

Chapter 46.

SMART DRUGS to IMPROVE COGNITIVE FUNCTION and RELIEVE MENTAL FATIGUE.

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(This book's full chapter is 11 pages long and has 39 references.)

1. INTRODUCTION.

The words SMART DRUGS are a layman's journalistic term. Some drugs theoretically might improve *cognitive function* that is impaired due to work stress, exhaustion, fatigue, and sleep deprivation. They are considered *medical therapies for mental fatigue*. The term *Smart Drugs* is highly promoted outside of FDA regulation.

The pathophysiology of fatigue is poorly known and complex, with many roads leading to the broadly descriptive term fatigue. (Read Chapter 32 on Mental Fatigue.) Many suggested chemotherapeutic chemicals could hypothetically alleviate fatigue in some circumstances but need better testing verification.

2. NOOTROPICS^{1,2}.

Nootropics is another non-scientific popular layman term for grouping all substances believed to be *cognitive enhancers*. Cognitive enhancers are substances people hope will improve their memory, mental alertness, concentration, and wakefulness and boost their energy. Nootropics is a very diverse chemical group with many significant side effects, including *dependence* (addiction). Synonyms are smart drugs, brain boosters, memory boosters, neuroenhancers, drive drugs, and study drugs.

Some might achieve their observable effects via vasodilation of the brain's *blood supply*, raising the body's *adrenalin*, or enhancing *dopamine* blood levels. Dopamine-enhancing drugs have the highest dependence risk. Nootropics can be divided into three groups:

- a) **EUGEROICS** are a class of medical drugs promoting wakefulness, such as *Modafinil* prescribed to treat shift-work sleep disorder and narcolepsy. No dose is free of side effects, which include nausea, anxiety, and dizziness.
- b) **ADHD medications**, such as methylphenidate (MPH)(Ritalin[®]), Dextroamphetamine (Dexedrine[®]), and phosphodiesterase inhibitor (PDEI) drugs.
 - **Methylphenidate** (Ritalin[®]) is often used illicitly and off-label as a study enhancer by university students. It can promote risk-taking behavior and disrupt sleep. Other side effects of Ritalin are hostility, paranoia, hypertension, talkativeness, increased sex drive, dysrhythmias,