

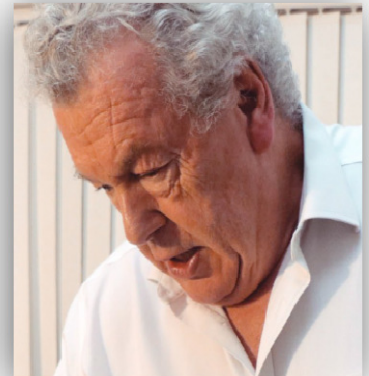
Anxiety or Depression

A new look at mental health issues from an Applied Kinesiology perspective

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Prior to the COVID-19 global pandemic, the World Health Organization (WHO) reported that 44 million people in the European region suffer from **depression** and 37 million suffer from **anxiety**. High unemployment, social distancing requirements, isolation from family and friends, as well as other changes in response to the coronavirus crisis, have led to extra varying levels of uncertainty, fear and anxiety.*

[*https://www.who.int/news-room/fact-sheets/detail/depression](https://www.who.int/news-room/fact-sheets/detail/depression)

If you look actually at the statistics on the larger-selling categories of drugs, both **anti-psychotics and antidepressants** rank in the top five in terms of sales and profit.

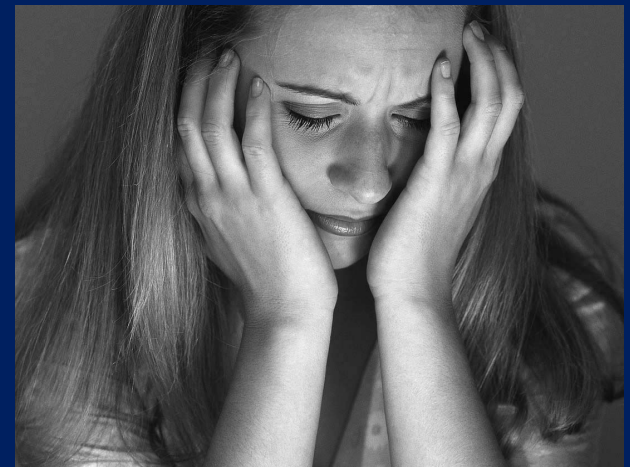
It is fairly obvious there is a huge incentive there.

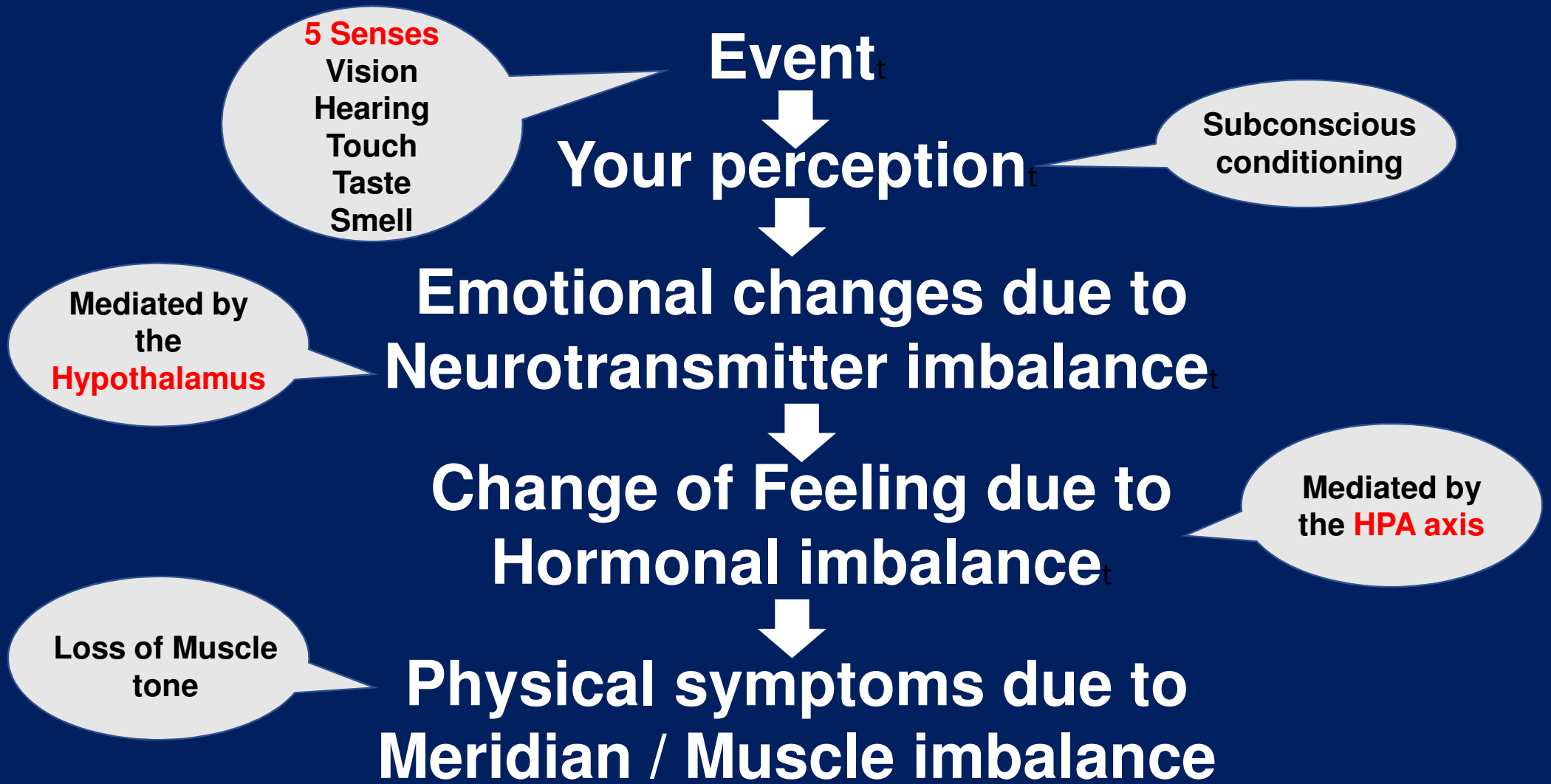


Vitamin P

We all get **anxious** and **depressed** everyday for periods of time. But for most of us they lift when the event is over and we move on to other emotions hopefully more positive ones.

This is natural and normal.





What is abnormal is if the anxiety or depression remain if the causal incident has passed or worse if we feel anxious or depressed and there has been **no cause.**



This is probably indicative of a **biochemical imbalance** in our neurotransmitter and / or hormonal systems.



This imbalance perpetuates the emotional changes and the feelings within our bodies and is mediated through our **meridian system** creating weakening of specific muscles associated with the imbalanced meridian.



Dr Sheldon Deal

However in **Applied Kinesiology (AK)** if these muscle weaknesses strengthen to therapy localisation (TL) to the **Emotional Stress Reflexes (ESR)** then we tend to think that the person's problem may well be emotionally instigated.



**And may require more
traditional AK emotional
techniques and other therapies**

NET

Psychological reversal

ESR

Flower remedies

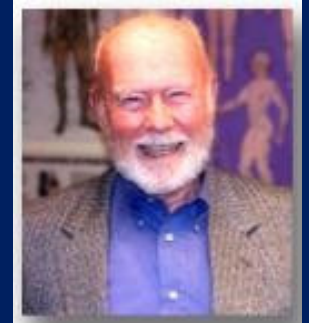
Injury Recall

Colour therapy

Music therapy

Exercise

Dr Jimmy
Durlacher's
book
"Freedom
From Fear
Forever "



Affirmations

Tapping

Culinary Herbs

Deep massage

Hypnosis

Meditation

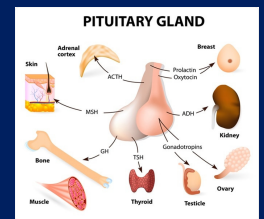
Aromatherapy

However –
in cases of anxiety or depression if the weak associated meridian muscles do not strengthen to the ESR points the problem maybe considered more biochemical.

Remember –
Emotions are experienced and mediated by the neurotransmitters.



Feelings are mediated by hormones.



Depression is mediated mainly by low levels of the neurotransmitters –

Serotonin (the blues) BI

Noradrenalin (lack of get up and go) SI

Dopamine (no pleasure in life) CV

Anxiety is mediated by mainly high levels of the neurotransmitters -

Serotonin (fear) Kid

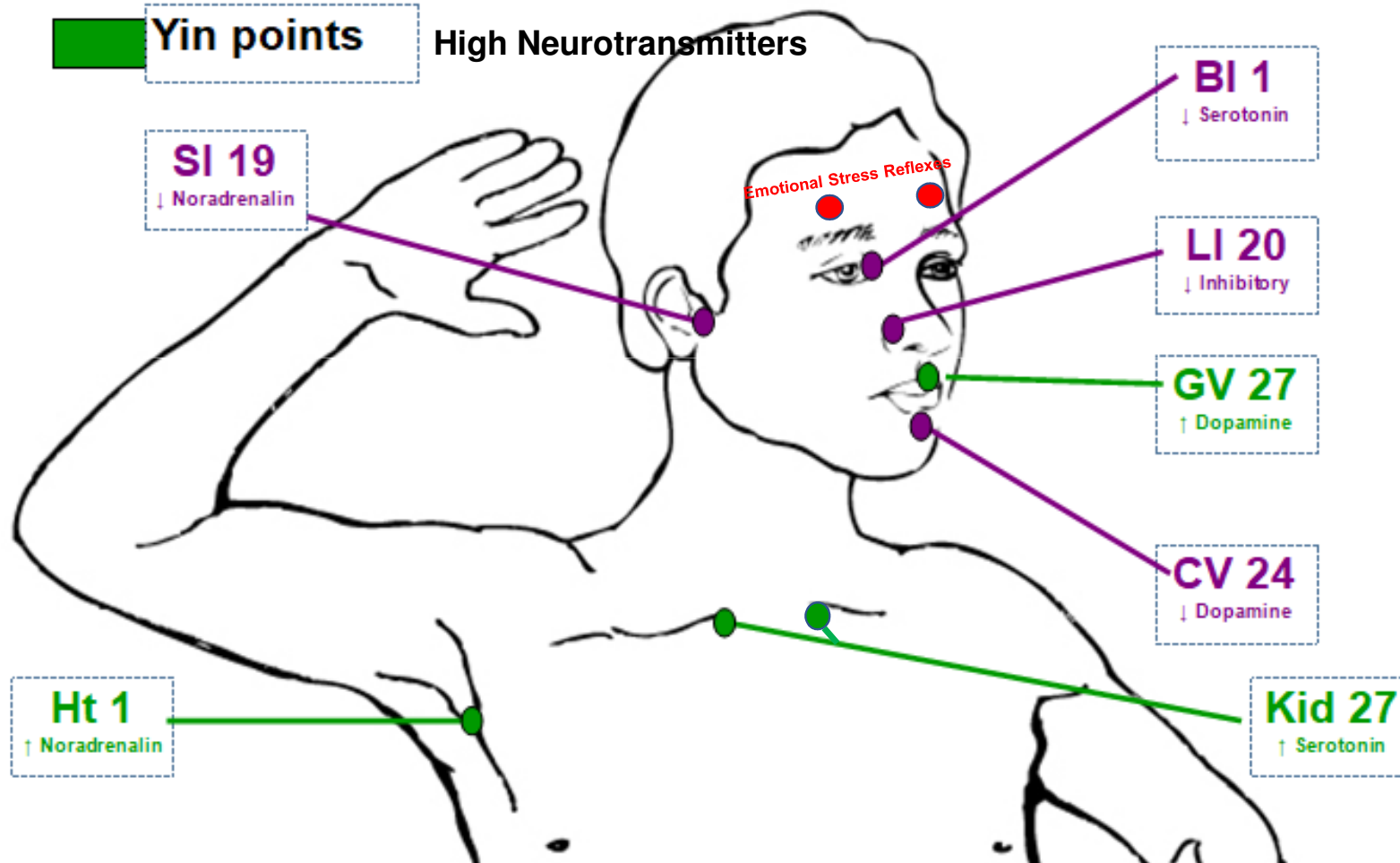
Noradrenalin (not being loved) Ht

Dopamine (always wanting more) GV

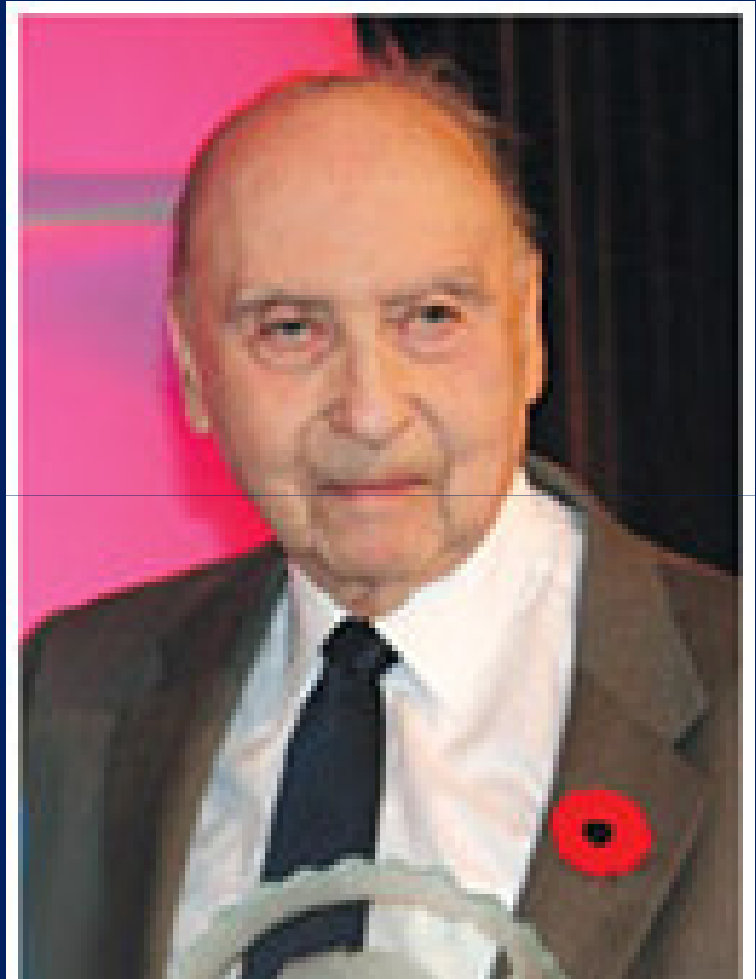
Low GABA (agitated) LI

Yang points Low Neurotransmitters

Yin points High Neurotransmitters



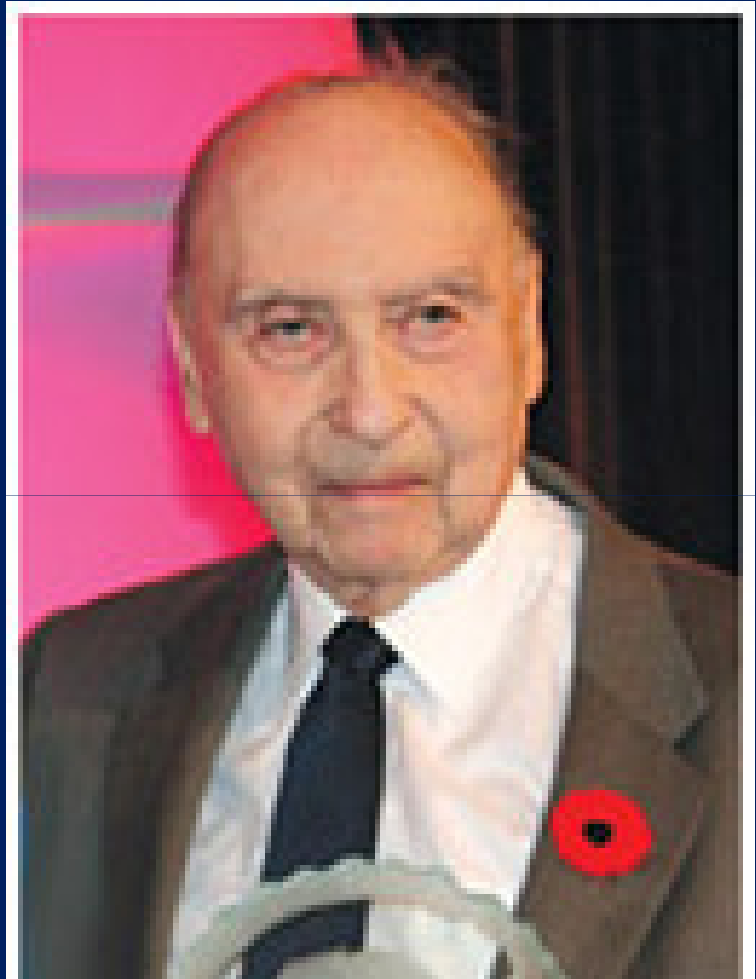
Let's have another look at the work of **Dr. Abram Hoffer** so often quoted by **Dr Goodheart**, regarding his comments on the cause of emotional problems.
Founder member of the Orthomolecular Psychiatry Group.



Dr. Abram Hoffer 1917-2009

“I believe that if any person, no matter how ill, can be normal for **even 5 minutes, it is possible for them to become normal forever, because those 5 minutes indicate that there is no permanent damage.***

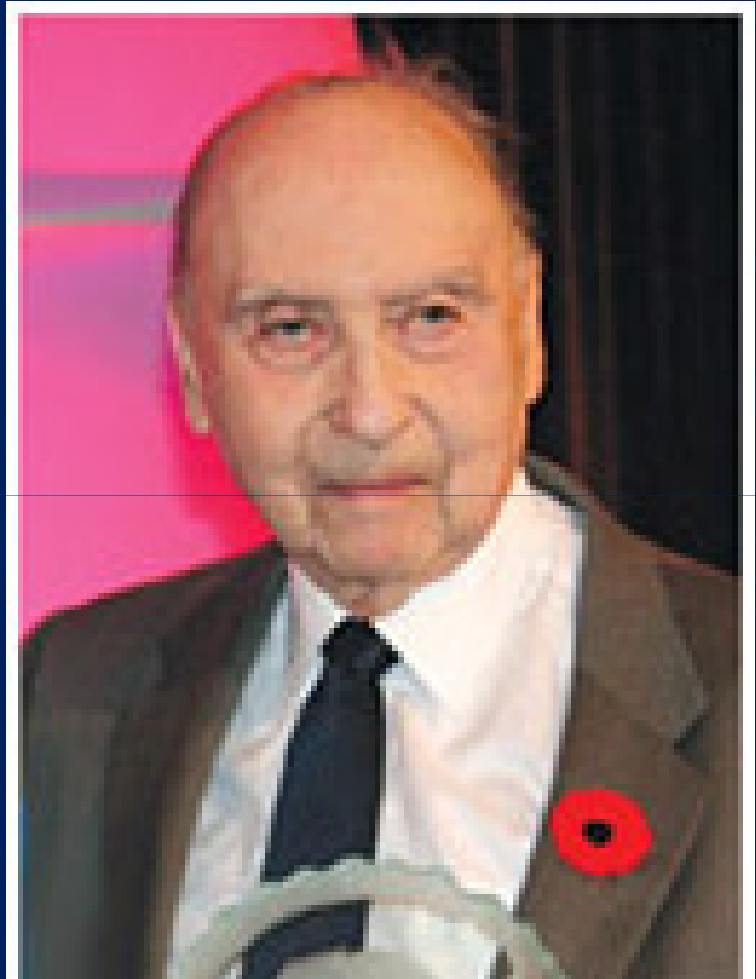
***Abram Hoffer Adventures in Psychiatry KOZ Publishing.**



Dr. Abram Hoffer 1917-2009

Ever since I have been treating patients with the optimal doses of nutrition I have predicted that one day society will recognise that one of the most important factors for maintaining health is the provision of the **optimal amount** of the basic nutrients needed for each person.*

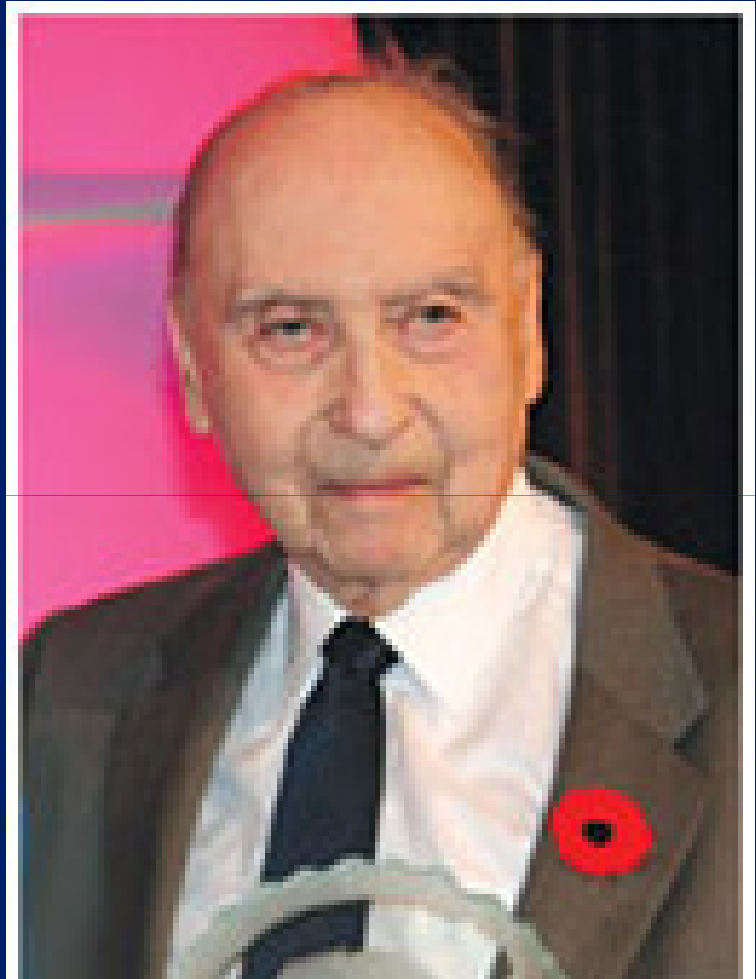
*Abram Hoffer Adventures in Psychiatry KOZ Publishing.



Dr. Abram Hoffer 1917-2009

Disease is the result of pathological changes in the body which either prevent it from properly fighting off infections or inhibit it from maintaining its own integrity or health. The origins of disease are not genetic; no genes are bad genes*.

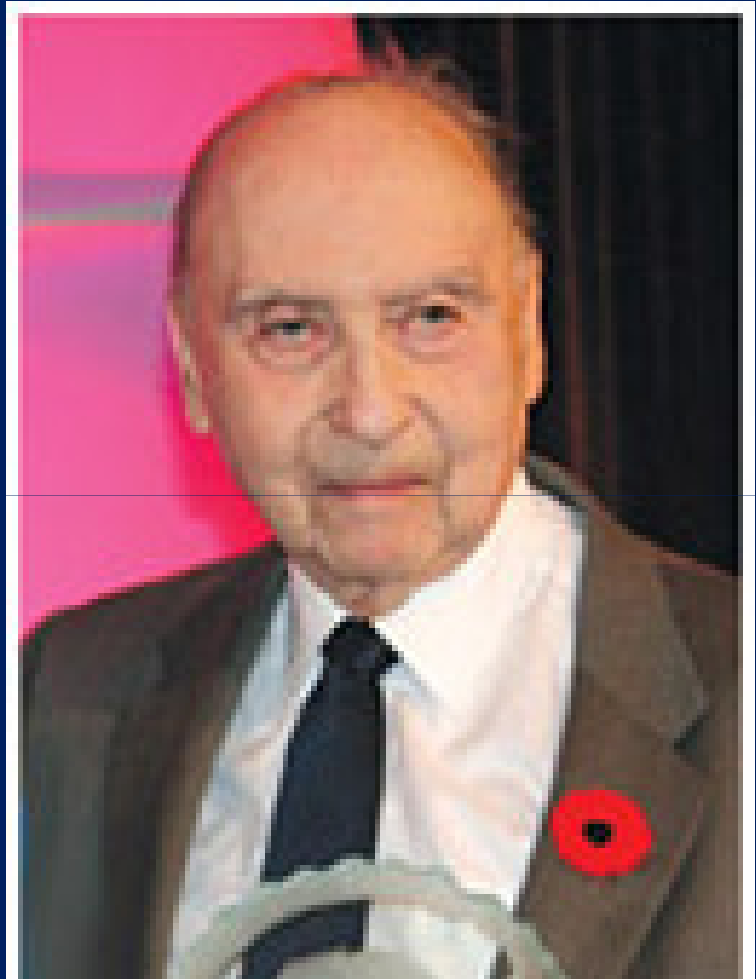
*Abram Hoffer Adventures in Psychiatry KOZ Publishing.



Dr. Abram Hoffer 1917-2009

Any genes that are truly bad would destroy the individual before birth. **All disease** must be due to a defect in the nutrients supplied to that individual. If a person has been well until age 60years it is obvious that genes cannot be blamed for an emergent illness.

*Abram Hoffer Adventures in Psychiatry KOZ Publishing.

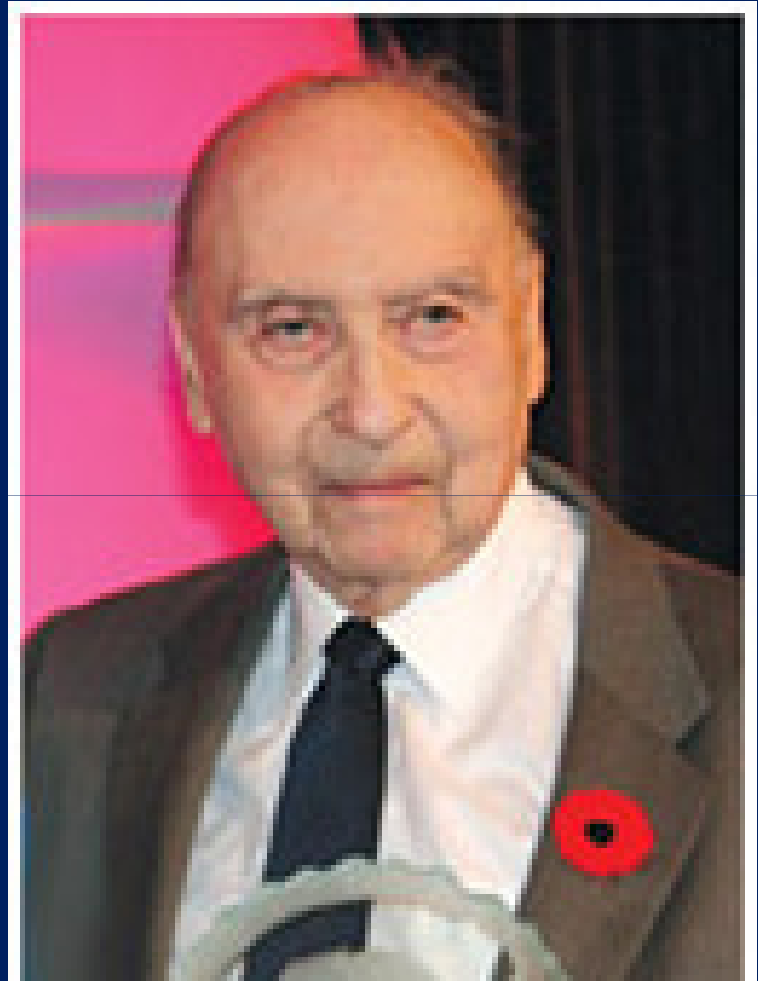


Dr. Abram Hoffer 1917-2009

The problem is not in **our genes**, it is the way we feed our genes.

I predict a future in which simple tests will be available which will advise which nutrients are lacking and how much of each nutrient patients need to regain and maintain their health.” *

*Abram Hoffer Adventures in Psychiatry KOZ Publishing.

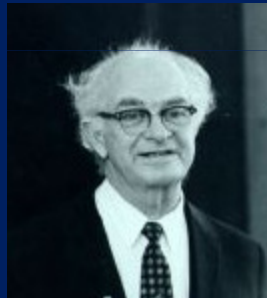


Dr. Abram Hoffer 1917-2009

Birth of Orthomolecular Psychiatry



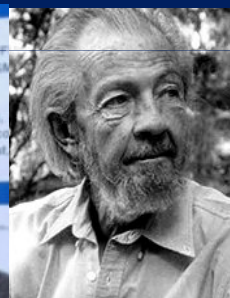
Abram Hoffer



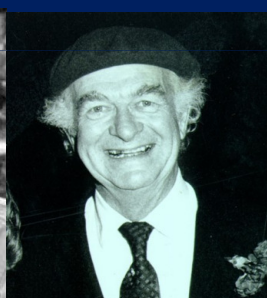
Humphrey Osmond



John Smythies



David Hawkins



Linus Pauling



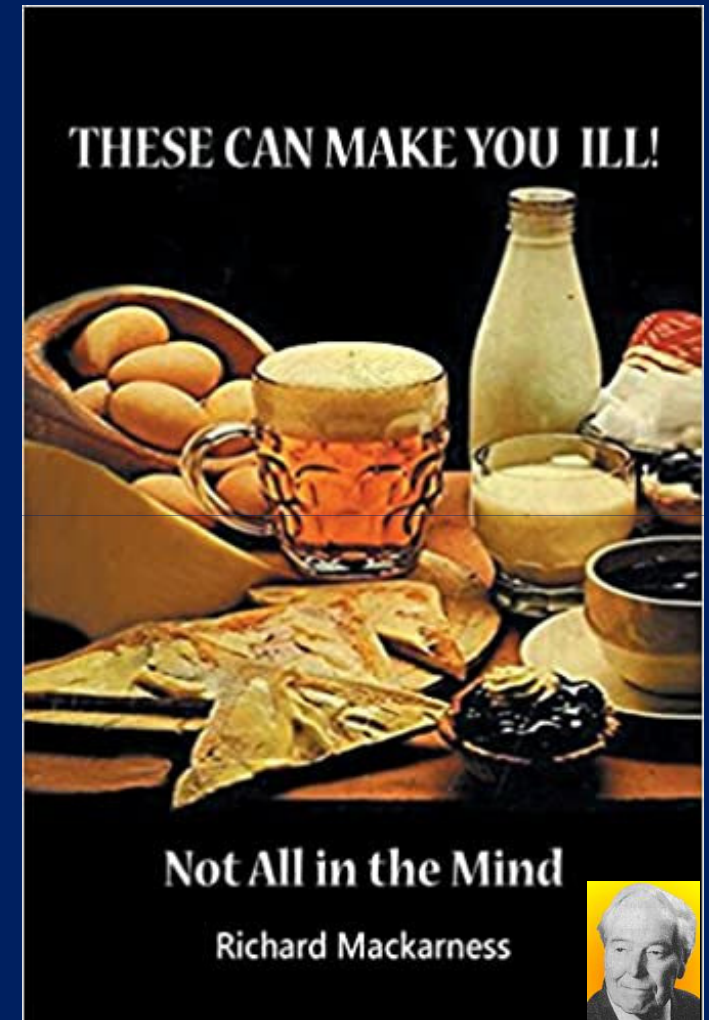
Bruce Ames

Richard Mackarness

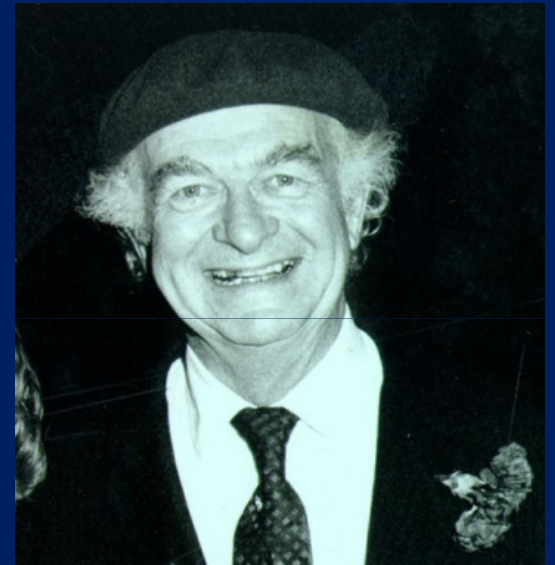
received his medical education from the Westminster Teaching Hospital. He later left general practice to become an assistant psychiatrist at [Park Prewett Hospital](#), Basingstoke (1965-1981). Mackarness was influenced by the research of [Theron Randolph](#) on food allergies. He developed a controversial environmental approach to psychiatric disease.* His ideas were not accepted by the medical community.

Mackarness was a founding member of the Clinical Ecology Group, which later became the British Society for Allergy and Environmental Medicine. He also founded the Chemical Victims Association. Mackarness stated he was allergic to eggs and coffee so removed them from his diet. He avoided everything made from flour and processed sugar. Mackarness believed that hidden food allergies from "wrong foods" such as sugar cause violent behaviour.

*Finn, Ronald. (1996). *Richard MacKarness*. [British Medical Journal](#) 312 (7045): 1534.



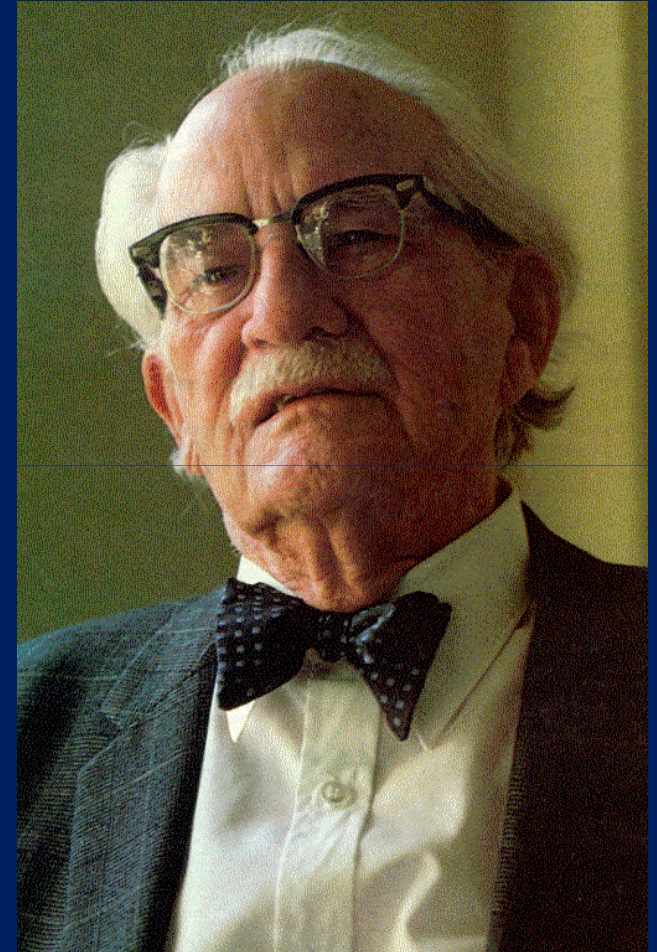
Pauling wrote: “The functioning of the brain is affected by the molecular concentrations of many substances that are normally present in the brain. The optimum concentrations of these substances for an individual may differ greatly from the concentrations provided by his normal diet and genetic machinery.”*



*Pauling L. Orthomolecular psychiatry. Varying the concentrations of substances normally present in the human body may control mental disease. *Science*. 1968;160(825):265-271.

Roger Williams spoke about in the 1940s and 1950s.

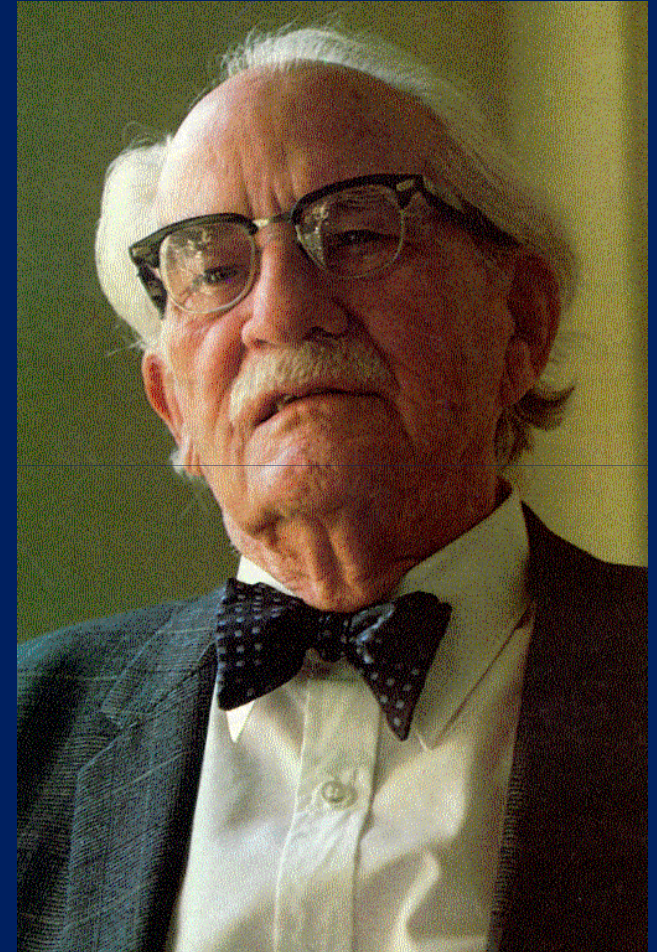
“Biochemical and genetic arguments support the idea that orthomolecular therapy, the provision for the individual person of the optimal concentrations of important normal constituents of the brain, may be the preferred treatment for many mentally ill patients.



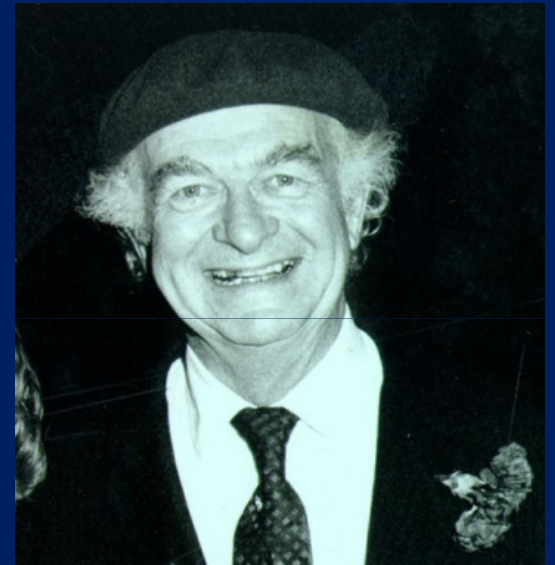
**Mental symptoms of
avitaminosis sometimes
are observed long before
any physical symptoms
appear.”**

**Biochemical Individuality: The Basis for the Genetotropic
Concept**

1956, 1963 (softcover), John Wiley & Sons

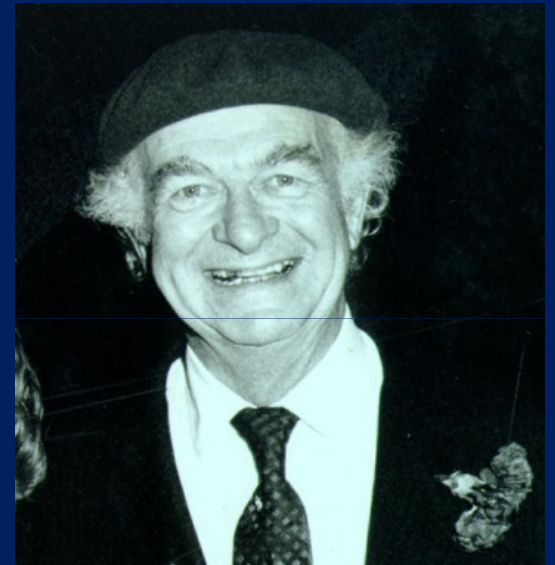


It has been said that neuropsychological effects are some of the first signs of **chronic vitamin intake** below the levels necessary for optimal function, well before you get into the deficiency symptoms of scurvy or pellagra.*



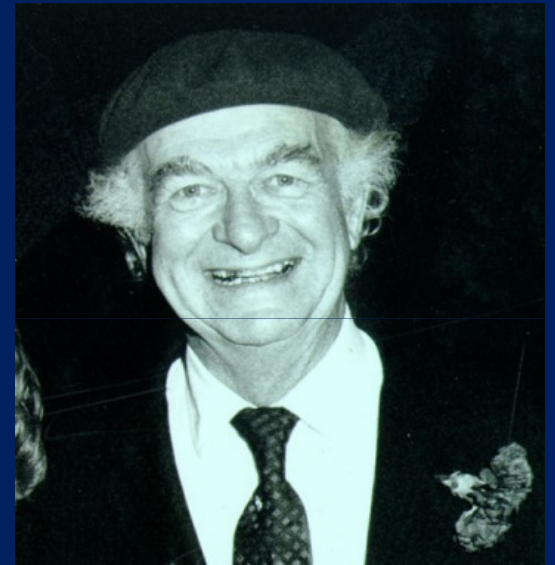
*Pauling L. Orthomolecular psychiatry. Varying the concentrations of substances normally present in the human body may control mental disease. *Science*. 1968;160(825):265-271.

Pauling also wrote: “There is a possibility that for some persons the cerebral spinal concentrations of vital substances may be grossly low at the same time that the concentration in the blood and lymph is essentially normal.*



*Pauling L. Orthomolecular psychiatry. Varying the concentrations of substances normally present in the human body may control mental disease. *Science*. 1968;160(825):265-271.

A physiological abnormality such as a decreased permeability of the blood-brain barrier for the vital substance or increased rate of metabolism of the substance in the brain, may lead to a **cerebral deficiency**.*



*Pauling L. Orthomolecular psychiatry. Varying the concentrations of substances normally present in the human body may control mental disease. *Science*. 1968;160(825):265-271.

Selye's Adaption to Stress

Normal physiology

Dysfunctioning physiology

Pathology

Death

Hans Selye 1908-1982
"General Adaption Syndrome"

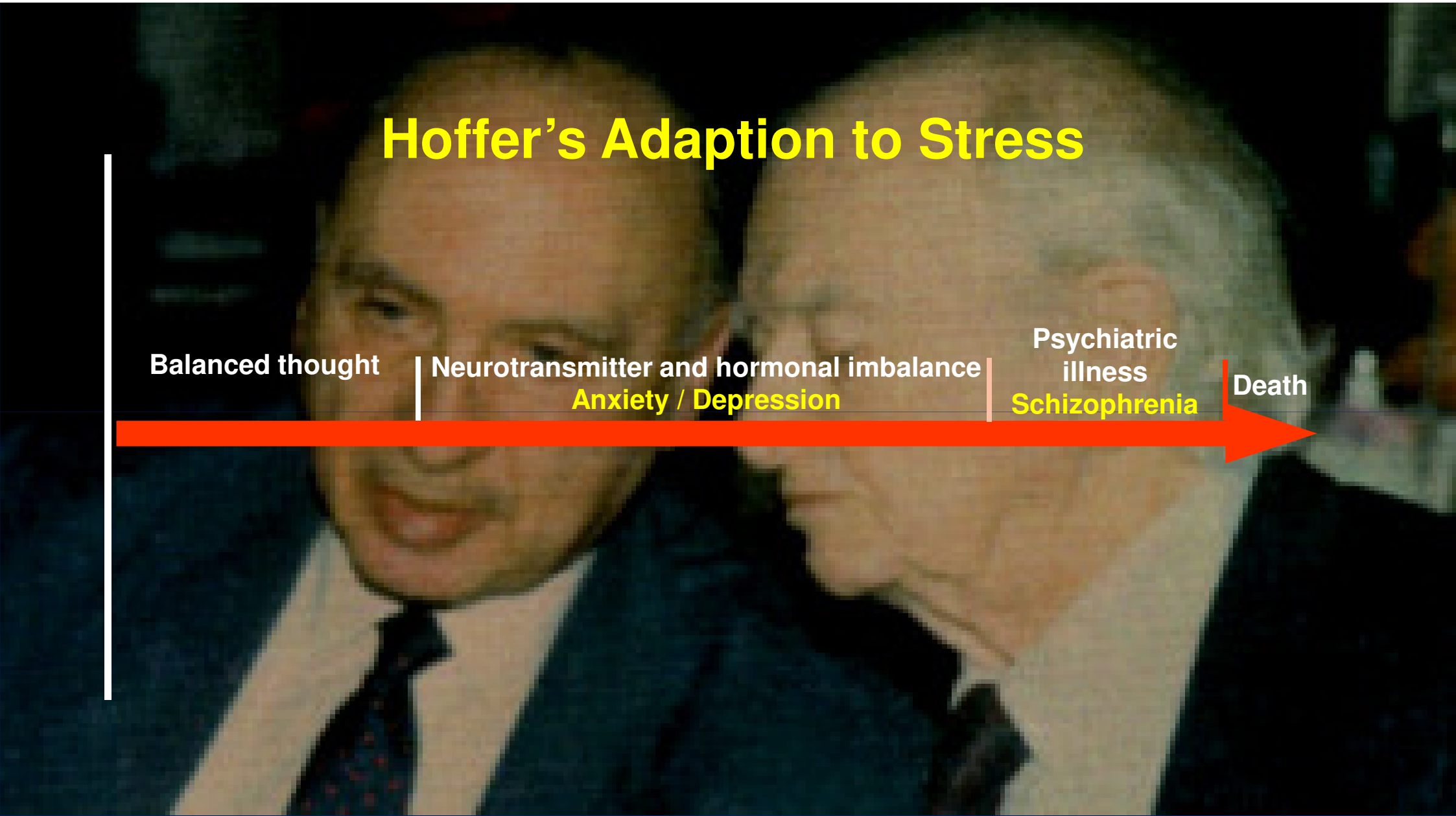
Hoffer's Adaption to Stress

Balanced thought

Neurotransmitter and hormonal imbalance
Anxiety / Depression

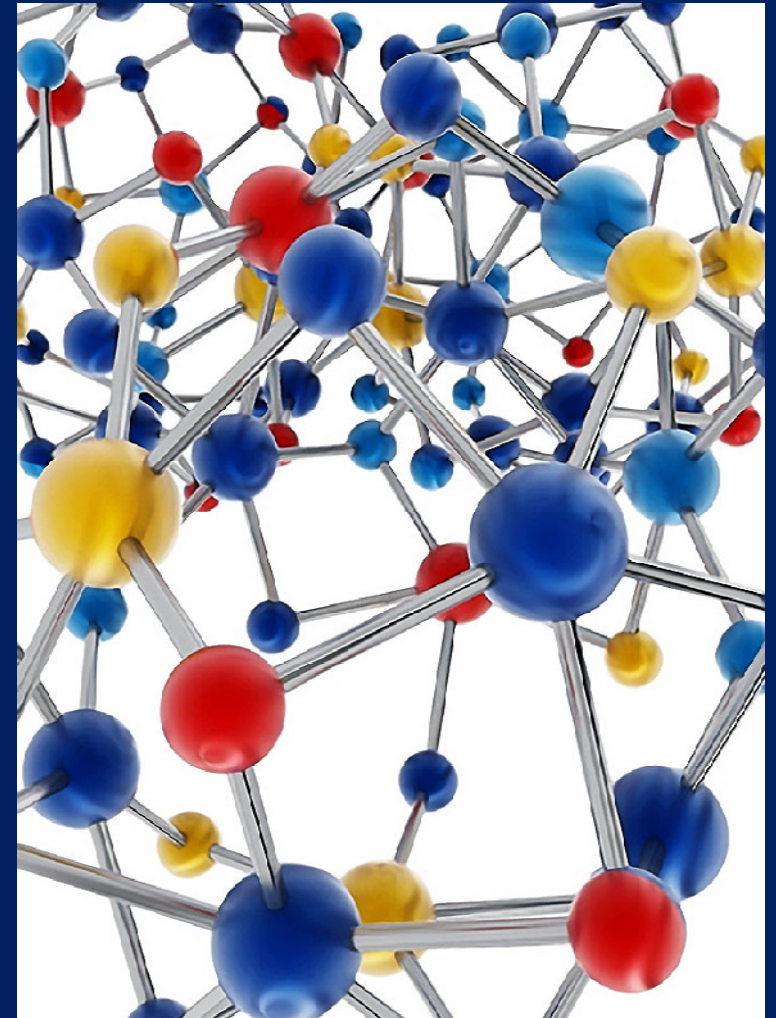
Psychiatric
illness
Schizophrenia

Death

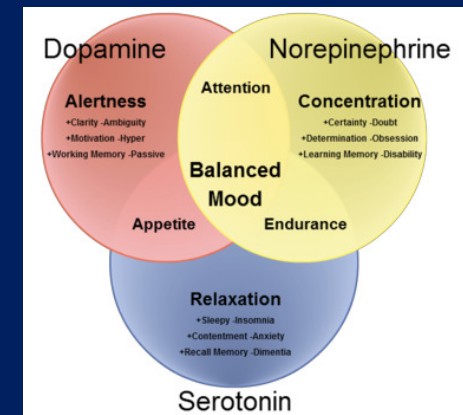
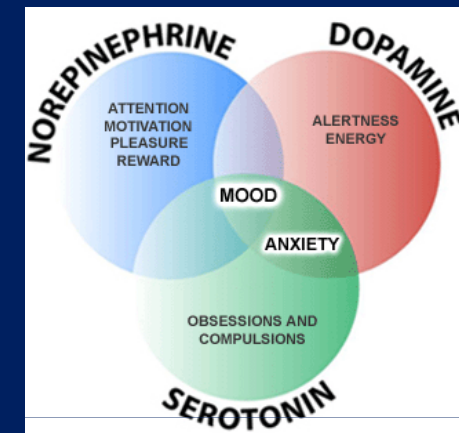


Understanding the numerous neurotransmitters, their receptors, their location, and their interactions with one another has been central to the design of medicines for mental illness and has led to the development of successful products for many brain disorders.*

*Neurotransmitters and Drugs by Z. Kruk and C. Pycock.



The neurotransmitters **serotonin**, **noradrenaline** and **dopamine** are involved in the control of many of our mental states, sometimes acting on their own and other times acting together. These, and other neurotransmitters, are likely to play a pivotal role in the pathological basis of mental illness and brain disease.*

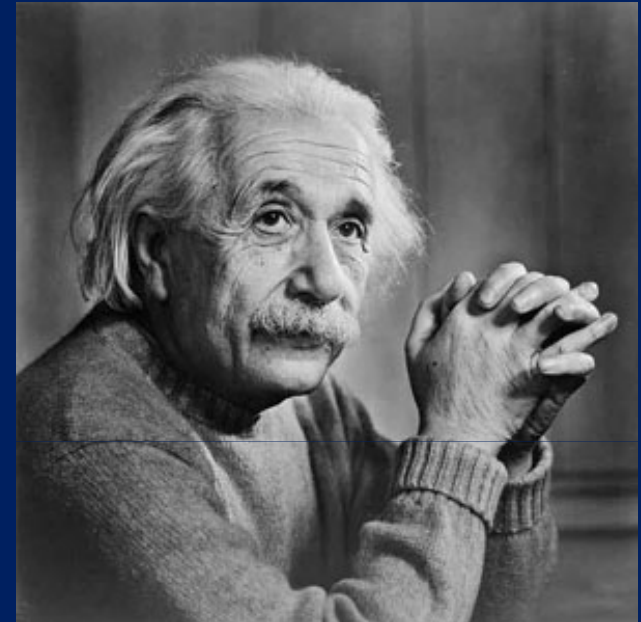


*Neurotransmitters and Drugs by Z. Kruk and C. Pycock.

Definition of terms

Insanity is a disease of perception combined with an inability to tell whether these changes are real or not.

Dr John Conolly 1850.

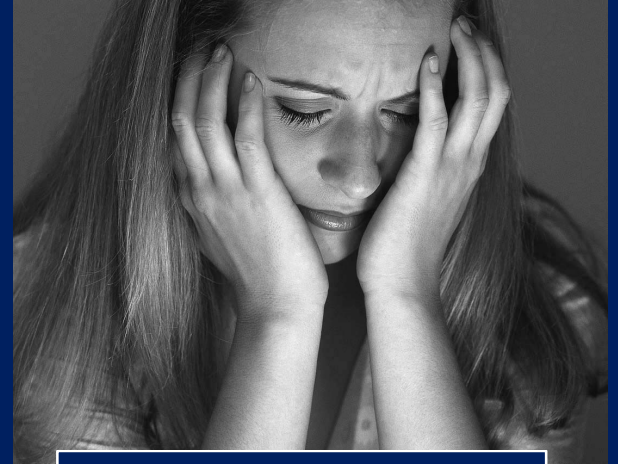


Albert Einstein's definition of insanity - "repeating the same thing over and over again and expecting a different outcome".

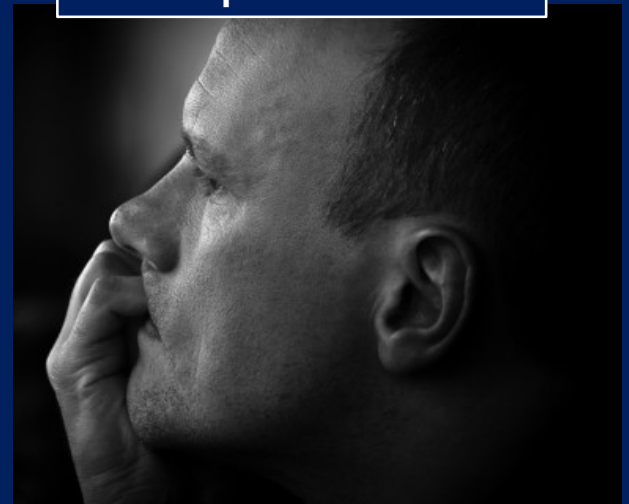
Depression is a HYPO state of low mood and aversion to activity that can affect a person's thoughts, behaviour, feelings and sense of well-being. ↓NA, ↓Dop, ↓5HTP*

Anxiety is a HYPER feeling of worry, nervousness, or unease about something with an uncertain cause or outcome. ↑NA, ↑Dop, ↑5HTP, ↓GABA*

Neurotransmitters and Drugs by Z. Kruk and C. Pycock.



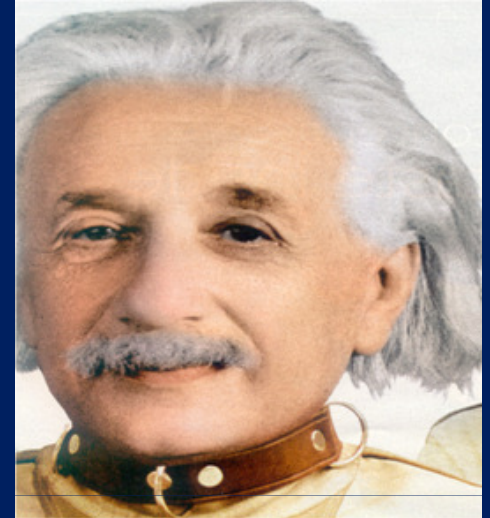
Note how similar the facial expressions can be



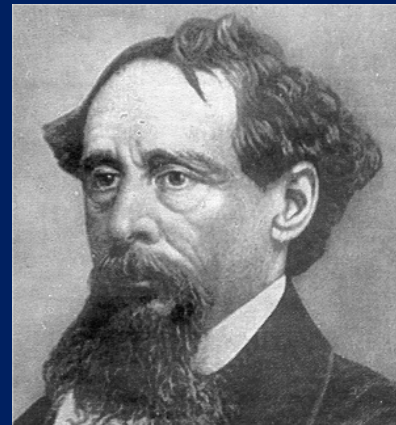
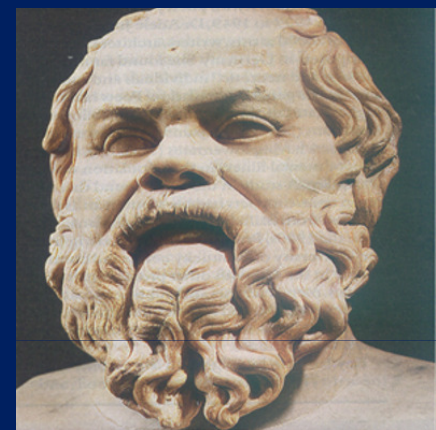
Manic depression
or Bipolar disorder,
is a mental
disorder
characterized by
periods of elevated
mood and periods
of depression.

↓ Dop - ↑ Dop*

Neurotransmitters and Drugs by Z. Kruk and C. Pycock.



See if you can guess a few other famous Bipolar people



See if you can guess a few other famous Bipolar people

Florence Nightingale



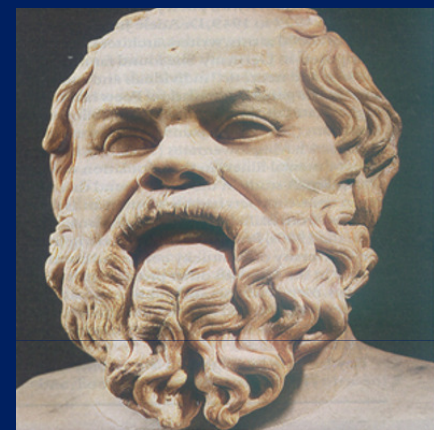
Lord Byron



Edgar Allan Poe



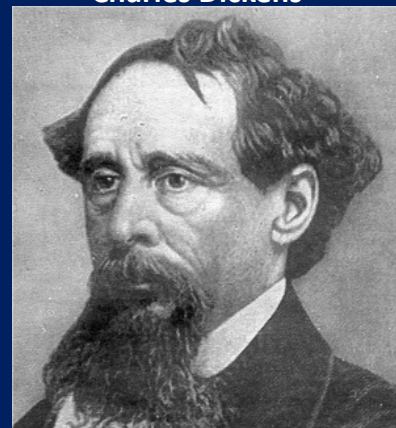
Socrates



Issac Newton



Charles Dickens



Robert Burns



Lord Tennyson



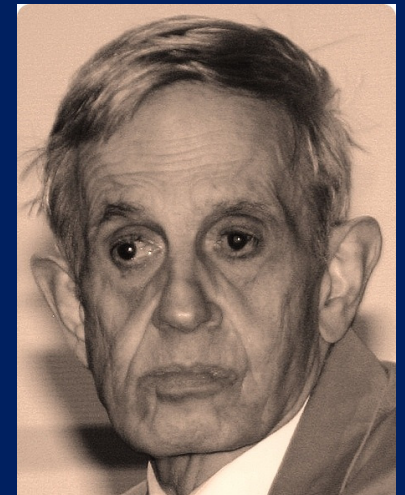
Schizophrenia is a mental disorder often characterized by abnormal social behaviour and failure to recognize what is real.*

Paranoid schizophrenia is the most common subtype of schizophrenia in which the patient has delusions that a person or some individuals are plotting against them or members of their family.*

Neurotransmitters and Drugs by Z. Kruk and C. Pycock.



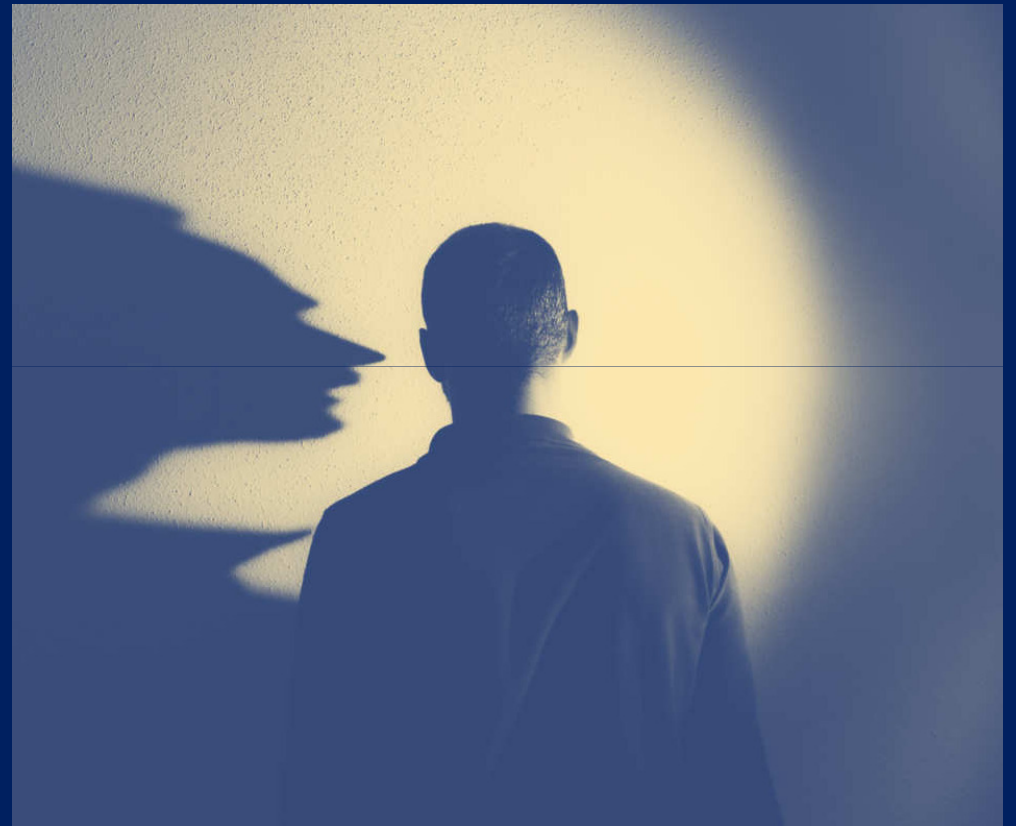
Amadeus Mozart



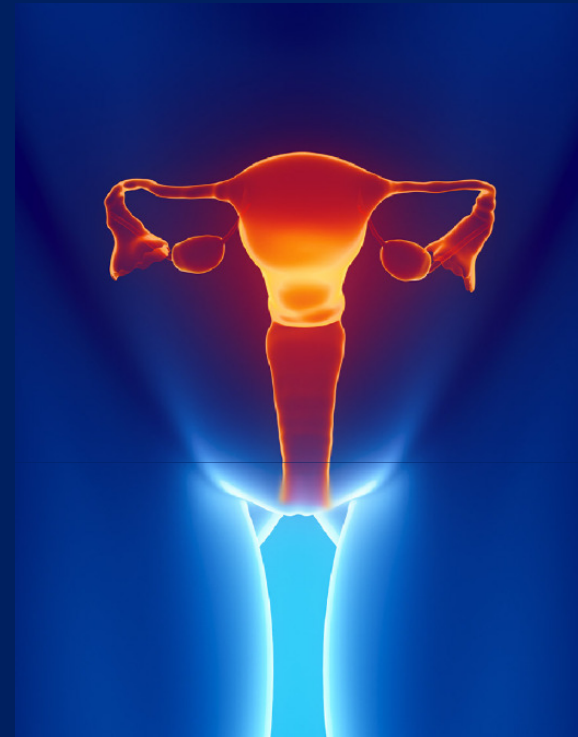
John Nash 1928-2015

Psychosis is a severe mental disorder in which thought and emotions are so impaired that contact is lost with external reality.

"Psychosis". NHS. 23 December 2016. Retrieved 24 January 2018.



Hysteria colloquially means ungovernable emotional excess and can refer to a temporary state of mind or emotion. The blanket diagnosis of hysteria has been fragmented into myriad medical categories such as epilepsy, histrionic personality disorder, conversion disorder, dissociative disorder, or other medical conditions.*



The word hysteria originates from the Greek word “uterus,” *hystera*

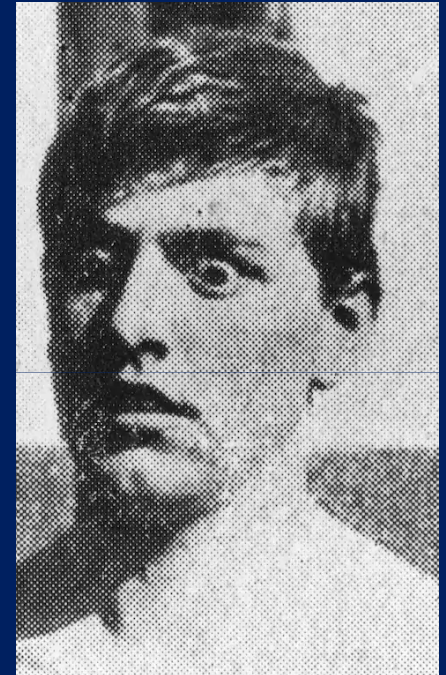
*Micale, Mark S. (January 15, 2019). [Approaching Hysteria: Disease and Its Interpretations](#). Princeton University Press.

Other hysteria examples

Shell shock WW1

Combat fatigue WW11

Post traumatic stress syndrome
from the Afghanistan / Iraq war
Civilian victims of trauma.*



*Micale, Mark S. (January 15, 2019). [Approaching Hysteria: Disease and Its Interpretations](#). Princeton University Press.

History of Mental Disorders

Biblical times – Possession

1800's Mental (Lunatic) hospitals

Late 1800's Biochemical illness

Early 1900's Psychoanalysis.

1910 Septic foci operations.

1920 GUT connection

1938 Electric Convulsive Therapy

1940's Exercise and Thyroid

1949 Lobotomy introduced

1950's Early psychiatric medicines for psychoses

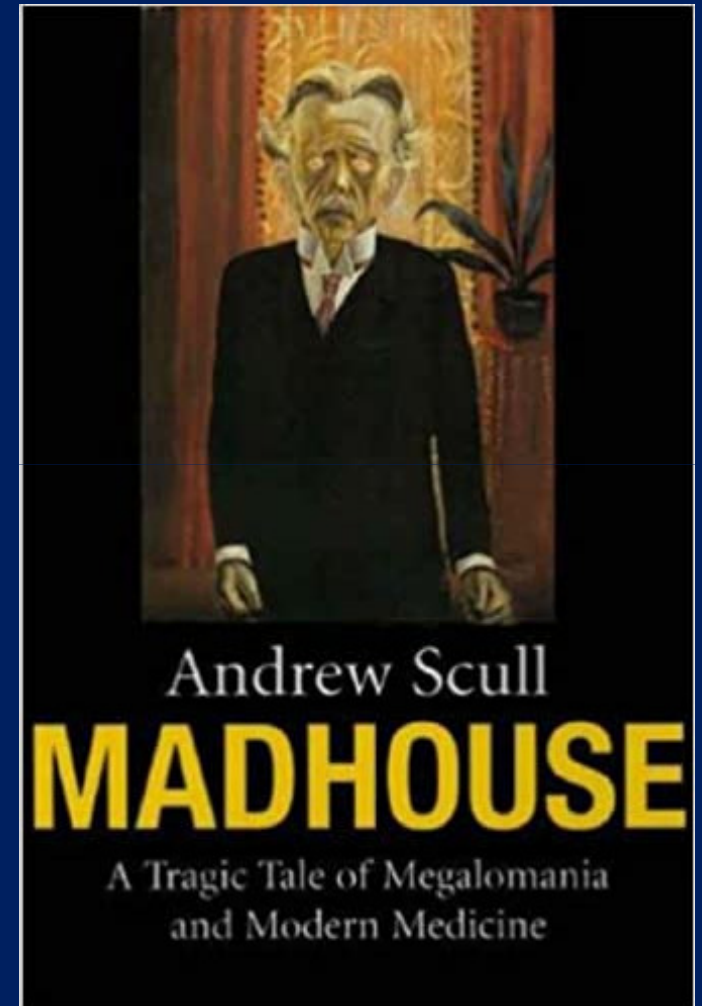
e.g. Thorazine and Largactil

1960's Psychology and Counselling

1990's Psychoanalysis abandoned

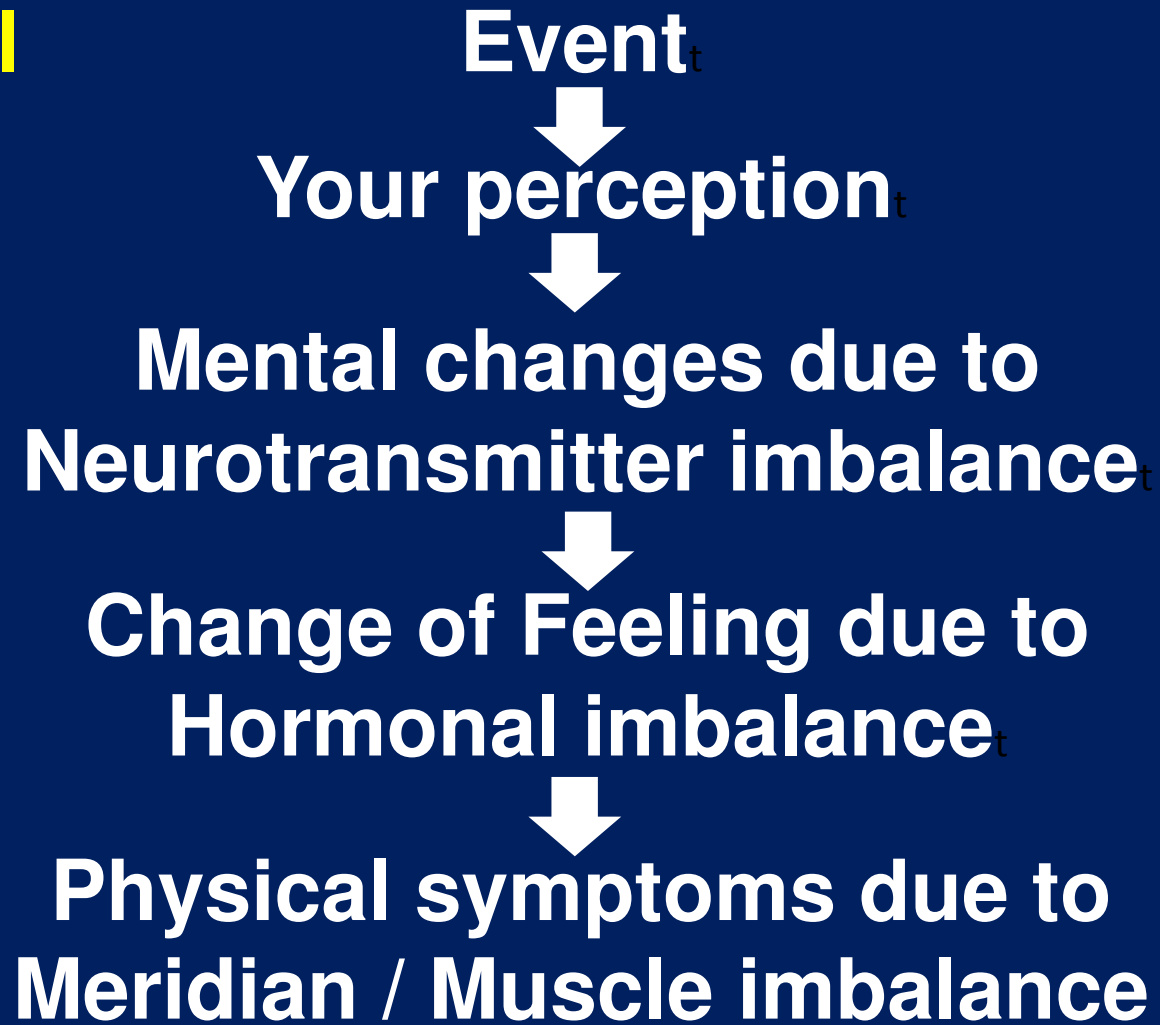
2000's Pharmaceutical approach

2020 GUT connection



The Chemistry of Emotions

Emotional cascade

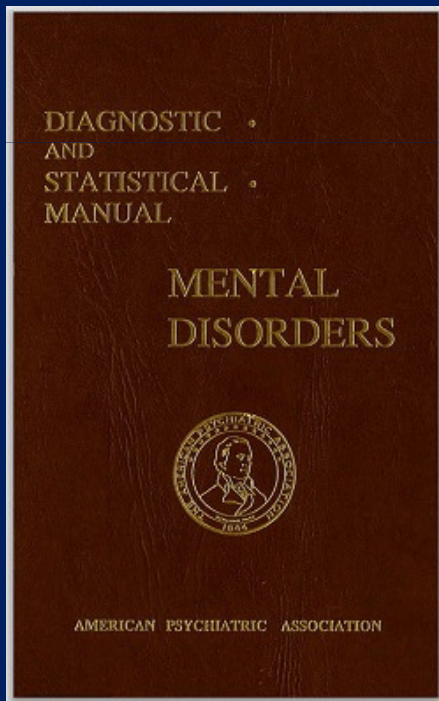


Meridian / Neurotransmitter / Emotion Relationship

Bl 1 Low Serotonin Tryptophan, Vit B12, Folate, Vit B3, Fe, Vit B6, Zn, Mg, Vit D	Depression, Shame and Humiliation, Low Self esteem	Liv 14 High Acetylcholine Vit B2, Vit B3, Mn, Zn	Pride, Hurt pride, Sorrow, Misery, Sadness
GB 1 Low Acetylcholine Choline, Vit B5, Vit B1, a-Lipoic, Mn	Guilt and Blame Self punishment, Culpability	TW 23 Low Excitatory Glutamic acid or Aspartic acid, Vit B6, Vit C, Mg, P, Vit B3	Distrusting, Doubt, Uncertainty
LI 20 Low Inhibitory Glutamic acid, Vit B6, Mg, Zn	Apathy and Despair. Indifference, Detachment	Cx 1 High Excitatory Mg, Vit B2, Fe, Vit B6, Vit C.	Fainthearted, Weakness, Denial
CV24 Low Dopamine Tyrosine, Vit B12, Folate, Vit B3, Fe, Vit B6, Zn, Mg, Vit D	Depression, Grief and Regret. Remorse, Sorrow, Looking back	St 1 Low Histamine Histidine, Vit B6, Zn, Mg	Not accepting the situation. Unforgiving
Kid 27 High Serotonin Cu, Vit B2, SAM, Mg, Zn, Vit B6, S, Vit C, Vit B5	Anxiety and Fear Apprehension, Nervousness	Sp 21 High Histamine SAM, Mg, Vit B12, Fe, Vit B2, Cu, Vit C, Hesperidin, Zn, Vit E	Not open to new ideas, Pessimistic
GV 27 High Dopamine Cu, Vit B2, SAM, Mg, Zn, Vit B6, S, Vit C, Vit B5	Anxiety, Craving and Desire, Longing, Revenge, Lust	SI 19 Low Noradrenalin Tyrosine, Vit B12, Folate, Vit B3, Fe, Vit B6, Zn, Mg, Vit D, Vit C, Cu	Depression, Disbelief, Unsound, Misunderstanding
Lu 1 High Inhibitory Vit B6, Zn, Mg	Anger and Frustration Antagonism	Ht 1 High Noradrenalin Cu, Vit B2, SAM, Mg, Zn, Vit B6, S, Vit C, Vit B5	Anxiety, Not feeling Loved, Lovable, Loving

Download from www.epigenetics-international.com

Psychiatric emotional conditions



Diagnostic and Statistical Manual of Mental Disorders (DSM-5)

Anxiety disorder

Mood disorder

Psychotic behaviour

Personality disorder

Eating disorder

Sleep disorder

Sexuality related

Others

**Hoffer's and Pauling's work
introduced us to the concept of
Reactive intermediates and
their relationship to emotional
illnesses**

From Tryptophan's neurotransmitter Serotonin

Serotonochrome

Tryptamine

Dimethyltryptamine

From Tyrosine – Dopamine and Noradrenalin

Adrenochrome

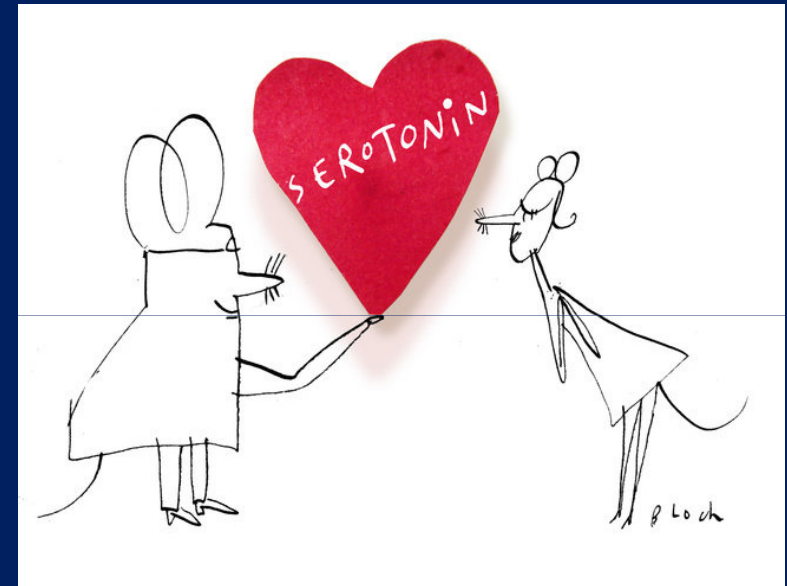
Adrenolutein

Noradrenochrome

Dopaminochrome

**Firstly let's look at
Reactive Intermediates
derived from Tryptophan
(All Indoles)**

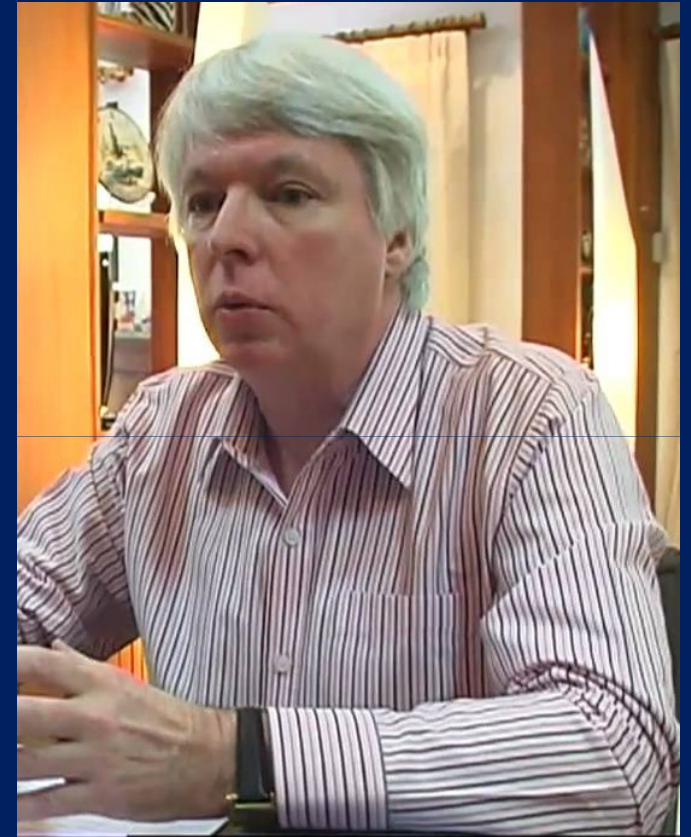
Serotonin is synthesised from the amino acid tryptophan, through metabolic conversion. These intermediary molecules in the metabolism of serotonin can be considered neurotoxins in their own right, and can have - in animals, effects on their mood and their nervous system activity.



If you had an alteration in the metabolism of neurotransmitters coming up from the precursor **tryptophan into serotonin and its by products**, it would be possible to induce autotoxicity, which then could activate the immune system.

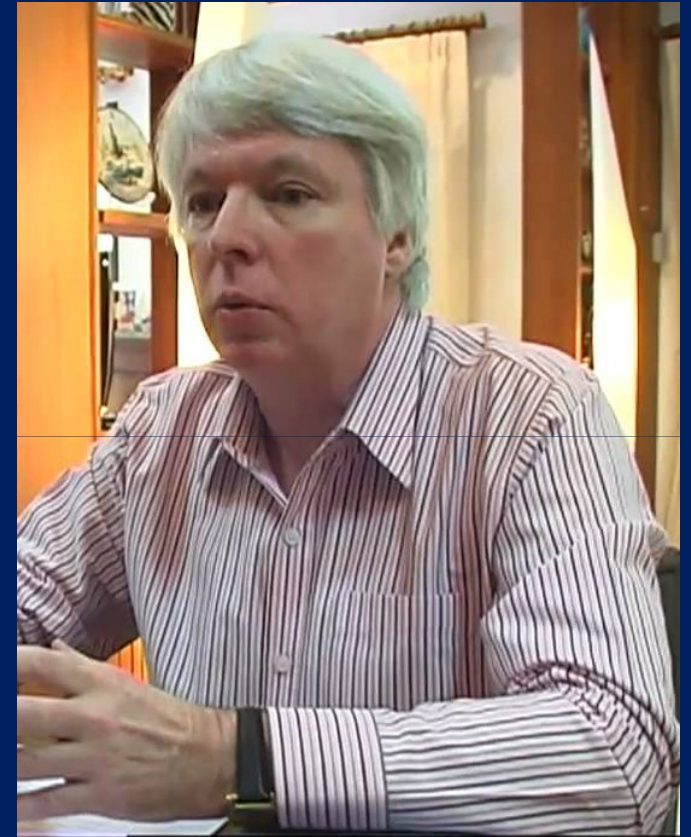


This autointoxication concept is what **Dr. Michael Maes** talks about as it relates to how these substances may interrelate with immune system activation and then be like a circular effect on depression, anxiety, mood changes, and inflammatory mediators all working together.



*Maes M, Mihaylova I, Ruyter MD, Kubera M, Bosmans E. The immune effects of TRYCATs (tryptophan catabolites along the IDO pathway): relevance for depression-and other conditions characterized by tryptophan depletion induced by inflammation. *Neuro Endocrinol Lett.* 2007;28(6):826-831.

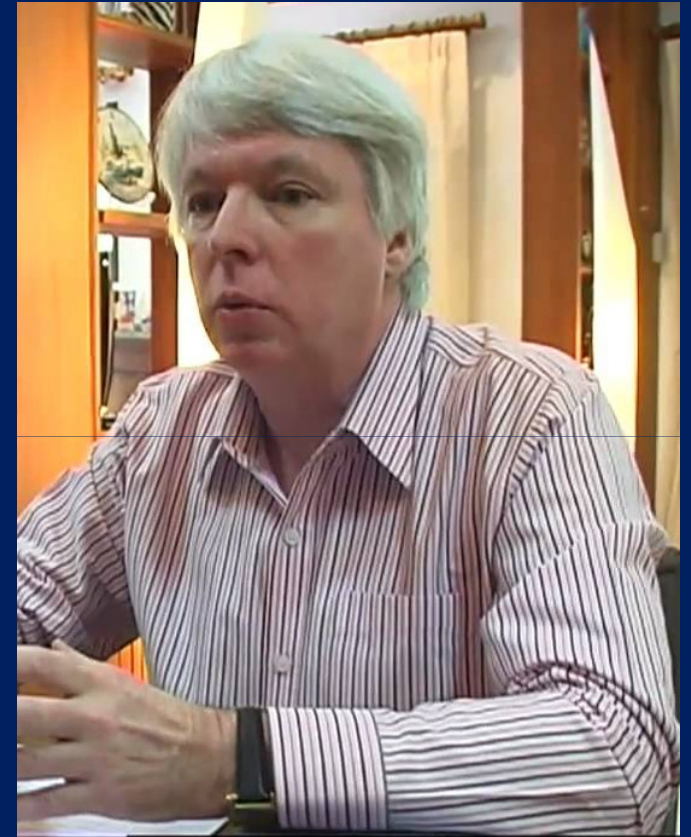
**It is not just in the mind;
chronic fatigue syndrome,
fibromyalgia, and
depressive disorders all
swim together and work
together, through the
inflammatory pathways.***



***Maes M, Mihaylova I, Ruyter MD, Kubera M, Bosmans E. The immune effects of TRYCATs (tryptophan catabolites along the IDO pathway): relevance for depression-and other conditions characterized by tryptophan depletion induced by inflammation. *Neuro Endocrinol Lett.* 2007;28(6):826-831.**

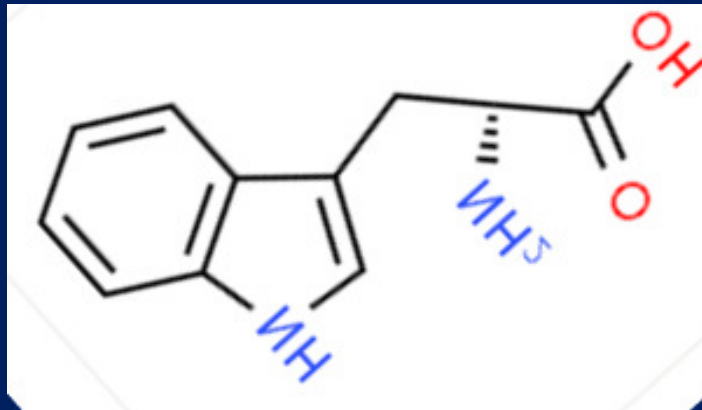
This model is another part of our evolving understanding of the origin of neuropsychiatric and neurophysiological disorders. If you start looking at **tryptophan metabolites** along the pathway of ultimate excretion of indoleamine metabolites from the metabolism of tryptophan through the serotonergic pathway, you see there is some relevance in individuals to the autointoxication concept that was first born out of work from the middle of the last century.

By modulating the metabolism of these substances and improving their throughput into serotonin and their exit ultimately out of the body through detoxified intermediates, we improve the molecular milieu (the orthomolecular environment).*



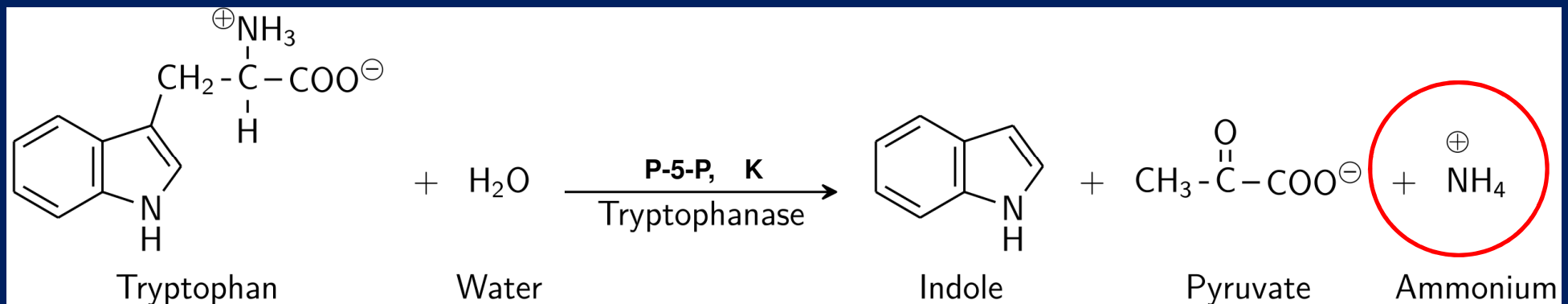
*Maes M, Mihaylova I, Ruyter MD, Kubera M, Bosmans E. The immune effects of TRYCATs (tryptophan catabolites along the IDO pathway): relevance for depression-and other conditions characterized by tryptophan depletion induced by inflammation. *Neuro Endocrinol Lett.* 2007;28(6):826-831.

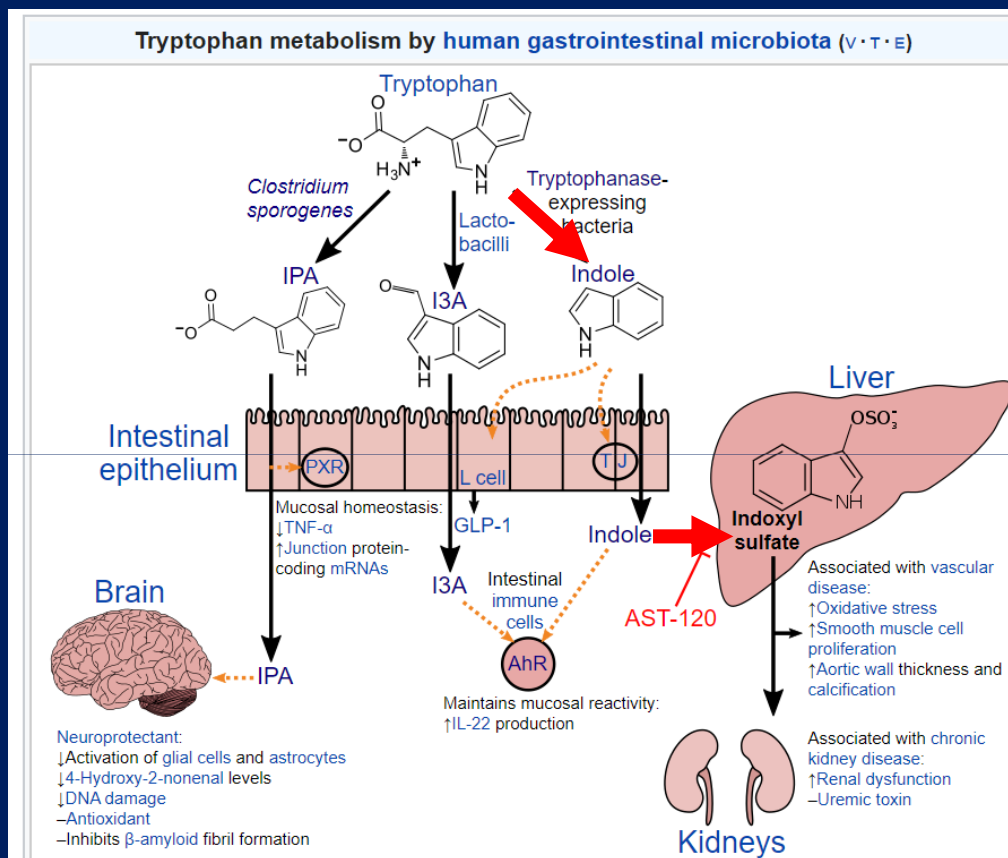
Metabolic derivatives of Tryptophan



Indole is a by-product of the digestion of tryptophan and is one of the compounds that gives the faeces its characteristic odour (together with the scatol and other substances).

Ammonium causes real nasty thoughts especially at night time.



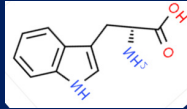


Indole can be metabolized by the liver into indoxyl sulfate, a compound that is toxic in high concentrations and associated with vascular disease and renal dysfunction. Activated charcoal, an intestinal sorbent that is taken by mouth, absorbs indole, in turn decreasing the concentration of indoxyl sulfate in blood plasma.

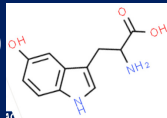
EXPRESSION ▼▼	ORGANISM ▼▼	UNIPROT ▼▼	LITERATURE ▼▼
tryptophanase activity is decreased by 43% after lactic acid bacteria treatment (300 billion CFU/g twice a day for 2 weeks)	Homo sapiens	-	706000

Tryptophan

hydroxylation
H4Biotin

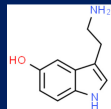


5-HTP



decarboxylation
P-5-P

CO₂



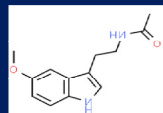
Serotonin

acetylation
AcetylCoA

N. Acetylserotonin

methylation
SAM, B12,
5MTHF, Zn

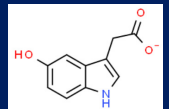
Melatonin



MAO
Cu, FAD

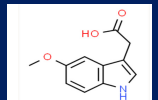
Hydroxyindole acetate*

NH₄



methylation
SAM, B12, 5MTHF, Zn

Methoxyindole acetate*

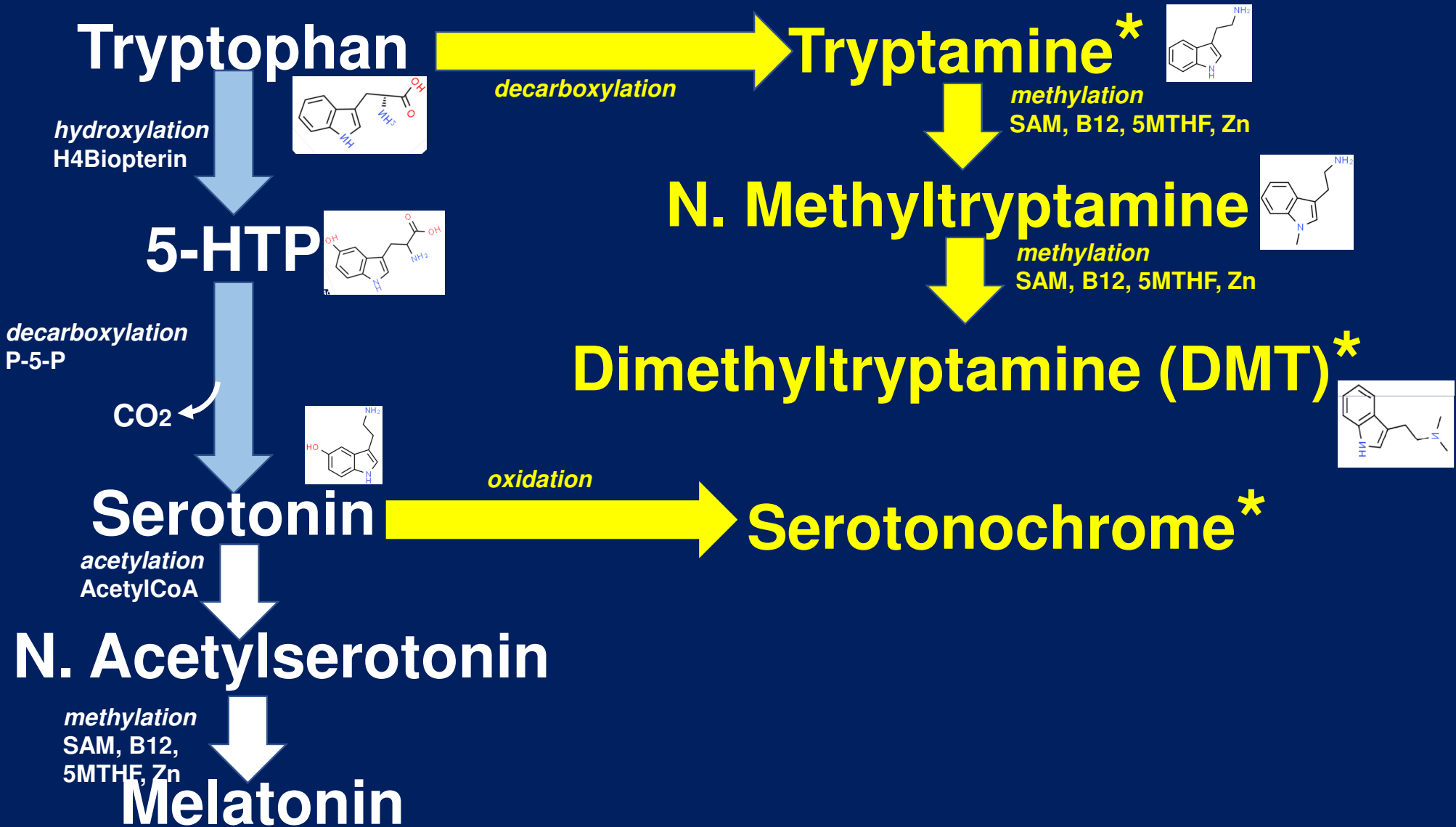


Glutathione, Sulfur
Glucuronidation,
Acetylation

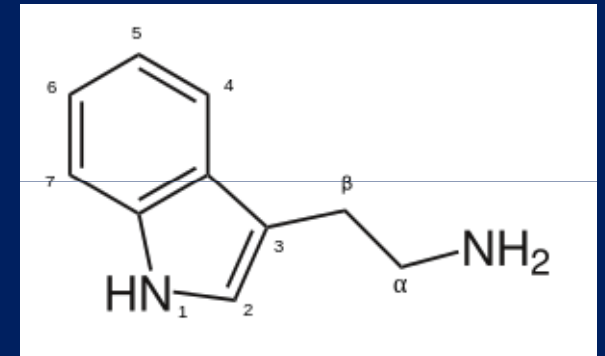
Conjugates

Low Serotonin = Bladder
High Serotonin = Kidney

Ammonium causes real
nasty thoughts especially
at night time.



Tryptamine is a decarboxylation product of L-tryptophan that occurs in plants and certain foods (for example, cheese, mushrooms, cashew nuts). It raises the blood pressure through vasoconstrictor action, by the release of noradrenalin at



postganglionic sympathetic nerve endings.

*Khan MZ, Nawaz W (October 2016). "The emerging roles of human trace amines and human trace amine-associated receptors (hTAARs) in central nervous system". *Biomed. Pharmacother.* 83: 439–449.

Tryptamine binds to human trace amine-associated receptor 1 (TAAR1) as an agonist regulating neurotransmission in dopamine, noradrenalin, and serotonin neurons in the CNS. It also affects immune system and neuroimmune system function through different mechanisms.

It is primarily expressed in several peripheral organs and cells (e.g. the stomach, small intestine, duodenum, and white blood cells), astrocytes, and in the intracellular milieu within the presynaptic plasma membrane (i.e., axon terminal) of monoamine neurons in the central nervous system (CNS).*

*Maguire JJ, Davenport AP (20 February 2018). "[Trace amine receptor: TA₁ receptor](#)". *IUPHAR/BPS Guide to PHARMACOLOGY*. International Union of Basic and Clinical Pharmacology. Retrieved 16 July 2018.

Other hallucinogenic
compounds from
Tryptophan -
**Dimethyltryptamine
(DMT).**

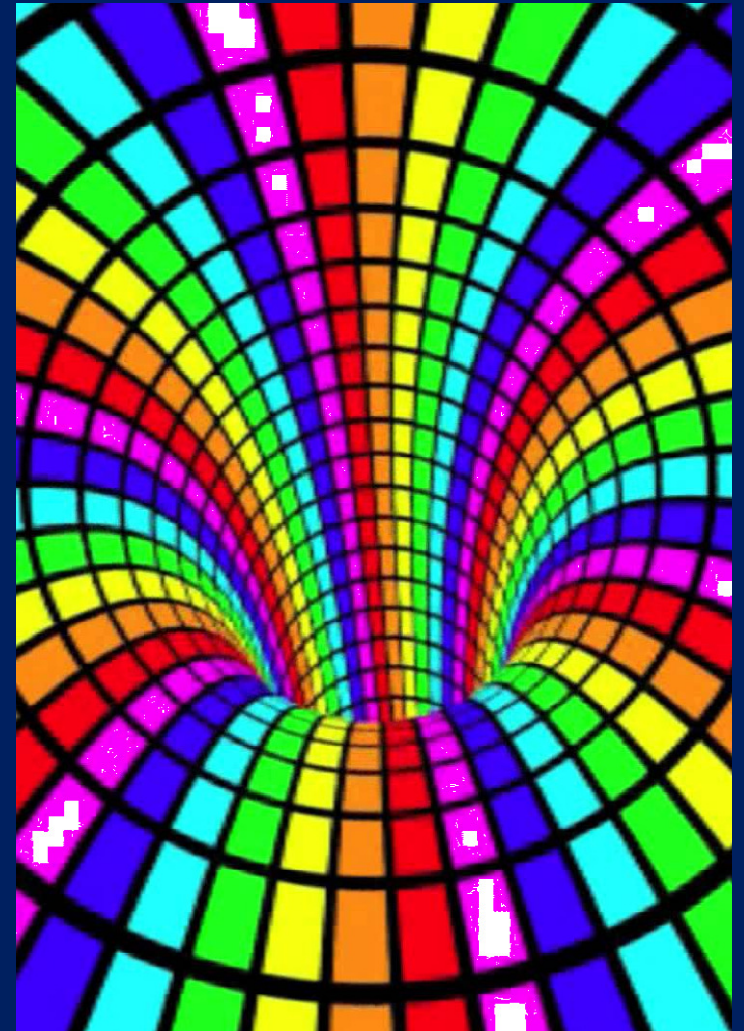
Rich in Ayahuasca brew

*"Erowid DMT (Dimethyltryptamine) Vault".
Erowid.org. Retrieved 2012-09-20.

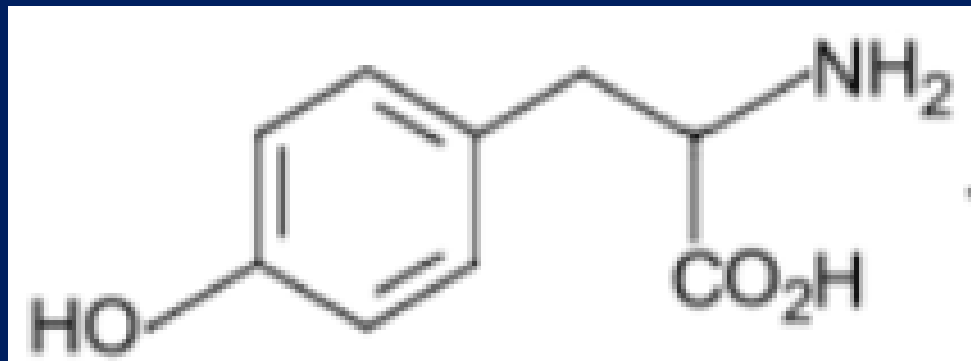


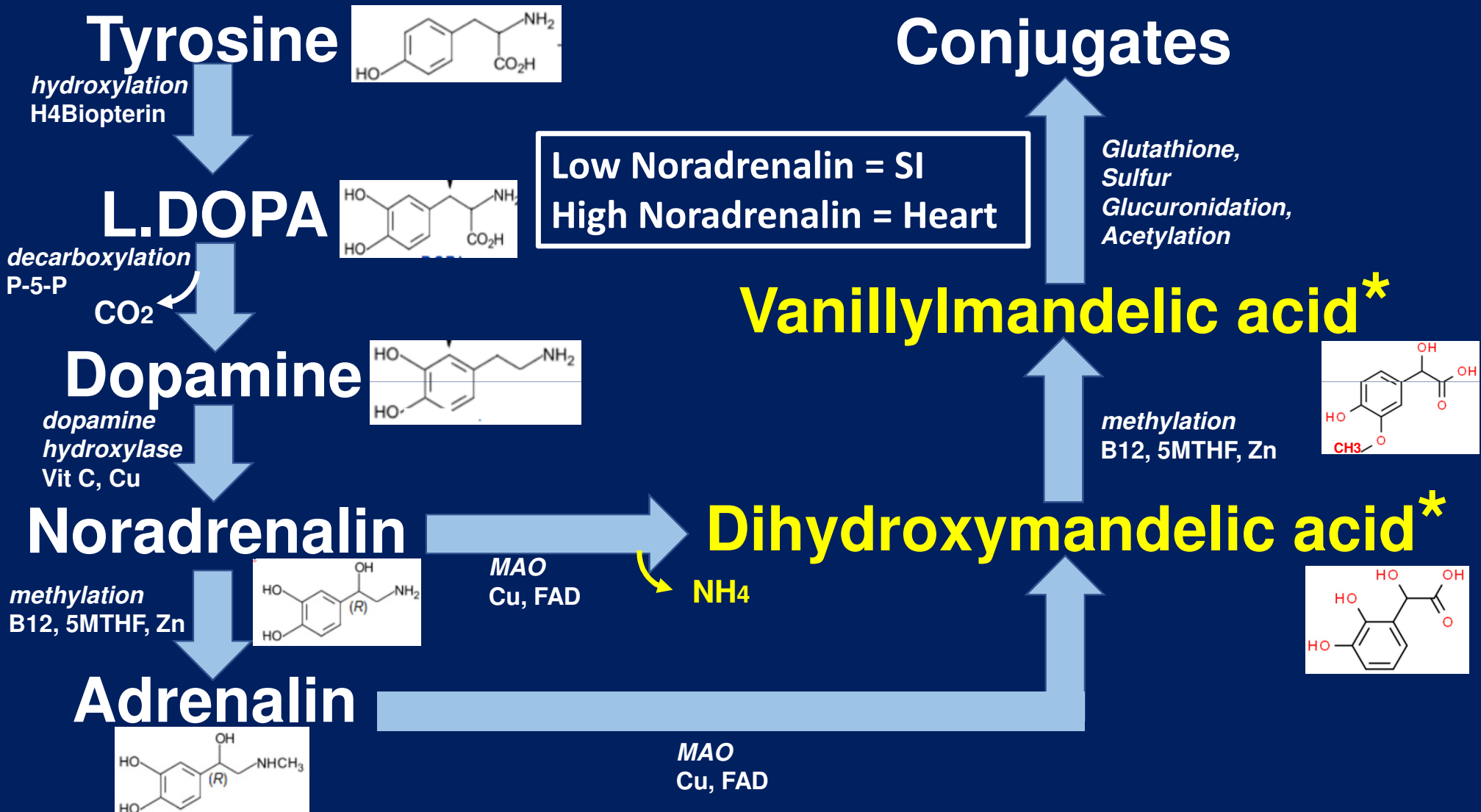
DMT can produce vivid
"projections"
of mystical
experiences involving
euphoria and
dynamic hallucinations
of geometric forms.*

*"Erowid DMT (Dimethyltryptamine) Vault".
Erowid.org. Retrieved 2012-09-20.



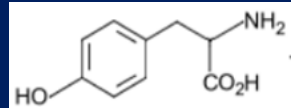
Metabolic derivatives of Tyrosine





Tyrosine

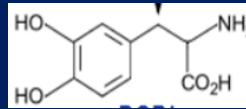
hydroxylation
H4Biotin



L.DOPA

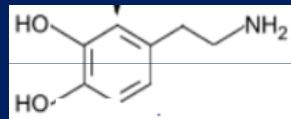
decarboxylation
P-5-P

CO₂



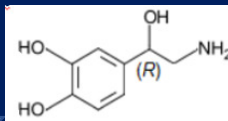
Dopamine

dopamine
hydroxylase
Vit C, Cu



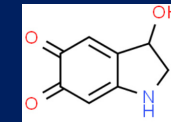
Noradrenalin

methylation
B12, 5MTHF, Zn

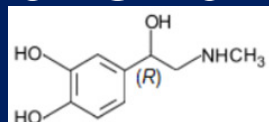


oxidation

Noradrenochrome*



Adrenalin

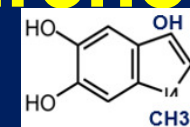
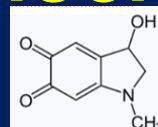


oxidation

Adrenochrome*

reduction

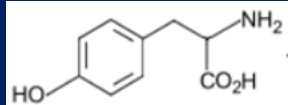
Adrenolutein*



Dopamine

Tyrosine

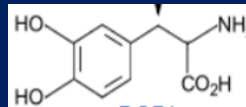
hydroxylation
H4Biotin



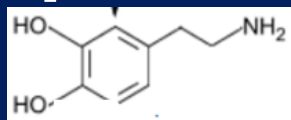
L.DOPA

decarboxylation
P-5-P

CO₂



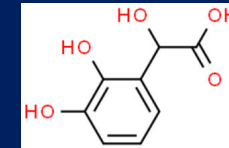
Dopamine



MAO
Cu, FAD

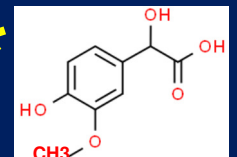
NH₂

Dihydroxyphenyl acetic acid*



methylation
SAM, B12, 5MTHF, Zn

Vanillylmandelic acid*

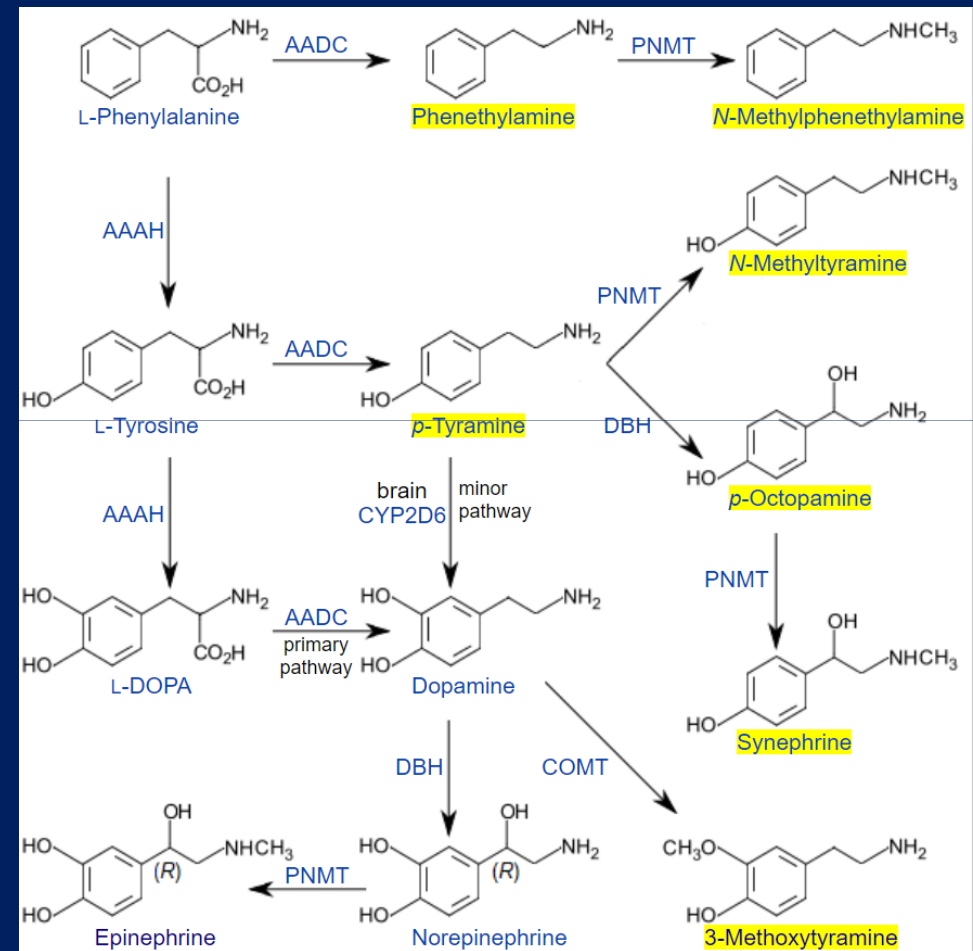


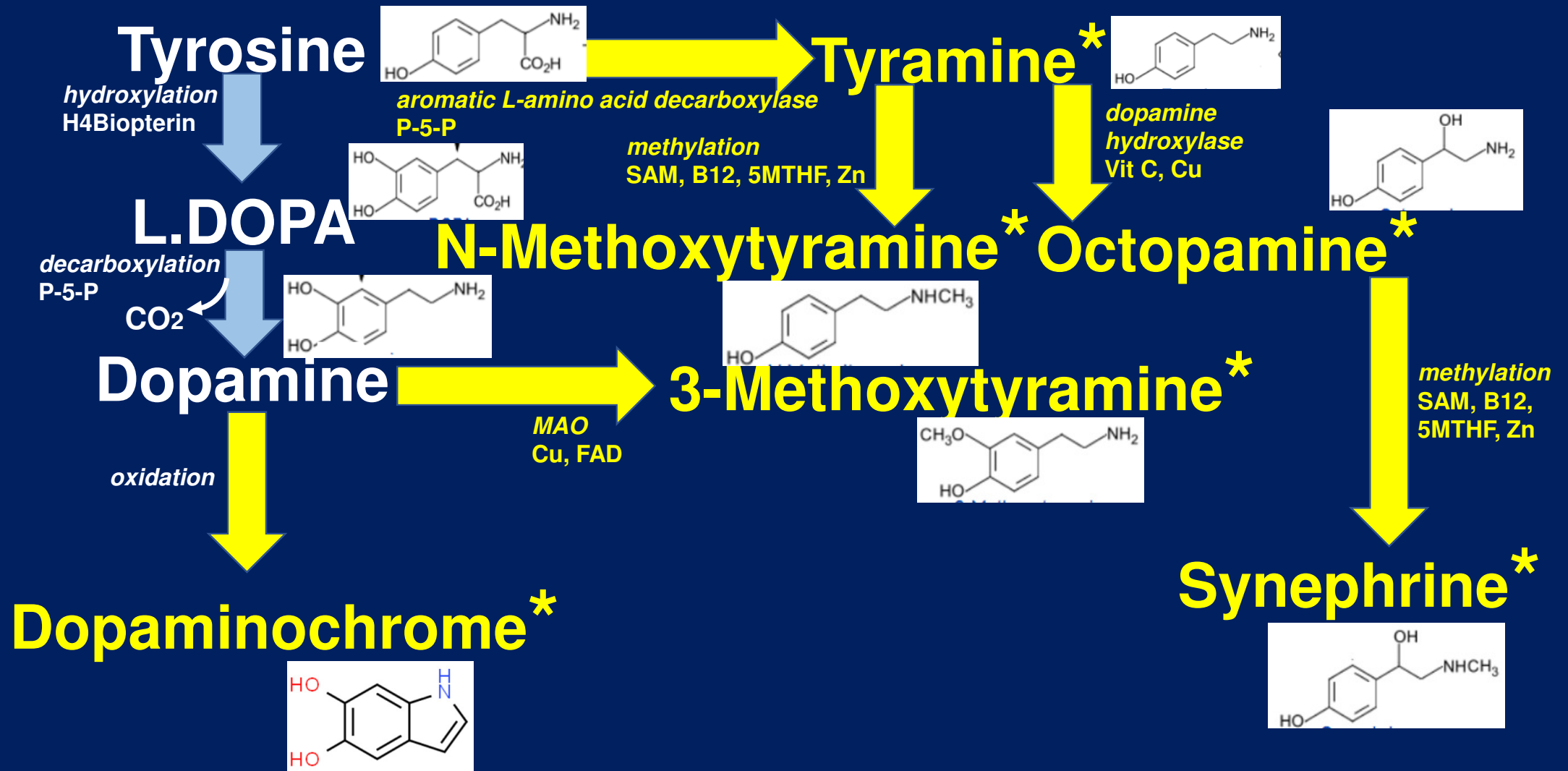
*Glutathione,
Sulfur
Glucuronidation,
Acetylation*

Conjugates

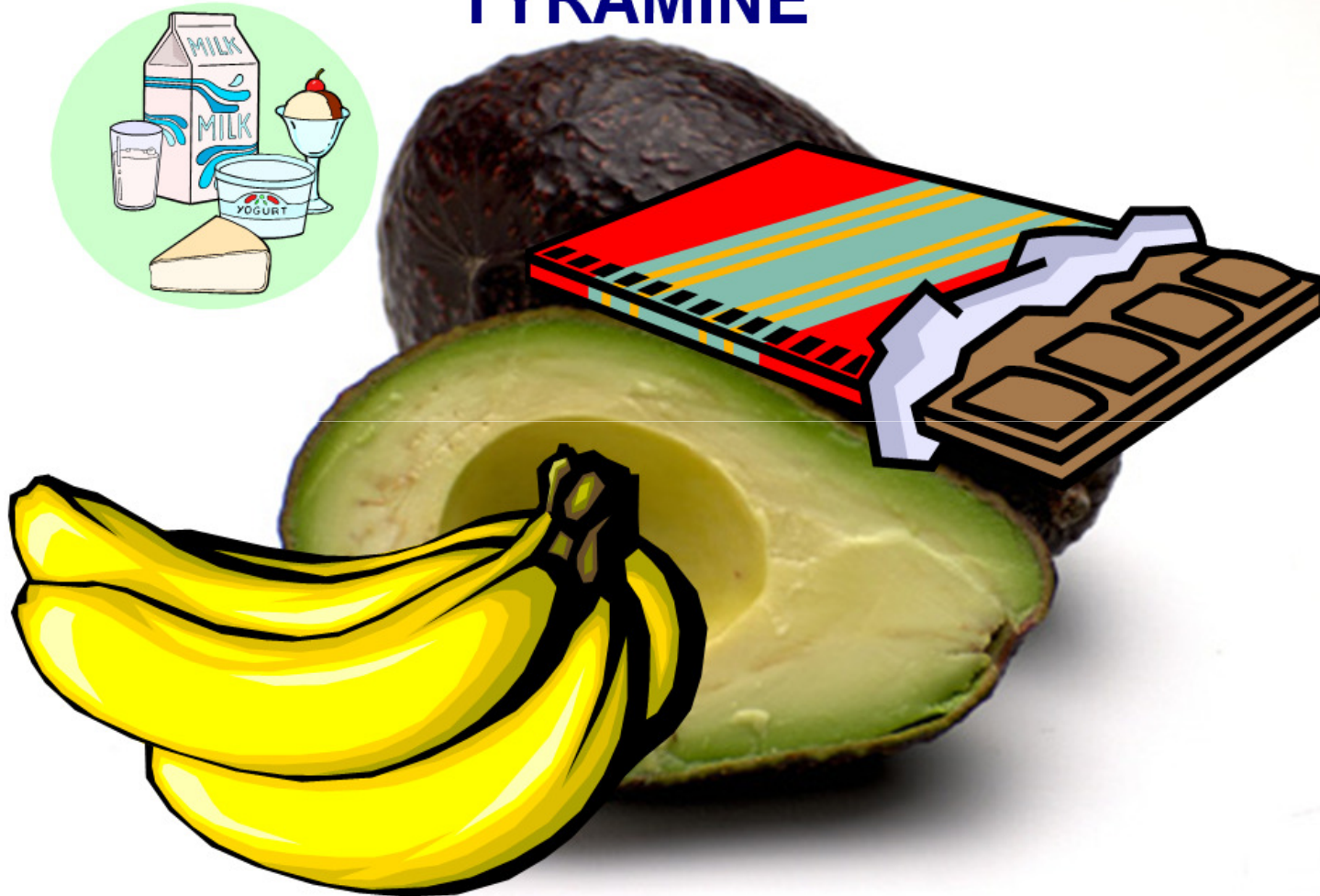
Low Dopamine = CV
High Dopamine = GV

Tyrosine derived trace
 amines attaching to the
TAA1 receptor are
 Phenethylamine
 N-Methylphenethylamine
 Phenylethanolamine
 Tyramine
 3-Methoxytyramine
 N-Methyltyramine
 Octopamine
 Synephrine





TYRAMINE



Tyramine is an indirect acting catecholaminergic amine found in Bananas and Avocados, Barley grass, Mandarin, Tangerine, Orange, Lemon, Grapefruit, Tomato, Pea, Plum, Aubergine, Cacao, Potato Cheese, Sour cream, Pizzas, Chocolate.

Pickled Herrings, Caviar, Liver, Salamis, Broad Beans pods.

Fermented dairy products such as Yoghurt, Sauerkraut

Yeast extracts including Beer and Wine, Bovril, Oxo, Marmite, MSG and all fermented Soya Bean products.

Normally **tyramine is completely inactivated by MAO when taken in the diet. Thus inhibition of MAO enzymes will lead to excess sympathetic activity. When these foods are eaten in the evening they often cause disrupted sleep and nightmares if high dopamine.**

We know these foods because they are not permitted to be ingested when patients are taking monoamine oxidase inhibitor drugs such as

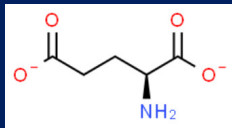
“Marplan”,

“Nardil”,

“Parnate”.

GABA

Glutamate (Glutamic acid)

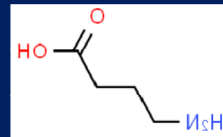


glutamate decarboxylase

P5P

CO₂

GABA



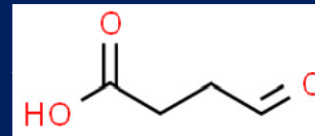
2-oxoglutarate

GABA transaminase

P5P

Glutamate

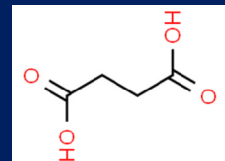
Succinic semialdehyde



succinic semialdehyde dehydrogenase

NAD, Mg

Succinic acid



Low GABA = LI
High GABA = Lung



ELSEVIER

International Review of Neurobiology

Volume 4, 1962, Pages 307-371

This chapter describes the activity of adrenochrome and some of its derived compounds. The effect of adrenochrome is considered first upon simple systems, then more complex systems, then simple animals, and finally, upon the most complex animal, the man. animals that are given adrenochrome range from spiders, fish, and pigeons to the mammals including rats, cats, dogs, monkeys, and man. The chapter gives much original data on cats and man. Chemically, adrenochrome and adrenolutin are very reactive substances. Some of the changes produced by adrenochrome may persist several days, and in some cases, the effects lead to nearly disastrous results. Two cases of prolonged reactions are discussed in the chapter. There is also a discussion regarding the reaction that lasted more than one day after a single administration of adrenolutin as well as reactions up to one week. The changes in thinking induced by adrenochrome are similar to those observed in schizophrenia. Adrenochrome causes an elective inhibition of the process, which determines the content of associative thinking. This occurs in doses that do not heighten the lability of basic processes, do not reduce excitation, and do not loose temporary connections as is the case with LSD.

Conversion of Adrenaline to Adrenolutin in Human Blood Serum

A. HOFFER, M.D.; M. KENYON

[» Author Affiliations](#)

AMA Arch NeurPsych. 1957;77(4):437-438. doi:10.1001/archneurpsyc.1957.02330340113017

Abstract

Adrenochrome (3-hydroxy-N-methyl-5,6-dioxindole) and adrenolutin (3,5,6-trihydroxy-1-methylindole) may be involved in the production of schizophrenia. These compounds have not been detected in blood, nor have enzyme systems been clearly demonstrated which can produce them from adrenaline. It is therefore of interest to show that the conversion can occur in blood serum.

Following Osmond and Smythies'⁸ suggestion that schizophrenic patients may have within them an M substance related in structure to both mescaline and epinephrine, Hoffer, Osmond, and Smythies⁵ discovered that adrenochrome, an oxidized derivative of epinephrine, induced psychological changes in humans. Hoffer and Osmond² postulated that the basic physiological abnormality in schizophrenia was an abnormality in the autonomic nervous system expressed chemically in the increased production of both acetylcholine and some oxidized derivative of adrenaline similar in structure to either adrenochrome or adrenolutin. Both these substances have similar properties in producing psychological changes (Hoffer³).

Dopaminochrome induces caspase-independent apoptosis in the mesencephalic cell line, MN9D

[Andrew J. Linsenbardt](#), [Julie M. Breckenridge](#), [Gerald H. Wilken](#), and [Heather Macarthur](#)*

Parkinson's disease (PD) is characterized by a deficiency in motor cortex modulation due to degeneration of pigmented dopaminergic neurons of the substantia nigra projecting to the striatum. These neurons are particularly susceptible to oxidative stress, perhaps because of their dopaminergic nature. Like all catecholamines, dopamine is easily oxidized, first to a quinone intermediate and then to dopaminochrome (DAC), a 5-dihydroxyindole tautomer, that is cytotoxic in an oxidative stress-dependent manner. Here we show, using the murine mesencephalic cell line MN9D, that DAC causes cell death by apoptosis, illustrated by membrane blebbing, Annexin V, and propidium iodide labeling within 3 h. In addition, DAC causes oxidative damage to DNA within 3 h, and positive TUNEL fluorescence by 24 h. DAC, however, does not induce caspase 3 activation and its cytotoxic actions are not prevented by the pan-caspase inhibitor, Z-VAD-fmk. DAC-induced cytotoxicity is limited by the PARP1 inhibitor, 5-aminoisoquinolinone, supporting a role for apoptosis inducing factor (AIF) in the apoptotic process. Indeed, AIF is detected in the nuclear fraction of MN9D cells 3h after DAC exposure. Taken together these results demonstrate that DAC induces cytotoxicity in MN9D cells in a caspase-independent apoptotic manner, likely triggered by oxidative damage to DNA, and involving the translocation of AIF from the mitochondria to the nucleus.

**Let's have a closer look at
the Adrenalin derivatives**

Adrenalin when oxidised turns pink in colour. Adrenalin is colourless.

This oxidised pink adrenalin was identified to contain adrenochrome.



*Abram Hoffer Adventures in Psychiatry KOZ Publishing.

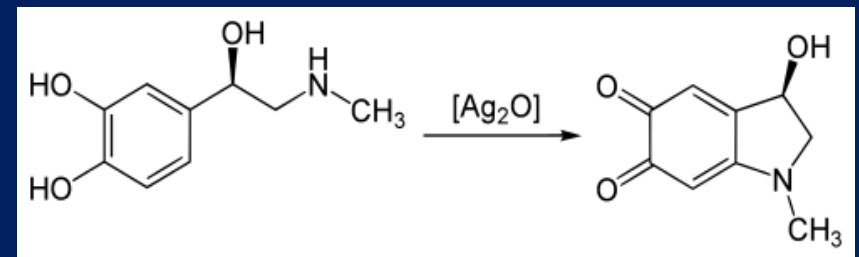
This compound formed by the loss of one electron from the **adrenalin** molecule is very unstable and can rapidly change back to adrenalin if that electron is replaced.



*Abram Hoffer Adventures in Psychiatry KOZ Publishing.

Significantly if the electron is not recaptured or if this cannot occur because of a deficiency in the nicotinamide adenine dinucleotide (NAD – NADH) system, oxidised adrenalin will lose another electron and become **adrenochrome**.

*Abram Hoffer Adventures in Psychiatry KOZ Publishing.



Adrenochrome cannot be changed back into adrenalin. Adrenochrome is very reactive and promptly forms adrenolutein and a large variety of other oxidised indoles. Pink adrenalin contains a mixture of these various oxidised derivatives.



*Abram Hoffer Adventures in Psychiatry KOZ Publishing.

Abstract

The present study reports the oxidation of epinephrine (adrenaline), a neurotransmitter by a lipid compatible lipophilic Cr (VI) oxidant, cetyltrimethylammonium dichromate (CTADC). The kinetics of the reaction is studied in organic media in the presence of acetic acid by UV–vis spectroscopic method. The rate of the reaction is measured by monitoring adrenochrome, the oxidized product of epinephrine at ~~455 nm~~^(462nm). The reaction is fractional order with respect to CTADC and epinephrine. Acetic acid is found to retard the rate of the reaction. A suitable ionic mechanism is proposed based on the experimental findings where epinephrine is converted to adrenochrome through the intermediate, leucochrome. The proposed reaction mechanism is also supported by the effect of solvent, effect of temperature, and effect of surfactants on the rate of the reaction. The decrease in rate constant due to increase in polarity and hydrogen bond acceptor ability of the solvent indicates the existence of a less polar transition state and stabilization of the reactants through strong intermolecular hydrogen bonding. The addition of surfactants (cationic, anionic, and nonionic) decreased the rate of reaction, and the retardation is explained through the partition of oxidant and substrate in different microheterogeneous media.

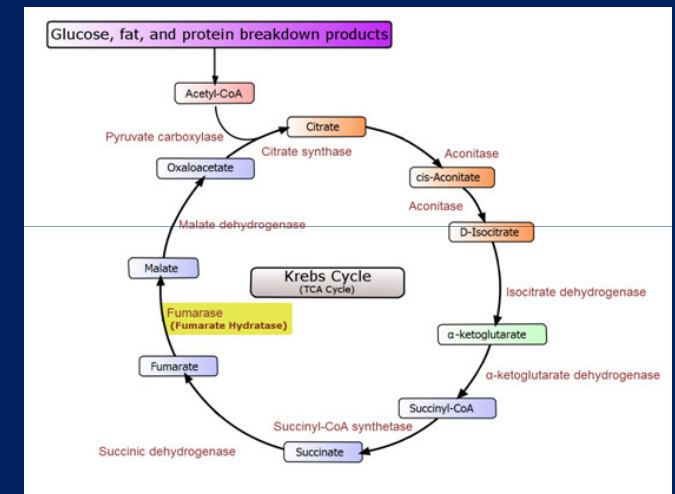
462nm Adrenochrome

In my clinical experience using **Applied Kinesiology** this spectroscopic emission acetate will weaken a person who has a higher than optimal level of adrenochrome.

The same sequence occurs with other **catecholamine** hormones such as noradrenalin and dopamine becoming indoles in structure.*
e.g. Noradrenochrome
Dopaminochrome

*Abram Hoffer Adventures in Psychiatry KOZ Publishing.

Vernon Woodford found that adrenochrome slows the Krebs's cycle and could in the brain lead to symptoms of mental illness.* Probably due to damaging the mitochondrial DNA and by its inhibition of certain heme synthesising enzymes.



*Abram Hoffer Adventures in Psychiatry KOZ Publishing.

Reduced Heme synthesis will lead to low levels of
Hemoglobin and Myoglobin (hypoxia)
Cytochrome c (low ATP)
Cytochrome c oxidase (low ATP)
Cytochrome P450 (low detoxification)
Myeloperoxidase and Nitric oxide (low immune system)
Catalase (low reduction of ROS > inflammation)
Sulfite oxidase (sulfite sensitivity)
Thyroid peroxidase* (low thyroid)

The **classical symptoms** of Vitamin B3 (NAD – NADH) deficiency are

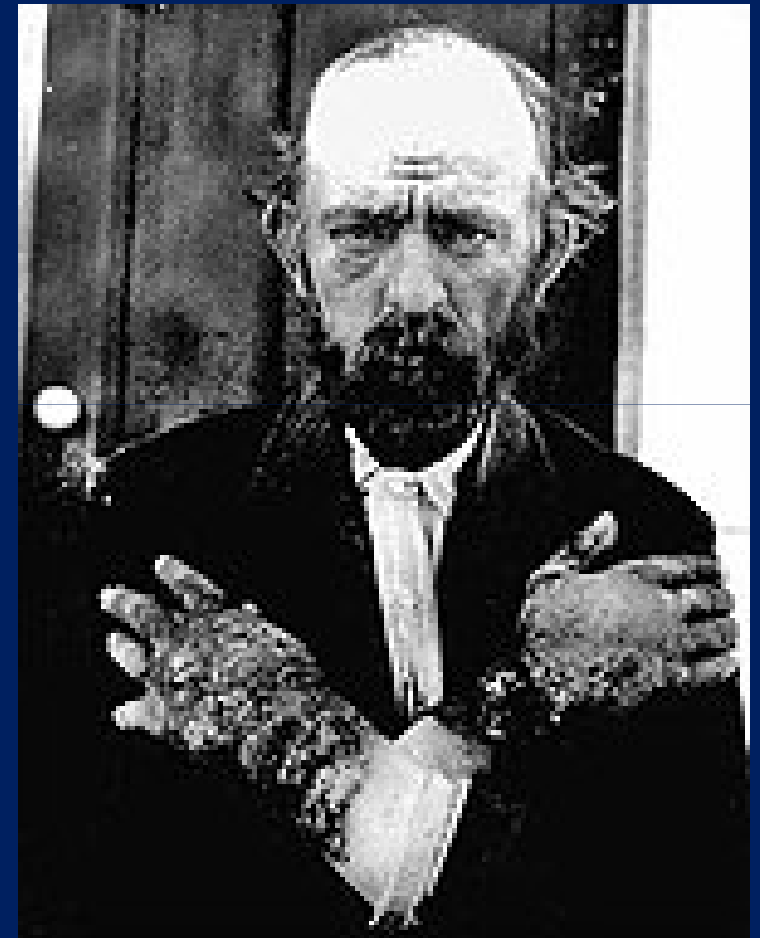
Pellagra

Dementia

Dermatitis

Diarrhoea

*Abram Hoffer Adventures in Psychiatry KOZ Publishing.



Symptoms include inflammed skin, diarrhea, dementia, and sores in the mouth. Areas of the skin exposed to either sunlight or friction are typically affected first. Over time affected skin may become darker, stiff, begin to peel, or bleed.*



*Ngan, Vanessa (2003). "Pellagra". *DermNet New Zealand*. Archived from the original on 9 April 2017. Retrieved 10 June 2017.

Symptoms are often indistinguishable from schizophrenia with symptoms peaking in the spring / summer when sufferers were more exposed to the sun.* **(note here links to porphyria).**

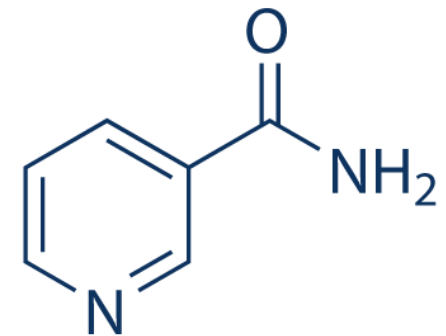
*Abram Hoffer Adventures in Psychiatry KOZ Publishing.



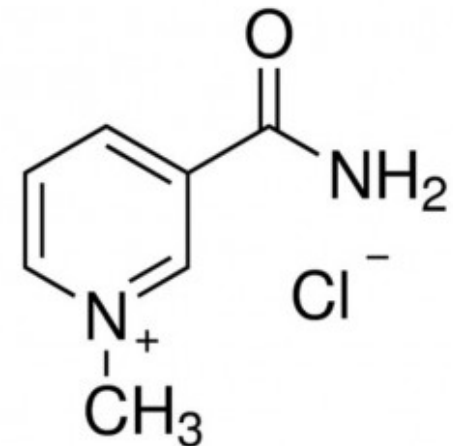
Vitamin B3 also acts as a methyl group acceptor. The resulting compound being **N-Methylnicotinamide**, which is excreted.

Thus it can decrease the formation of adrenalin from noradrenalin and thus decrease the formation of adrenochrome.*

*Abram Hoffer Adventures in Psychiatry KOZ Publishing.



Nicotinamide

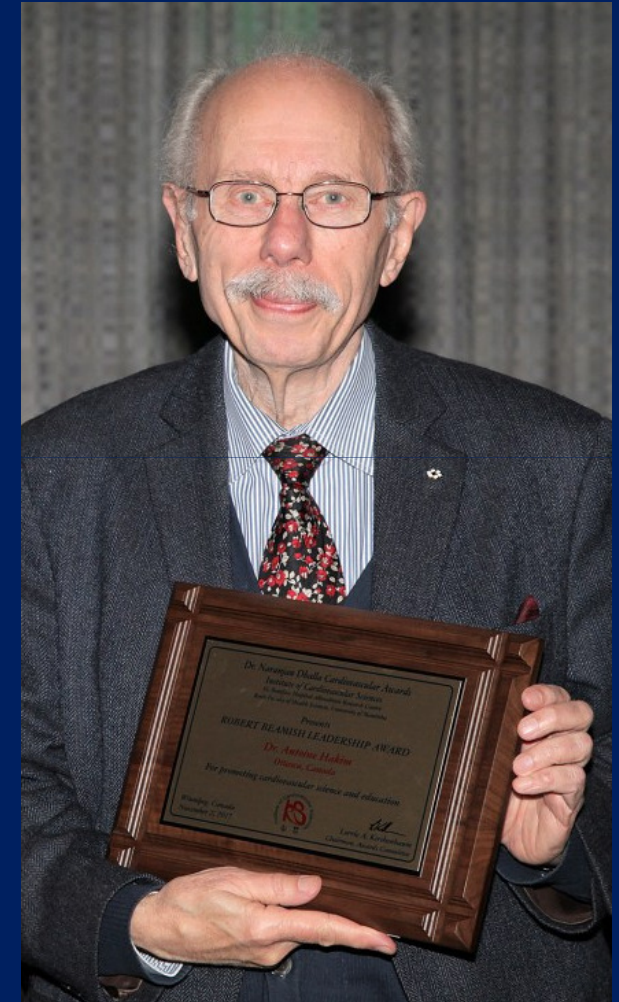


N-Methylnicotinamide

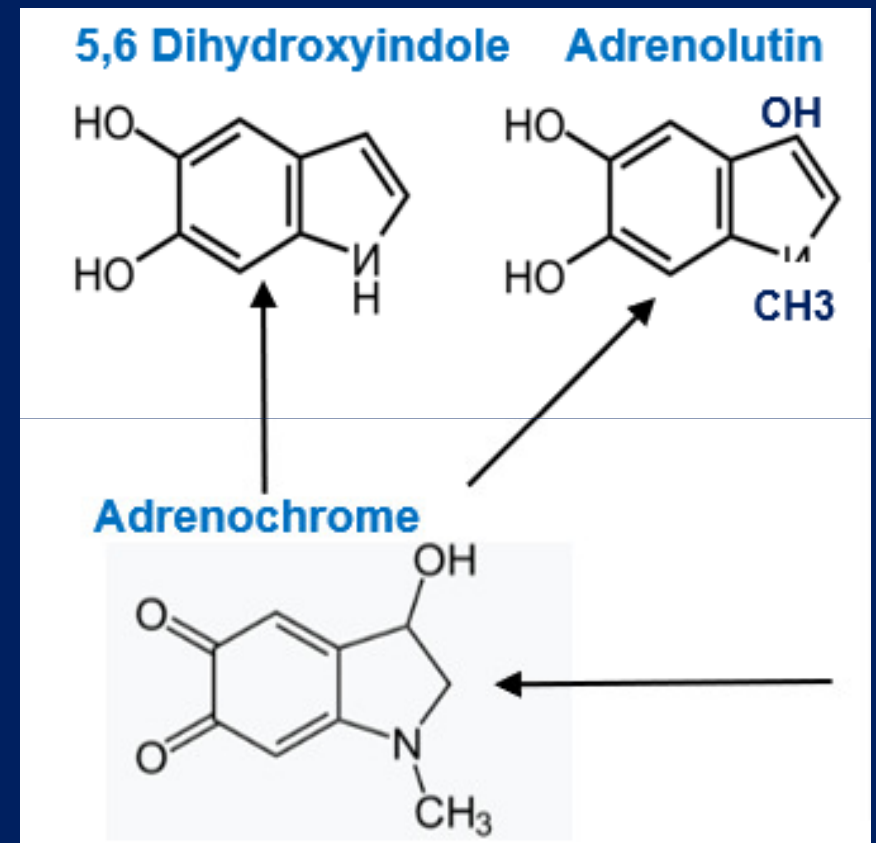
Professor Robert Beamish
in 1989 showed that
adrenochrome is primarily
synthesised in the heart
muscle.*

**But can bind to the
mitochondrial DNA in any
cell.***

*Abram Hoffer Adventures in Psychiatry KOZ Publishing.

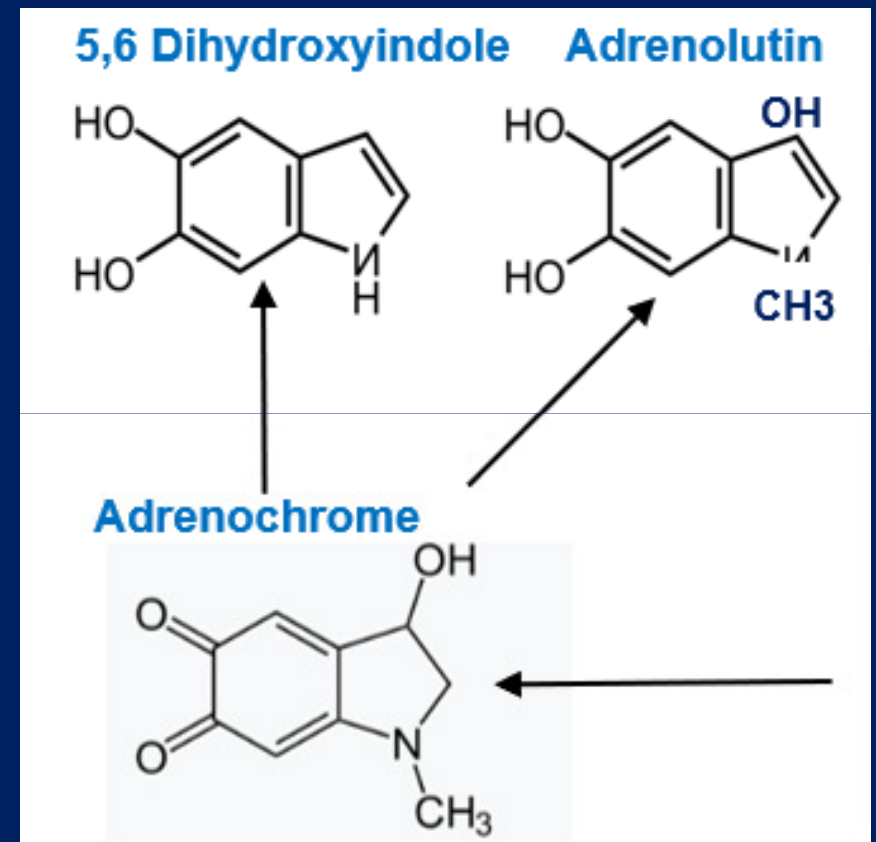


Studies in the mid-twentieth century have indicated that adrenochrome is metabolized into one of two other substances, Dihydroxyindole or Adrenolutin.



*Abram Hoffer Adventures in Psychiatry KOZ Publishing.

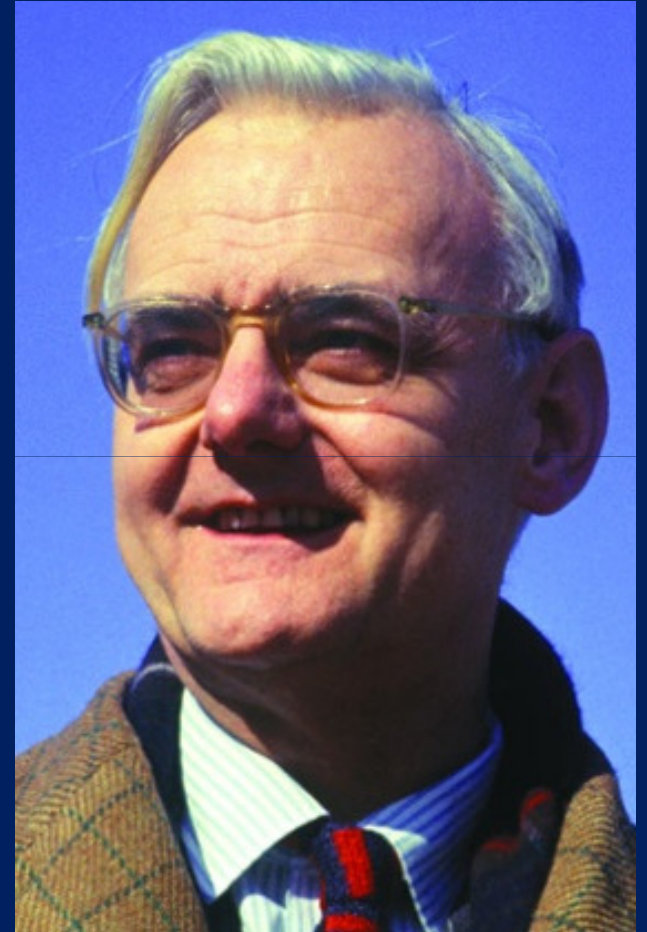
Defective processing of **adrenochrome**, however, primarily produces the toxic **adrenolutin** instead, which combines with adrenochrome.



*Abram Hoffer Adventures in Psychiatry KOZ Publishing.

The **adrenochrome-adrenolutin** combination is hypothesized by Dr. Abram Hoffer and Humphrey Osmond to result in disruption of the brain's normal chemical processes. This disruption, according to their hypothesis, could in part be responsible for the symptomatology of schizophrenia.*

*Abram Hoffer Adventures in Psychiatry KOZ Publishing.



Dr Humphrey Osmond

Stress increases the secretion of adrenalin and therefore adrenochrome in Vitamin B3 deficient people.*

*Abram Hoffer Adventures in Psychiatry KOZ Publishing.



This **hypothesis** has long been opposed by proponents of the establishment pharmaceutical medical industry.

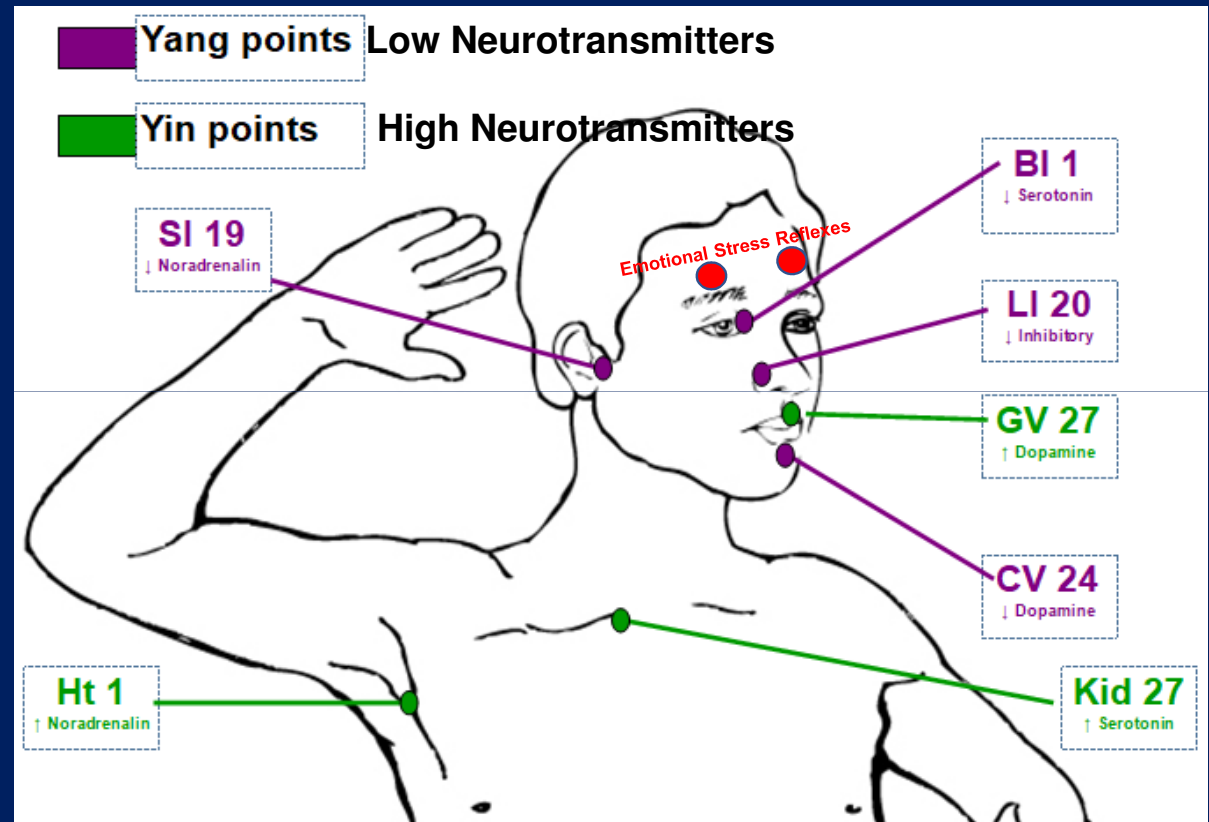
(Bit like Vit D and the corona virus)



Diagnosis

Patient weakens to one of the B&E points.

Weakness does not cross TL to the Emotional Stress Reflex points.



Treatment_t

Low Serotonin BI 1

Tryptophan, B12, Folate, B3, Fe, B6, Zn, Mg, Vitamin D.

Low Dopamine CV 24

Tyrosine, B12, Folate, B3, B6, Fe, Zn, Mg, Vitamin D.

Low Noradrenalin Ht 1

Tyrosine, B12, Folate, B3, B6, Fe, Zn, Mg, Cu, Vitamin D, Vitamin C.

Low GABA LI 20

Glutamic acid, B6, Zn, Mg

High Serotonin Kid 27

Cu, Vitamin B2, SAM (B12, Folate), Mg, Zn, Vitamin B6, S, Vitamin C, Vitamin B5.

High Dopamine GV27

Cu, Vitamin B2, SAM (B12, Folate), Mg, Zn, Vitamin B6, S, Vitamin C, Vitamin B5.

High Noradrenalin Ht 1

Cu, Vitamin B2, SAM (B12, Folate), Mg, Zn, Vitamin B6, S, Vitamin C, Vitamin B5.

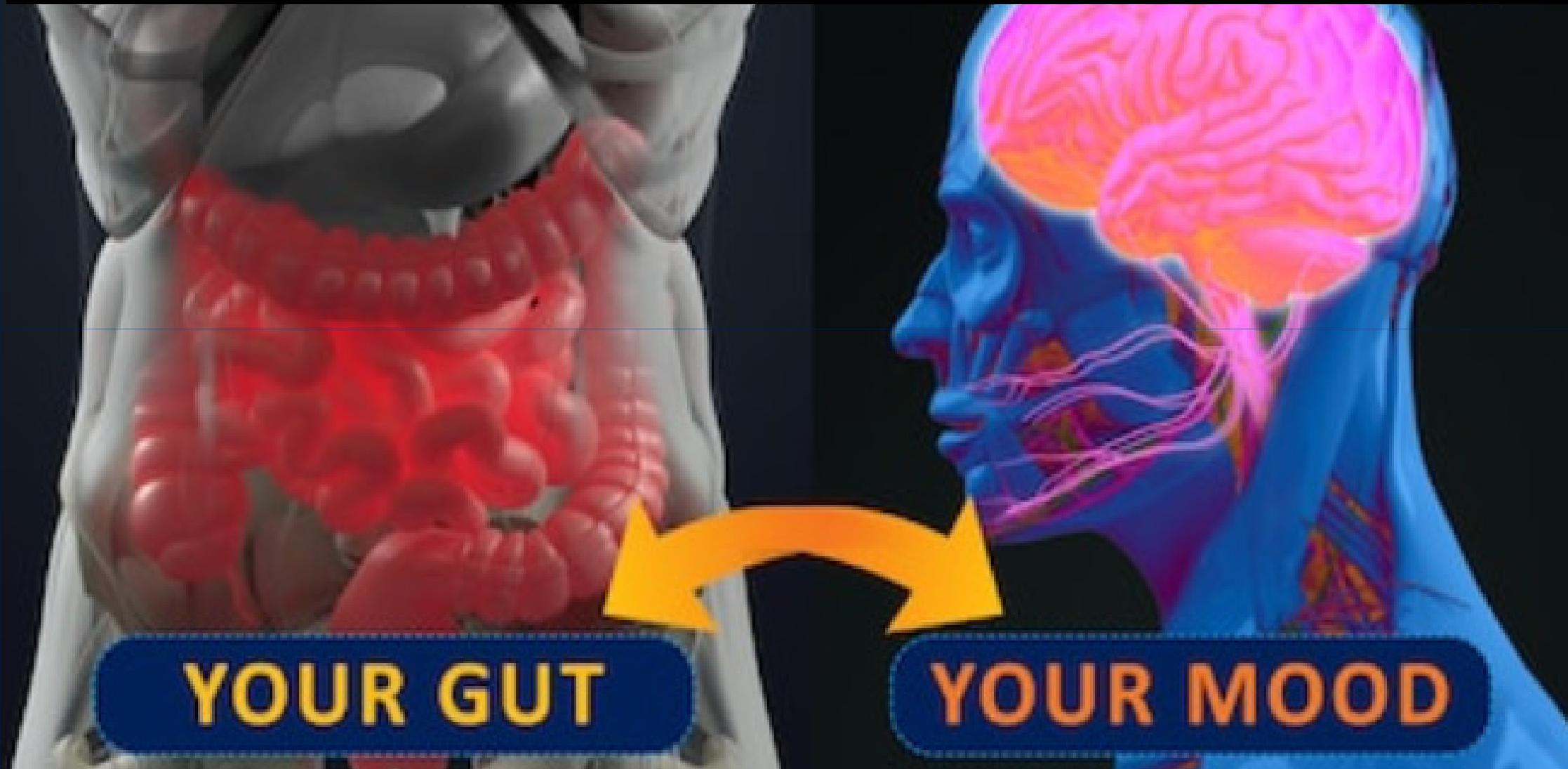
Best to test with the activated co-enzyme vitamins where applicable.

Meridian / Neurotransmitter / Emotion Relationship

Bl 1 Low Serotonin Tryptophan, Vit B12, Folate, Vit B3, Fe, Vit B6, Zn, Mg, Vit D	Depression, Shame and Humiliation, Low Self esteem	Liv 14 High Acetylcholine Vit B2, Vit B3, Mn, Zn	Pride, Hurt pride, Sorrow, Misery, Sadness
GB 1 Low Acetylcholine Choline, Vit B5, Vit B1, a-Lipoic, Mn	Guilt and Blame Self punishment, Culpability	TW 23 Low Excitatory Glutamic acid or Aspartic acid, Vit B6, Vit C, Mg, P, Vit B3	Distrusting, Doubt, Uncertainty
LI 20 Low Inhibitory Glutamic acid, Vit B6, Mg, Zn	Apathy and Despair. Indifference, Detachment	Cx 1 High Excitatory Mg, Vit B2, Fe, Vit B6, Vit C.	Fainthearted, Weakness, Denial
CV24 Low Dopamine Tyrosine, Vit B12, Folate, Vit B3, Fe, Vit B6, Zn, Mg, Vit D	Depression, Grief and Regret. Remorse, Sorrow, Looking back	St 1 Low Histamine Histidine, Vit B6, Zn, Mg	Not accepting the situation. Unforgiving
Kid 27 High Serotonin Cu, Vit B2, SAM, Mg, Zn, Vit B6, S, Vit C, Vit B5	Anxiety and Fear Apprehension, Nervousness	Sp 21 High Histamine SAM, Mg, Vit B12, Fe, Vit B2, Cu, Vit C, Hesperidin, Zn, Vit E	Not open to new ideas, Pessimistic
GV 27 High Dopamine Cu, Vit B2, SAM, Mg, Zn, Vit B6, S, Vit C, Vit B5	Anxiety, Craving and Desire, Longing, Revenge, Lust	SI 19 Low Noradrenalin Tyrosine, Vit B12, Folate, Vit B3, Fe, Vit B6, Zn, Mg, Vit D, Vit C, Cu	Depression, Disbelief, Unsound, Misunderstanding
Lu 1 High Inhibitory Vit B6, Zn, Mg	Anger and Frustration Antagonism	Ht 1 High Noradrenalin Cu, Vit B2, SAM, Mg, Zn, Vit B6, S, Vit C, Vit B5	Anxiety, Not feeling Loved, Lovable, Loving

Download from www.epigenetics-international.com

The GUT / Brain Connection



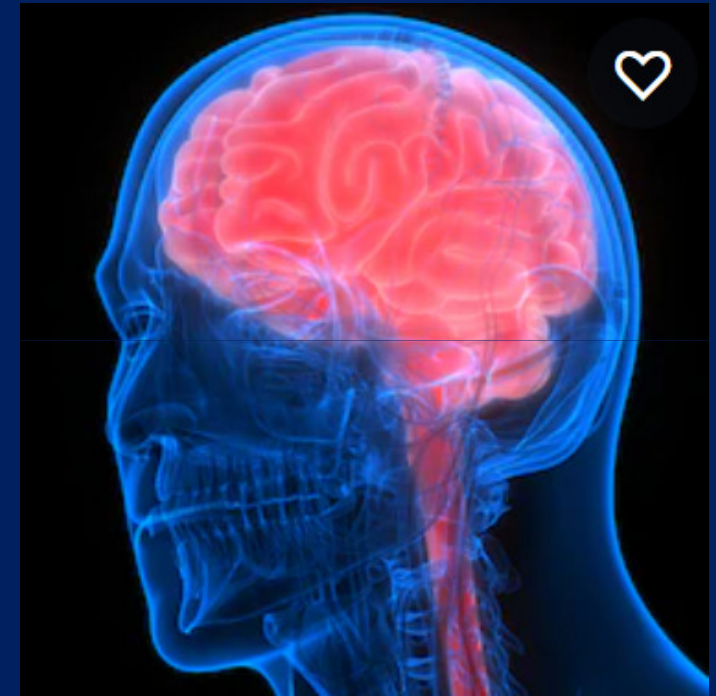
The GUT connection

The rise of bacteriological models of disease in early 1900's postulated that the gut became very suspect, not just among some psychiatrists. A lot of other fields of medicine looked at this, and particularly the notion of what was called focal sepsis: chronic, low-grade, untreated infections producing illness at a distance.

Suspect a **GUT / Brain Connection** when the positive B&E point is an intestinal one
i.e.

Small Intestine 19

Large Intestine 20



**Additional Endogenous GUT chemicals*
produced in the intestines may show on the
Liver meridian. All highly neurotoxic -**

Acetaldehyde - Yeast

Ammonia – Parasites, Gram negative bacteria

Formaldehyde - Fungus

Methanol - Fungus

Phenol - Parasites

Propionic acid – Gram negative bacteria

**All available in the Epigenetics GUT kit*

Endogenous GUT chemicals from pancreatic Protease deficiency*

Agmatine - Arginine

Cadaverine - Lysine

Ethanolamine - Serine

Ethylmercaptan - Cysteine

Indole- Tryptophan

Methylindole - Tryptophan

Methylmercaptan - Methionine

Phenylethylamine - Phenylalanine

Putrascine - Ornithine

Tryptamine - Tryptophan



**All available in the Epigenetics GUT kit*

Optimal Treatments

Digestive enzymes

Betaine HCl

Betaine HCl + Pepsin

Bile salts

Amylase

Lipase

Protease

Inulin

Lactulose

Psyllium husk

Probiotics

Lactobacillus Acidophilus

Lactobacillus Bulgaricus

Lactobacillus Brevis

Lactobacillus Casei

Lactobacillus Gasseri

Lactobacillus Lactis

Lactobacillus Paracasei

Lactobacillus Pentosis

Lactobacillus Ruterii

Lactobacillus Rhamnosus

Lactobacillus Salivarius

Probiotics

Streptococcus

thermophilis

Saccromyces Boulardii

Bifido Animalis lactis

Bifido Bifidus

Bifido Brevis

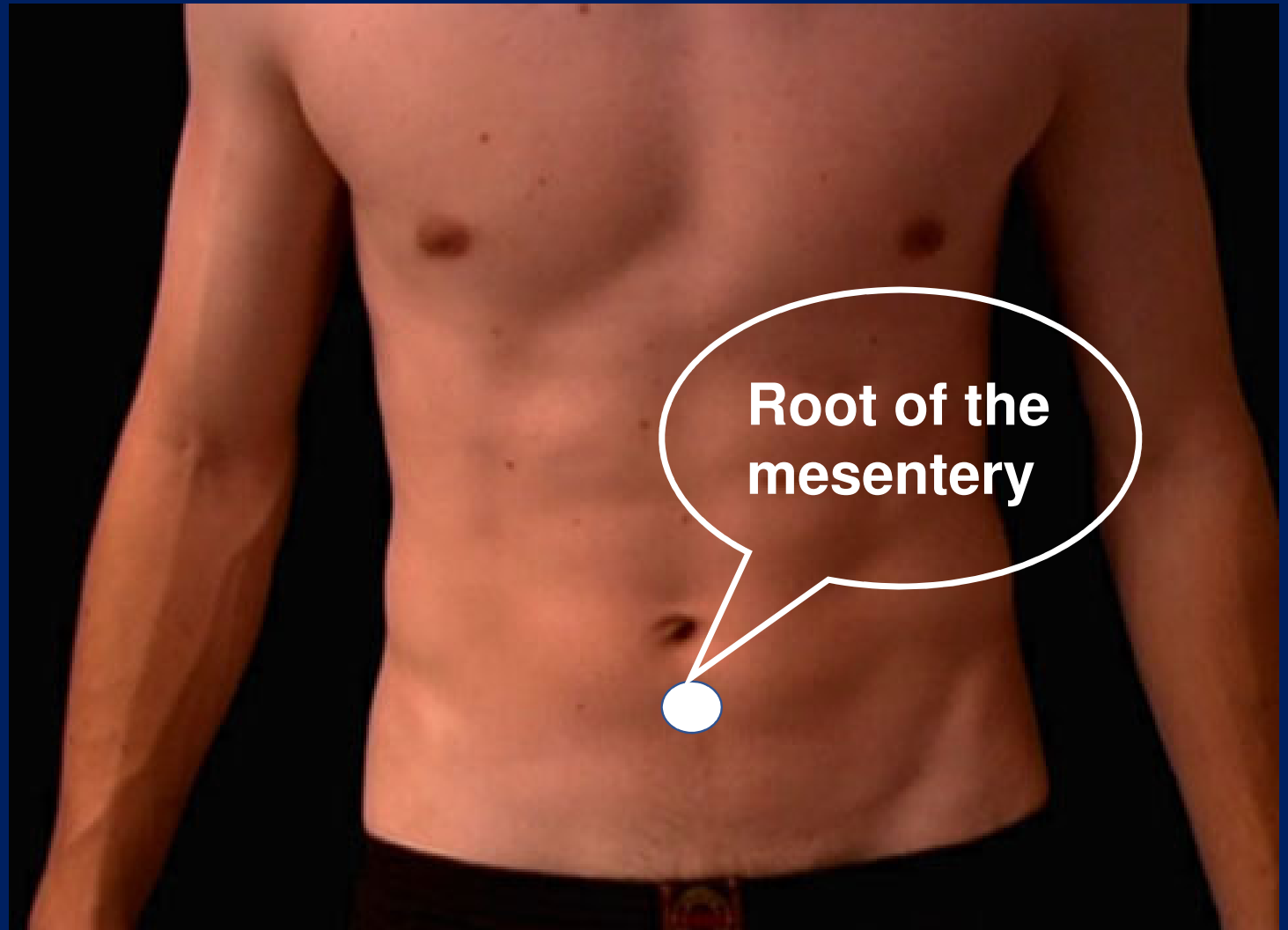
Bifido Infantis

Bifido Lactis

Bifido Longus

B. Subtilis

Therapy
Localisation
point with
pressure for
Probiotics



Treatment – The 6 R program

- 1. Remove- Allergens / Pathogens**
- 2. Replace – Digestive enzymes**
- 3. Re inoculate- Pre & Probiotics**
- 4. Repair- Glutamine, Zn, Omega 3,
Vitamin A, Biotin.**
- 5. Regeneration – Folate, Turmeric**
- 6. Roughage (Fibre)**



Jeffrey Bland PhD

Key Orthomolecular Psychiatry Nutrients

GABA / Glutamic acid (for GABA)
Glutathione (detox)
Tryptophan (for 5-HTP)
Tyrosine (for NA and Dop)

Ornithine to metabolise ammonia
S-AdoMet (for methylation)

Copper
Iodine
Iron
Magnesium
Selenium
Zinc

Thiamine pyrophosphate
Riboflavin-5-phosphate
Niacin / Niacinamide
NAD / NADH
Acetyl CoA
Pyridoxal-5-phosphate
Folic acid
5-MTHF
Adenosylcobalamin
Methylcobalamin
Biotin

Vitamin C

Vitamin D2 and D3

DHA
Flaxseed oil
Omega 3
Phosphatidylcholine
Phosphatidylserine

Turmeric

Probiotics
Prebiotics (Inulin)

So, a lot of information.

But actually a simple way of applying your knowledge of B&E points into the possible biochemical causes of common emotional / functional psychiatric problems so prevalent at this time.



Remember the famous saying of **Dr Sidney Baker** with treating all patients -

“Remove the things that are a stress to the patient and supply what they are deficient in”.



So remove intolerant foods, endogenous toxins, pathogenic foci.

Supply the necessary nutrients and co-factors to optimise neurotransmitter synthesis and metabolism.

Can't go wrong if you follow the 6 R Program for all health problems.

I really hope you have enjoyed this presentation.

**The PowerPoint handout notes are available
from ICAK-USA or from our website**

www.epigenetics-international.com