

RECLAIM YOUR BRAIN:

How Big tech, microglia and peptides
can change your ability to think and
focus

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New words for today:

- Microglia
- Peptides
- Surveillance capitalism
- Algorithm

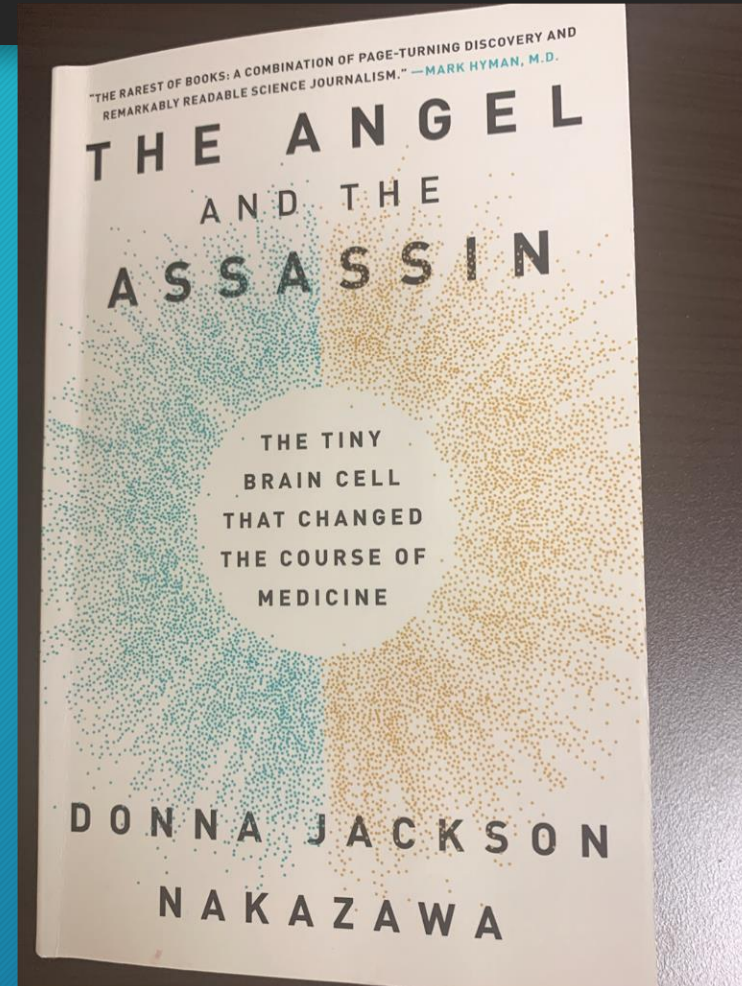
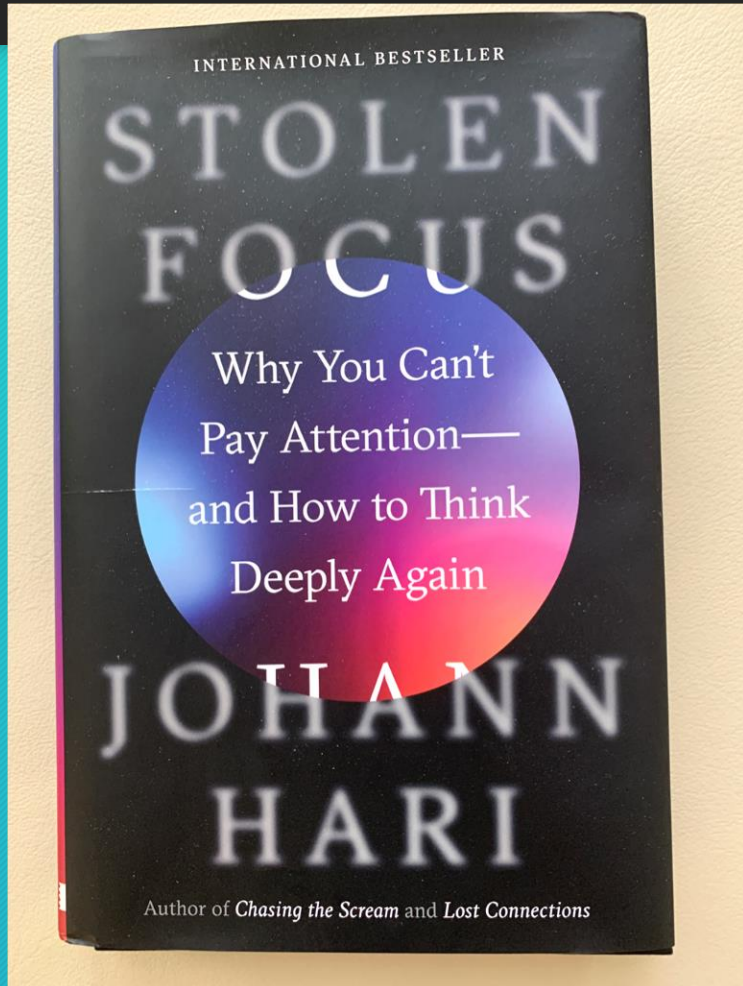
What we all want.....

- Ability to focus, concentrate
- Ability to think deeply
- Ability remember
- Ability to maintain mental agility
- Ability to be creative
- Ability to maintain emotional stability

What gets in our way?

- Aging
- Lack of deep sleep
- Inadequate nutrition
- Environmental toxins
- Inflammation
- Interference of our attention by social media/technology

Best books I have read this year:



First, the bad news

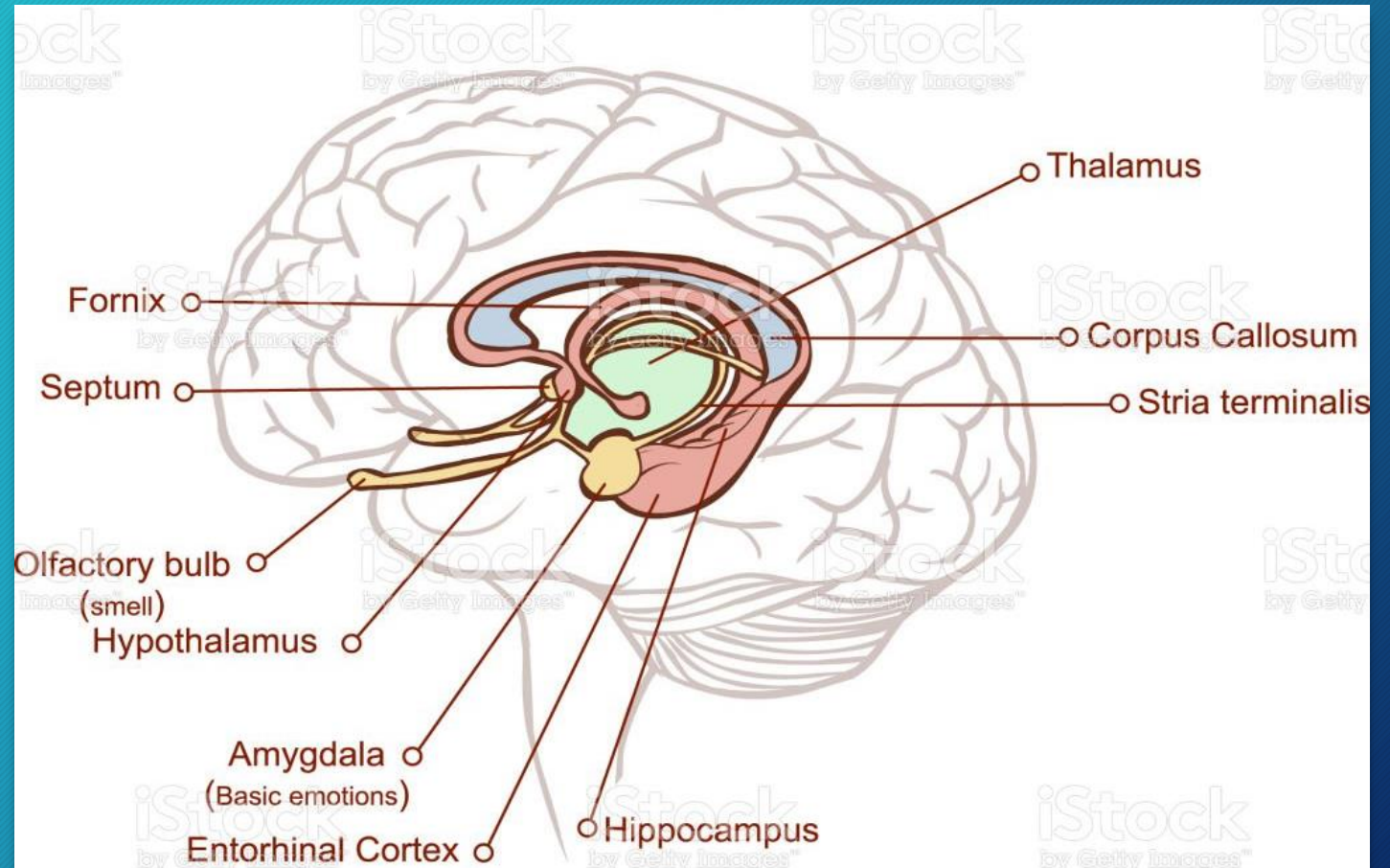
- Big Tech/Social media is hijacking our attention
- Demanding that we keep eyes on our screens as much as possible - to continuously view ads and buy things (*SURVEILLANCE CAPITALISM*)
- Building a profile of us and what we will respond to = *ALGORITHM*
- Using dramatic negative wording: “crisis”, “danger”, ”warning”, “immediately”, ”disturbing” to attract and keep our attention
- Capitalizing on the brain’s preferential attention to negativity (conspiracy, disinformation that is frightening, etc.)

The Limbic System - our primitive brain

AMYGDALA - Seat of emotion- especially to register fear/danger

HIPPOCAMPUS - memory

THALAMUS - regulates sleep/wakefulness; relay station from body to brain; prioritizes attention; regulates behavior



How the activated limbic system affects our health

- Hypervigilance
- Immune activation
- Changes in hypothalamus and hormonal messaging
- Stimulation of chronic disease
- Stimulation of psychological dysfunction
- (ACE study - “Adverse Childhood Experiences”)

Johann Hari's analysis of our stolen focus

- Increase in speed, switching and filtering
- Crippling of our flow states
- Rise in physical and mental exhaustion
- Collapse of sustained reading
- Disruption of mind-wandering
- Rise of technology that can track & manipulate you
- Rise of “cruel optimism”
- Surge in stress and how it is triggering vigilance
- Our deteriorating diets and rising pollution
- Rise in ADHD and our response to it
- Confinement of our children both physically and psychologically

Rise in speed, switching and filtering

- Can a complex idea *really* be communicated in 140 characters (i.e. Twitter)?
- "I am good at multitasking" - NOPE!
- Every time we switch our focus (e.g. from a project to an email alert, from reading or talking to our children to a text alert, from trying to solve a problem to reading a tweet) we lose accuracy, IQ points, creativity and maybe relationships and even life (e.g. distracted driving)

Crippling of our flow states

- Flow is when we are so focused we lose track of time and environment
- We are at our most creative
- We may feel the most peace and accomplishment/satisfaction

Rise in physical and mental exhaustion

- Most Americans are chronically under-rested
- Adults need at least 7-8 hours of good quality sleep nightly
- Besides regenerating energy, sleep is a very active process
 - Dreaming - helps process stressors and improves resiliency
 - Cleaning up debris and unneeded cells in the brain, reducing inflammation
- Using drugs regularly for sleep does not result in the same benefits as natural sleep

Collapse of sustained reading and mind wandering

- **Reading** about things we do not already know enhances our experience
- Reading novels improves empathy - you are simulating a social situation, imagining other people and their circumstances in a deep & complex way (*“fiction is a kind of empathy gym”*)
- Mind wandering can actually improve focus - taking a brain vacation refreshes our mind

Rise of technology that can track and manipulate us

- The apps on smartphones, laptops, iPads, are *designed* to maximally grab and hold our attention
- The designers have incentives (from sellers and advertisers) to keep us glued to the screen to spend money
- What you see everywhere (even Facebook) is selected for you according to an *algorithm* - a formula of what has been determined to keep your eyes on the screen. Nothing is randomly chosen

“Cruel” optimism

- The idea that you, as an individual can fix this
 - Turn your phone off for designated periods during the day/night
 - Silence the alert notifications
 - Delete all the apps you can from your phone
 - Make yourself wait when you have an urge to check your phone
 - Have “office hours” for your email
 - Unsubscribe from email lists
- Cruel, because the causes and solutions are bigger and deeper than an individual

The surge in stress and how it is increasing vigilance

- Remember the limbic system??
- Some radical ideas:
 - reduce the work week to 4 days/week
 - Allow no after-hours work contact

Our deteriorating diets and rising pollution

- “If you put shampoo into a car engine, you’re not going to scratch your head when the thing conks out”
- We are eating pre-cooked and processed food, loaded with preservatives, additives, dyes instead of whole nutritious foods (research correlates ADHD with chemicals, additives, lack of nutrients)
- Toxic environmental chemicals, heavy metals, mold, etc. adversely affect brain function

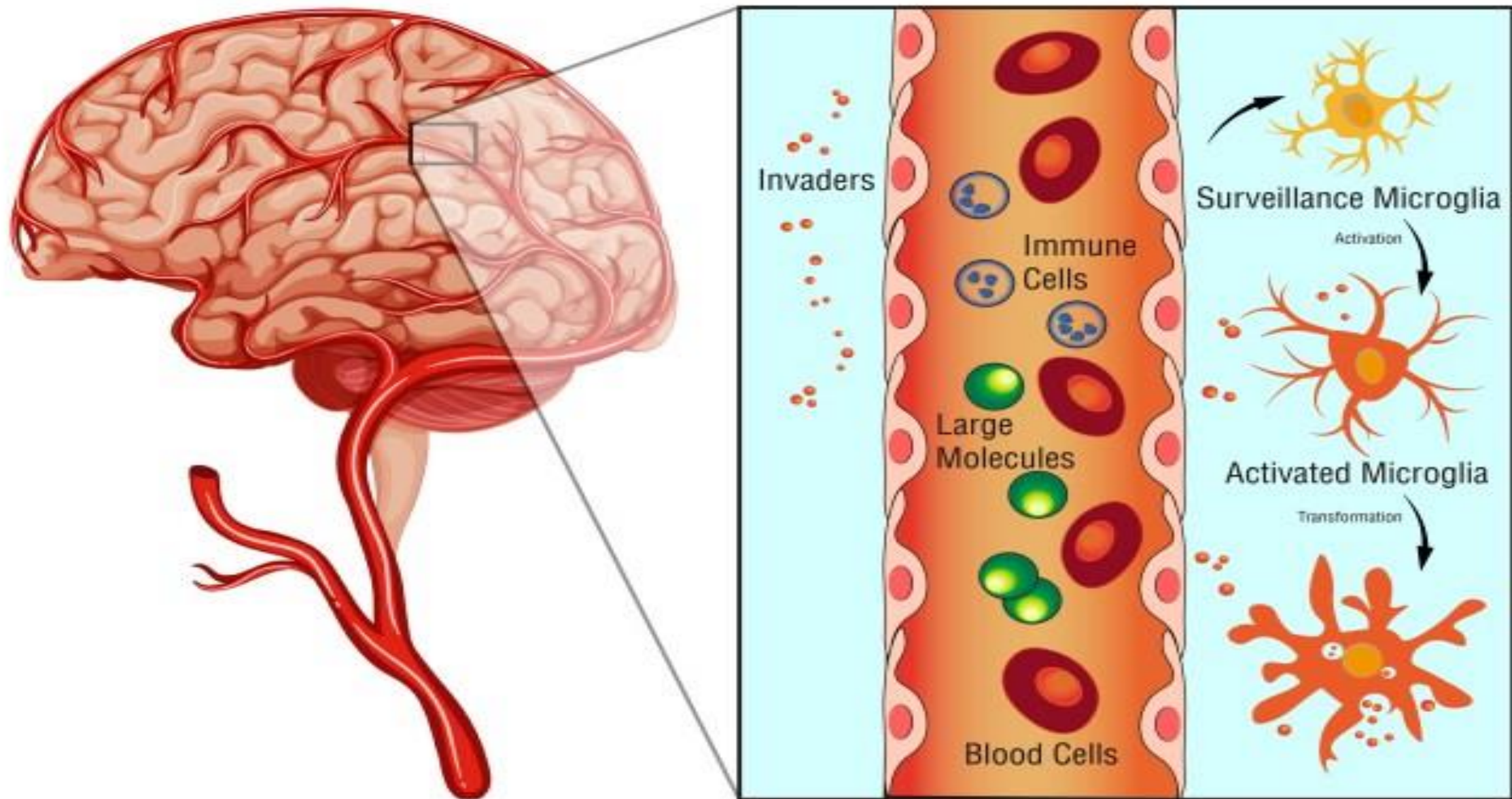
The rise of ADHD and how we are responding to it

- Diagnosis of ADHD soared by 43% between 2003 and 2011 = 13% of all adolescents with this condition
- Most are given stimulant drugs for a “biological” disorder
- Factors that contribute to this rise in ADHD
 - Lack of physical activity and outdoor exposure
 - Too much screen time
 - Parental stress

And now.....*MICROGLIA*

Microglia

- Very small cells in the brain not formerly thought to have much importance (“the brain’s humble trashmen”). Now known to serve as the important immune system regulator in our brain and are 10% of our brain’s cells
- When activated properly, they protect us from infection, inflammation, remove metabolic waste products, amyloid, dead cell material, supply needed nutrients
- When improperly activated they can trigger autoimmune conditions in nervous system and other results of inflammation



Neuroinflammation and psychiatry

- Evidence mounting that depression, anxiety, bipolar disorder, schizophrenia, ADHD, autism, Alzheimer's all may have inflammatory origins
- Microglia appear to have an important role in this inflammation

and what about *PEPTIDES??*

Peptides

Chain of 2-20 amino acids

(polypeptides 20-50 amino acids)

(proteins 50 + amino acids)

Common peptides: insulin

liraglutide (Saxenda, Victoza)

semaglutide (Ozempic, Rybelsus)

Current uses of peptides in medicine

- Glucose regulation
- Weight loss - fat and visceral fat reduction
- Dermatology - wrinkles, scars, loose tissue, elasticity
- Wound healing - burns, surgery
- Improve bone density
- Improve sleep
- Stimulate balance in the immune system

Promising uses of peptides

- Anti-aging (beyond skin)
- Improve vascular and cardiac health, lipid disorders
- Managing pain, reducing inflammation
- Decrease anxiety and depression
- Brain enhancement - stroke, TBI, CTE
 - Reducing amyloid/Alzheimer plaque
 - Improving memory
 - Improving sleep

Now for some *good* news:

- Personal changes we can make regarding technology and life priorities
- Structural/societal changes that could alter surveillance capitalism
- Look for non-pharmaceutical interventions for ADHD, depression, bipolar, anxiety
- Optimize microglia functioning
- Consider peptides
- Intermittent Fasting

Personal priorities

- Turn off cell phones, use timers for social media use and notification
- Refuse to continually switch tasks, or try to multitask
- Take brain breaks, increase mind wandering opportunities
- Get high quality, adequate sleep
- Find your flow
- Work on healthy nutrition, reduce toxins as able
- Exercise regularly
- Read more

Reducing surveillance capitalism - some ideas

- Ban on surveillance capitalism - no tracking and selling of your data
- Have social media charge a small subscription fee instead of selling ads and your info
- Make social media a public good, like a utility, controlled by government
- Abolish the “infinite scroll” - so you can decide if you want to keep looking
- Batch notifications

Non-pharmacological interventions

- Anti-inflammatory diet
- Intermittent fasting/Fasting-mimicking diet (FMD)
- Exercise/ outdoor activity
- Stress modulation/transformation

Optimize microglia functioning

- Reduce inflammation: diet, stress, environmental toxins
- Transcranial Magnetic Stimulation (TMS)
- Neurofeedback
- Light flicker therapy
- Fasting and Fasting Mimicking Diets

Consider peptides

- Be cautious about buying from internet - often have contaminants, incorrect potency, etc.
- Oral forms not as effective (but less expensive) than injectable
- Many options for peptides becoming available, prescriber needs to be trained and experienced for best results