

# Selective serotonin reuptake inhibitors and pharmacological resetting of the mind

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## ABSTRACT



Mental activity is capable of processing analytical data (mathematics, physics, socio-political science, philosophy, etc.) similar to computer software. At the same time, mental activity largely depends on the brain, which works like a hard component of a computer. While the computer stores data on a physical medium, mental activity and data are supported by physiological mechanisms that are constantly operating (both in wakefulness and sleep). For this reason, the lack of brain oxygenation even for short periods of time (5-10 minutes) causes the loss of all data, including the disappearance of the individual's existence as a mental entity. This means that psycho-physiological mechanisms that run continuously can accumulate malfunctions, but also that they can be interfered with, for example by coffee. We have presented in previous articles the similarity between computer operation and mental activity. This brief review is a synthesis of published articles and, at the same time, a preamble to an SSRI-based pharmacological approach capable of resetting mental activity (by restoring mental patterning) but without interrupting, losing or altering existing mental data.

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## Introduction

Various mental disorders are treated with different drugs, for which the exact mechanism of action is not entirely understood. An example is the drug class of SSRIs, the different active substances of this class having distinct pharmacological profiles and therapeutic results. Moreover, there are patients who do not respond at all to the administration of one SSRI, but show significant results when another SSRI is substituted [1]. It is difficult to explain why such differences are obtained between compounds of the SSRI class, given that their action is mainly based on serotonin reuptake. Therefore, the possibility that SSRI drugs could act therapeutically through mechanisms *other than* those related to serotonin reuptake should be investigated [2]. We have observed that SSRI class drugs can induce a “mind” reset, with the potential of offering significant benefits in the treatment of several mental disorders. To be able to explain the pharmacological resetting of the mind using SSRIs, the psycho-physiological mechanism underlying the

functioning of the mind must first be presented/understood, here using the analogy of computer/computational systems.

## Discussions

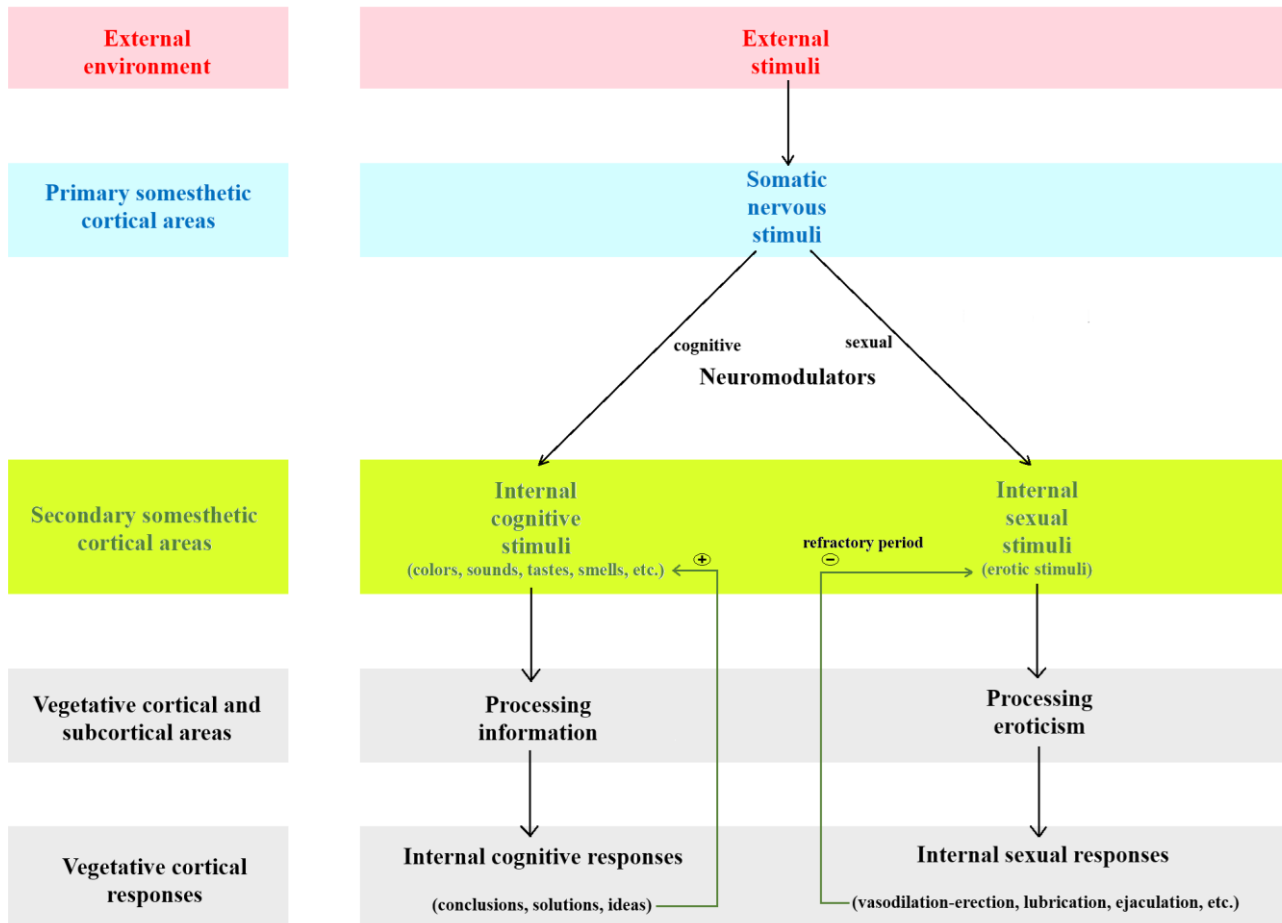
In humans, the somatic nervous system (SNS) supports the interaction between the external environment and the body (conscious and voluntary), while the vegetative nervous system (VNS) controls the activity of internal organs (autonomous, involuntary) [3]. However, this physiological demarcation between the two systems is correct and complete only for simple local reflexes, being only partially correct for more complex reflexes, and even incorrect for more elaborate brain/mental processes [4,5].

In the case of more complex reflexes, the physiological demarcation between the SNS and the SNV exists, but the two systems act in a complementary and more synergistic manner. For example, exposure of the body to low external temperatures is received (consciously) by the SNS as “cold”. The information is conveyed to the VNS which then triggers a peripheral (unconscious) vasoconstriction response, thus avoiding excessive heat loss [6]. Such a

complementary relationship between SNS and VNS can also occur in the opposite direction. Thus, reduced intake or excessive fluid losses can cause severe and/or persistent hypotension. Hypotension is detected (unconsciously) by the VNS, but this condition is transmitted as information to the SNS (thirst occurs). The SNS responds (voluntarily and consciously) by ingesting fluids from the external environment, resulting in restoration of blood pressure [7].

In elaborate processes (e.g., cognitive, sexual), primary and secondary somesthetic cortical areas transform

external (environmental) stimuli into internal (conscious) stimuli (Figure 1). This adaptation mechanism of the body generates a new function, in the form of the mind, which processes internal stimuli to generate complex and anticipated solutions/ strategies for interacting with the environment. Indeed, our mind only interacts with internal stimuli (colors, sour or bitter, temperature, etc.), without being aware of the presence of external stimuli (electromagnetic waves, type of acid or base, thermal agitation of molecules, etc.) [8,9].



**Figure 1.** Computational representation of the mind

Since cognition operates only on internal stimuli, the mind must be considered an internal/vegetative function, and not a somatic function [10,11]. The processing of internal cognitive stimuli by the vegetative nervous centers is supported by the *visceral nature of the brain* (an internal organ of which we are not aware), by the *involuntary character of the processing* (we are not aware/able to control the physiological mechanism of processing/generating ideas; in the conscious domain we either resort to learned approach patterns, or wait to receive a conscious idea from unconscious processing areas - "an idea/thought suddenly came to me"), and by the possibility of *sub- or even un- conscious data processing*. As an example, we become aware of a dream only after waking up, without actually participating in the actions taking place in the dream

and without necessarily agreeing with the perceptions, decisions, and course of events during the dream [12,13].

The processing of internal cognitive stimuli by the "vegetative nerve centers of sexuality" is suggested by the observation that cognition generates internal (conscious and voluntary) stimuli only for the vegetative nerve centers of sexuality [11,13]. Due to this restrictive interrelationship, and because sexuality must not monopolize somatic afferents (which would cease cognition), the autonomic nervous centers of sexuality would actually process both sexual and cognitive stimuli [13,14].

Thus, the secondary somesthetic cortical areas, together with internal stimuli, constitute the internal mental reality. The vegetative cerebral areas of sexuality, together with the function of data processing, also constitute the internal

mental existence. Internal mental existence interacts with internal mental reality, just as the body interacts with external stimuli. This actually means that the internal mental existence is a form of internal projection of the body. When an explicit internal stimulus/task is not being processed, the mind is in a resting or task-negative state (the internal mental existence is only aware of the internal mental reality, it does not generate ideas) [15].

The above presentation strongly suggests that mental and sexual activities run on a common neurological platform (Figure 1), with the type of activity performed depending on the brain neuromodulators (cognitive or sexual) that intervene [16]. In other words, at the level of the nervous system, there is a competition between cognition and sexuality. As an example in support of this idea, the administration of SSRIs is useful in improving cognitive function but disfavors sexuality [17], while the administration of sex hormones improves sexual activation that disfavors cognitive functioning [13,14].

## Conclusions

Current data suggest that SSRIs are not being administered optimally at present. In fact, we have preliminary data indicating that these drugs likely act as true cognitive neuromodulators, having the ability to induce a pharmacological resetting of the mind. Although we are yet awaiting some final data, we will soon be in the position to propose a better formulation for the treatment of mental disorders with SSRIs, including an administration scheme that can achieve a resetting of the mind. Such a reset will probably have implications for the use of SSRIs in the treatment of various mental impairments. Furthermore, we do not exclude the possibility of a process of “resetting” in mentally healthy people, perhaps with the aim of eliminating possible “software bugs” of the mind, or even of improving the adaptation process that led to the genesis of the mind in the first place, a process that, of course, continues to evolve.

## Conflict of interest disclosure

There are no known conflicts of interest in the publication of this article. The manuscript was read and approved by all authors.

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