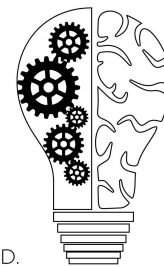


## Episode 011: Sensorium: Medications, Drugs (THC, Alcohol), Medical Issues, Sleep, and Free Will

David Puder, M.D.



DAVID PUDER, M.D.

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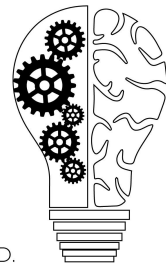
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There are no conflicts of interest for this episode.

- Optimize medical issues treatment:
  - Diabetes is a common disease that when treated properly has lower rates of depression and cognitive issues.
    - Diabetes has twice the rate of depression than that of nondiabetic comparison groups
    - When Type 2 Diabetes was brought under better control through medications, working memory significantly improved
  - Hypertensive patients without vascular complications had deficits with speed of cognition, episodic and working memory, and executive function.
  - Treat depression and mental health issues
  - Treat seizure disorders
  - Treat OSA
- Medications:
  - Reduce polypharmacy (for example when baclofen and gabapentin were taken together they had cognitive effects but when taken alone did not in one study)
  - Take off or minimize anticholinergic medications
    - Most commonly used: Hydroxyzine, Amitriptyline, Benztropine, Clozapine, Diphenhydramine, Doxepin, Imipramine, Methocarbamol, Nortriptyline, Olanzapine, Paroxetine, Quetiapine (see full list [here](#))
  - Take off or minimize the dose of antihistamine medications
  - Taper off benzodiazepines because of issues with psychomotor speed, memory, processing speed, attention, verbal memory, general intelligence, working memory, verbal reasoning (mean effect size -0.74) (xanax, klonopin, ativan, etc). Of note, after tapering off patients from chronic benzodiazepine use, there was a significant improvement in sensorium. However, compared to controls or normative data, there was an

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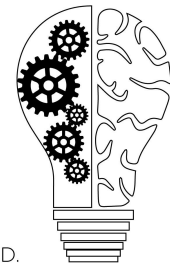
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incomplete restoration of function at 6 months. Of note, this could be because people who are on benzodiazepines often have multiple other stressors and things going on which could factor into this discrepancy. Of note, temazepam for sleep might be of less concern. Tapering off of these meds can be dangerous if done too fast; specifically, there can be issues like having a seizure. Please work with a physician to slowly decrease these medications.

- Zolpidem if taken 8 hours prior to driving or cognitive tests, does not cause impairment, whereas if taken 4 hours prior does. At 2 hours after ingestion, it causes cognitive issues and balance issues.
- Minimize or take off opioids (vicodin, oxycodone)
  - In one animal study, opioids reduced neurogenesis by 42% in the hippocampal granule cell layer
- Reduce or eliminate topiramate and valproate (of note, sometimes valproate has been helpful in hyperactive delirium with improvement in aggression)
- Consider alternatives to carbamazepine or zonisomide
- Medications with mild sensorium issues: gabapentin does not cause cognitive changes but does sometimes have occasional sedation issues at higher doses, oxcarbazepine (slight alpha wave slowing and some issues with sedation), trazodone (mild issues with short-term memory, verbal learning, body sway, muscle endurance)
- Medications without cognitive effects: Lamotrigine, Keppra (although 20% had complaints of somnolence), propranolol.
- Sleep issues:
  - Poor sleep leads to decreased memory encoding, mood issues, worse concentration, driving accidents
  - Sleep counteracts the effects of chronic stress and allows the body's immune system to "regenerate"
  - Set up patterns of rest (limiting caffeine and electronics at night before bed, consistent bed and wake times, and eliminating napping)
  - Diagnose and treat Obstructive Sleep Apnea and treat with CPAP and weight loss.

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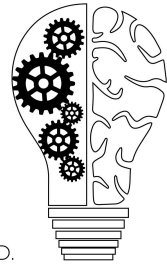
- Uses in CPAP will improve short term memory, episodic memory, processing speed and mental flexibility
- Another study showed that CPAP improved depression scores
- Drug and Alcohol issues:
  - Get off THC
    - Persistent cannabis use showed greater IQ decline (6 points) and worse on neuropsychological tests with greater impairment of executive functioning and processing speed. There were also problems in attention, memory, learning, verbal IQ cited in other studies. Effects were worse when frequent cannabis use was used prior to age 18.
  - Use alcohol in moderation
    - 1-6 drinks per week was shown to reduce the risk of dementia whereas >14 drinks per week increased risk in a prospective cohort study
    - Recognize that acutely drinking 4 beverages of alcohol impairs planning, spatial recognition, memory, attention, and therefore sensorium.
- Realize you have free will
  - In studies where they try to convince one group that they don't have free will, it leads to them 1) being more likely to cheat 2) more likely to conform to social norms 3) reduced helping behavior and increased aggression and 4) not slow down after making an error to re-evaluate. I will go into the last finding, and in a future episode go over this in more detail.
    - In a study that looked at what would happen to people after they read something that argued that we don't have free will. The group that read the paper arguing against free will compared to the control, did not slow down after making a mistake like normal people do, instead they proceeded in the game at the same speed. Post-error slowing was reduced in the no-free will group, this means that after making a mistake, they did not slow down, which

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is usually done by control processes.

This is also seen in patients with schizophrenia and children with ADHD. Weakened belief in free will (intentional control) decreases the change they will monitor their performance. Lack of belief in free will -> reduced cognitive control processing involved in action monitoring -> more careless and impulsive behaviors -> display antisocial tendencies!



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