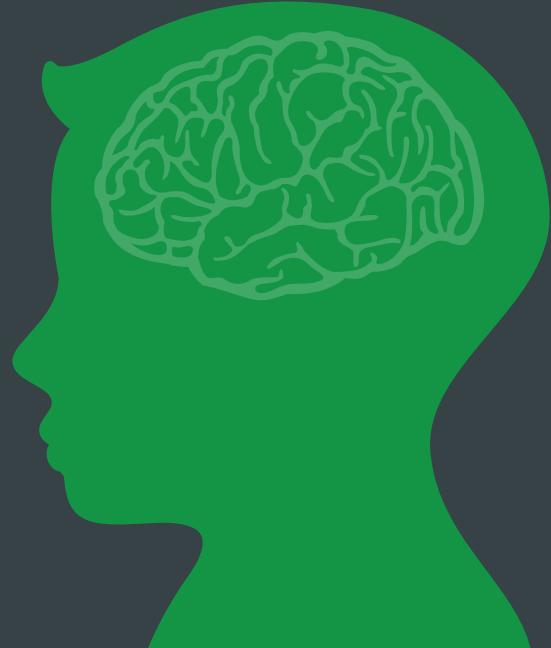




BENGREENFIELDFITNESS

# UNBEATABLE BRAIN 2.0

Two new ways to Enhance Your Brain &  
Hack Cognitive Performance



**Ben Greenfield**  
[BenGreenfieldFitness.com](http://BenGreenfieldFitness.com)

# 1

**NEUROTRANSMITTERS  
& HPA AXIS**

# 2

**THE BLOOD BRAIN  
BARRIER**

# 3

**NEUROPLASTICITY**

# THE TWO WAYS YOUR BRAIN BREAKS

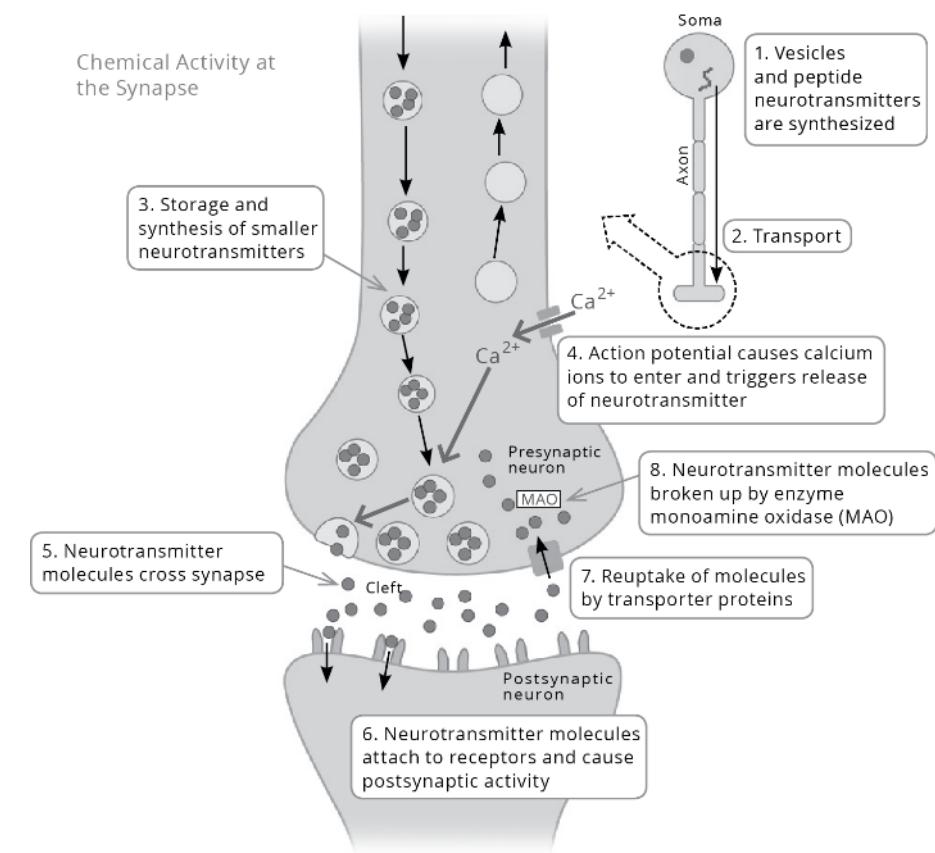
**NEUROTRANSMITTER  
PROBLEMS**

**HPA AXIS  
DYSFUNCTION**

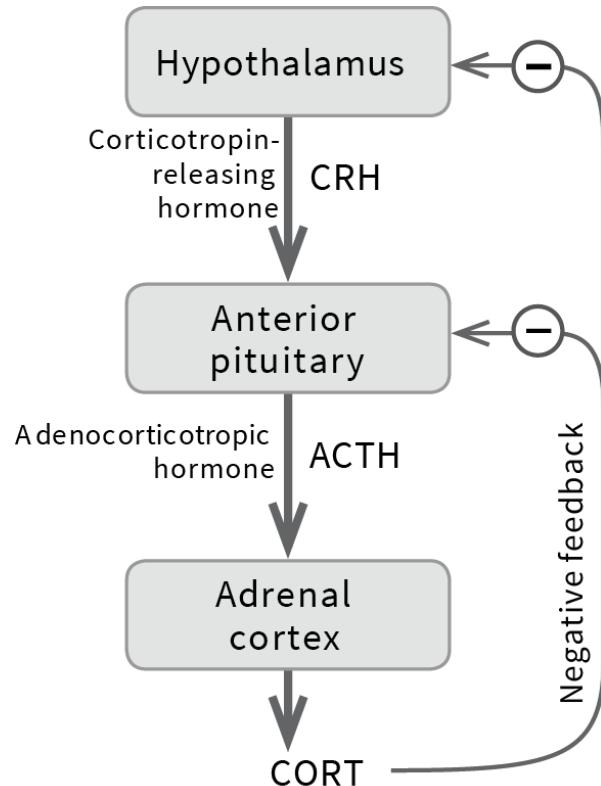


# NEUROTRANSMITTERS

- Cells make connections in neural pathways
- Synaptic transmission and serotonin
- Neurotransmitter problems create:
  - Depression
  - Appetite Cravings
  - Brain Fog
  - Low IQ
  - Anxiety
  - Panic Attacks
  - Insomnia
  - Eating disorders
  - Migraines
  - Ease of distraction or ADD



# HPA AXIS



- Includes: **hypothalamus, the pituitary gland and the adrenal glands**
- Regulate functions such as:
  - Stress response
  - Mood
  - Digestion
  - Immune system
  - Libido
  - Metabolism
  - Energy levels

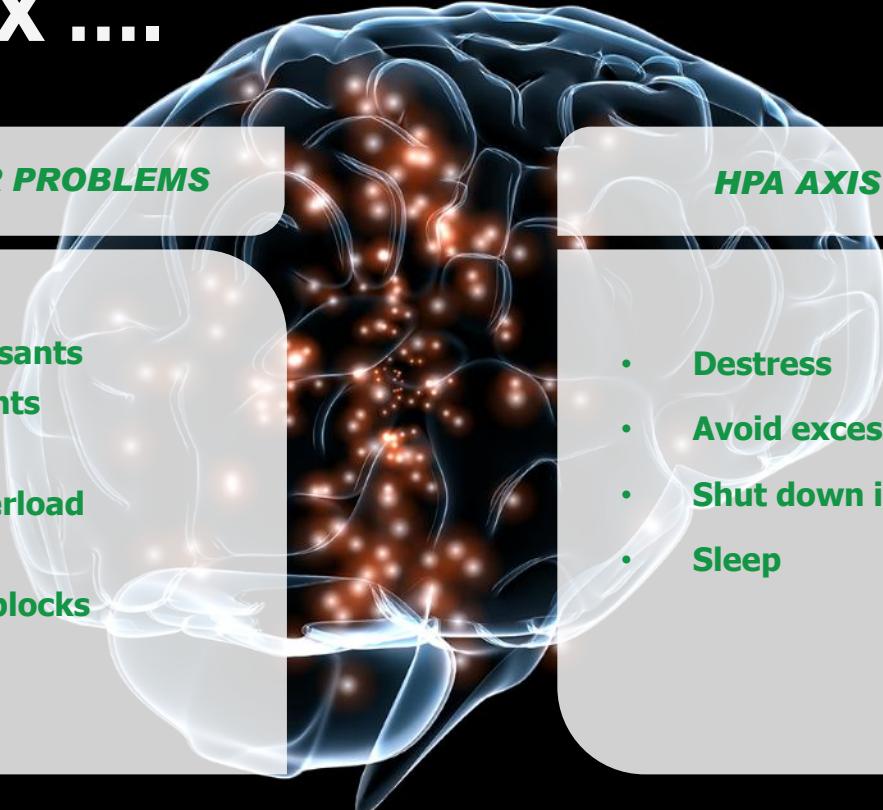
# HOW TO FIX ....

## **NEUROTRANSMITTER PROBLEMS**

- **Avoid anti-depressants**
- **Modulate stimulants**
- **Avoid toxins**
- **Avoid sensory overload**
- **Fix your gut**
- **Replace building blocks**
- **Eat healthy fats**

## **HPA AXIS DYSFUNCTION**

- **Destress**
- **Avoid excessive exercise**
- **Shut down inflammation**
- **Sleep**



# TWO NEW WAYS TO ENHANCE YOUR BRAIN

PROTECTING BLOOD  
BRAIN BARRIER

1

***GETTING A WELL  
FUNCTIONING &  
OPTIMAL TUNED  
BRAIN...***

INCREASING  
NEUROPLASTICITY

2

**1**

**NEUROTRANSMITTERS  
& HPA AXIS**

**2**

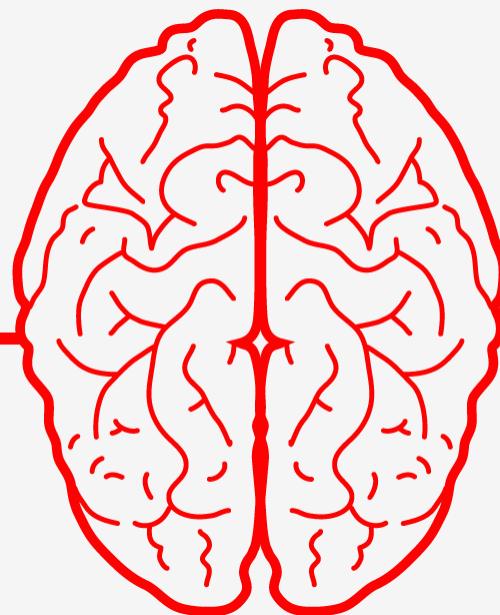
**THE BLOOD BRAIN  
BARRIER**

**3**

**NEUROPLASTICITY**

# BLOOD-BRAIN BARRIER

- Lies between the brain and the rest of the body



- Regulates passage of inflammatory cytokines into the brain

- Prevents fluctuations in serum composition

- Protects against environmental toxins and infectious pathogens

# 12 WAYS TO SUPPORT YOUR BLOOD-BRAIN-BARRIER

**1**

OPTIMIZE YOUR  
B VITAMIN  
INTAKE

**2**

NOURISH  
YOUR GUT

**3**

EAT PLENTY OF  
MAGNESIUM

**4**

DON'T EAT A  
40% COCOA  
BUTTER DIET

**5**

USE  
PHYTONUTRIENT-  
RICH PLANTS AND  
SPICES

**6**

DRINK  
COFFEE  
AND/OR TEA

**7**

SUPPLEMENT  
S CAN HELP

**8**

CONTROL YOUR  
BLOOD  
PRESSURE

**9**

SLEEP

**10**

DON'T DRINK  
TOO MUCH  
ALCOHOL

**11**

STIMULATE  
YOUR VAGAL  
NERVE

**12**

STOP EATING  
SO OFTEN

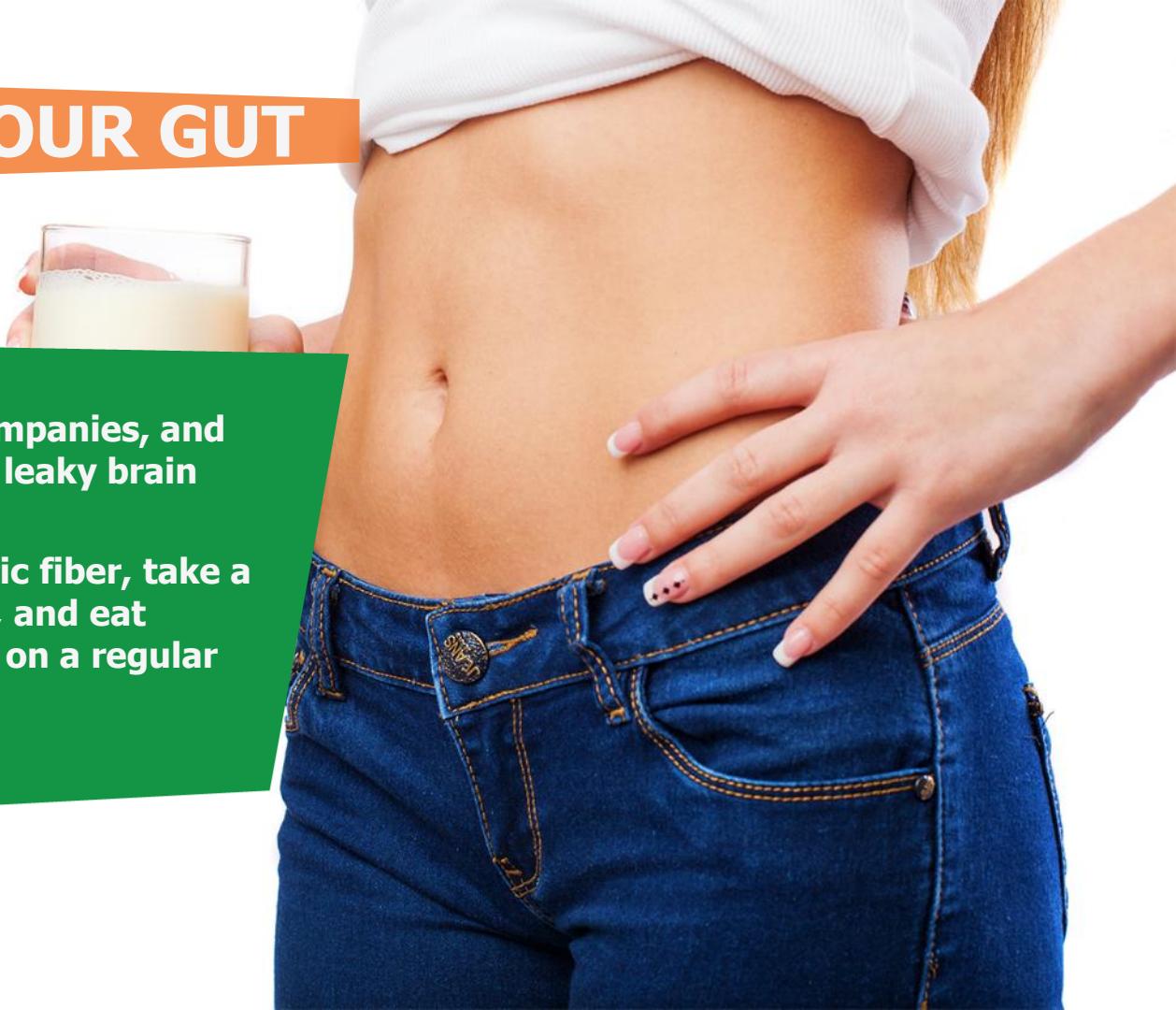
# 1. OPTIMIZE YOUR B VITAMIN INTAKE



- Vitamin B12-B6 and B9 (Folate) treatment Improves Blood-Brain Barrier Function in Patients with Hyperhomocysteinaemia and Mild Cognitive Impairment

## 2. NOURISH YOUR GUT

- A leaky gut accompanies, and maybe causes, a leaky brain
- Eat more prebiotic fiber, take a quality probiotic, and eat fermented foods on a regular basis



### 3. EAT PLENTY OF MAGNESIUM

- Magnesium can attenuate BBB permeability, even if you inject an agent explicitly designed to induce leaky blood-brain barriers
- Eat enough magnesium-rich foods like spinach, almonds, blackstrap molasses, winter squash and drink magnesium-rich mineral water



## 4. DON'T EAT A 40% COCOA BUTTER DIET



- A refined diet high in saturated fat and sugar/starch and absent any phytonutrient-rich plant foods like garlic or antioxidant supplements like ALA will cause elevated BBB permeability\*

\*based on studies made with rodents

## 5. USE PHYTONUTRIENT-RICH PLANTS AND SPICES

- Aged garlic extract is particularly rich in phytonutrients with strong antioxidant eliminates the bad BBB effects of a refined lab diet**

- Other promising options are:
- Curcumin (from turmeric)
- Astragalus root
- Broccoli
- Brussels sprouts
- Cabbage



## 6. DRINK COFFEE AND/OR TEA



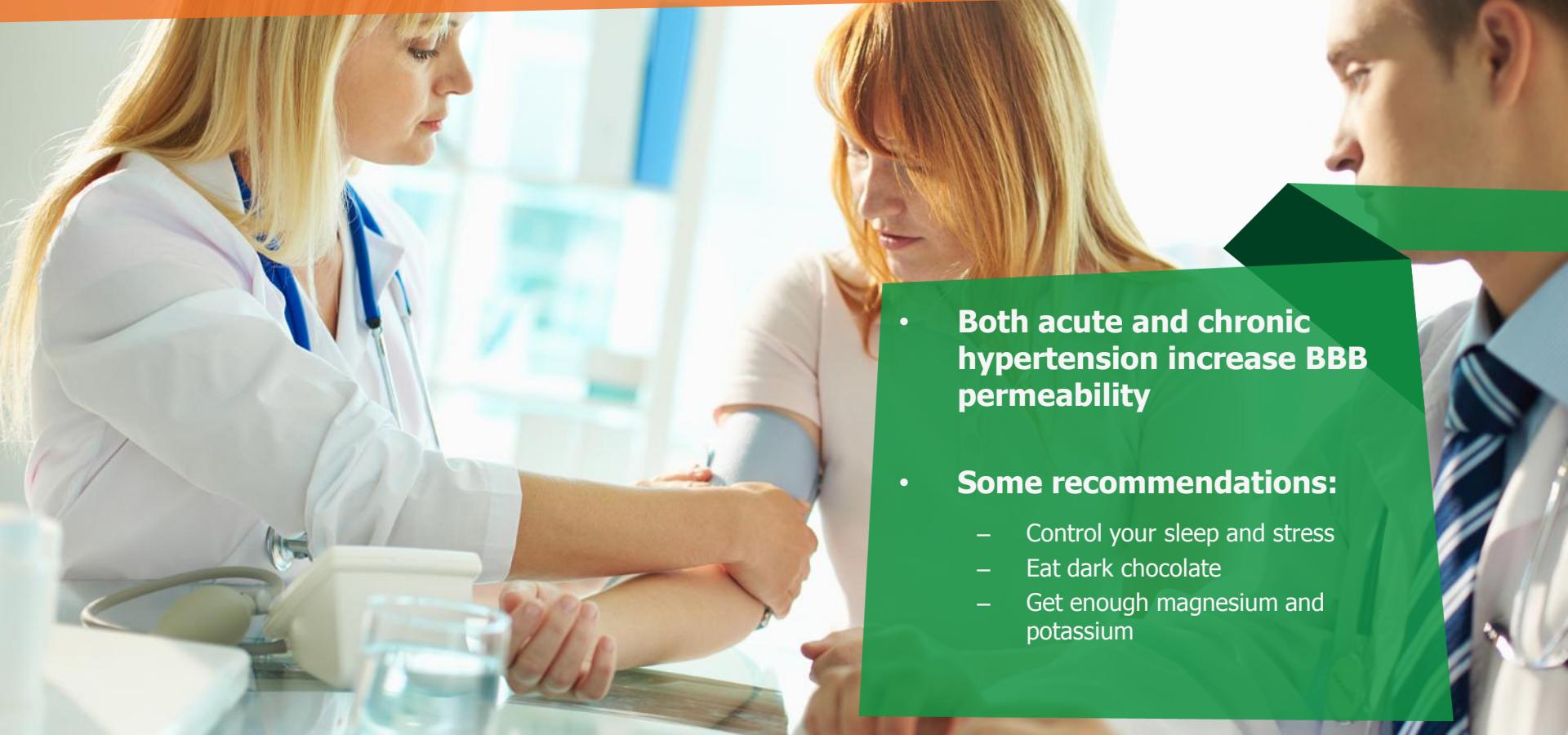
- Coffee and tea are so special, both are sources of caffeine, a noted protector of BBB integrity

## 7. SUPPLEMENTS CAN HELP

- Supplement forms of the aforementioned nutrients can help
- Inositol improves BBB integrity
- Berberine reduces BBB permeability
- Alpha-GPC reduces BBB permeability in hypertensive rats



## 8. CONTROL YOUR BLOOD PRESSURE



- Both acute and chronic hypertension increase BBB permeability
- Some recommendations:
  - Control your sleep and stress
  - Eat dark chocolate
  - Get enough magnesium and potassium

## 9. SLEEP



- **Sleep restriction impairs BBB function and increases permeability**
- **If you have sleep problems try a little dose of melatonin (0.25-0.5mg) to set your circadian rhythm and preserve BBB integrity**

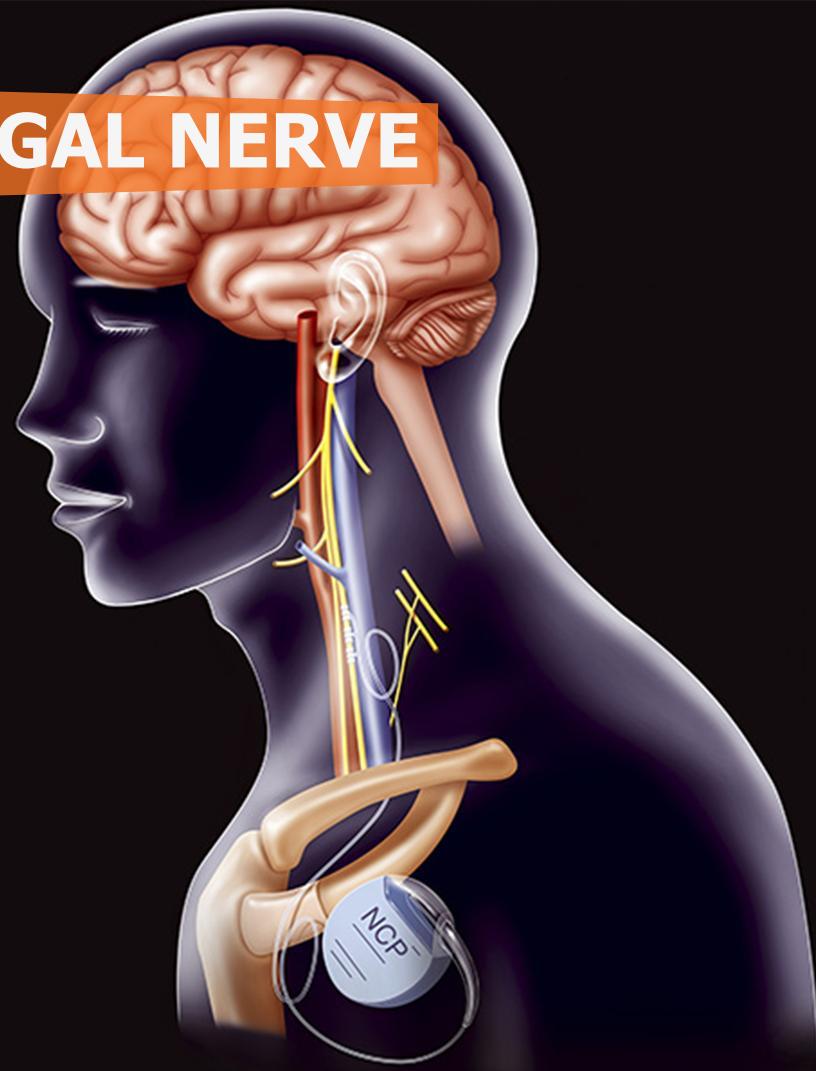
## 10. DON'T DRINK TOO MUCH ALCOHOL

- Within many alcohol's negative effects is induction of BBB dysfunction
- High-dose ethanol migrating across the BBB damage the neurons and opens the door to immune cells to cause trouble



# 11. STIMULATE YOUR VAGAL NERVE

- After a traumatic brain injury or stroke, the resultant increase in BBB permeability floods the brain with inflammatory cytokines, causes swelling and neuronal death, and worsens the prognosis
- Stimulating the vagal nerve after such an injury decreases the BBB permeability and improves the prognosis



## 12. STOP EATING SO OFTEN

- **Make sure to eat when you feel actual hunger. It's the best spice, and it confers a whole host of other benefits, including better blood-brain barrier function**



**1**

***NEUROTRANSMITTERS  
& HPA AXIS***

**2**

***THE BLOOD BRAIN  
BARRIER***

**3**

***NEUROPLASTICITY***

# 16 WAYS TO INCREASE NEUROPLASTICITY

1

GET ENOUGH MAGNESIUM

2

GET ENOUGH CHOLINE

3

SLEEP

4

EAT FISH

5

EAT TURMERIC

6

MOVE FREQUENTLY

7

SPRINT

8

GO HARD

9

10

11

12

13

14

15

16

GO FAST

MITIGATE STRESS

GREASE THE GROOVE

SEEK NOVELTY

LEARN AN INSTRUMENT

TACKLE A DIFFICULT SUBJECT

LEARN A LANGUAGE

TRY PSILOCYBIN



**1**

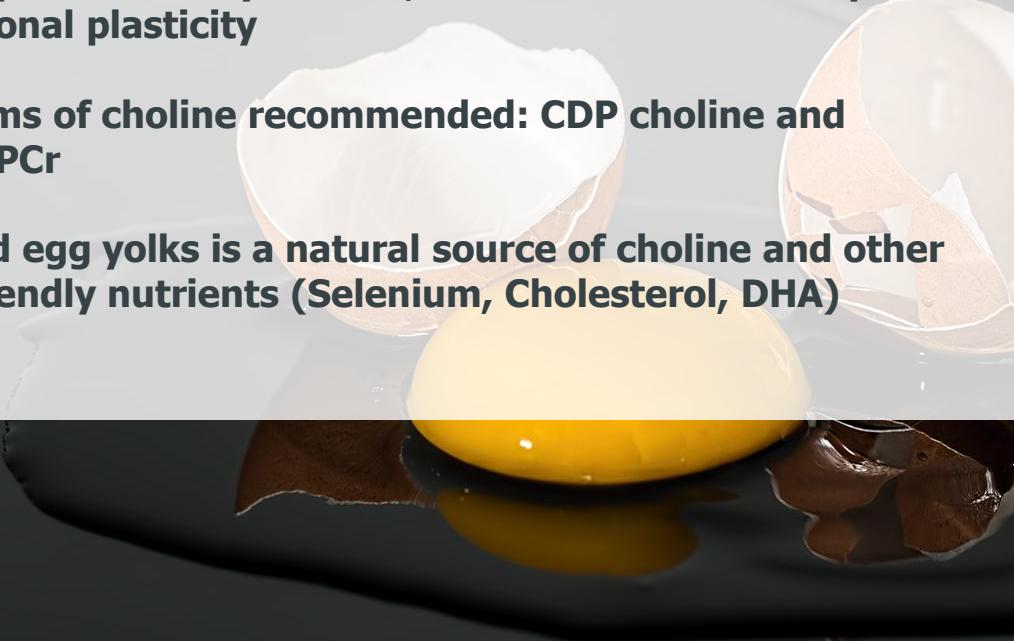
# GET ENOUGH MAGNESIUM

- 
- Magnesium is involved in over 400 physiological functions (Neuroplasticity is one of them)
  - Alzheimer's patients have lower brain levels of magnesium
  - Giving rats magnesium increased synaptic plasticity, synaptic connections, and cognitive performance

2

## GET ENOUGH CHOLINE

- Choline produce acetylcholine, a neurotransmitter required for neuronal plasticity
- Two forms of choline recommended: CDP choline and Alpha-GPCr
- Pastured egg yolks is a natural source of choline and other brain friendly nutrients (Selenium, Cholesterol, DHA)



3

## SLEEP

- Sleep might be the most essential nutrient for neuroplasticity
- Sleep provides allows new connections, new memories, and new skills learning





- Seafood intake lower rates of conditions that brain plasticity protects against depression and mild cognitive impairment
- Animal studies reveal that omega-3 fats enhance neurogenesis, synaptic plasticity, and long-term potentiation of learned behaviors

4

## EAT FISH



5

## EAT TURMERIC (OR USE CURCUMIN)

- Turmeric/Curcumin can aid neuroplasticity
- Curcumin reduce depressive symptoms



6

## MOVE FREQUENTLY AT A SLOW PACE



- Aerobic training is a potent booster of BDNF (brain-derived neurotrophic factor)
- Resistance training is associated with cognitive improvements in mild cognitive impairment



7

## SPRINT

- Sprinting is an even better way to boost BDNF
- Elite international sprinters have higher levels of basal BDNF than amateurs

8

## GO HARD

- Intensity increases BDNF
- Recommended exercises:
  - Cross Fit
  - Squats
  - Frisbee
  - Burpees
  - Barbell

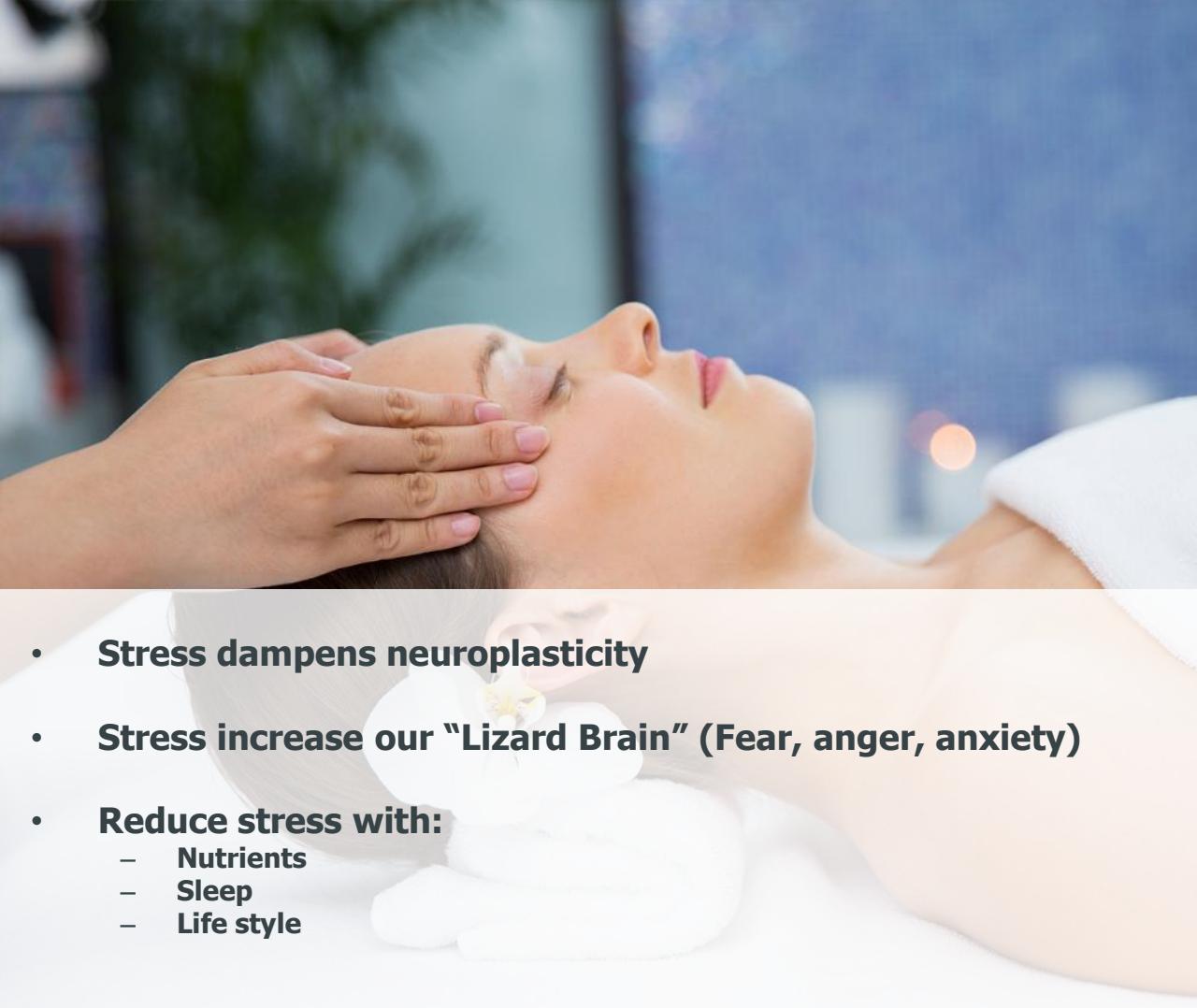


9

## GO “FAST”

- **Fasting is a sure-fire way to increase BDNF levels and increases neuronal autophagy**
- **Tip: Intermittent fast (12-24 hours)**





- Stress dampens neuroplasticity
- Stress increase our “Lizard Brain” (Fear, anger, anxiety)
- Reduce stress with:
  - Nutrients
  - Sleep
  - Life style

10

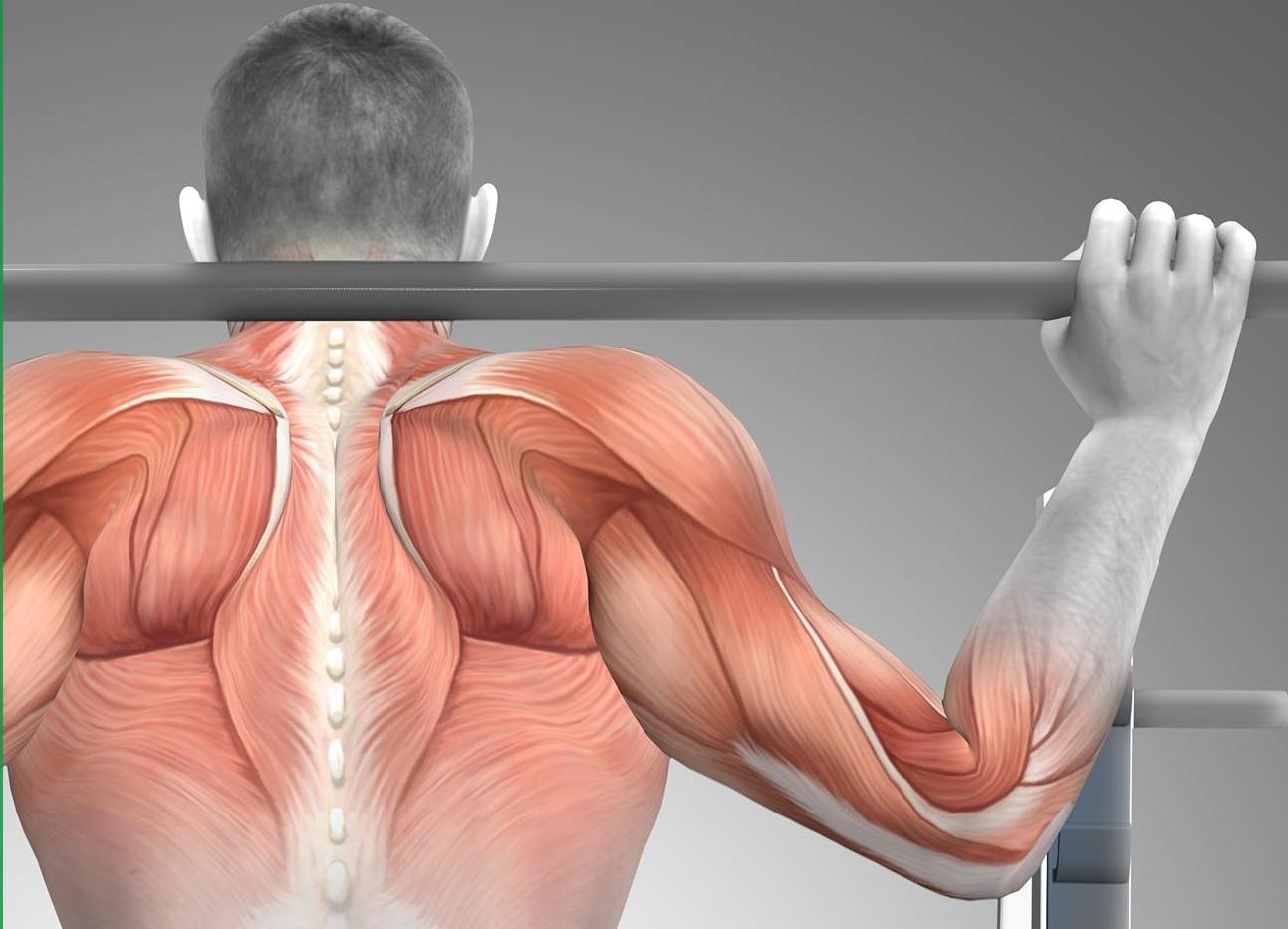
## MITIGATE STRESS



11

## GREASE THE GROOVE

- Do pullups, five or six, ten times a day
- Pullups helps to build new neuronal pathways when perform it frequently (without excess strain and stress)





12

## SEEK NOVELTY

- Routine makes our brain “Lazy”
- Humans are novelty seekers by nature, it’s how we learn, experience, and ultimately live most fully in the moment

13

## LEARN AN INSTRUMENT

- Music training has profound effects on neuroplasticity



14

## TACKLE A DIFFICULT SUBJECT

- Must be difficult and Interesting
- Should take real effort and Engagement
- Some recommendations:
  - Read a book
  - Take on-line course
  - Attend a class
  - Go to a seminar
  - Learn to code



15

## LEARN A LANGUAGE

- There's no better way to test and train your neuroplasticity than learning an entirely new form of communication

清

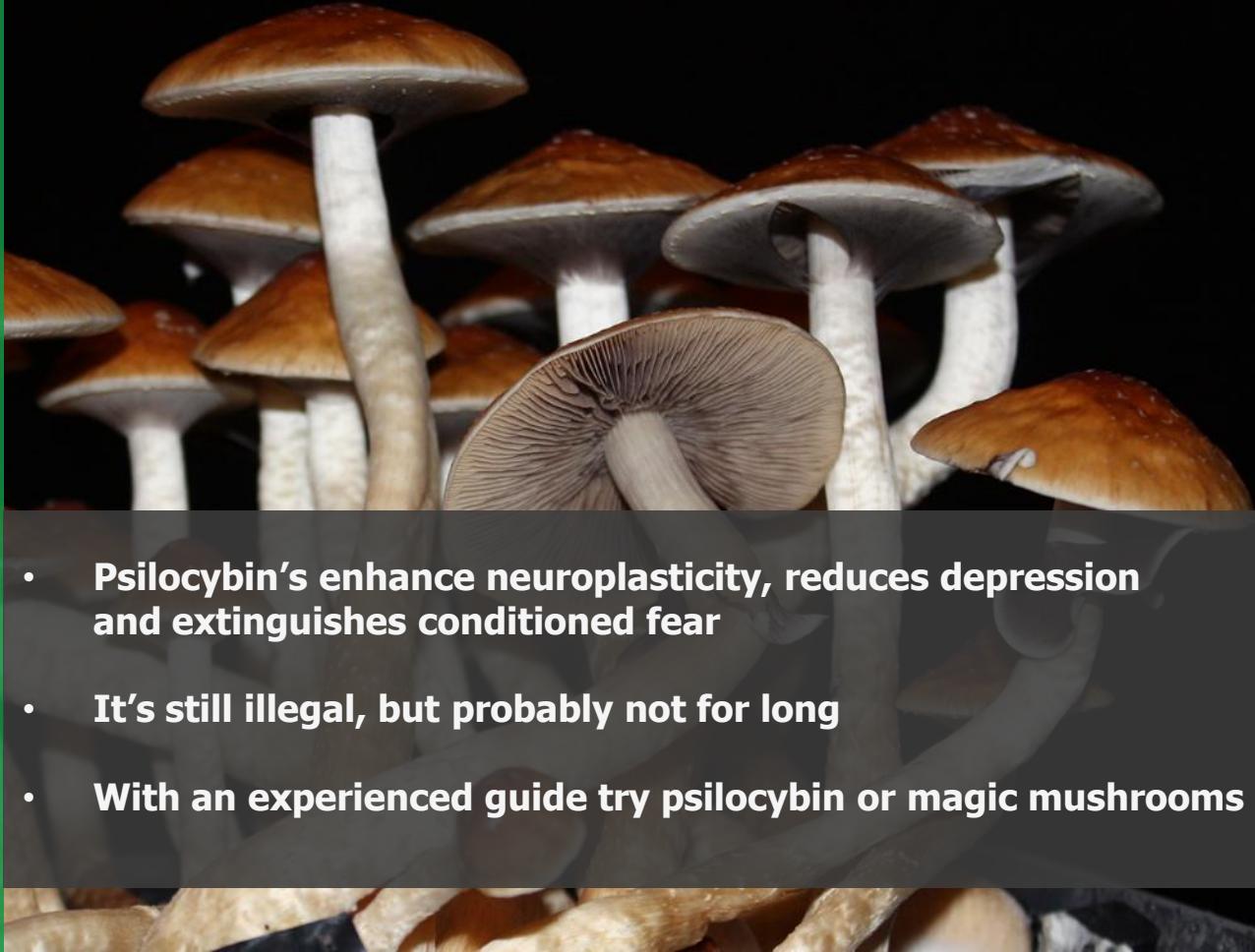
CLARITY

智

WISDOM

16

## TRY PSILOCYBIN (WHEN LEGAL)



- Psilocybin's enhance neuroplasticity, reduces depression and extinguishes conditioned fear
- It's still illegal, but probably not for long
- With an experienced guide try psilocybin or magic mushrooms

# **3a**

## ***PROTECTING YOUR LEAKY BLOOD BRAIN BARRIER SUMMARY***

- The brain is the seat of all the conscious machinations and subconscious processes that comprise human existence, anything attempting entry MUST receives severe scrutiny
- We want to admit glucose, amino acids, fat-soluble nutrients, and ketones.
- We want to reject toxins, pathogens, and errant immune cells

# **3b**

## ***INCREASE NEUROPLASTICITY***

- Neuroplasticity strengthen the existing neuronal pathways and establish new neurons and connections
- Get Magnesium, Choline, Turmeric & Fish
- Sleep & Mitigate Stress
- Challenge your brain
- Keep moving



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# Q & A

Want all resources, links & goodies  
for this presentation? Visit  
[bengreenfieldfitness.com/unbeatable16](http://bengreenfieldfitness.com/unbeatable16)

