

**Treatment of psychiatric disorders with
broad-spectrum nutrients:
The importance of biomimicry**

**Bonnie J. Kaplan, PhD
Professor, Dept of Paediatrics,
Univ of Calgary, Alberta, Canada
Syracuse, Sept 2012
kaplan@ucalgary.ca**



Disclosure


- 1. No commercial interest in any company or sale of any product**
- 2. But please don't google my name**

**Is rejection of the
PHARMACEUTICAL model the
same as rejection of the
BIOLOGICAL basis of mental
disorders?**

What is *biomimicry*?

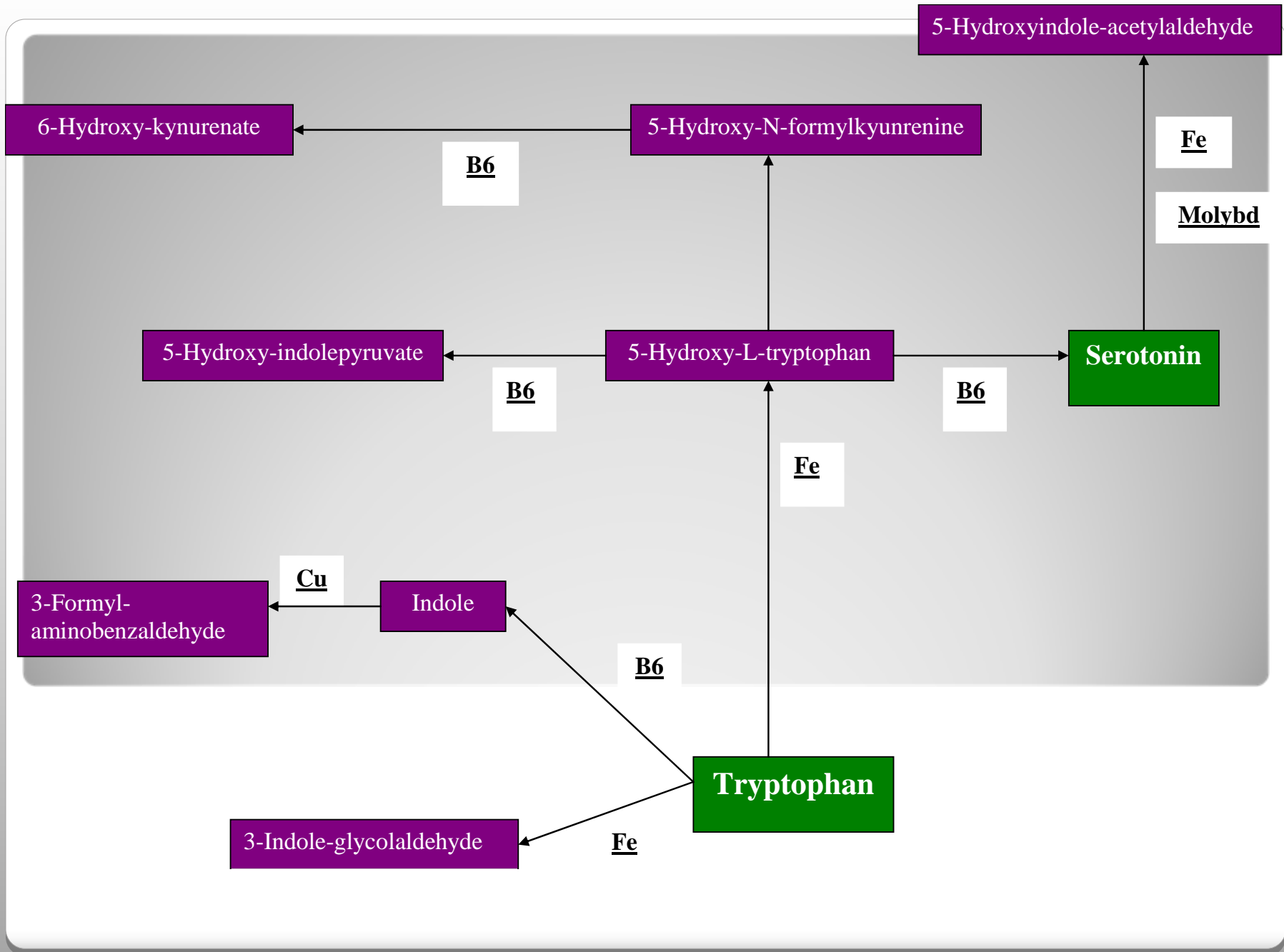
- The examination of Nature, its models, systems, processes, and elements to emulate or take inspiration from in order to *solve human problems*.

Example....

- Swiss engineer George de Mestral in 1941 after he removed burrs from his dog and took a closer look at how they worked.
- Burr  Velcro

Relevance to nutrition?

**How do *you* think about
nutrients? One at a
time?**



- **Looking at brain metabolic pathways, how could anyone suggest treating symptoms with *only* vitamin D, or *only* one of the B vitamins, etc?**
- **The danger of magic bullet thinking!**

Limiting my comments to 3 topics.....

- 1. Importance of broad spectrum approach for nutrient treatments
(no more magic bullets!)**
- 2. Likely mechanisms**
- 3. Nutrition is not enough.....family, support, Open Dialogue, etc**

Nutrition and Mental Health

historically --- actual magic bullets

- Psychiatric symptoms assoc with deficiencies in single nutrients – known for >100 years
 - thiamine/B1 (Wernicke's encephalopathy, Korsakoff's psychosis)
 - niacin/B3 (pellagra)
 - cyanocobalamin/B12 (psychosis of pernicious anemia)
 - iodine ('myxedema madness')
- ***Magic bullets may exist in simple frank deficiency syndromes***

And there is >100 yrs of research on single nutrients showing *some benefit*

- **Single ingredient research 1920s-present --- for mental health, *excluding fatty acids***
- **Correlational data; treatment studies**
- **Strongest evidence in single nutrient studies: *iron, copper, zinc, vitamins B1, B6, B12, D, E and folate***
- **In terms of treatment: *Better clinical efficacy from multi-ingredient treatments...as we'll see later.***

Kaplan, Crawford, Field, Simpson
(2007), *Vitamins, Minerals, and Mood, Psych Bull.*

**Epidemiologic surveys
of dietary patterns:
Spain, UK, Australia, etc.**

Australia: 1,046 women, diagnoses of depression/anxiety confirmed with structured interviews, FFQ for dietary patterns

- **“traditional” dietary pattern (vegetables, fruit, meat, fish, and whole grains) associated with lower odds for major depression, dysthymia, anxiety disorders.**
- **“western” diet (processed or fried foods, refined grains, sugary products, and beer) assoc with a higher mental health symptom scores.**

Jacka FN et al., *Am J Psychiatry*, 2010—
correlational study

- School children (N=3040) ages 11-18, followed over 2 school years
- Measured for 'healthiness' of diet (an overall Diet Score)
- Mental health measured with Pediatric Quality of Life Inventory
- Result: *Change* in diet quality was associated with *change in mental health.*

Jacka et al., *PLoS ONE*, 2011 -- *prospective*

Does this mean that if people with mental health disorders ate better, they would have fewer symptoms?

- **How well do people with mood disorders eat, and is their dietary intake associated with their mental health status?**
- **97 community-living adults, diagnoses confirmed with structured interviews**
- **Obviously, only mildly and moderately symptomatic people volunteer**
- **3-day food records, FFQs**

Davison & Kaplan (2012) “Nutrient intakes are correlated with overall psychiatric functioning in adults with mood disorders,” Cdn J Psychiatry, 57(2):85–92

So if we can see across-the-board relationships between nutrients and mental health

And because we *know* that many, many nutrients are critical for proper brain function

And since we all know that humans have evolved to need many nutrients, *consumed in balance*

Why do people continue to look for magic bullets?

Here's one alternative:

EMPowerplus, Truehope EMP+

- **Not commercially affiliated (but pls don't google my name)**
- **36-ingredients (bulky minerals)**
- **Developed in Alberta to help members of the founders' families**
- **Q's? go to www.truehope.com**

What can EMPowerplus do?

- ~ 20 publications in medical journals
- *Most studied complex formula in the world, but not the only one*
- Ameliorates explosive rage (great for acute crises of that nature)
- Enhances mood stability
- Ameliorates some aspects of anxiety
- Treats psychosis (children)
- ?more.....

How has it been studied?

- **Case-control**
 - mood symptoms in people with autism, comparison to conventional medication
- **Database analyses**
 - N=358 adults with bipolar disorder, symptoms over 6 months (~50% sx)
 - N=120 children/adolescents with bipolar disorder, symptoms over 6 months

- **Open label case series**
 - children, adults (all large effect sizes)
- **Randomized trial**
 - comparison to Berocca
- **First placebo randomized trial under review**
- **Case studies (ABAB)**
 - 18-year-old with OCD
 - 2 children with psychosis*

Where has it been published?

J Clin Psychiatry

J Child Adolesc Psychopharmacol

J Attention Dis

BMJ Case Reports

J Altern Comp Med

Hum Psychopharmacol Clin Exp

Psychiatry Res

BMC Psychiatry

CNS Spectr

J Anx Dis

Where has it been studied?

- **Canada (Univ of Calgary, Univ of Lethbridge)**
- **U.S. (Ohio State Univ, New York Univ, Harvard Medical School, private practice series)**
- **New Zealand (Univ of Canterbury)**

- **No investigator is commercially affiliated with the developer**

2. Making sense of it all: **likely mechanisms**

1. *Direct impact on metabolic pathways involved in neurotransmission*
2. **Inflammatory processes**
3. **Inefficiency of mitochondria to defend against systemic inflammation**

Some people may have a higher genetic need for some nutrients

---Mutations can result in enzymes having a decreased binding affinity for a coenzyme, resulting in a lower rate of reaction

---The effects can be remedied or ameliorated by the administration of high doses of the vitamin component of the corresponding coenzyme, which at least partially restores enzymatic activity

Ames et al., Am J Clin Nutr. 2002 Apr;75(4):616-58.

*The genes for mental
illness are likely
the genes that regulate
brain metabolism of
essential nutrients*

Pauling (1974)

But nutrition is not enough!

If you are a clinician

FIRST – get them to eat better (but remember Margaret Mead)

SECOND – get them on a broad spectrum formula at significant levels for both vits and mins, and consider other nutrients too

THIRD – work on social-emotional issues, family support, etc.

FOURTH – if necessary, add in small amounts of pharmaceuticals, for acute period



"Discouraging data on the antidepressant."