Keto Psychiatry Advantages on Stress **Adaptation**

Nutrition Network - May – 2021

Neurology Online Training

Ignacio Cuaranta MD
Psychiatrist
Argentina

Nutrition Network

Exploring Ketogenic Pathways in Psychiatry

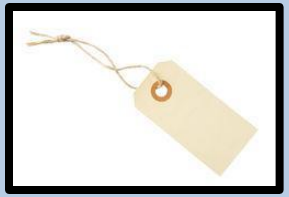
KetoPsy - Mission

- **Paradigm shift** and **dimensional** framework enhancement
- **FIRST ORDER** interventions, wide therapeutic range
- Integration: **MEDICINE, NUTRITION** and **PSYCHOTERAPY**
- Awareness on **METABOLIC THERAPIES,** Psychiatry & Neuroscience
- Alleviate Diagnostic **burden** and **stigma**
- **Strategies for ADAPTATION** to life conditions effectively
- Focus in subjective and objective **Quality of Life.**
- Expand notion of fuel quality and BALANCE in **energy dynamics**
- Optimize Healthcare system's response to modern challenges

Learning Goals

- **Mental Health** Classification Limitations
- **KetoPsy** – Framework for a paradigm shift in Psychiatry
- Recognize Role of **lifestyle** interventions
- **Adaptation** to current Environmental Pressure
- Dimensional & Integrative view of **eating disorders**

Labels, Labels



- **Categories and Criteria were formulated before modern neuroscience**
- Research emphasis on **diagnoses fails to reflect Clinical Phenomena**
- **LOW** Rate of translation into understanding Etiology & Treatment
- **Using diagnoses as stereotypical explanations for human behavior.**

CHALLENGES TO UNDERSTANDING AND CLASSIFYING MENTAL DISORDER:

1- ETIOLOGY
2- CATEGORIES OR DIMENSIONS?
3- THRESHOLDS
4- COMORBIDITY

ncbi.nlm.nih.gov/pubmed/29211974

Improve framework

- Integrative approach including neurobiology, cognition, social processes, arousal / regulatory systems, and DIMENSIONS of behavior.
- **Neurobehavioral systems have all evolved to serve the motivational and adaptive needs of the organism.**

Life*styles* or conditions?

- **Lifestyle is framed by culture and its symbolic determinants**
- **behavior can’t be divorced from its social platform**

Lifestyles are produced *immersed* in Life Conditions

OBESO*GENIC* ENVIRONMENTS

- CHANGING PATTERNS OF EATING DISORDERS OVER TIME

- EPIDEMIOLOGICAL LINK BETWEEN THE OBESITY EPIDEMIC AND EATING DISORDERS.

  - ❖ Parallel increase in obesity, metabolism & ED

CHANGE IN **FOOD ENVIRONMENT** OVER THE LAST 50y

- 1-USDG 1977 – 50-60% CHO, Reduction of SAT FATS, replace with VEG OILS.
- 2- **REINFORCEMENT** of ‘’HEALTHY’’ Low Fat, added sugars, emulsifiers & trans fats.
- 3- Food science enabled the invention of new range of palatable products made from cheap ingredients and additives, long shelf life. (**HFCS**)
- **SUGAR** is less expensive than protein or fats. **Maximizing profits.**

Obesity and HFCS

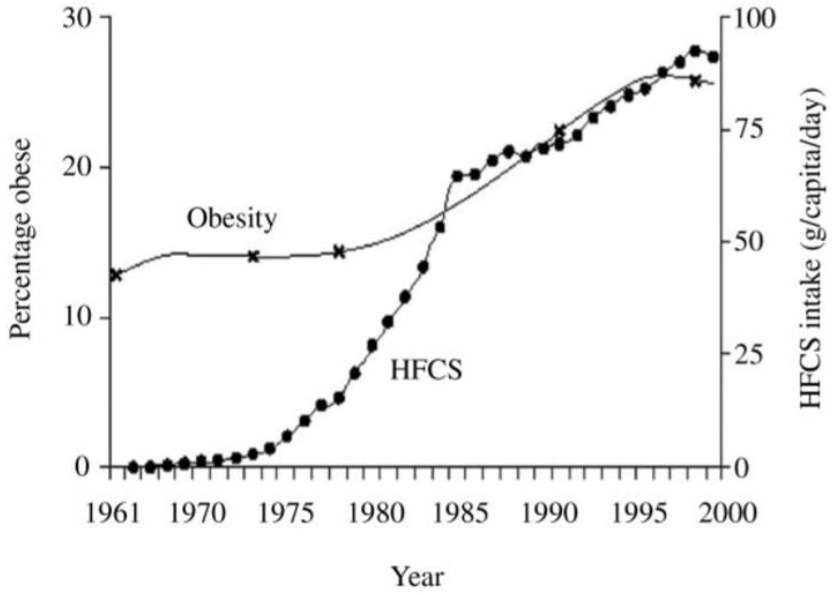


Figure 2 **Association between high-fructose corn syrup and obesity in the United States.**[69] *Abbreviation:* HFCS, high-fructose corn syrup

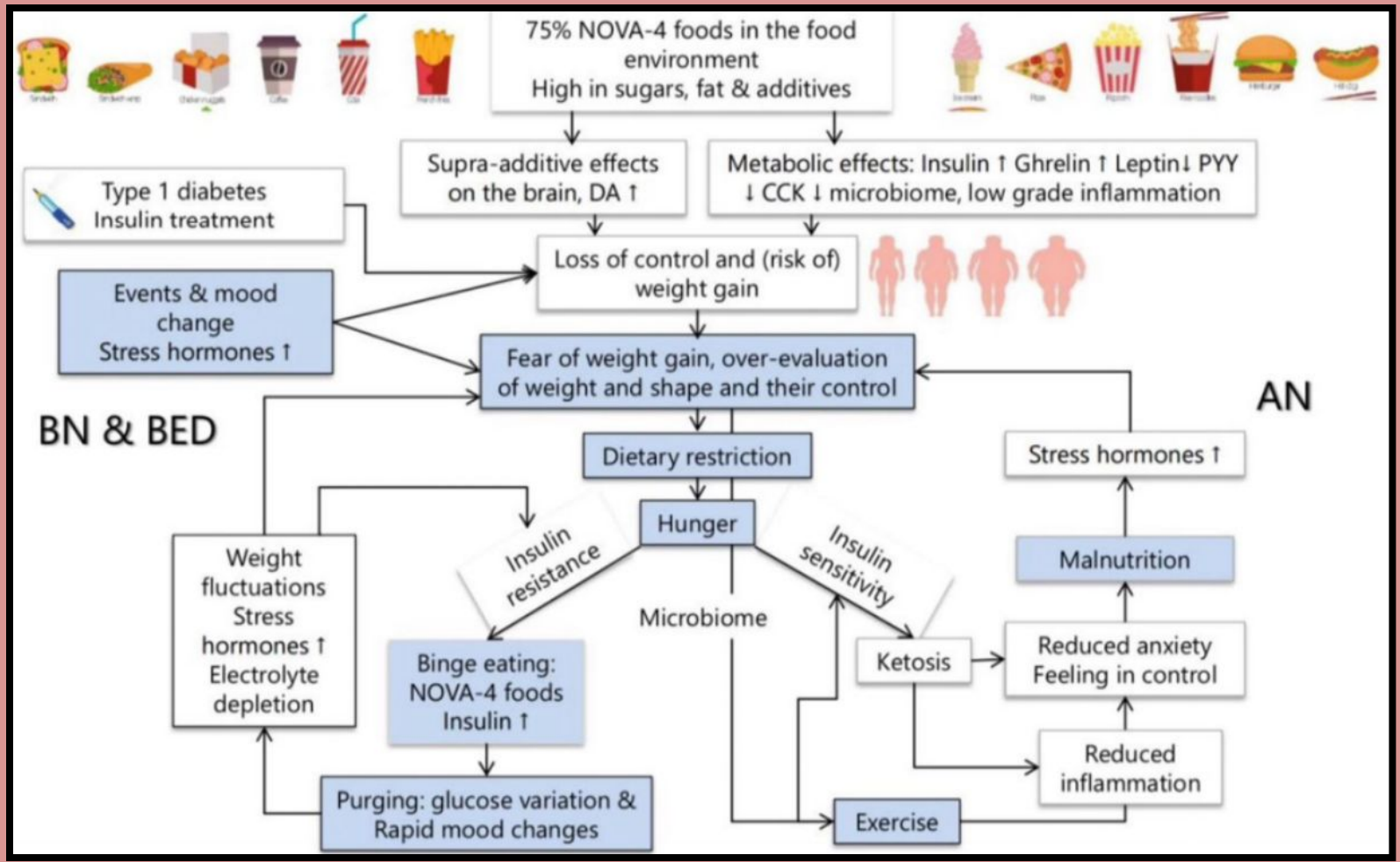
Special Article **Published:** 17 December 2019

The Western diet: a blind spot of eating disorder research?—a narrative review and recommendations for treatment and research

Agnes Ayton and Ali Ibrahim

- **Implications of changing patterns of food consumption on metabolic and neurobiological pathways,** a neglected area in eating disorder research.
- **Introduction of UPF *consequences*:**
  - **triggers insulin/ glucose response**
  - **stimulates appetite**
  - **disrupts multiple endocrine & neurobiological pathways,**
  - **Alters microbiome.**

Integration of Psychological, Metabolic & Neurobiological factors involved in ED



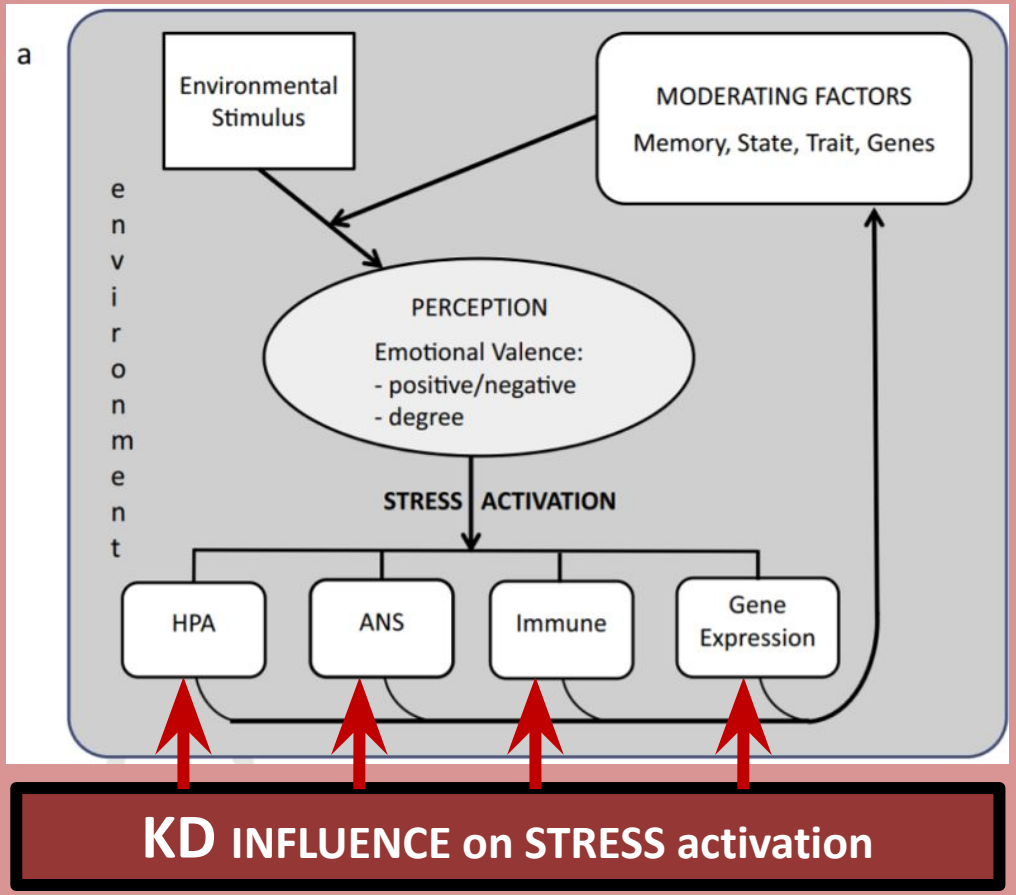
NOVA classification

- **Categories drawn by ‘extent’ & ‘purpose’ of food processing as main determinant of food’s nutritional and environmental characteristics**.
  - **1- Unprocessed or minimally processed food**;
  - **2 -processed culinary ingredients**;
  - **3- processed foods**; and
  - **4- ultra-processed foods**.
- Framework to **measure the impact of processed foods on human health**

Food addiction?

- Pervasive & Paralizing **FEAR** about being addicted to **EATING**.
- Eating habits distorted by substances with addictive properties slipped inside the MOST WIDELY AVAILABLE FOODSTUFF.
- **Substance use is ‘’optional’’- eating is necessary for life.**

Interpretation of stressors: brain processing and communication.

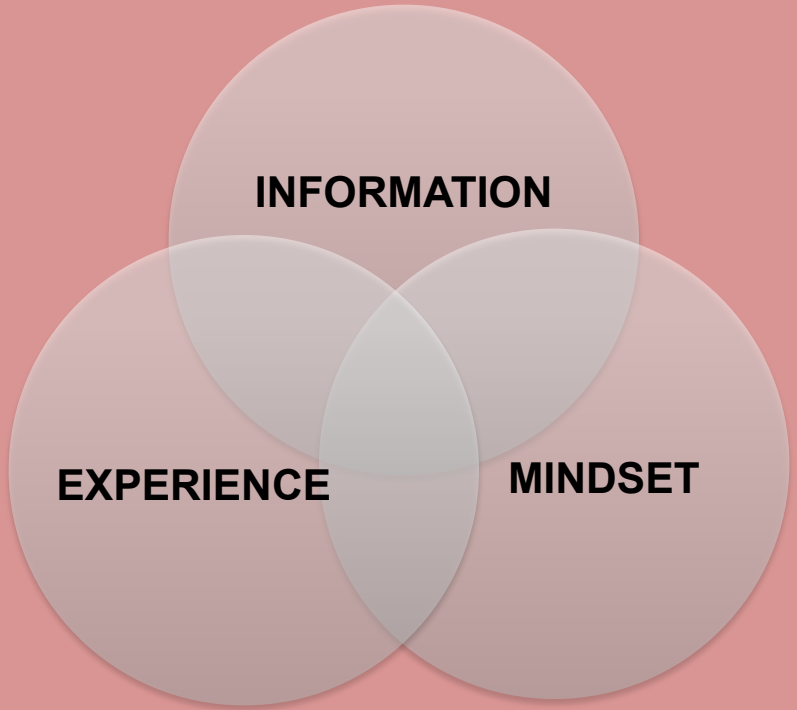


Stressing about LCHF?

- BED, BN & AN → ‘‘dysfunctional eating patterns’’.
- Dimensional appetite dysregulation emphasis
- Influence of UP foods on Eating Disorders
- The convenient **orthorexia** rhetoric
- CICO advocates hurt the Real Food movement

Worry, fear, (Psy Stress)

- **Fight or flight activation by**
  - Salt
  - Fat
  - Cholesterol
  - Fasting / not eating >4hs
  - Carbs
  - Being ‘’kicked out of Ketosis’’
  - Red meat, Cancer and CVD
  - Failing / Perfectionism
  - Hypothyroidism / Metabolism
  - Constipation
  - Social Pressure / Exclusion
  - Adaptive symptoms



T2D & ED
Bidirectional, Comorbid and/or dimensions.

- **BN & BED are at higher risk of T2D**

- **Disturbed glucose metabolism contributes to BED & BN.**

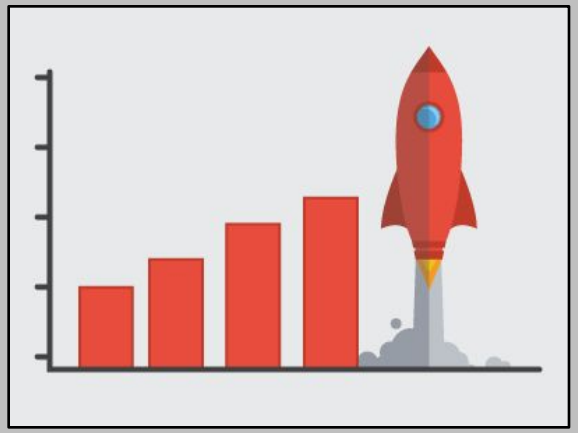
- **Underlying hyperinsulinemia-related hunger and satiety dysregulation**

- **May pre exist both conditions and is worsened by high carb ‘choices’**

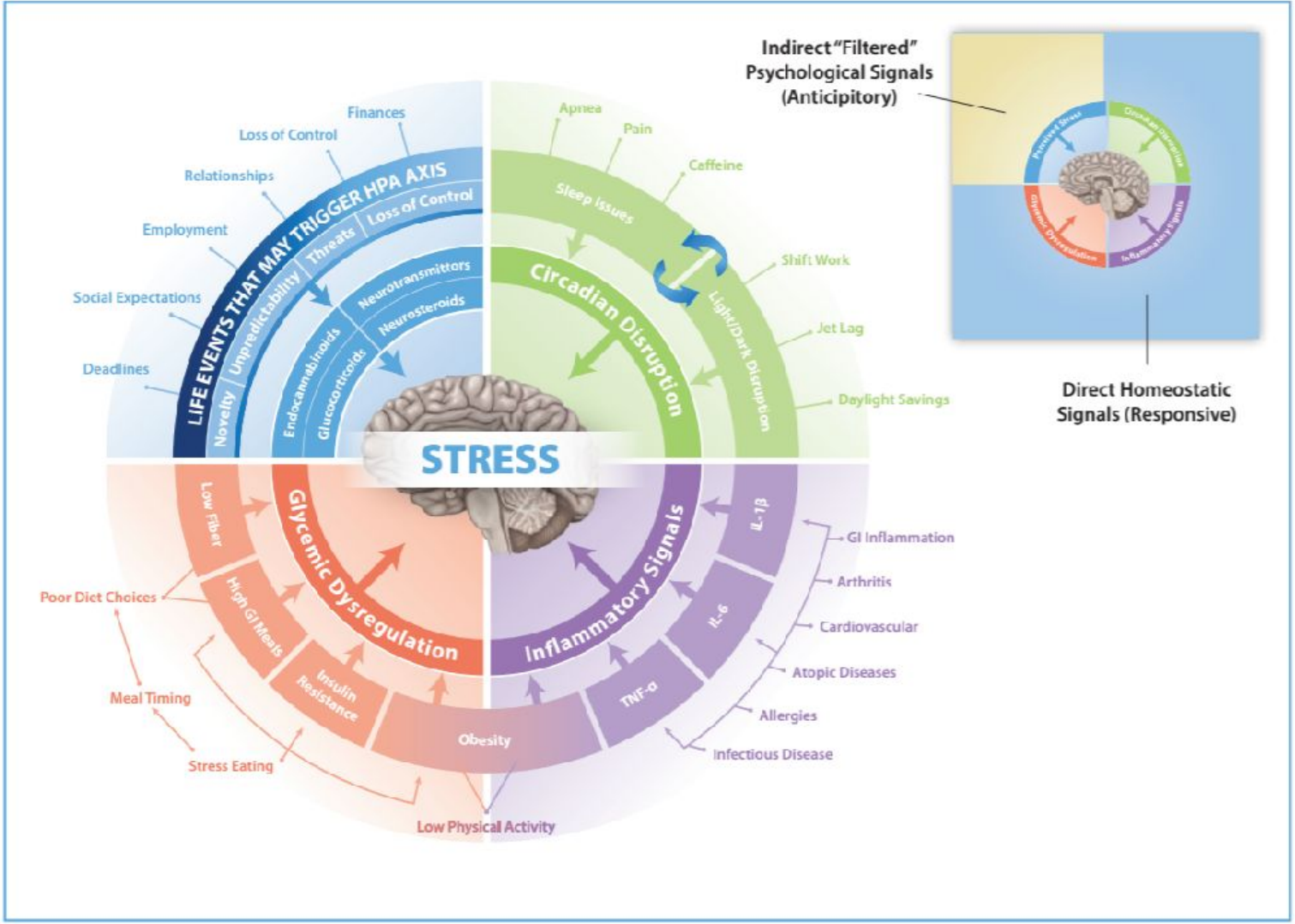
- **Current therapies focus on the psychological and behavioral aspects**
- **Limited exploration of underlying Pathophysiology.**
- **Little attention to diet itself**
- **Avoidance of any specific foods is actively discouraged.**
- **Weight loss is not addressed in the treatment of BED.**
- **Health is often compromised by comorbid obesity**
- **Potential benefits** of lowcarb in the management of ED, with or without T2D

DIETARY GUIDELINES are being Followed

- EXERCISE MORE- **Vigorexia**
- CALORIE COUNTING -closed packages, portion control- **Orthorexia**
- FAT AVOIDANCE – **Hurts Nutritional Quality of diet**
- INCREASE CARB INTAKE – **Bulimia Nervosa, Binge ED and OBESITY**



Modifiable Categories of HPA Axis Stressors. Point Institute (2016)




IT IS NOT THE STRONGEST
OF THE SPECIES THAT SURVIVES,
NOR THE MOST INTELLIGENT.
IT IS THE ONE THAT IS
MOST ADAPTABLE TO CHANGE.
french by design blog
– CHARLES DARWIN

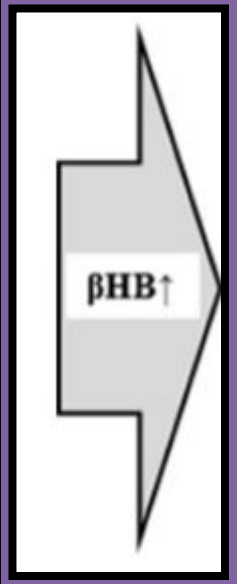
↑ [βHB]

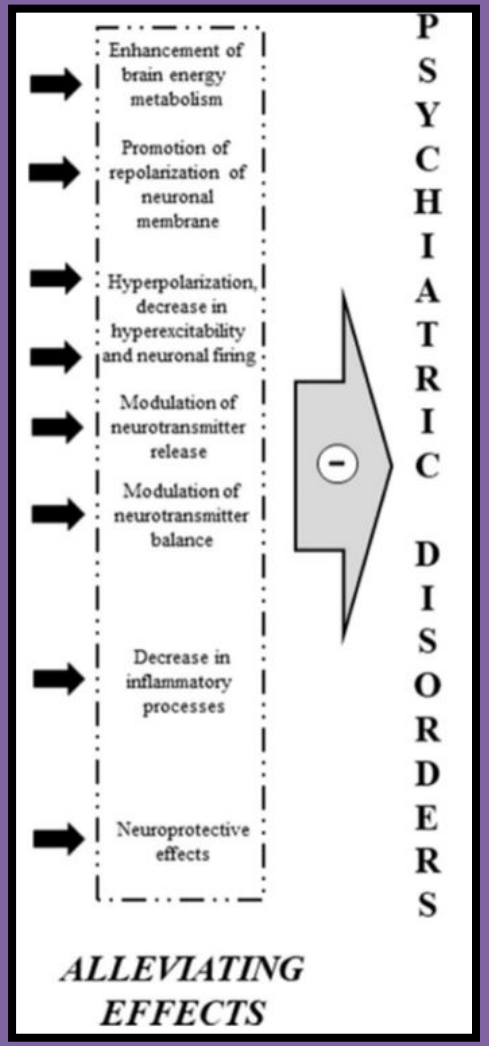
- Modulate NT balance & release
- Decrease Hyperexcitability
- Reduce firing rates of Neurons
- Decrease Neuroinflammation
- Enhance Brain Energy Metabolism
- Provide Neuroprotection

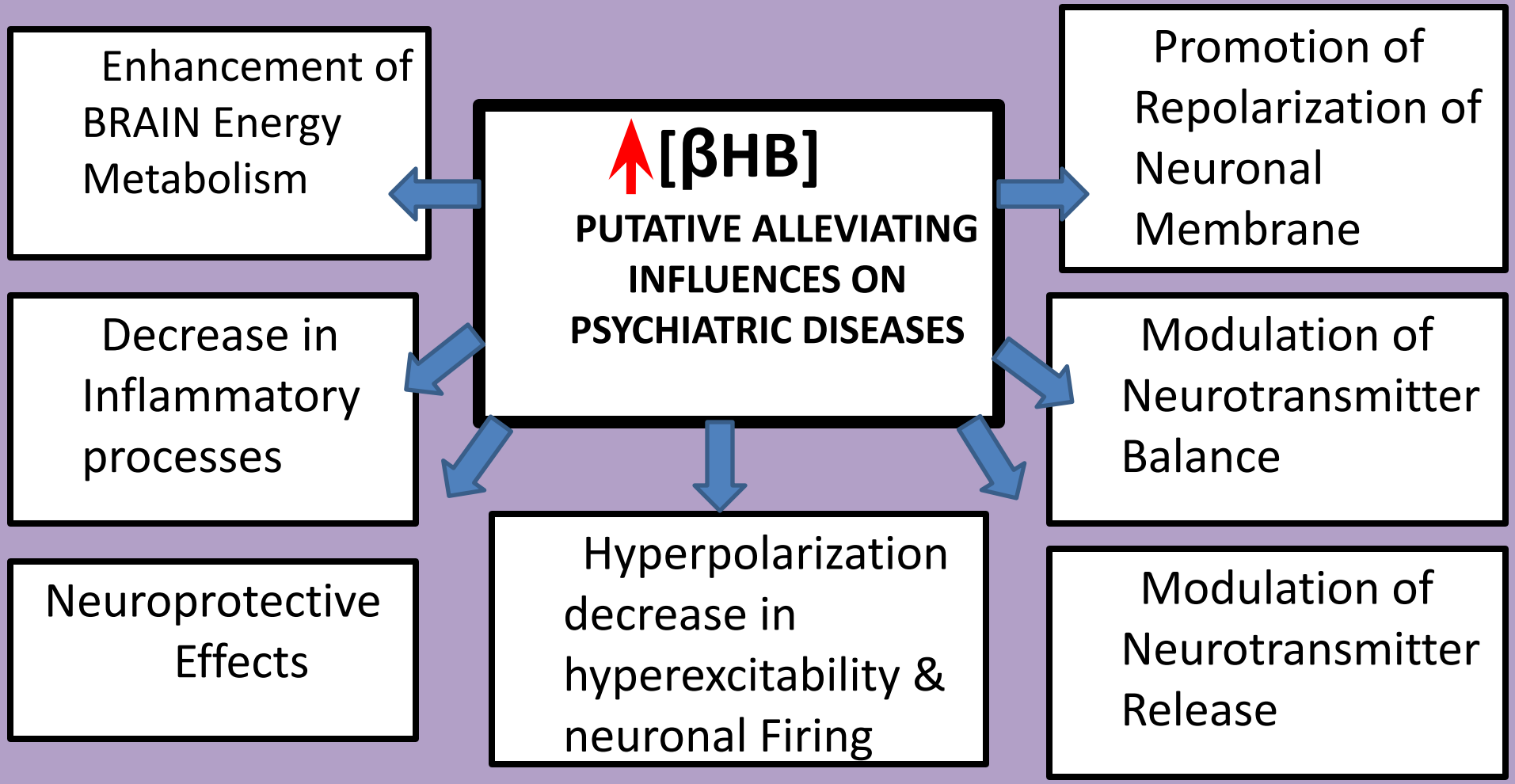
Protects physiological processes under pathological conditions resulting in CNS diseases

→ psychiatric disorders

❖**Supplement-evoked ketosis** may have both **preventive and therapeutic potential** as a metabolic-based therapy in **Psychiatry**






↑[βHB]
PUTATIVE ALLEVIATING INFLUENCES ON PSYCHIATRIC DISEASES
Enhancement of BRAIN Energy Metabolism
Promotion of Repolarization of Neuronal Membrane
Decrease in Inflammatory processes
Modulation of Neurotransmitter Balance
Neuroprotective Effects
Hyperpolarization decrease in hyperexcitability & neuronal Firing
Modulation of Neurotransmitter Release

Multifaceted Benefits / Adjacent improvement

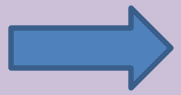
- Fasting
- Ketosis
- Low carb
- Sugar free
- Grain free - Gluten free
- Snack Free - Less Allostatic burden
- Glycemic Stability
- Insulin Sensibility
- Metabolic function
- Energetic autonomy
- Reduced Ox stress & Inflammation
- Psychological alleviation of dogmas

Intermittent Fasting/ TRF
Balancing Eating Patterns

6 meals a day = 42/w - 180/m - 2.190/y

2 meals a day = 14/w - 60/m - 730 /y

28 Weekly
120 Monthly
1460 Yearly

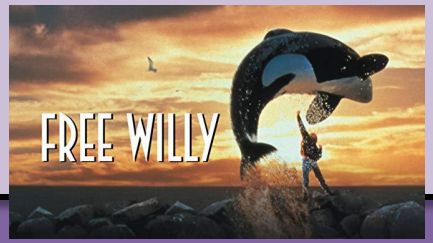


Highly Prepotent for Biological processes

- Stress Overload on a daily basis, with cumulative effect.
- **Primary root cause of chronic Hyperinsulinemia,**
- **Possible and reinforced by consumption of carbs (frequent refeeds).**

Intermittent Fasting is Decision Autonomy

- Glycolitic pathways → frequent external inputs dependence.
- Reduced inner locus of control → more cognitive resources.
- Poorly regulated glycemic states increase systemic vulnerability to **stress**, in constant requirement of restabilization
- Beware of EGO Depletion and Frustration



Energy Predictability VS External Dependence / Uncertainty

BALANCE VS INBALANCE

KetoPsy:

- If required adherence according to goals is insufficient, and / or
  - Dysfunctional approach

❖ Modulates Therapeutic Range and Potency

Consider Compliance Spectrum for different conditions.

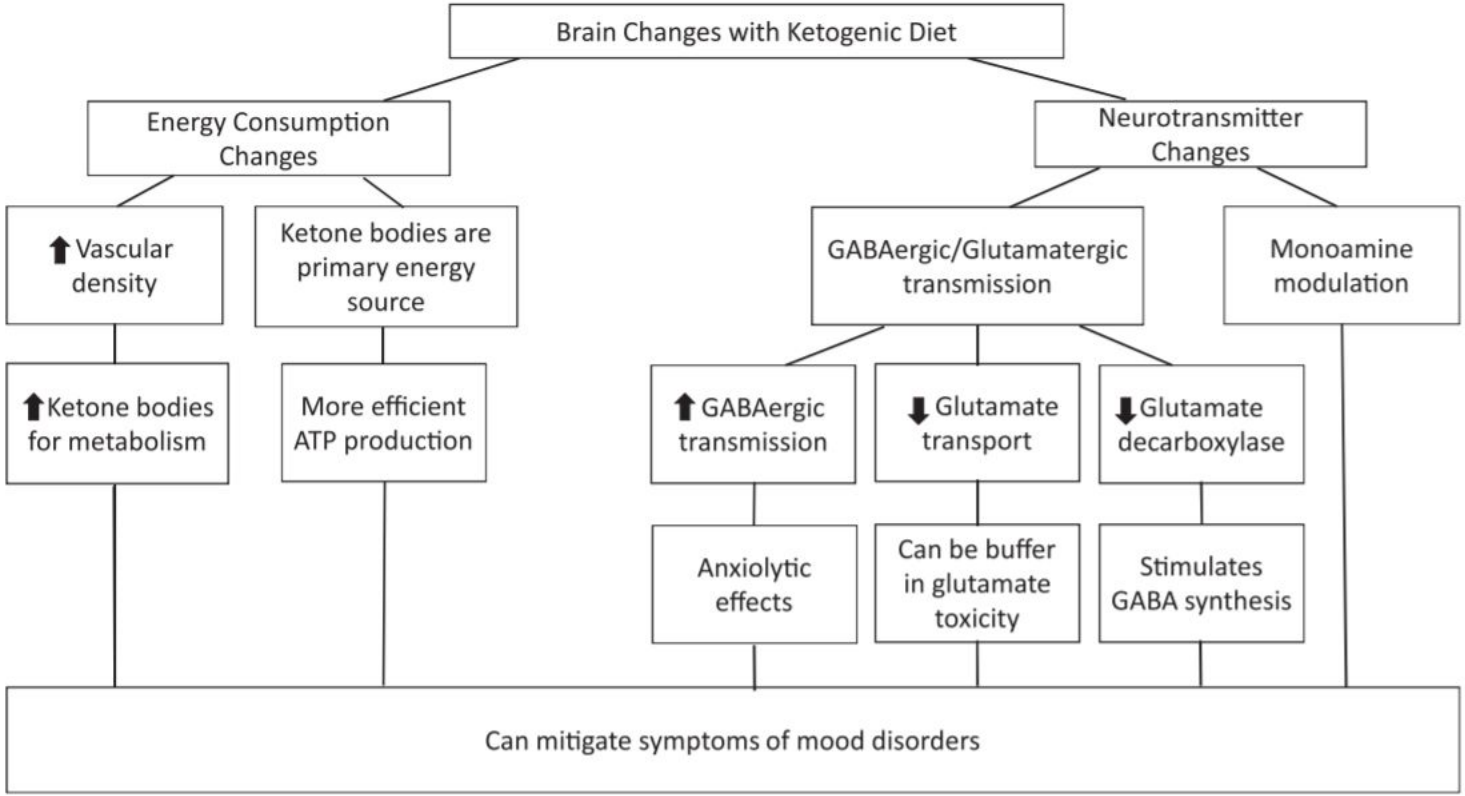
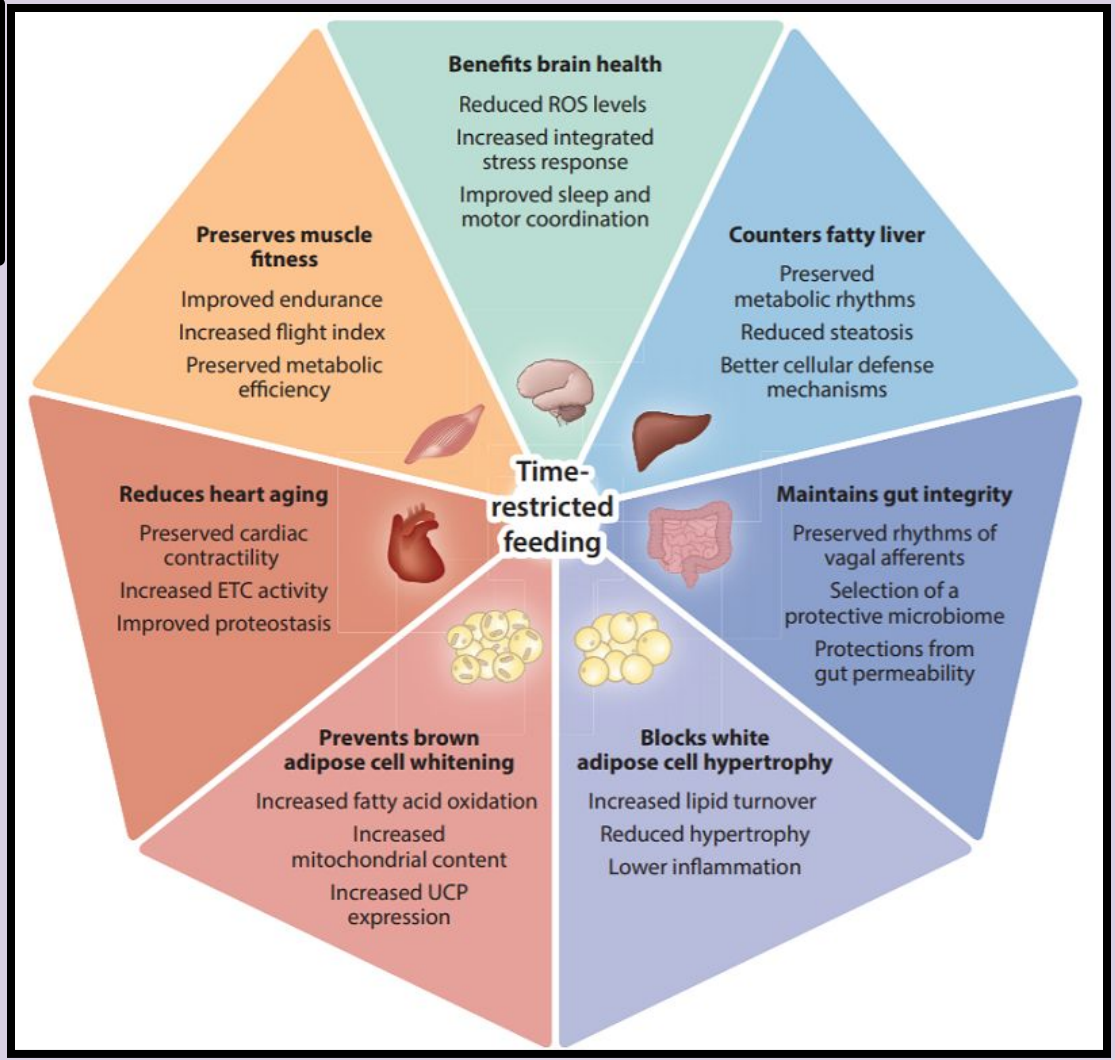
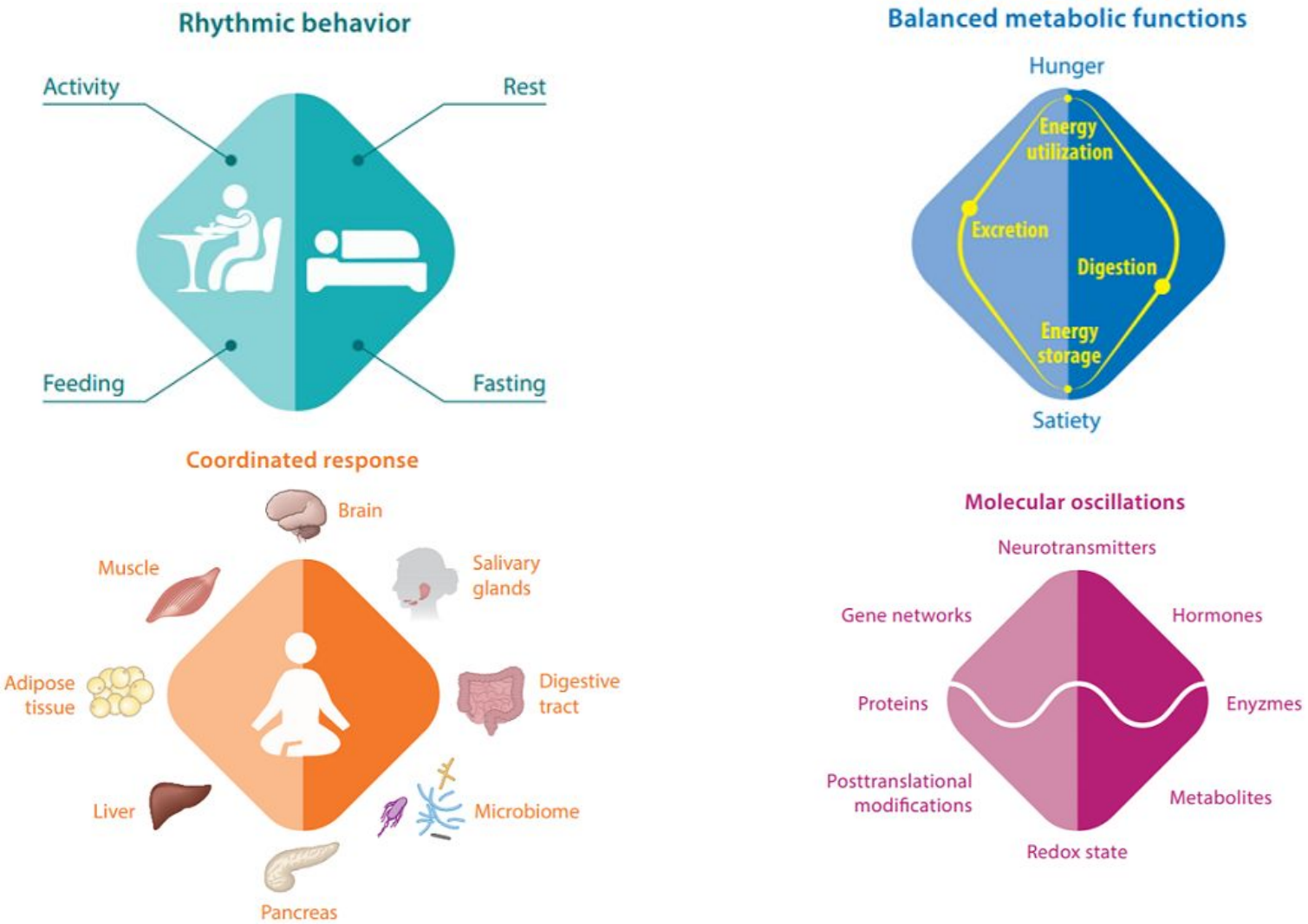


Fig. 1. Putative actions of ketogenic diet in mood disorders.

- Time-Restricted Eating




Rhythmic behavior
Activity
Rest
Feeding
Fasting
Balanced metabolic functions
Hunger
Energy utilization
Excretion
Digestion
Energy storage
Satiety
Coordinated response
Brain
Muscle
Salivary glands
Adipose tissue
Digestive tract
Liver
Microbiome
Pancreas
Molecular oscillations
Neurotransmitters
Gene networks
Hormones
Proteins
Enyzmes
Posttranslational modifications
Metabolites
Redox state

Adaptation Considerations

SLEEP Hygiene– Rational Use of Screentime

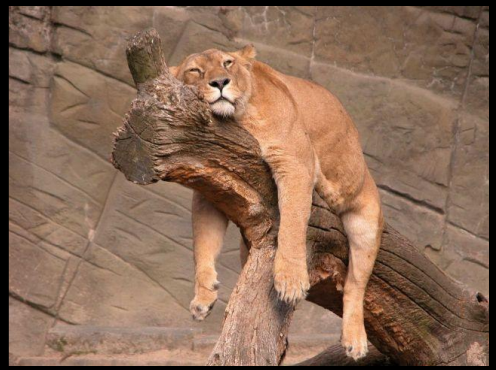
STRESS Activity Balance – Energy usage.

Personality Traits

Psychoterapy

CONNECTION Human- Nature - Daily Activities – Spirituality- Meditation - Mindfulness - Breathing Techniques

MOVEMENT – Functional Body – Bodyweight Training



Fasting/ TRE/ KD
Assess, reconsider and work

- Fasting too long, too frequently.
- Appetite dysregulation
- Fear of weight gain, guilt
- Food Obsessions, mental compensation
- Stress overload / Overtraining / Undersleeping
- Too many supplements to sustain fasts.
- Keto Quality, low rate of NOVA 1 and 2

Challenges & Considerations in Psychiatry

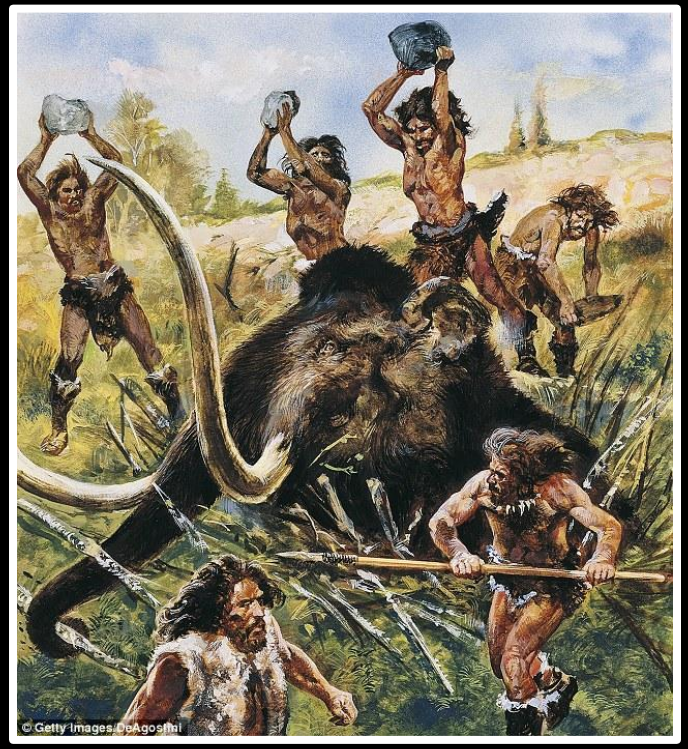
Urgency / Risks
Medications
Disposition to change / motivation
Cognitive status
Support
Euphoria / Impatience / clarity in goal setting
Addiction / compulsivity traits / Personality Traits

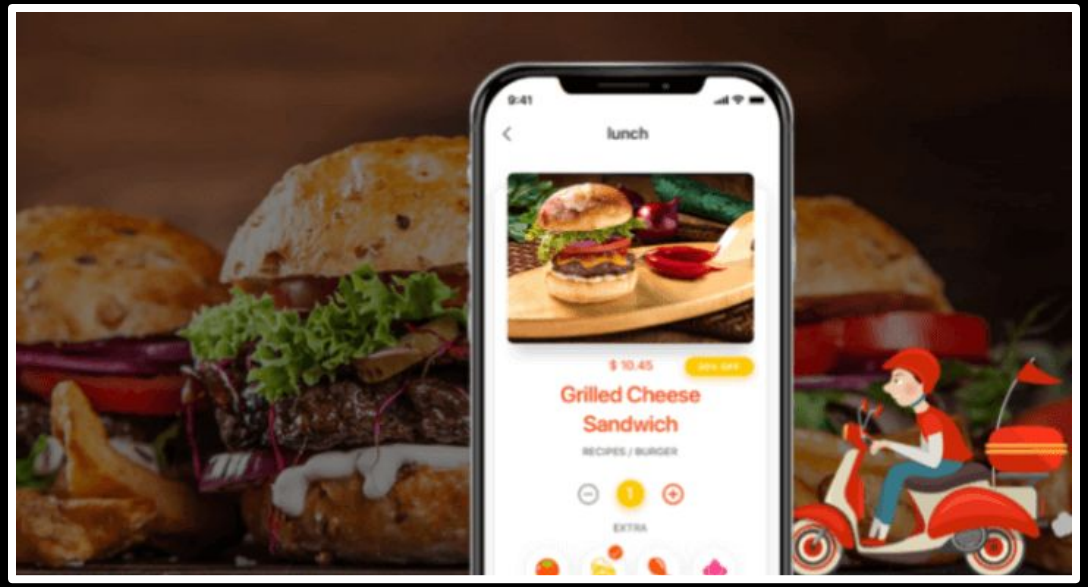
Cultural dogmas

- Perception of safety of closed packages.
- ‘Certainty’ provided by nutritional labels
- Bromatology
- Availability - Source
- Ethical Issues and Sustainability

Ancestral Vs Modern 2020 Food seeking Behaviors

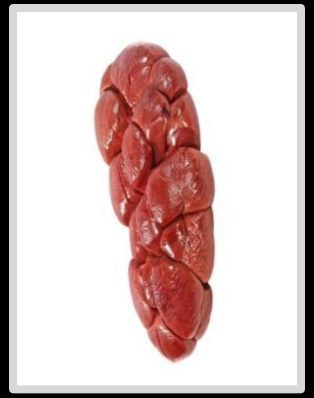
Life threat Vs Comfort threat





So appealing…

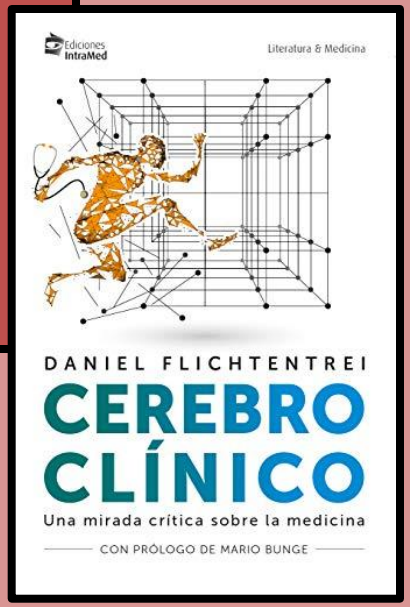
So disGUSTing… Conditioned aversion to:
animal organs, tallow, fat, suet, broths, cartilages, collagen, blood.



‘’Obesity is not the **cause** of metabolic disorders but an **anthropometric marker** of them, their consequence.’’

‘’Nor individual behavior is their cause, but **behavior** correlates to the toxic perturbations that industrial diet produces in regulatory mechanisms.’’

iel Flichtentrei MD



Takeaways

- Restore Appetite Regulation Mechanisms
- Aim For Highest Quality Real Food
- Find Functional Eating Pattern
- Train Metabolic Flexibility and Energy autonomy
- Assess Insulin/glucose dynamics
- Improve Treatment Outcomes