

Optimizing Brain Function in Court and Other High Stakes Settings



CHILDREN'S JUSTICE CONFERENCE
May 2, 2016

Sponsored by
University of Washington
Court Improvement Training Academy - UWCITA.org
Kelly Warner-King and Rob Wynam

Dynamic Brains Consulting (KristenAllott.com)
Dr. Kristen Allott

Parent Allies
Jason Bragg, Alise Hegle, and Kimberly Mays

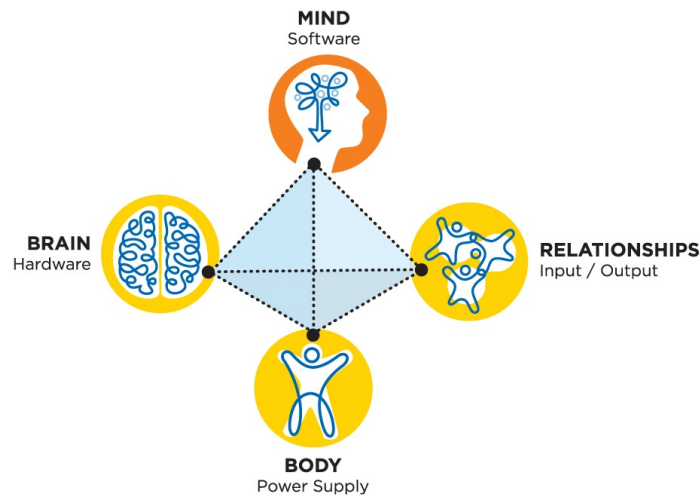
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Focus for Today

Improving the conditions for decision-making, creative problem solving and health

- Understand how choices around food, sleep and exercise impact the optimization of our brain
- Understand how trauma and hypoglycemia impact clients decision making.
- Use handout to improve your capacity and the capacity of others for decision-making, creativity and health

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What do we know?



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Hypoglycemia affects executive functioning

- Decreased attention span
- Decreased emotional regulation
- Decreased ability to cope with stress
- Increased criminality
- Increased aggression
- Increased impulsive behaviors
- Increased addictive behaviors



“Self-control relies on glucose as a limited energy source: willpower is more than a metaphor” (2007)

- Performing acts of self-control **reduced blood glucose levels**
- Low levels of blood glucose after performing the first act of self-control **predicted poor performance on the second task**
- **Consuming a glucose drink improved performance on the third task**

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Anxiety/Anger or Hypoglycemia?

Anxiety or Anger

Obsessive thoughts

Worrying about the future

Reliving past events

Hyper-vigilance

Restlessness

Angry outbursts

Irritability

Muscle tension

Fatigue

Difficulty sleeping

Palpitations

Sweating, trembling

Shortness of breath

Feeling light-headed

Chills and hot flashes

Hypoglycemia

Mild signs:

Nervousness

Trembling

Increased heart rate

Palpitations

Increased sweating

Hunger

Moderate signs:

Irritability

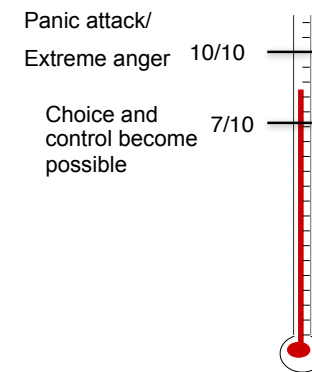
Decreased concentration

Headache

Fatigue

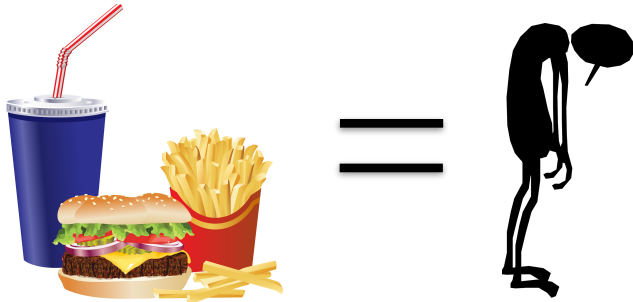
Mental confusion

Anger and anxiety:
emotional or hypoglycemic?



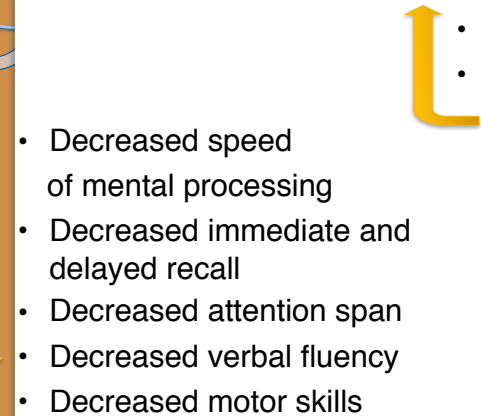
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Processed foods and depression



People who consume largely processed foods are **50% more likely to experience clinical depression**

Pre-diabetes and cognitive deficits

- 
- Increased depression
 - Increased dementia
- Decreased speed of mental processing
 - Decreased immediate and delayed recall
 - Decreased attention span
 - Decreased verbal fluency
 - Decreased motor skills

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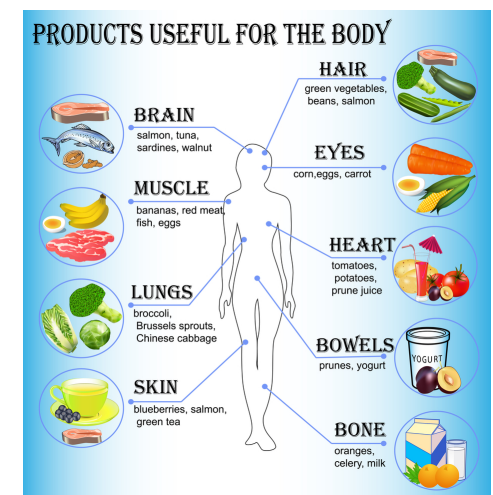
Prospective Study with Adolescents

In a study with 3040, 11- 18 years olds, the higher the quality of diet at the beginning of the study predicted higher quality of mental health, and the **lower the quality of diet predicted higher rates of mental health problems**. Additionally, if diet quality improved mental health improved.

Jacka (2011)

Real food and mood

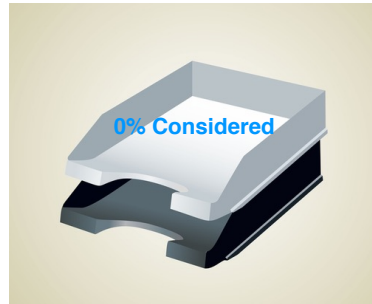
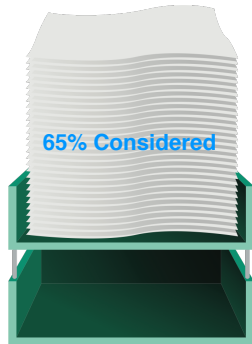
Lower likelihood of depressive and anxiety disorders
($p < 0.05$)



Extraneous factors in judicial decisions

Immediately after a meal

Immediately before a meal



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Economic cost of depression

27 lost days of work/year



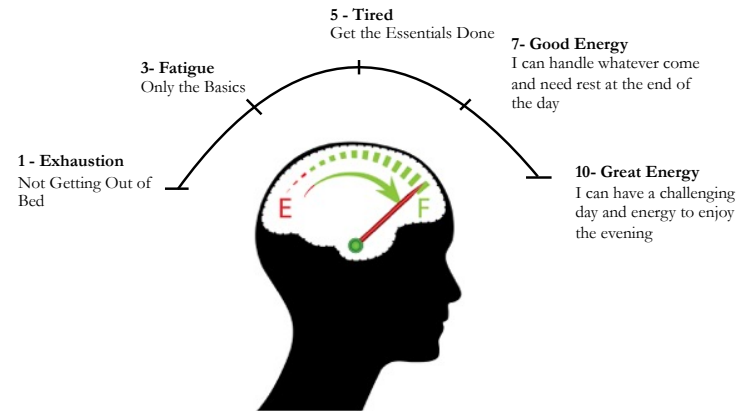
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How do we understand it?



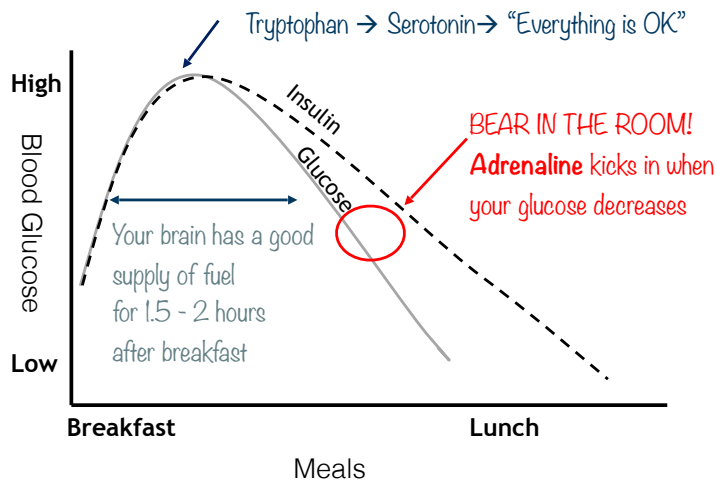
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What is your power supply?



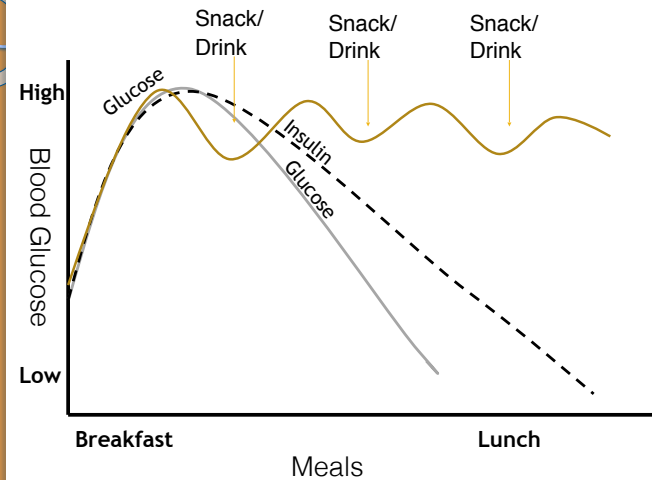
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Refined carbohydrate meal or alcohol and glucose



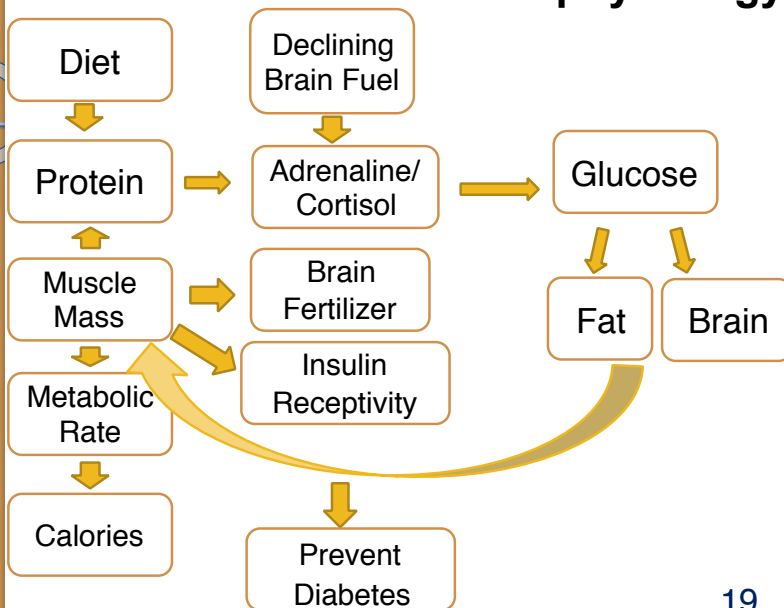
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Fueling the brain/hurting the body



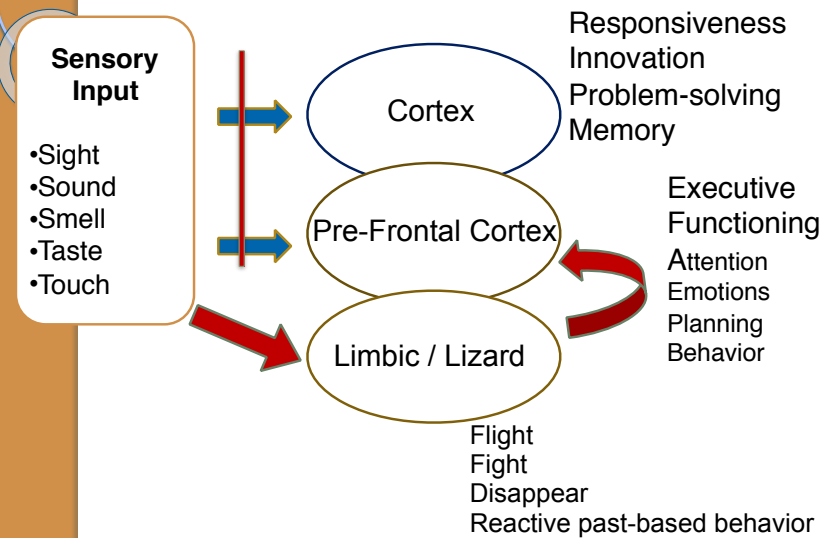
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The physiology



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The brain on adrenaline



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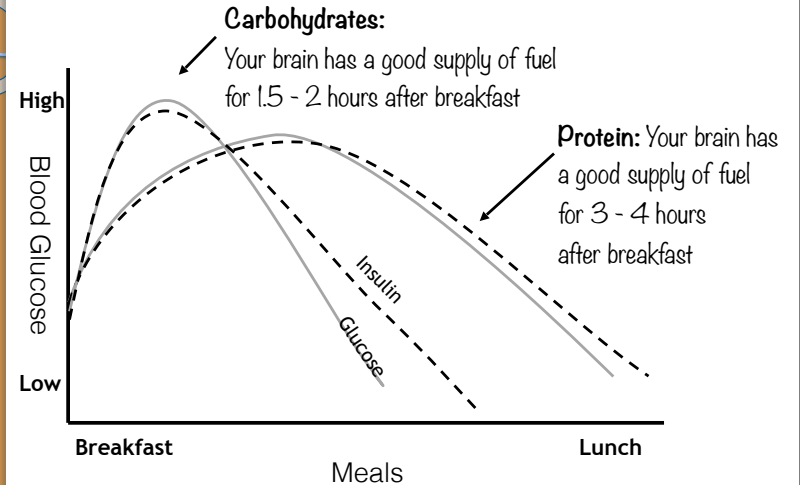
Lizard brain signs & symptoms

- Being anxious, irritable, or agitated
- Anticipating being anxious, irritable or agitated
- Not hungry in the morning
- Waking at 3 am and staying awake for 2 hours - “3 am Committee Meeting”



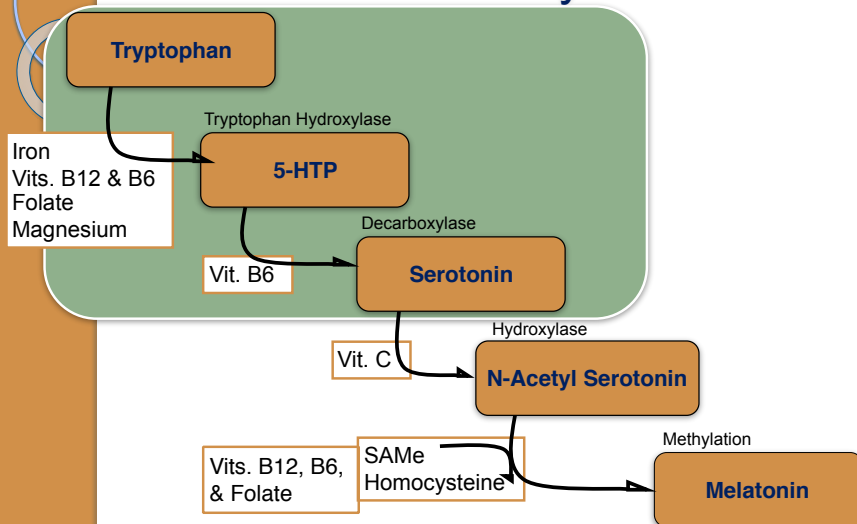
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Carbohydrates vs Protein



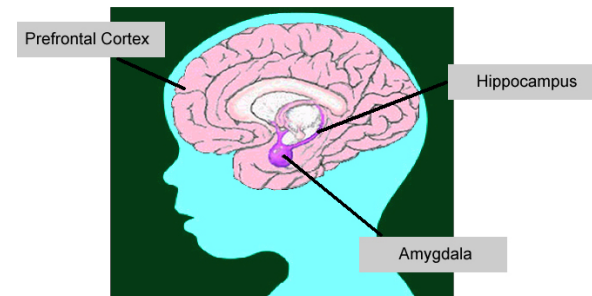
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Neurotransmitter synthesis



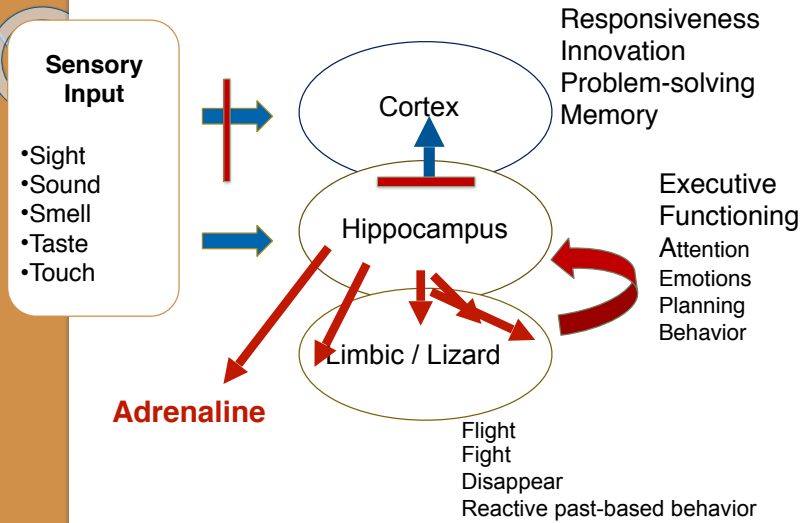
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Developing Brains and Trauma



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Information Processed in the Brain



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The Brain's response to chronic trauma

	No Trauma	Trauma
Self	Safe	Vulnerable
World	Reasonably benign	Threatening
Future	Reasonably hopeful and manageable	Uncontrollable and unpredictable

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Now what?



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Benefits of eating enough protein

- Better sleep, less early morning waking
- Less fatigue, particularly in the afternoons
- More energy
- Better and more stable moods
- Decreased depression
- Decreased anxiety
- Higher metabolism due to increased muscle mass
- Less frequent hunger



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How much protein should I eat?

RDA 0.8 gram/kg/day or 8 grams/20 lbs/day
 Max protein per day = 120 grams

Your Weight (lbs)	Protein Target (g)	Acceptable Protein Range (g)
100	40	36-45
120	48	43-54
140	56	50-63
160	64	57-72
180	72	64-81
200	80	71-90

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Three days eating ridiculous amounts of protein: protein every 3 hours

8 am Breakfast: 1-2 eggs, 1 piece of toast, 1 apple (14 grams)

11 am Snack: 1 handful of nuts, 1 spoonful of nut butter, or 1 spoonful of cottage cheese (6-8 grams)

12:30 pm Lunch: portion of meat the size of a pack of cards eaten by itself or in a sandwich/wrap, soup, or burrito; 1-2 cups of veggies (21 grams)

3:30 pm Snack: 1 handful of nuts, 1 spoonful of nut butter, or 1 spoonful of cottage cheese (6-8 grams)

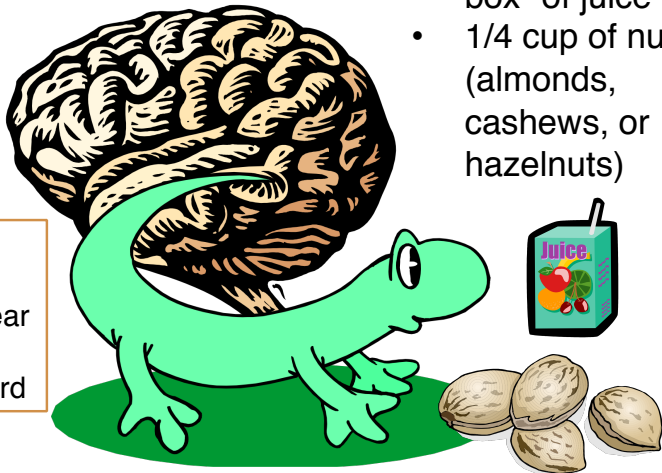
6:30 pm Dinner: portion of meat the size of a pack of cards eaten by itself or in a sandwich/wrap, soup, or burrito; 1-2 cups of veggies (21 grams)

Pre-bedtime Snack: One slice of turkey meat (6-8 grams)

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Lizard brain treat

- 1/4 cup of fruit juice or a “tot box” of juice
- 1/4 cup of nuts (almonds, cashews, or hazelnuts)



- Fight
- Flight
- Disappear
- Play the old record

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Benefits of food, sleep, and exercise

- Decreases cortisol
- Increased hippocampus
- Increased prefrontal cortex
- Increased executive function
- Increased memory
- Help improve trauma symptoms
- Increases attention
- Improves behavior
- Prevent or improve depression, anxiety, ADD/ADHD, weight gain, diabetes

What else?



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Sleep Deprivation (< 6.5 hours of sleep per night)

- Increases weight gain
- Increases inflammation and pain
- Increases chronic disease and shortens life
- Decreases attention span and memory
- Decreases associative problem-solving
- **When you don't sleep enough, your cognitive abilities decline and you aren't aware of it**

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Amount of sleep by age

Age	Hours Of Sleep
0 - 2 months	10.5 - 18
2 - 12 months	14 - 15
1 - 3 years	12 - 14
3 - 5 years	11 - 13
5 - 12 years	10 - 11
13- 21 years	9 - 10
Adults	7 - 9



Physical activity (PA) \rightarrow Robust life

- | Decreased PA | Increased PA |
|------------------|---------------------------------|
| • Sick Days | • Faster learning |
| • Fatigue | • Better memory |
| • Stress | • Enhanced creativity |
| • Anxiety | • Increased stamina |
| • Depression | • Improved productivity |
| • Work conflicts | • Energy after work |
| • Weight gain | • More meaningful relationships |
| • Prediabetes | |

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What do we take home?



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Resources

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Contact for Speakers

University of Washington

Court Improvement Training Academy - UWCITA.org are

- Kelly Warner-King - kwk@uw.edu
- Rob Wynam - wyma@uw.edu

Dynamic Brains Consulting - KristenAllott.com

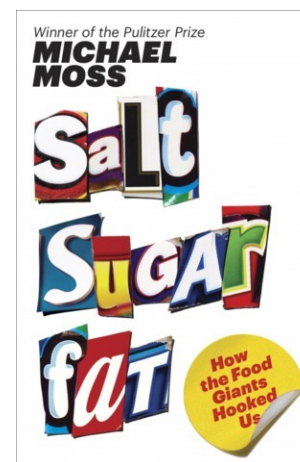
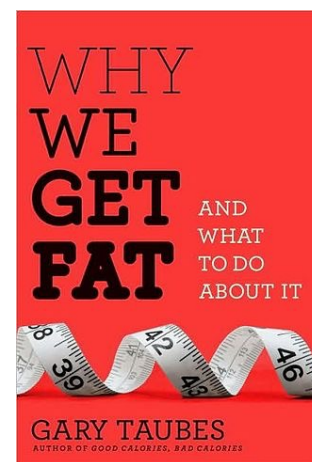
- Dr. Kristen Allott - allott@dynamicbrainsconsulting.com

Parent Allies

- Jason Bragg - jasonbraggpr@gmail.com
- Alise Hegle - Please contact through UWCITA.org
- Kimberly Mays - mayskim4him@gmail.com

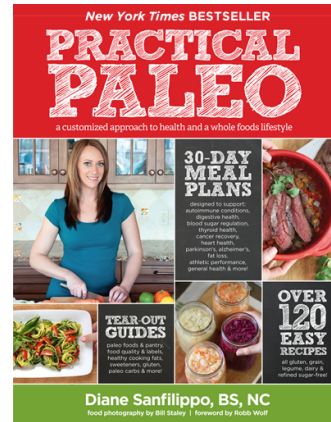
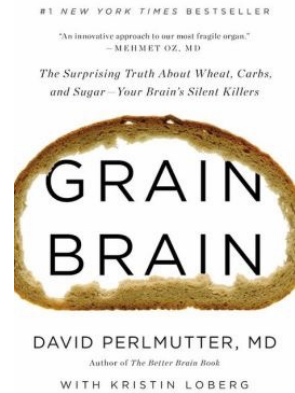
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Books



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Books



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