

S-137 Emerging Philosophy of Brain Care

Now we're in the home stretch of this retreat and will lighten up a little bit. This afternoon we learn how to take care of the physical brain that allows us to use all the tools of neuroplasticity we have learned throughout this entire retreat. A key shift in perspective about brain care is consistent with the little and often philosophy:

Shift from Macro Care to Micro Care

Shifting from - or at least balancing - macro care - big picture solutions to reducing stress and avoiding burnout - change jobs, take a vacation, work out at the gym - to micro - in the moment solutions - take a nap, stretch your body, take a self-compassion break.

The macro experiences will certainly work – a splendid vacation, a peaceful hike in nature, a resonant conversation with a good friend – will help rejuvenate us and restore our enthusiasm and confidence about ourselves and our work.

Those big practices, big tools, may take time and money; external resourcing to resource internally.

Micro tools are available more easily, more of the time, and the shift to a micro focus is excellent because micro practices can work more effectively to bring the brain out of any kind of fatigue because they operate precisely how the brain operates – little experiences, in the moment, repeated again and again and again to install in the brain as a resource over time, eventually even becoming a new way of being.

The brain really does learn and rewire best in little micro experiences, processing experiences moment by moment, “little and often.” In other words, it can be better to pause and notice and register a positive pleasant moment, 30 seconds, 6 times a day, than to spend 30 minutes reviewing positive experiences of the week. Both are fine, but the brain changes steadily in repeated increments, and creating these micro tools and micro habits, “little and often” are the best gift of self care we could give ourselves.

I first learned about this shift from macro to micro first from Ashley Bush Davis and her book Simple Self Care for Therapists. You may have experienced benefits of both.

S-138 How to Replenish Human Brain

Exercise-Movement

Sleep-Rest

Nutrition

Learning something new
Laughter-play
Hang out with healthy brains

Exercise, sleep, nutrition, top three for health of physical brain.
The rest are essential for health functioning and continued growth of the brain.

In this session, we'll focus on lifestyle choices we can make that will help us take care of the physical brain and help us harness the neuroplasticity of the brain.

S-139 Exercise-Movement

Macro

A lot of research lately on the importance of vigorous physical exercise for the brain, and for good reason.

Whatever is good for the heart is good for the brain. Exercise is required to maintain health of brain;

Blood carries oxygen and glucose; are fuel

Signals dopamine, serotonin, endorphins - feel good

Exercise as powerful an anti-depressant as Prozac

Exercise is anti-inflammatory (underlying most diseases)

BDNF - brain's growth hormone: new neurons, stronger connections, myelinate faster;

BDNF in hippocampus, memory center, can reverse memory decline in elderly; reverse physical shrinkage of brain; improve memory and integration of functioning overall

(stress hormone cortisol binds to BDNF, why kills brain cells, runaway stress drives depression, disrupts serotonin, dopamine, social interaction)

protects telomeres on ends of chromosomes (like plastic tabs on ends of shoelaces to keep from unraveling); prevents copying errors; protects against all disease

Turns on genes linked to longevity; 2400 twins active and sedentary, active brains are 10 years younger

Any movement (30 min/5 times/week; 20 min/3 times/week.)

Micro -

Christine Carter's better than nothing workout (3 minutes)

Anat Baniel - sitting is the new smoking

Kaiser poster - woman carrying groceries, Life is a gym.

Study of hotel maid; told work was exercise; showed physical benefits of exercise

move once every hour – wake up brain out of fatigue
sense and savor walk

yoga, chi gong – move energy

Feldenkrais, neuro-movement, slow, subtle movement,
wake up, re-wire - re-map brain

S-140 Sleep-Rest

Sleep not just absence of consciousness. Sleep is a different consciousness. (Secret Life of Sleep, Kat Duff). Essential (evolution)

Every function in body is affected by sleep, Affects genes, inflammation, immunity, metabolism, circadian rhythm especially brain. How we cope with stress, how quickly we process information, how organize and store memories

Macro

8 hours - housekeeping, reset nervous system, consolidate learning

Sleep deprivation is catastrophic; 5-6 hours for 1 weeks, same level of cognitive impairment as if legally drunk.

Without sleep, less PFC, less impulse control, doubles recovery from depression

We don't need to become better people; we just need to become better rested - Kelly McGonigal

Two kinds of sleep:

REM-activates SNS-dreams

Slow wave, deep sleep - activates PNS, no dreams, deep peace of enlightenment

Deep non-REM sleep is what is restorative. Children - lots. Adults - 20% of sleep. Over 50 years of age, sometimes 0%

How to get there: sleep hygiene

Reduce stress; reduce stressing; news fast, media diet

Cuddle, resource with OT

Go to bed, get up at same time, even on weekends

Dark, cool, quiet room, only sleep and making love

No caffeine, alcohol after 6pm

Shut down TV/devices one hour before sleep

Yoga nidra - Richard Miller

Micro

Nap - 20 minutes, 2pm-4pm

mini-meditate: stop for 10 breaths, soak in peacefulness of slow, gentle breathing, sense of being present, alive, preciousness of this moment.

take a recess, a mental break,

S-141 Take Mental Breaks

Switch the channel – 3 minutes

focus on thinking about something else – -

Skillful Distraction, positive is good

talk to someone else – relational regulation;
resonant is good

move-walk somewhere else – nature is good

nature stats This is your brain on nature.

S-142 Nutrition

Healthy Mind Cookbook; MIND (Mediterranean-Intervention for Neurodegenerative Disorders) slow the build-up of toxic materials that cripple memory and critical thinking. Vegetables, leafy greens, nuts, berries, beans, whole grains, fish, poultry, olive oil, one glass of red wine/day. Omega-3's in fish single nutrient most associated with brain health

Controversy and contradictions - Michael Pollan - eat real food, mostly plants, not very much;

macro – eat – fuel to body and brain

eat healthy! More protein (neurotransmitters), more water, (flushes toxins, keeps cells alive) less sugar, less carbs (Perlmutter Grain Brain neurotoxins), less calories, less caffeine/alcohol (timing and volume); ironic, brain is 60% fat, do need fat. Do need Omega-3 supplements, not enough in diet anymore. Microbiome 100 trillion microbes in human body; extract nutrients, protect immune system, enhance brain function (processed food, antibiotics)

so sorry! Harm reduction; high sugar diets can prompt runaway inflammation and ultimately impair brain function; obesity directly impacts cognitive functioning and longevity; SAM Alzheimers = Diabetes III. Sharpagain.org

micro – savor what you are eating, eat a raisin meditation, eat one meal a day without doing something else at the same time (may be macro)

S-143 Learn Something New - Curiosity

Macro: (requires **integration** of different brain functions)

learn to play a musical instrument (one neural cluster in auditory cortex dedicated to processing music)

learn to speak a foreign language

these two reduce risk of Alzheimer's by 50%

MUSIC:

heightens positive emotions through dopamine

reduces stress - heart rate and cortisol levels (singing to antidote road rage)

can be more powerful than medication in recovering from surgery, reduces pain, increases immunity

Alive Inside documentary

According to studies done by Tracy Shors, a neuroscientist at Rutgers University, “Learning rescues these new cells from death.”

“A colossal number of brain cells, hundreds to thousands, are born each day but most die within weeks unless the brain is forced to learn something new. Then more neurons revive and sprout connections to their brethren. The harder the task, the more survivors.

learn to play juggle or play chess

try a new recipe

drive a new way to work

visit a new city on the weekend

Micro: Curiosity

learn a new poem, new quote, flower, bird each day
 not just facts but enthusiasm about facts
 improves memory; increases longevity, 5 years

S-144 Laughter-Play

Physiological mechanism; reduce stress, increase
 catecholamines, (dopamine and norepinephrine) mind brighter
 Play stretches imagination, comfort with unknown, uncertainty,
 creativity rejuvenates brain; longevity and memory

macro – have a good time at a family gathering or dinner with
 friends or a birthday party

dinner conversation; tell family stories/lore: best predictor
 of academic success; more than time in school, time doing
 homework, time in sports, time in church, across SES

schedule a play date – creative, cultural event with
 friends – or a silly date – swimming with your grandchildren

join a laughing yoga class; acting; improv

micro – watch a 4-minute video on Happify Daily

Greater Good Science Center

S-145 Create With Your Hands

- Knitting, woodworking, quilting
- Deep brain stimulation; meta-sensory cortex
- Flow state reduces stress
- Focus reduces worry, rumination
- Creativity evokes parallel psychological well-being

S-146 Hang out with healthy brains

Social interaction essential. For many reasons, today 1/2 American have zero close friends. People who experience rejection and neglect over 5 years time more likely to have cognitive impairment

Macro: participate in a conference, a support group, book club, a choir, a cycling group

[Dan Siegel: could stay home and read the book]

Do a gratitude practice at family dinners

Micro:

Send text or email of gratitude, acknowledgement, appreciation to friend or co-worker; good business management now; don't wait until end of year review; send appreciation every day; make it 80% of someone's review.

BREAK

See if you can do some practice of brain care: exercise/movement; take a mental break; take a mini-nap or a mini-meditation; hang out with some healthy brains.

S-147 When the Brain Gets Over-Stimulated: The Impact of Digital Technology on Neuroplasticity

There is both an upside and a downside to our increasing dependence on our digital devices for communicating with our fellow human beings - texting, emailing, facebooking, tweeting on the extended brains of our smartphones and computers.

We can text to schedule a meeting while we're walking down the hall, we can stay in touch with family and friends when we or they are far away, we can send vacation photos or birthday photos or adopting a new puppy photos in the real time of those precious moments, we can find a restaurant or gas station or hotel or hospital while we're driving to it, we can google statistics on the use of our devices or look up journal articles or download a meditation in a matter of seconds.

But there is a downside to our dependence on digital technology that researchers are beginning to pay attention to, collect data about, analyze the implications of, and communicate those implications and raise questions for our larger society in books, magazines, journal articles.

When I was a young girl, if I behaved myself while sitting in the dentist's chair, I would get a lollipop. This was before researchers discovered the causal link between sugar-plaque-tooth decay. It used to be so cool to smoke cigarettes, before researchers discovered the causal links between smoking-lung cancer and teeth falling out of the mouth.

I want to review some of the important research findings about the impact of the social-digital revolution on relationships and suggest that the over-use of our devices may be a game-changer of neuroplasticity as well.

1. First we look at 5 key impacts of digital technology on time, attention, relationships, emotions and empathy, and self-awareness.

S-148 Time

You can easily google the latest stats on how many people are on their devices, how often and when.

For instance:

* American adults spend 33 hours/week on devices - that does include computers for work - 30% of their waking time. They check their cell phones on average every 6.5 minutes

* Teenagers, now called screenagers, spend 7.5 hours a day in front of a screen, almost 50% of the time they are awake, more time than on any other activity except sleeping. One quarter of American teenagers are on a device within 5 minutes of waking up.

* Children 2-6 years of age spend 2-4 hours/day on screens.

* in 2016, half a million people died in car accidents attributed to driving while texting

And while we are doing all of this connecting and communicating, what are we NOT doing? Young children not playing with other dis on the playground, or riding bikes or playing ball or playing dress-up or playing peekaboo. Older children not playing sports or camping or dancing or reading a book. (We retain more of what we read when we read a physical book that has weight and heft and real pages to turn, using our kinesthetic learning as well as cognitive. Students retain more when they take notes by long-hand than when they take notes on a laptop.)

Adults not playing with their children or playing with each other, not daydreaming, not soul searching, or working on projects that demand depth or concentration, not having the meaningful conversations that also require depth and concentration.

It's true that word processing on a computer or researching on the internet can save us a lot of time but we also have to ask ourselves and our clients, what else are we/they using our/their precious time for?

[Can use apps for meditating; can listen to podcasts of teachers from all around the world.]

S-149 Attention

Cal Newport, professor of computer science Georgetown University TED talk quit social media, book Deep Work. Brain not wired for rapid and repeated shifting of attention. Takes metabolic energy to shift, every shift, email text tweet back to a work project or answer question from our kid as you respond to a co-workers' email. After 60-90 minutes of that, brain goes into fatigue, brain fog. Can't think clearly or creatively any more. With each shift in multi-task mode, there's decreased performance and an increase in errors. Can't focus for 3-4 hours on a project. Reduction in capacity to concentrate can be

permanent. Lose capacity to distinguish irrelevant from relevant.

[training in mindfulness, focused attention, could literally be the best counter-point to loss of attention and concentration.]

Victoria Dunckley, child psychiatrist in Los Angeles, noticed an upswing in her patients' diagnoses of ADHD, bi-polar, autism, etc. in the last ten years that coincided with the increase in our culture of time spent on electronic screens. She hypothesized that still developing and vulnerable brains of children and teenagers cannot process the overstimulation of digital and media bombardment. Young brains have more difficulty modulating their emotions and arousal levels when stressed. So she developed a 4-week digital fast protocol for families, no devices anywhere in the family for a month, and noticed among her 500 patients in her research study a 50% decrease in symptoms across all psychiatric and diagnostic categories. [Reset Your Child's Brain]

We may have some protection against such a sharp decrease in focused attention, we do concentrate attention on client hour at a time, but I notice writing second book now, on days designated for writing I write longhand) I cannot go on email first thing in the morning or attention becomes fragmented, easily distractible, not sustained creative flow. may turn on computer to edit my writing later, but I have to protect blocks of time from interruption or they disintegrate.

S-150 Resonant Connections - Resonant Relationships

Yes, Facebook, Face time skype allow us to stay in touch with people far away or rediscover people we knew long ago. People can feel much more connected, communicate more easily, more efficiently, with a text or a tweet.

But Sherry Turkle, professor of psychology at MIT and early observer of the impact of digital technology on relationships, finds that the style of relating to people now is much more superficial, what she calls pancake style, rather than cathedral style of perhaps fewer but deeper conversations with people. Illusions of companionship without demands of friendship. We all have our preferences for how we want to connect and communicate with others, but the shortcut handle of 1,000 friends on Facebook, but no real close friends is really becoming truer and truer for more and more people.

I taught a workshop at Kripalu last year, all clinicians or academics or professionals of some kind and I mentioned statistics I had seen in Scientific American Mind while traveling there, 50% of American adults report having zero close friends, down from 2 close friends just 5 years ago. I shared that, and two people came up to me, one a psychiatrist, the other a dietician, to confide in me that they were part of that 50%. That was true for them. No longer any close friends.

This is particularly disturbing among young people who spend 7 hours every day texting and tweeting but who feel more lonely and isolated than before or even feel badly about themselves when they compare themselves to other people's posts on Facebook, all very carefully crafted and polished for public consumption. Young people don't see the doubts and angst of other people like them; it all looks like MTV. Cyber-bullying is a tragic extension of that.

Education psychologist Catherine Steiner-Adair addresses this in *The Big Disconnect*, young children do feel the pain of all the adults in their life being on their devices, no time to play or eat or read together. The child feels less important to mommy than the phone, which is impossible for a very young brain to comprehend but it does process the feelings of rejection and neglect. (And parents do struggle with guilt and heartache, too, no question.)

S-151 Decreased Empathy

This can lead to what Sherry Turkle and other researchers have noted, less capacity for empathy, less capacity to tolerate messy emotions, less interest in other people's feelings, less compassion for other people's feelings. People choosing protective distance over vulnerable closeness. So much of what we try to do in therapy is help clients get in touch with their feelings, tolerate and accept and learn to manage difficult

feelings, learn to use their brains and pick up the emotional signals of others accurately, assess safety-comfort or danger-toxicity in relationship. Too much time on devices, clients lose this capacity, young people may not even know it's a capacity that's missing.

[positive pro-social emotions may be best counter-point to growing reluctance/capacity to be with and work with messy emotions, ours or other people's.]

S-152 Less self-awareness

Unfortunately, the ability to even be aware of what capacities might be diminishing is also diminishing. People are becoming less comfortable with solitude, less tolerant of boredom, less able to simply reflect, introspect, daydream. More superficial in relationship to others but also to self. So much stimulation every nanosecond, hardly any time left for brain to consolidate all the learning of the day into long-term memory. We hope therapy is a sanctuary where this kind of self-inquiry and self-awareness is prized and protected. But I'm curious to hear what you experience in your own session in this regard.

[Mindfulness training, open spacious awareness, may increase skill, interest, and capacity to be in default mode network of brain.]

S-153 **Assessment of Addiction**

I used to say maybe; research is saying yes. Dopamine is common neurobiological pathway for all addictions, substance or behavioral.

The brain does release dopamine, the neurotransmitter of both anticipation and pleasure and reward, whenever it hears the ping of email or phone call or text. There is a rush of pleasure, “I’m connected! I’m wanted! I’m loved!” That’s not just psychological; that’s neurological. You can see the compulsion to answer, to find out, and get that instant gratification.

And certainly computer scientists do know that video games and social media and apps are *designed* to be addicting. Attention engineers spend billions of dollar every year, changing the algorithms of these apps, colors, fonts, speed, wording, every few seconds to deliberately keep us wanting more. To reward the user’s attention while providing more and more stimulation and novelty to keep the user’s brain hooked. This is not benign.

And of course, as with any addiction, the substance or activity helps us avoid some other pain - loneliness, social awkwardness, boredom. As people spend more time communication through emojis and less time connecting with people’s emotions in satisfying, nourishing ways we actually lose our capacities to find that nourishment in deep connection and have the

willingness to hang in there through the messy emotions and painful ruptures to get to the repair and the resonance again.

Discussion, 3 people, 5 minutes each.

What are you noticing? Self, family, friends, colleagues, clients.

What are you most concerned about?

Large group de-briefing

S-154 Solutions

- Digital detox to rewire brain
- Harm reduction
 - Designated times, places to use devices
- Cultivate many pleasurable activities to replace digital dependence

S-155 Brain Care is Self Care

- Choose one practice of brain care
- Practice every day for 30 days
- Reflect on difference in functioning, in resilience and well-being, in sense of self

Discuss in small groups.

Q&A

S-156 image of happy woman

Closing meditation