

A NERVOUS TAP: YOUR  
NERVOUS SYSTEM IS TALKING.  
ARE YOU LISTENING?

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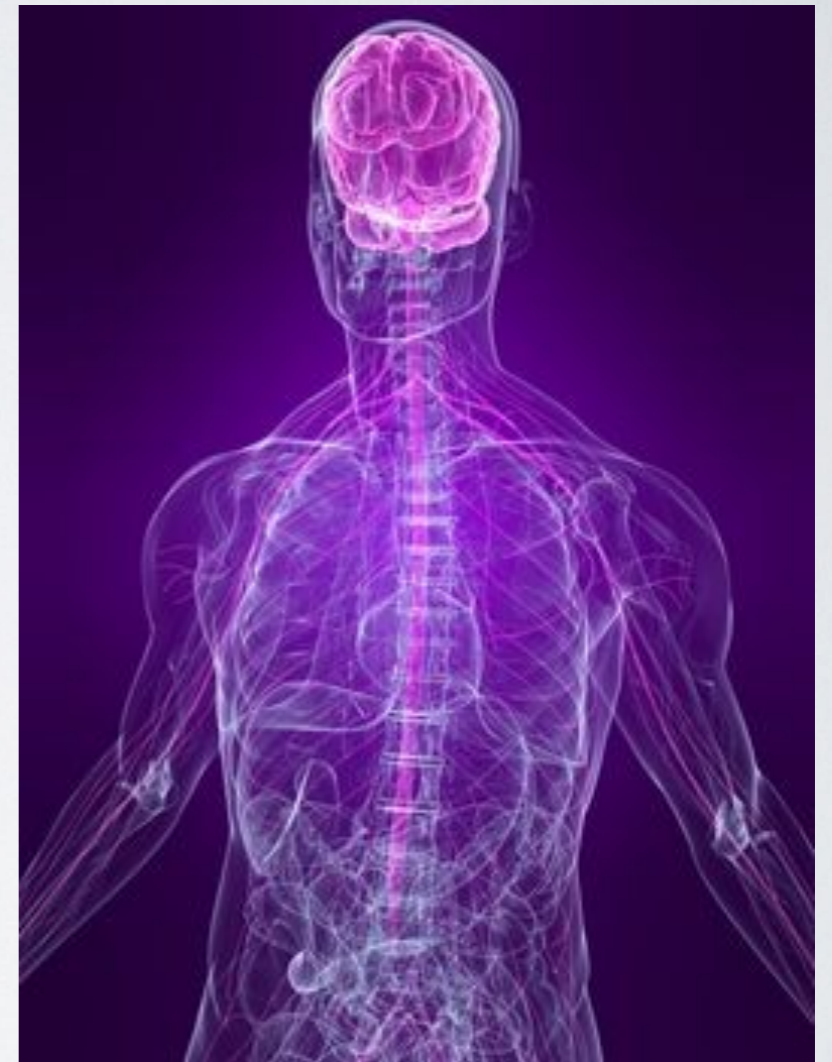
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# ROADMAP

- The Nervous System
- Heart Rate Variability Crash Course
- Optimizing Nutrition
- Optimizing Sleep
- Optimizing Training
- How to Measure

# THE NERVOUS SYSTEM

- Controls **everything** (with the help of hormones, etc.)
- The Autonomic system handles the unconscious processes (and even effects conscious behavior)
- Autonomic contains 2 branches - the Parasympathetic and the Sympathetic



# THE NERVOUS SYSTEM

- Sympathetic is activated in times of stress
- Fight or Flight
- Sacrifice long term to get through the short term
- Flood energy, dilate pupils, slow digestion/peristalsis,  
**increase heart rate**
- All the necessary things for running late to an appointment



# FIGHT OR FLIGHT

or dealing with coworkers...

# THE NERVOUS SYSTEM

- Parasympathetic is activated in times of recovery
- Rest and digest
- Build for the long term
- Conserve energy, constrict pupils, aid digestion, **slows heart rate**
- Makes you grow stronger, faster, healthier

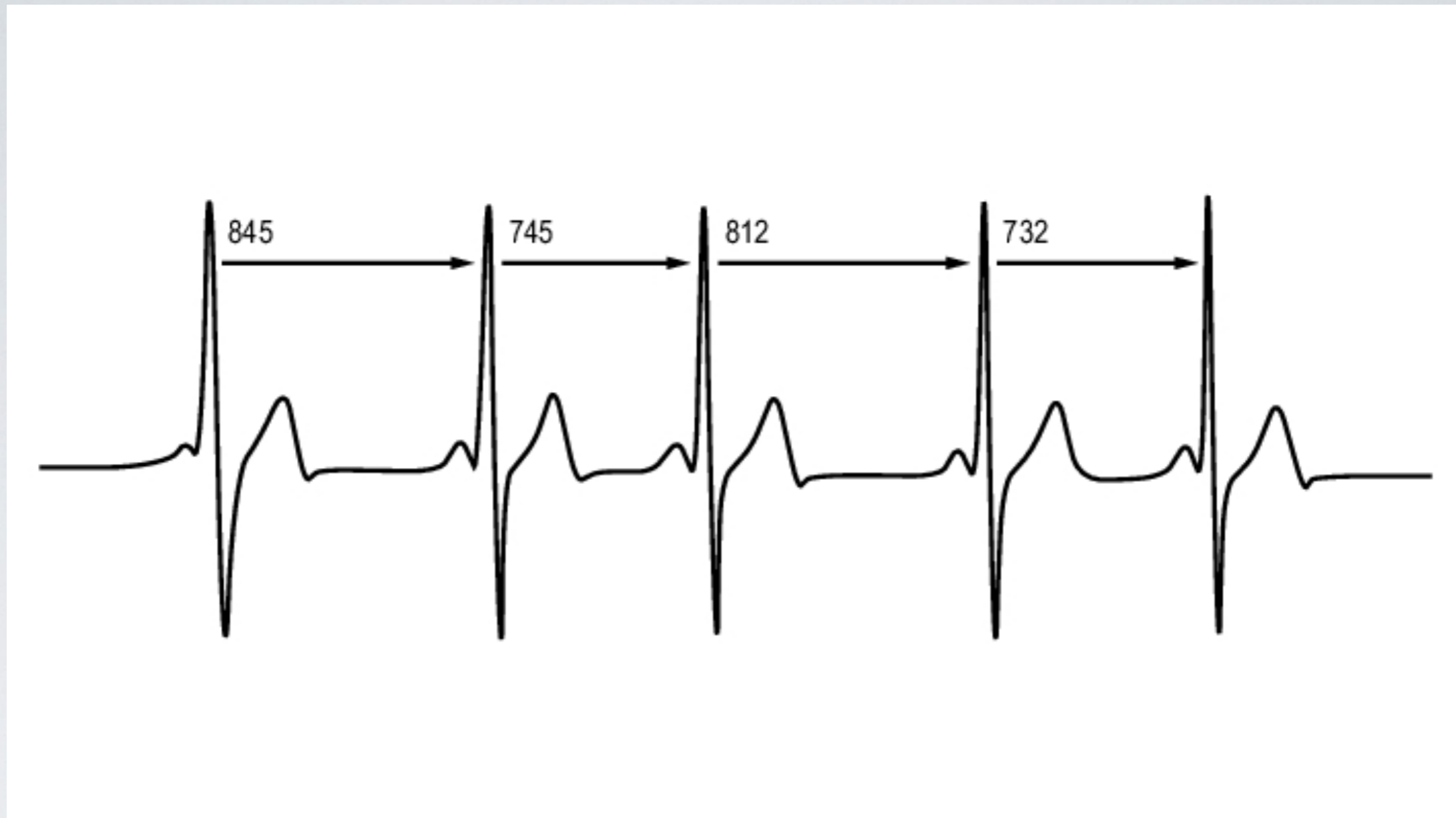
# HRV CRASH COURSE

- Heart Rate Variability taps directly into your Autonomic nervous system
- The heart is not a metronome - it's actually "erratic"
- Every single beat your nervous system is saying "slow down", "speed up" based on feedback from all senses, emotions, etc.
- A healthy nervous system has a balanced but strong push and pull between Sympathetic and Parasympathetic causing high Heart Rate Variability

# HRV CRASH COURSE

- The variations occur between every single heart beat
- Low variability typically means Sympathetic dominance (stress, fight or flight)
- High variability typically means good Parasympathetic activity (low stress, more rest and digest)
- Aim for Sympathetic and Parasympathetic balance
- Most meaningful when compared to **your** personal trends over time





VARIABILITY BETWEEN BEATS

# OPTIMIZING NUTRITION

- What is one of the main goals of Paleo Nutrition?
- Offending foods trigger sympathetic response
- Dr. Coca test in the 50's - raise in Heart Rate after eating as compared to baseline
- Now correlating HRV for better accuracy - organizing comparison with ELISA Act and SpectraCell tests
- **What to do:** Get a baseline on ALP or similar, test individual foods (or whole Carb Nites) with HR and HRV as reintroduced

# OPTIMIZING SLEEP

- You've heard of the studies of lack of sleep compared with alcohol consumption
- Popular recommendations say 7-9 hours, which is it?
- Upon waking is a great time to gauge sleep quality
- Sleep quality has the most direct affect on waking Heart Rate Variability measurements

# OPTIMIZING SLEEP

- Determine sleep quality "via negativa"
- If HRV spikes upwards (parasympathetic) means you are in deep recovery
- If HRV spikes downwards (sympathetic) means your body is under stress (all those Monday morning heart attacks fit here)
- **What to do:** Adjust sleep time, mattress, pillow, use blue blockers, perform deep diaphragmatic breathing prior to bed (prime your Parasympathetic system)

# OPTIMIZING TRAINING

- Popular application of HRV because A) Training is important B) it's fun and C) athletes always try the fringe stuff first
- Recent anecdote:
- Two Hunter-Gatherers were training to overthrow the tribe's alpha male
- Both lifted the same big rock 1000 times over the course of a year
- HG-A lifted it 1000 times in 1 week and took the rest of the year off
- HG-B lifted it a single set of 5 reps four days a week finishing at about a year

# OPTIMIZING TRAINING

- Which approach is better? Is either optimal?
- Heart Rate Variability would tell HG-A when to take a break and recover
- Conversely it would tell HG-B when the stimulus is just not enough
- An experienced trainer can quickly and effectively tailor the workout stimulus to the maximum your body can handle without crossing the line (regardless if the goal is endurance, speed, power, etc.)
- **What to do:** Under proper guidance test different training volume, intensity, etc. and determine effect on recovery

# WHO USES HRV?

- Olympic athletes - training stimulus, load and recovery
- Psychologists - cure psychological issues through guided breathing, meditation, etc.
- Chiropractors - guide structural improvements related to autonomic imbalance
- Doctors - see Dr. Grayson Wheatley Sunday at 1:35pm
- Top pro sports teams - tailor group training to each individual
- Now - anyone

# HOW TO MEASURE

- Devices - from a \$20,000 machine to a \$50 HR Strap
- Baseline - Take about a 3 minute reading in the morning
- Continuous Readings - See how commuting or public speaking affects you
- Time domain (ex. RMSSD) - typically associated with overall HRV "score" - Green - Yellow - Red
- Frequency domain (ex. LF/HF) - gives insight into balance and strength of parasympathetic and sympathetic activity



# WRAP UP

- Heart Rate Variability isn't required to improve health and performance
- Easy, cheap and objectively quantifiable
- Gives visibility of the entire picture of your health and performance
- Individualized by design
- Psychologists curing depression to Olympic athlete training optimization
- When to push it and when to back off