, Maryland, finds that one repair enzyme called "XPA" is controlled by the timing of our meals [11].

Eating at abnormal times disrupts the biological clock of the skin, including the daytime potency of XPA.

The finding indicates that people who eat late at night may be more vulnerable to sunburn and longer-term effects such as skin aging and skin cancer,

"I did not think the skin was paying attention to when we are eating," said, Dr. Takahashi, "But previous studies have shown strong roles for the body's circadian rhythms in skin biology."

My View? Eating late at night? Leave that to the French and other Latins! No, there are many good reasons, including the forager template, for not eating late – and now we have yet another one.

See also for chrono-nutrition: **Meal Size and Timing** [Aug 2016](#) [12] and for chrono-types: **Night Owls: 'Fast-Life' Histories**, [Last month](#) [13].