

CPC#10: UNDERSTANDING SCIENCE IN PROPER CONTEXT

New study came out in the media this AM and caused a lot of phone calls asking for an opinion: The study was on microwaving foods on kids health. Was microwaving safe in plastics adjacent to foods? Will the chemicals be photo-bleached into their food and show up in their urine. If it enters their urine might they get a kidney based symptom or disease? The FDA does regulate what plastics can be used in microwaveable foods so this was the reason the study was done.

This apparently was just talked about on Today show this AM so this is why it caused a stir in my office this AM. This story was about the effect of microwaves having the physical ability to liberate BPA and phthalates from the plastics and photo-bleach them into the foods. This is an alert for parents and kids: the study was correlated to lead to hypertension in kids. Note: causation was not the end variable of the design. The fact that they found hypertension in a population who does not have this is more interesting when you understand the science of how microwaves work physically. How might that be? Let us go back to this blog: [Microwaving Kresser hyperlink](#),

Do you think Mr. Kresser or this leading paleo magazine can give you details facts and not opinions on this topic? Have a look at this paleo periodical for some deep science reporting: [Paleo magazine hyperlink](#).

What does that tell you? Why is microwaving not idealized for human biology? Could it be the interaction of light, microwaves and the atoms in plastic? To make sense of microwaving you need to understand lasers, specifically something called MASER. ***Do your experts know that science well?***

Well here is the data for you to make an informed decision.

Lasers generate narrow beams of visible light in DVD players, grocery scanners, and surgery devices, but the invention began with longer-wavelength radiation called microwaves. Charles Townes and his colleagues at Columbia University in New York demonstrated in a pair of papers in the mid-1950s that they could produce a new and more useful form of amplified microwaves. Can you believe how long we have known that? And do you know that there are over 10,000 linked studies to the effects of microwaves on food. When you review them you find that food industry sponsored studies always support the use of microwaves. It appears the paleo magazine above, that focuses exclusively on food ideas and not ideas based upon light and circadian biology, believes only studies funded by industry. You better understand this confirmation bias is tied to their business model.

Let's look at the fundamentals of light on atoms in plastic and what might really be happening.

The Columbia team's "MASER" (microwave amplification by stimulated emission of radiation) involved a beam of excited **ammonia molecules** that could emit the microwaves spontaneously or when "stimulated" by microwaves of the same wavelength. Did you know ammonia turnover is increased when microwaves alone are used in an environment because they induce increase vibrational energies in atoms? QED physics 101. Real scientists, like Andrew Marino linked in Ubiquitination 13 blog post have written textbooks on it. It appears "some people" have not read the germane science just the stuff that suits their business models. When the team sent this molecular beam through a metal box of the correct dimensions, the emitted microwaves were amplified, the way an organ pipe or a guitar string of a certain length resonates and emits a specific pitch. Radiation from earlier-arriving molecules stimulated emission from later-arriving molecules, generating "self-sustained" microwave radiation with a narrow range of wavelengths. These microwaves were ideal for making more

precise measurements of the energy levels in molecules and for providing an extremely reliable clock for frequency measurements. Townes shared the **1964 Nobel Prize** in physics for his work on masers and lasers.

Molecular Microwave Oscillator and New Hyperfine Structure in the Microwave Spectrum of NH₃

J. P. Gordon, H. J. Zeiger, and C. H. Townes

Phys. Rev. 95, 282 (1954)

KEY TAKE AWAY POINT: Microwaves are able to excite an organic molecule to cause that molecule to re emit microwaves that can alter its ability to transfer information and energy.....think that might effect how ammonia cycles in cells? Remember ammonia is a NITROGEN based organic molecule that is involved in ubiquitin rates of protein.....Think this does not matter? It is the key feature in the Ubiquitin series. ***If so, then your sensibilities are different than mine.*** And remember Kresser said recently in his blog microwaves are safe for you!!!!!! He also thinks cell phones are not that bad now too!!.....caveat emptor about 'your expert' advice is in order based upon this recently published study on children and their microwaved food.

This is a very important point and shows you the paleo blind spot in a big way. ***You can't, and shouldn't ask a paleo food expert about physics.*** They usually won't and don't hack things they are *fundamentally addicted to*, to get their message out. Technology is their number one addiction. Sugar is to a T2D as blue light is to a paleo follower. You have to be willing to turn over every stone, not just dietary ones. As my fellow MD, Joshua Rosenthal mentioned, "My favorite line in article": "This is pure physics from a physicist! Trust me on this one – I studied physics for a long time." Joshua got the inside joke, seems some of us got better grades and studied the basics a wee bit better!

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Today show 7/9/2015 with hoda Kotb and Natalie Azar, MD from the August 2015 journal of Hypertension.