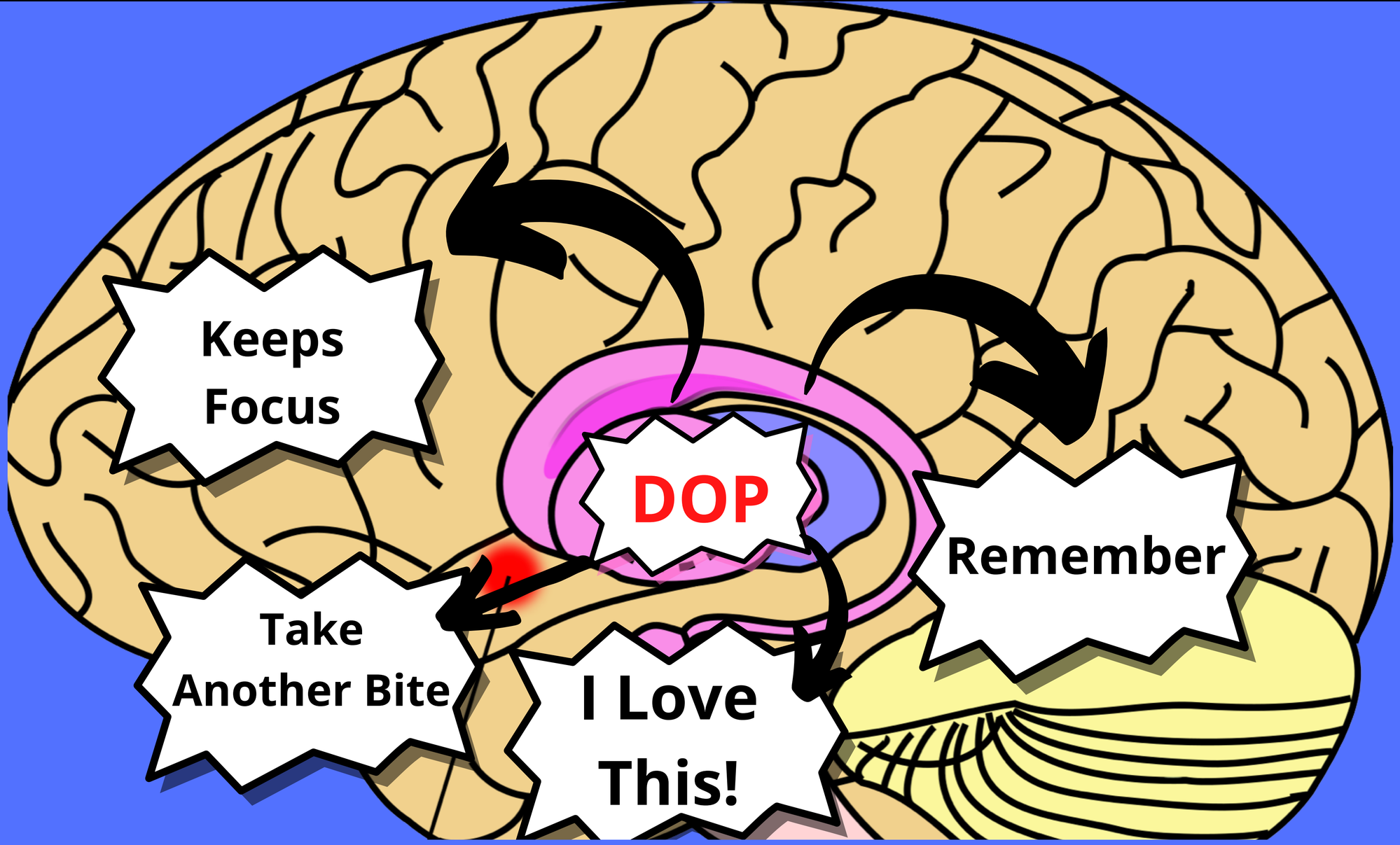
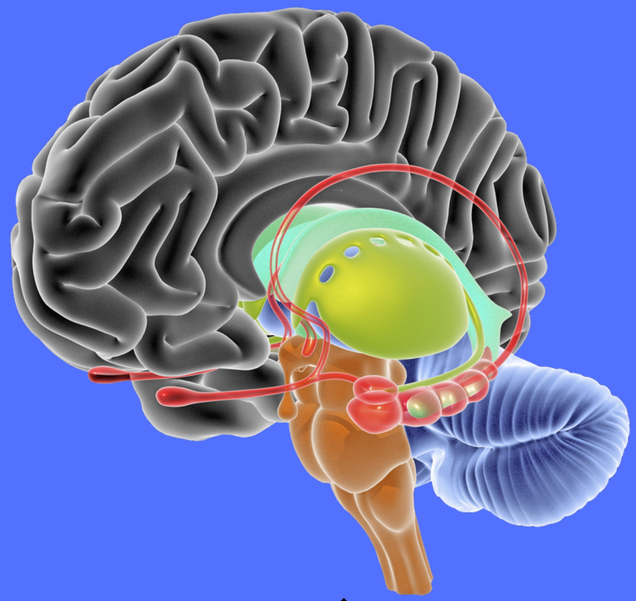
Addiction & Keto
The Road to Recovery

"Up against your will
Through the thick and thin
He will wait until
You give yourself to him"

~Echo & the Bunnymen

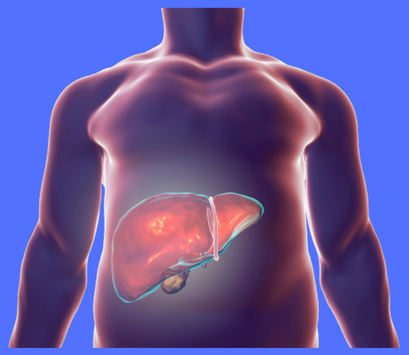


Morales, I. and K. C. Berridge. (2020) Physiology and Behavior. 227, 113152.



Taste

Gut



Metabolism

deAraujo, I. E., et. al. (2008). Food Reward in the absence of taste receptor signaling. Neuron. 57, 930-941.

Andres-Hernando, A., et. al. (2020). Sugar causes obesity and metabolic syndrome in mice independently of sweet taste. Am J Physiol Endocrinol Metab 319, 276-290.

Hyperglycemia

Polyol

Alcohol

Fructose

Fructokinase

F-1-P

ATP

ADP

AMP

Uric Acid

Hunger
Cravings
Over Eating
Gout
T2D
Obesity

Mitochondrial
Oxidative
Stress

Johnson, R. J. (2022). Nature Wants Us to Be Fat

Survival Switch

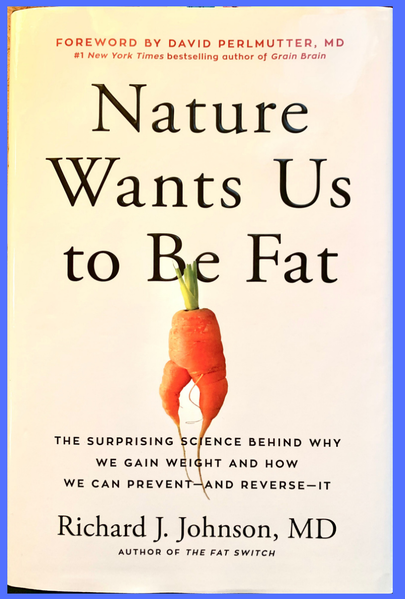
de novo Lipogenesis
Glycogen Syn
Drives Leptin Resistance
Systemic Inflammation
Down Reg. Fat Oxidation
Dys. Reg. NO Pathways

Drives Hunger
Increased Intake Food
Preference for Sugar
Preference for Fat
Taste, Metab., Gut &
Brain Axis

Andres-Hernando, A., et. al., (2020). Am J Physiol. Endocrinol Metab. 319, 276-290.
Johnson, P. M. and Kenny, P.J., Nat Neurosci. 2010 May ; 13(5): 635–641.

"Recall that one of the major actions of the survival switch involves stimulating hunger, cravings, and foraging for food. When these behaviors are put into overdrive, our survival responses can become behavioral disorders." ~ R.J. Johnson

Johnson, R. J., Nature Wants Us to Be Fat (2022)

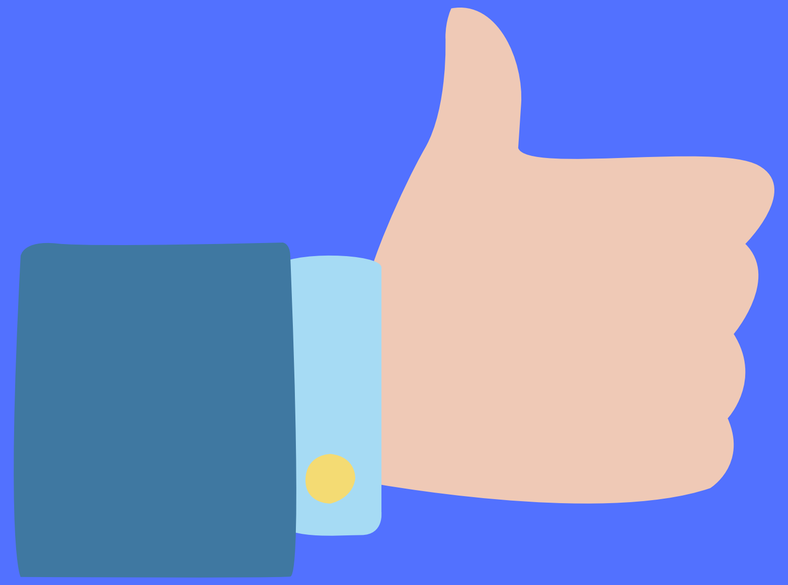


"...extended access to a high fat and high sugar diet, which causes obesity, also leads to adaptations in the dopamine system and emergence of addictive-like behaviors, including reward deficits and compulsive responding for food." ~DiFeliceantonio and Small

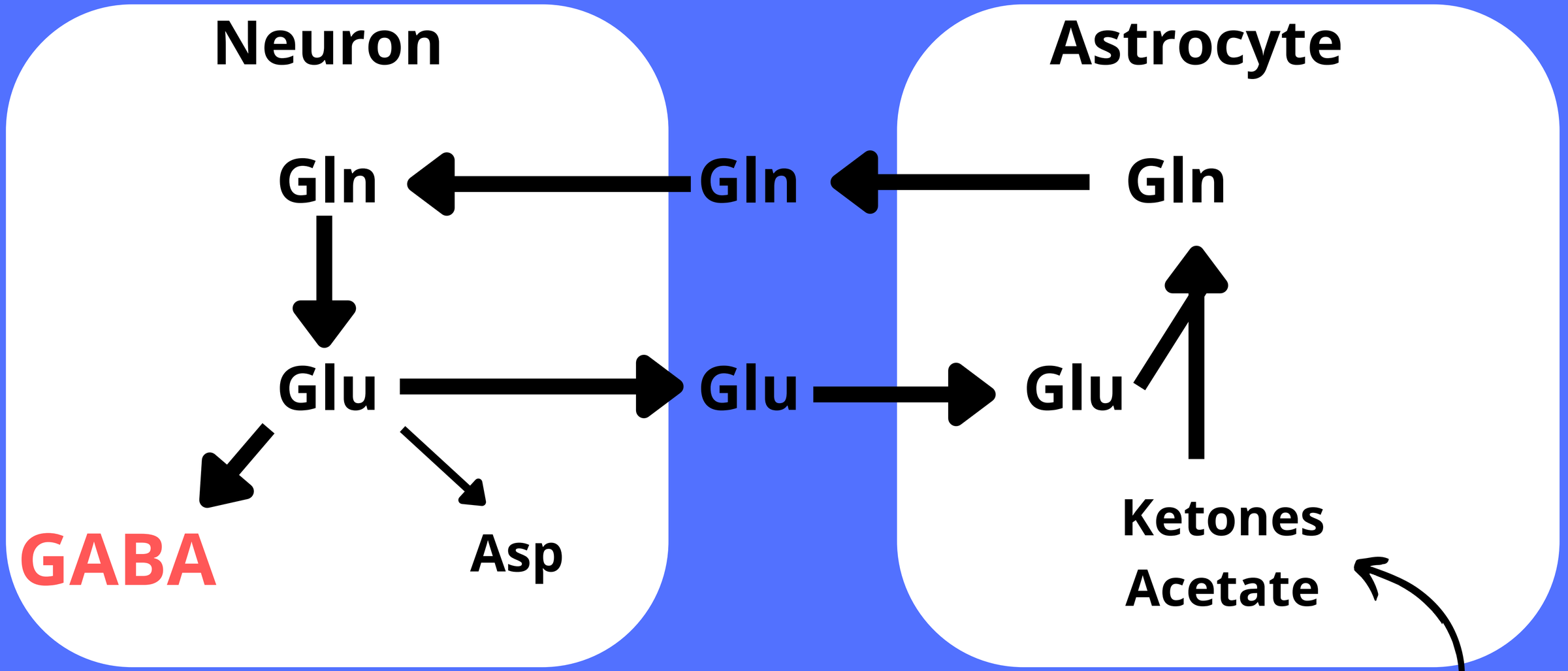
DiFeliceantonio, A. G., and D. M. Small. (2019). Nature Neuroscience. 22, 1-6.

Why is LCHF a Good Strategy?

1) Stabilization of Glucose
2) Reduced Insulin
3) Stabilize Sateity
4) Stabilize Apetite
5) Reduce Risk Weight Gain
6) Reduce Risk CVD
7) Elevation BHB with Enhancement of GABA (reduces dopamine)



Brain Handling Glu, Gln, GABA



Yudkoff, M. et. al. (2008). Epilepsia. 49, 7375.

Ketosis