

The second dopamine center is part of the spectrum stage theory for PD described in the book “Possibilities with Parkinson’s: A fresh look”, by Dr. C.

Examples of breakdowns in the second dopamine center described in the literature and personally experienced:

1. Sleep-wake cycle (circadian clock) and hyper arousal
2. Regulation of body temp in the heat/cold
3. Thirst and hunger regulation
4. Postural stability
5. Autopilot body movement
6. DMN (Default Mode Network) – resting “auto brain”
7. Impulsivity and emotion regulation
8. Histamine, cystine and dripping nose
9. Felt self and pain
10. Side effects: sleep disturbances, depression, anxiety, deep fatigue, loss of concentration, also difficulties with motor sequencing, problem solving and social skills

### Applicable References

Overview: [Non-motor features of Parkinson disease | Nature Reviews Neuroscience](#)

Gait Freezing - [Freezing of gait in Parkinson's disease: where are we now? - PubMed \(nih.gov\)](#)

Temp regulation=[Thermosensory activation of insular cortex | Nature Neuroscience](#)

[Insular cortex processes aversive somatosensory information and is crucial for threat learning | Science \(sciencemag.org\)](#) Tie to hyperarousal

[Frontiers | Homeostatic control of brain function – new approaches to understand epileptogenesis | Cellular Neuroscience \(frontiersin.org\)](#) Tie to seizures

[Regulation of sleep homeostasis mediator adenosine by basal forebrain glutamatergic neurons | Science \(sciencemag.org\)](#)

[Homeostatic Control of Slow-wave and Spindle Frequency Activity during Human Sleep: Effect of Differential Sleep Pressure and Brain Topography | Cerebral Cortex | Oxford Academic \(oup.com\)](#)

[A physiologist's view of homeostasis | Advances in Physiology Education](#)

[The Endocannabinoid System, Our Universal Regulator — Journal of Young Investigators \(jyi.org\)](#)  
[Endocannabinoids and the Control of Energy Homeostasis\\* - Journal of Biological Chemistry \(jbc.org\)](#)

[Current understanding of the molecular mechanisms in Parkinson's disease: Targets for potential treatments | Translational Neurodegeneration | Full Text \(biomedcentral.com\)](#)

### Dysregulation and Parkinson's

[Homeostatic mechanisms in dopamine synthesis and release: a mathematical model | Theoretical Biology and Medical Modelling | Full Text \(biomedcentral.com\)](#)

[Circadian dysregulation in Parkinson's disease - ScienceDirect](#)

[Parkinson's disease: convergence on synaptic homeostasis - PubMed \(nih.gov\)](#)

[Dysregulation of the Adaptive Immune System in Patients with Early-Stage Parkinson Disease | Neurology Neuroimmunology & Neuroinflammation](#)

[Cysteine Network \(CYSTEINET\) Dysregulation in Parkinson's Disease: Role of N-acetylcysteine | Bentham Science \(eurekaselect.com\)](#) Tie to abnormal histamine

[Punding in Parkinson's disease: Its relation to the dopamine dysregulation syndrome - Evans - 2004 - Movement Disorders - Wiley Online Library](#)

[Impulse control disorders in Parkinson's disease: A systematic review on the psychometric properties of the existing measures \(plos.org\)](#)

[Parkinson disease and impulse control disorders: a review of clinical features, pathophysiology, and management | Postgraduate Medical Journal \(bmj.com\)](#)

[Impulsive conditions in Parkinson's disease: A pharmacosurveillance-supported list - ScienceDirect](#)

### Mitochondrial malfunction – can tie to Agent Orange

[Mitochondrial Homeostasis and Signaling in Parkinson's Disease - PubMed \(nih.gov\)](#)

[Mitochondria malfunction shown to be the major cause of Parkinson's \(medicalxpress.com\)](#)

### Neuroanatomy

Insular cortex brain connection [A basal ganglia-like cortical–amygdalar–hypothalamic network mediates feeding behavior | PNAS](#)

[Hypothalamic connections with the cerebral cortex - ScienceDirect](#)

[The insular cortex - ScienceDirect](#)

[Prefrontal cortical projections to the hypothalamus in macaque monkeys - PubMed \(nih.gov\)](#)

[Pain in Parkinson's disease | SpringerLink](#)