The Mental Edge

Chess Grand Masters

https://www.espn.com/espn/story/_/id/27593253/why-grandmasters-magnus-carlsen-fabiano-caruana-lose-weight-playing-chess

I think this article says a lot. If you compare how the top chess players in the world prepare for tournaments compared to how bridge players do; we're clearly light years behind. My takeaways:

- "At 5-foot-6, Caruana has a lean frame, his legs angular and toned. He also has a packed schedule for the day: a 5-mile run, an hour of tennis, half an hour of basketball and at least an hour of swimming"
- "As he's jogging, it's easy to mistake him for a soccer player. But he is not. This body he has put together is not an accident. Caruana is, in fact, an American grandmaster in chess, the No. 2 player in the world. His training partner, Chirila? A Romanian grandmaster. And they're doing it all to prepare for the physical demands of ... chess? Yes, chess.
- "The top chess Grand Masters can burn the same amount of calories in 2 hours as Roger Federer does in an hour of singles tennis, with stress responses on par with elite athletes in competition"
- "Carlsen had relied on a mix of half orange juice, half water for an energy boost since he was a child. But now, in his late 20s, his body was no longer breaking down the sugar as quickly, leading to sugar crashes. The nutritionists suggested that he instead drink a mixture of chocolate milk and plain milk, which contained far lower levels of sugar but would also supplement his body with calcium, potassium and protein"
- "Carlsen chews gum during games to try to increase brain function without losing energy; he taps his legs rhythmically to keep his brain and body alert between moves"
- "Before big tournaments, Caruana usually goes into detox mode. Last year he gave up alcohol for three months before the world championship. This time, he has chosen sugar"

Magnus on his 2021 World Championship prep:

“Most of it is about my theoretical and physical preparation”

“I am at least ready physically”

Michael Phelps

“Routine, in an intelligent man, is a sign of ambition” – W. H. Auden

Michael Phelps had the same routine for years: Show up 2 hours before a race, stretch, swim specific practice swims, sit on massage table, no words to coach after practice, 45 minutes pre-race; suit up, 30 minutes; get in the warm up pool. 10 minutes; sit. Race called; walk to blocks. 2 stretches. Left leg first. Dry the block. Loose arms. Go

Watching the video tape: Phelps would envisage himself running the perfect race the entire way through; from the top of the blocks, each stroke, until he emerged victorious from the pool. Every single day when he woke up, and every single day before he went to bed, for years. When his coach wanted to challenge him in practice; he’d tell him to “Put in the video tape”. Everything always went as he’d always planned, because he’d practised it and visualised it every day for years. Winning was just going through the daily motion.

Josh Waitzkin – The Art of Learning

https://theartoflearningproject.org/

Resilience

Process Before Results

“The key to pursuing excellence is to embrace an organic, long term learning process… **Growth comes at the expense of previous comfort**”

Investment in Loss

“The fact of the matter is that there will be nothing learned from any challenge in which we don’t try our hardest. **Growth comes at the point of resistance**. We learn by pushing ourselves and finding what really lies at the outer reaches of our abilities”

“In my experience, successful people shoot for the stars, put their hearts on the line in every battle, and ultimately discover that the lessons learned from the pursuit of excellence mean much more than the immediate trophies and glory. **In the long run, painful losses may prove much more valuable than wins**”

Beginner’s Mind

“Children learning to crawl approach their surroundings with unstoppable curiosity and an eager, joyful sense of adventure…What propels them forward is a general delight in all that is unfamiliar; an ability to be intrigued by the mundane; and a desire to probe the most minute details along their path, over and over again. **The best learning results from this kind of openness**—from being fully awake to the experience at hand, receptive to gaining even tiny insights from it and to refining one’s method in response”

Using Adversity

“When uncomfortable, **my instinct is not to avoid the discomfort** but to become at peace with it… My instinct is always to seek out challenges as opposed to avoiding them”

<u>Peak Performance</u>

Presence

“We enrich our experience of life by attuning ourselves to its subtlest aspects and delving deeply into its details. One cannot excel at a pursuit nor experience its delights by bringing a skimming approach to it or handling related responsibilities in a shallow manner. **To excel, our perspective must be that everything is on the line at all times and we must maximise each and every moment’s potential**…The more present we are at practice, the more present we will be in competition, in the boardroom, at

the exam, the operating table, the big stage. If we have any hope of attaining excellence, let alone showing what we've got under pressure, we have to be prepared by a lifestyle of reinforcement. **Presence must be like breathing**"

The Downward Spiral

"**When we cling to the troubling emotions that result from an obstacle or loss, we abandon the present for the past**. In short order, we find ourselves using our personal resources to wage an internal war instead of using them to handle what is going on now and move forward...**In not being awake to the present, we magnify the original loss**, allowing it to produce a ripple effect of additional problems....We must stay cool under fire and fully in the present to glean the most we can from every experience and achieve success".

Stress and Recovery

"By alternating cycles of rest with activities that push us to the outer limits of our abilities, we strengthen the bond between mind and body in a way that fuels peak ability and high-level learning and performance. Effective methods include meditation, stretching, deep breathing, play, even washing one's face. **By conditioning ourselves to move fluidly between intervals of tension and serenity, it becomes possible to condense the duration of recovery time needed for learning and exertion**; we become more able to rally our powers of intuition and creativity and call on our knowledge and skills at a moment's notice"

Breaking Down the Walls

"It is vital that we unearth the psychological patterns and emotional responses that get in the way of our successes and **take our weaknesses on.** By bringing awareness to the threads connecting mind and action, we can break down the walls between the disparate parts of our lives that we have mentally built up and take corrective steps to transform all our weaknesses into strengths"

Intuition: Developing the Internal Compass

"To truly excel, we must cultivate access to intuition—the bridge between the conscious and unconscious mind that is the well-spring of our creativity. We can

achieve this access by alternating deep and repetitive study at the highest possible level with periods of rest and relaxation. When we connect with our intuition, we are calling into service a part of our brain that can perceive the interconnections between vast amounts of technical knowledge and instantaneously harmonise them into a single creative solution"

"**Much of what separates the great from the very good is deep presence, relaxation of the conscious mind, which allows the unconscious to flow unhindered.**" – Primed Mind App

Learning

https://www.youtube.com/watch?v=nwSkFq4tyC0

To optimise learning we want to be using 90-minute learning intervals followed by 20-minute rest periods (non-sleep deep rest includes yoga/meditation/hypnosis).

My Formula

Pre-tournament (minimum 2-weeks prior)

- No alcohol and eating healthy (avoid simple carbs).
- Blue berries + lions mane every morning (about 1 month before a tournament)
- Physical training 5 days a week to come into the tournament as fit as possible.
- Extended periods of single focus. My standard is meditation for 15 minutes a day and then read my book straight afterwards for about an hour total.
- Begin to regulate my sleeping closer to whatever times it will need to be on for the tournament.
- Stay away from smartphones and social media – they reduce your attention span. **This has the single biggest effect on my ability to focus**

- Whatever system and personal bridge prep I feel like I need, usually system work and declarer play books.

Pre-Bridge

- Waking up at least 2-2.5 hours before bridge.
- Start with a reasonably big blueberry breakfast and then go out into the sun (direct sunlight in eyes) for a while.
- Moderate cardio.
- Meditation – either regular or Primed Mind. I often couple this with a breathing exercise just before bridge starts.

Mid Bridge

- Eating a reasonably small lunch, ideally low carb (protein bars + occasional tyrosine). More sunlight + mild exercise at lunch – like a walk. Lunch time green tea if needed. Avoid all simple carbs; fruit (blueberries) can help before the last match

The Science

Sun

https://blogs.sciencemag.org/pipeline/archives/2018/10/12/sunlight-and-the-brain

- *"Because GLU plays multiple roles in the CNS, including protein biosynthesis at the amino acid level, disposal of excess or waste nitrogen, and signal transduction between neurons as the most abundant excitatory neurotransmitter, the UV-activated intracellular UCA-GLU metabolic pathway in neurons is likely to be involved in sunbathing-related neurological conditions in addition to* ***learning and memory, such as mood improvement, addiction, cognition, and brain development****"*

Primed Mind

Meditation, Hypnotherapy + Mindset coaching. There have been no studies on the app, but it is huge in the poker community and from experience this has been massive for me. I'd suggest going into "play and compete", then "sport", and going through the **"winning mindset" course**. All the poker related stuff can be used for bridge too imo. I mostly just use the daily **"find your focus"** before bridge every day.

https://academic.oup.com/cercor/article/27/8/4083/3056452

- "Research from Stanford has shown that hypnosis changes the way blood flows to different areas of the brain. **Patients who are hypnotised are better able to focus on a single task without worrying about their surroundings**"

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4263011/

- Physical limits are set in the brain – smiling faces cause you to endure 12% longer

Self-talk

https://www.ncbi.nlm.nih.gov/pubmed/27580154

- "In the last few years, though, several studies have shown under lab conditions that learning to replace negative self-talk ("This hurts so much! I can't keep this pace going!") with positive self-talk ("You're ready for this. Keep pushing!") really works. **In one study, it improved cycling endurance from 8 minutes to 11 minutes—and, more intriguingly, it enabled the cyclists to push their core temperature a half-degree higher**. Changing their internal monologue allowed them to dig deeper into their physiological reserves"

Meditation

https://www.washingtonpost.com/news/inspired-life/wp/2015/05/26/harvard-neuroscientist-meditation-not-only-reduces-stress-it-literally-changes-your-brain/?noredirect=on

Effects of meditation on the brain:

- "The primary difference, we found in the **posterior cingulate, which is involved in mind wandering, and self-relevance"**
- **"The left hippocampus, which assists in learning, cognition, memory and emotional regulation"**
- **"The temporo parietal junction, or TPJ, which is associated with perspective taking, empathy and compassion"**
- "An area of the brain stem called the **Pons, where a lot of regulatory neurotransmitters are produced**"
- "The **amygdala, the fight or flight part of the brain which is important for anxiety, fear and stress** in general. That area got smaller in the group that went through the mindfulness-based stress reduction program"

Morning Exercise

https://www.runnersworld.com/training/a20834967/exercises-instant-brain-boost/

- "These are all good long-term reasons to stick with an exercise routine. What's less well appreciated is that exercise also has some more or less instant brain benefits. Aside from making you feel energised and lifting your mood, **going for a run will boost your performance on certain cognitive tests**"
- "Cycling at 30 percent of VO2max really is very easy, equivalent to a brisk walk. Going a little harder or longer enhances the benefits, at least for the range of workouts studied here. But the basic message is**: Get up, get outside, and move around a bit, and you will be measurably sharper when you return to your desk**"

https://www.ncbi.nlm.nih.gov/pubmed/21722657

- “There is a compound called Brain Derived Neurotrophic Factor, or BDNF, which is a protein that acts on neurons in your central nervous system (CNS) and peripheral nervous system (PNS) to help your existing neurons survive and thrive and also to encourage the growth of new neurons and neuronal connections (also known as “synapses”). **Research has shown that exercise, and specifically aerobic exercise, can significantly enhance secretion of BDNF** (6)….Unfortunately, weight training stimulates the production of growth factors in the muscles that stay in the muscles and aren’t transported to the brain”

https://bengreenfieldfitness.com/article/brain-articles/how-to-increase-your-brain-power/

- *“So how can you implement exercise to make you smarter?* I recommend fitting in an aerobic 20–45-minute run, bike ride, or other bout of cardio on the morning of any day in which you have high intellectual demands**. It doesn’t have to be hard or make your legs, arms, or lungs burn. Just do enough to get your heart beating and your blood flowing** (about a 4-6 on a 1-10 difficulty scale). In this case, harder is not better, and could actually leave you excessively fatigued. In addition, excess cortisol has actually been shown to reduce BDNF”

Meals

https://www.researchgate.net/publication/265106735_6_The_Acute_Effects_of_Meals_on_Cognitive_Performance

- “With respect to meal size, children displayed greater improvements on measures of creativity, physical endurance, and mathematical ability when they received a **high-energy breakfast as compared to a low-energy breakfast** (Wyon et al., 1997). In contrast, other studies have suggested that **a large lunch is associated with a greater decline in cognitive performance in the afternoon than is a small meal**”

- “In a study examining the effects of the carbohydrate-to-protein ratio in a morning meal on cognitive performance in younger adults, Fischer et al. (2002) found that **a protein-rich or a balanced meal resulted in better cognitive performance than a carbohydrate-rich meal**.

- “Several studies looking at the effects of carbohydrate-rich meals compared to protein-rich meals have found similar results: **a carbohydrate-rich meal increased drowsiness and calmness compared to a protein-rich meal** (Spring et al., 1987)”

- Simple carbs (sugar, juice, white bread, pasta, chips) spike blood glucose faster as they are easier to break down, leading to drowsiness. We should prefer complex carbs (fruit, whole grains, veggies, beans) as we will have a more sustained

Sleep

https://thesleepdoctor.com/2017/11/15/truth-alcohol-sleep/

- “Sleep and circadian rhythm disruption from alcohol also contribute to next-day tiredness, fatigue, irritability, and difficulty concentrating. Even if it doesn’t present as a full-fledged hangover, **alcohol-related sleep loss negatively affects mood and performance**”

https://www.youtube.com/watch?v=erBJuxVR7IE

- **Peak brain function – 6 hours after waking up**
- Blue Light in the morning, orange light at night
- FAST – 10-14 hours

https://hbr.org/2006/10/sleep-deficit-the-performance-killer

https://www.livestrong.com/article/530662-does-eating-carbs-make-you-sleepy/

- Simple carbs + unhealthy eating negatively impact sleep quality

Jet Lag

https://www.timeshifter.com/the-science-of-jet-lag

- App used to reduce the effects of jet lag – Time shifter. Max light in eyes at wakeful times (before 9am!) and **minimum (orange)** light around sleep times. Get some sunlight around sunset.
- High protein, low carb meals +tyrosine (promotes wakefulness) in the morning and high carb, low protein at night (promotes sleep)

Multi-Tasking

https://www.talentsmarteq.com/articles/Multitasking-Damages-Your-Brain-and-Your-Career,-New-Studies-Suggest-2102500909-p-1.html/

- "researchers found that **people who are regularly bombarded with several streams of electronic information cannot pay attention**, recall information, or switch from one job to another as well as those who complete one task at a time"
- "they found that **heavy multitaskers—those who multitask a lot and feel that it boosts their performance—were actually *worse* at multitasking than those who like to do a single thing at a time**. The frequent multitaskers performed worse because they had more trouble organising their thoughts and filtering out irrelevant information, and they were *slower* at switching from one task to another"
- "Research also shows that, in addition to slowing you down, **multitasking lowers your IQ**. A study at the University of London found that participants who multitasked during cognitive tasks experienced IQ score declines that were

similar to what they'd expect if they had smoked marijuana or stayed up all night"

Cold Showers

https://www.youtube.com/watch?v=XaLd5w6zF7A

- Coldest possible setting – as long as possible (20 seconds-2 minutes). 10-15 minutes per week total – Ideally after learning
- **Increases levels of norepinephrine in brain; associated with vigilance, attention, focus and mood** (long lasting dopamine), increased metabolism (burns calories), builds mental resilience
- **Choose 15 minutes zone 2 cardio over 15-minute meditation for mental tasks**
- **Meditate after learning** - increases neuroplasticity, memory etc

Optimal Learning

https://www.nature.com/articles/s41467-019-12552-4

https://hubermanlab.com/teach-and-learn-better-with-a-neuroplasticity-super-protocol/

- 85% rule: want to be making errors about 15% of the time
- Spike adrenaline after learning – Alpha GPC/Caffeine/Cold Showers
- Include 10 second meditative gaps roughly every 2 minutes
- Limit sessions to 90 minutes
- Post learning incorporate NSDR (meditation or Reveri app)
- Exercise for memory – Huberman #72

Goal Setting

https://www.youtube.com/watch?v=t1F7EEGPQwo

- Visual focus on a goal line achieves goal with 17% less effort + 23% faster

Nootropics

Blueberries

https://www.medicalnewstoday.com/articles/a-daily-dose-of-blueberries-could-improve-cognitive-and-cardiovascular-health#178-grams-of-blueberries-a-day

- Improves memory and general cognition

Creatine

https://www.healthline.com/nutrition/10-benefits-of-creatine#safe-and-easy

- Basically just a super supplement - should take this every day

Tyrosine

- Helps your brain work under stress

https://examine.com/supplements/l-tyrosine/

L-theanine + caffeine

https://misiahb.medium.com/how-l-theanine-will-change-your-morning-coffee-forever-9768a4f9ceea

- Caffeine and L-Theanine in combination have been researched and proven to boost concentration, attention, and energy while reducing anxiety. Green tea is a great source of both.

Nicotine

https://bengreenfieldfitness.com/article/brain-articles/ultimate-guide-nootropics-smart-drugs-psychedelics/

- Nicotine has been shown to improve working memory, and research has also demonstrated that oral consumption of nicotine enhances memory consolidation in perceptual learning.
- Because nicotine can be easily abused and has high addictive potential, when using nicotine for cognitive enhancement, you must be precise with dosage and conscious of the amount you use. Studies have shown that moderate doses of nicotine typically produce cognitive enhancement, but very high doses can actually impair cognitive performance. A moderate dose would look something like 2-4 milligrams administered over 20-30 minutes, a dose easily available in the form of nicotine gum or spray.

Recommended Stack

Ginkgo Biloba – 240 mg, Bacopa Monnieri – 100mg x 2, Lion's Mane – 500mg

- I tried this for a while in my mid 20s and found my memory improved greatly. Now I just eat blueberries and take lions mane for a month in the lead up to big tournaments.

https://nootriment.com/natural-nootropic-stack/

To Research

- Box Breathing
- Stress and Cognitive Function
- Journaling
- Sugar
- Social Media
- Sleep – poor sleep effect on focus?
- Ingesting glucose for ego depletion – later in the day
- Chewing gum
- Testosterone – makes effort feel good
- Fasting
- Mental focus follows visual focus -https://www.executivecoachinglifecoaching.com/productivity-hack-increase-your-focus-in-2-minutes-by-using-your-vision/
- Physiological Sigh