



PACIFIC BRAIN HEALTH CENTERSM

Exercise for Brain Health

What Can Exercise Do for PD?

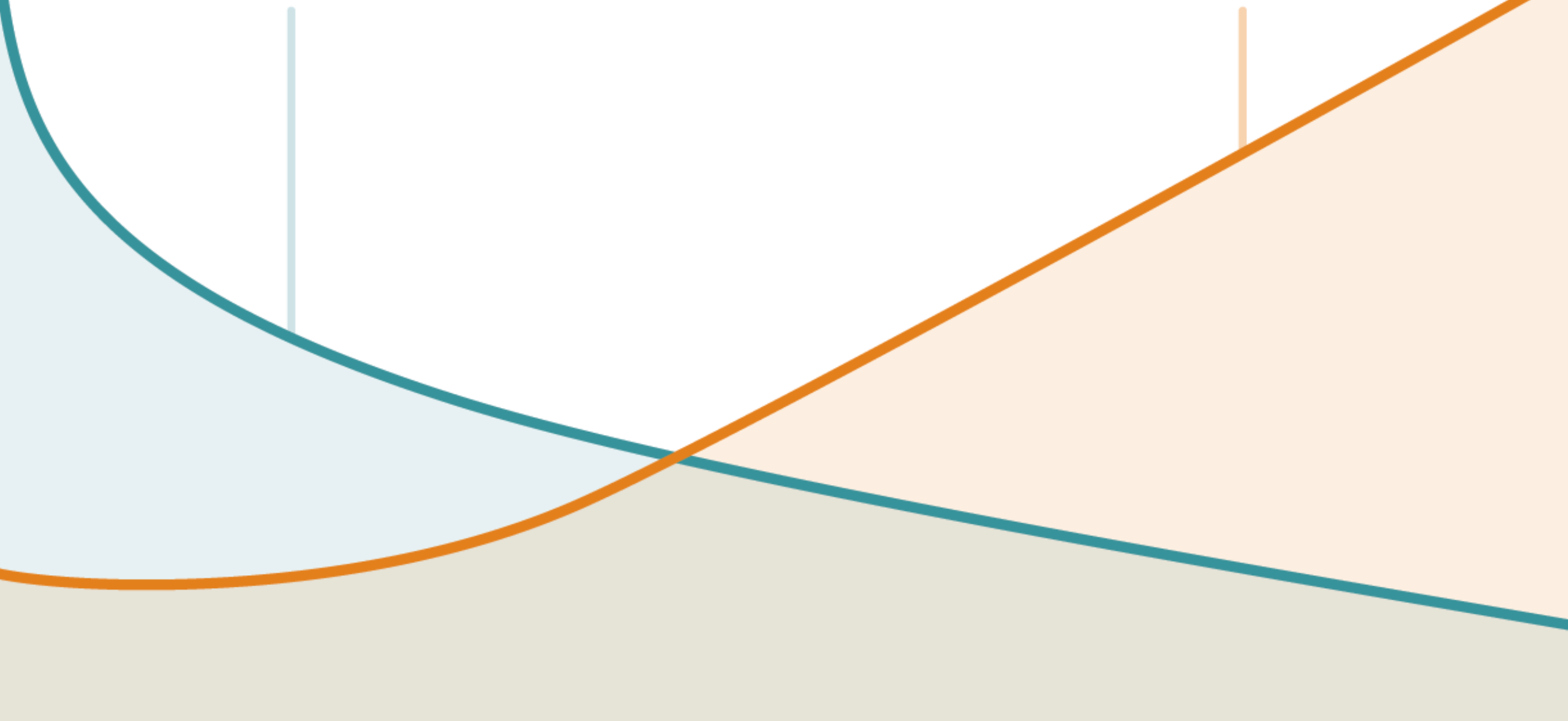
- Improve Cognition
- Improve Motor Symptoms
- Improve Mental Health
- Improve Posture
- Reduce Stiffness/Rigidity
- Manage Pain

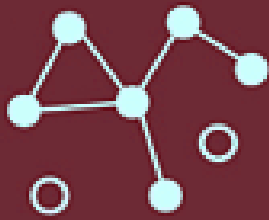
A complex, glowing blue neon maze is set against a solid black background. The maze consists of numerous interconnected, wavy lines that form a dense, intricate pattern. The lines vary in thickness and brightness, creating a sense of depth and movement. The overall effect is reminiscent of a modern art installation or a high-tech scientific visualization.

Effects of Exercise on the Brain

The brain's **ability to change**
in response to experiences

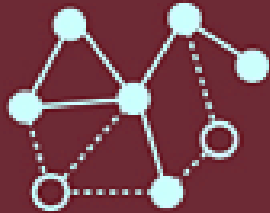
The **amount of effort**
such change requires





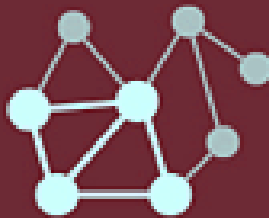
NEUROGENESIS

Continuous generation of new neurons in certain brain regions



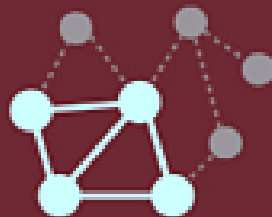
NEW SYNAPSES

New skills and experiences create new neural connections



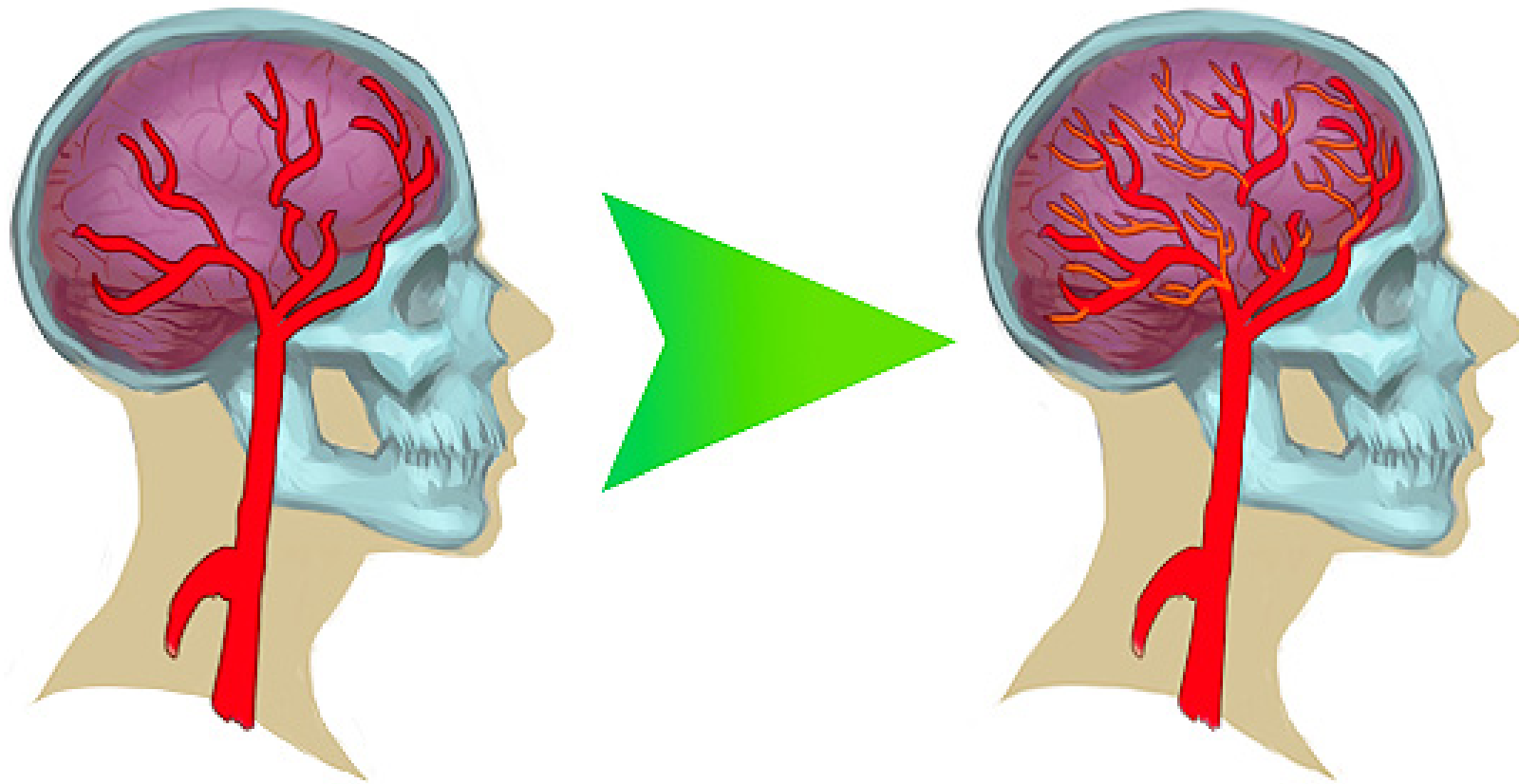
STRENGTHENED SYNAPSES

Repetition and practice strengthens neural connections



WEAKENED SYNAPSES

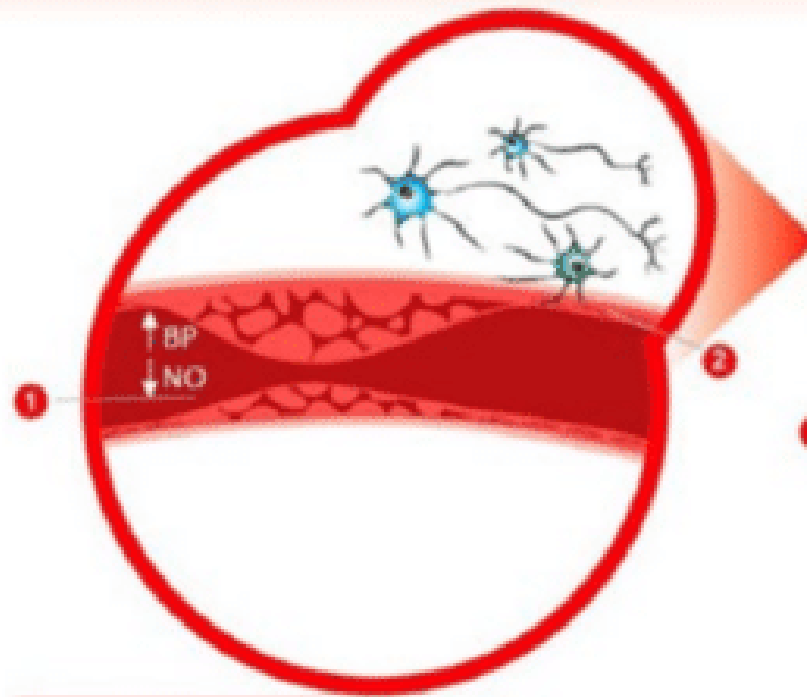
Connections in the brain that aren't used become weak



Angiogenesis - the formation of new blood vessels - can occur even in adulthood and is correlated with neurogenesis.

HYPERTENSIVE BRAIN

↓ MICROVASCULAR RAREFACTION
↓ CEREBRAL BLOOD FLOW
↓ ISCHEMIA

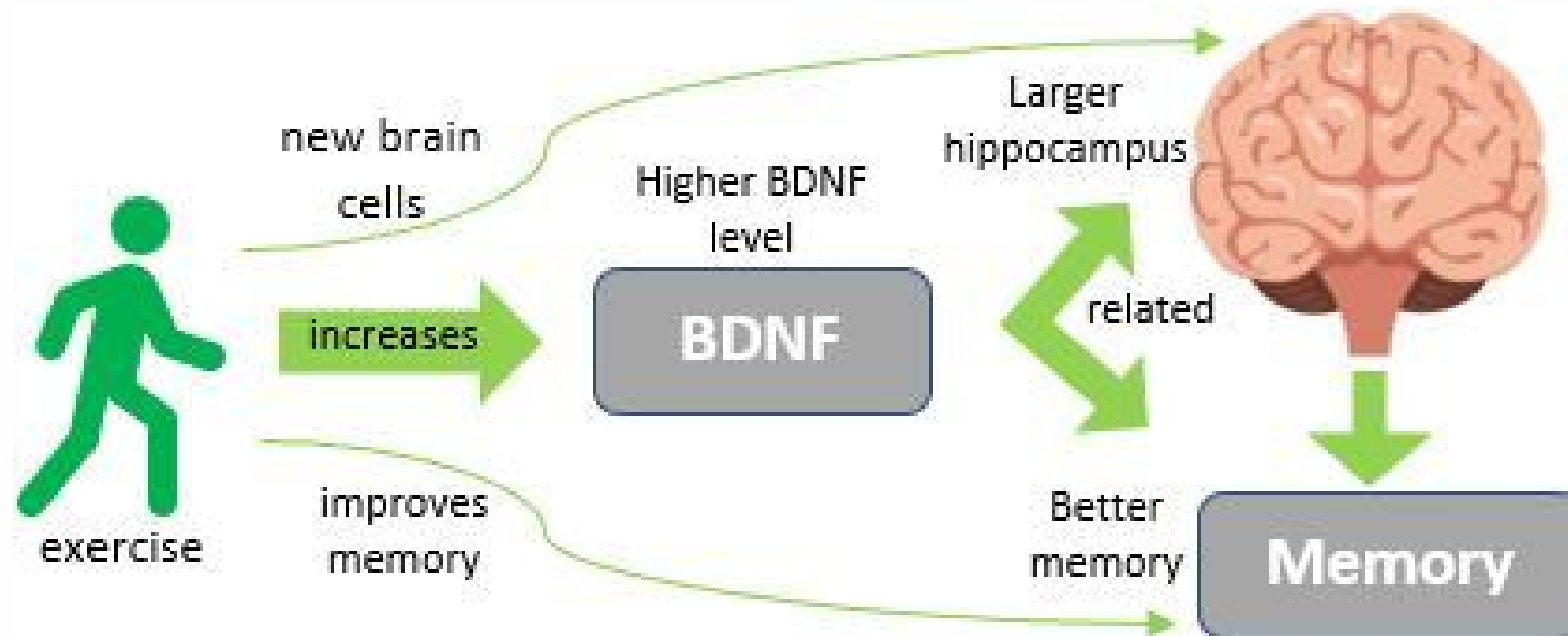


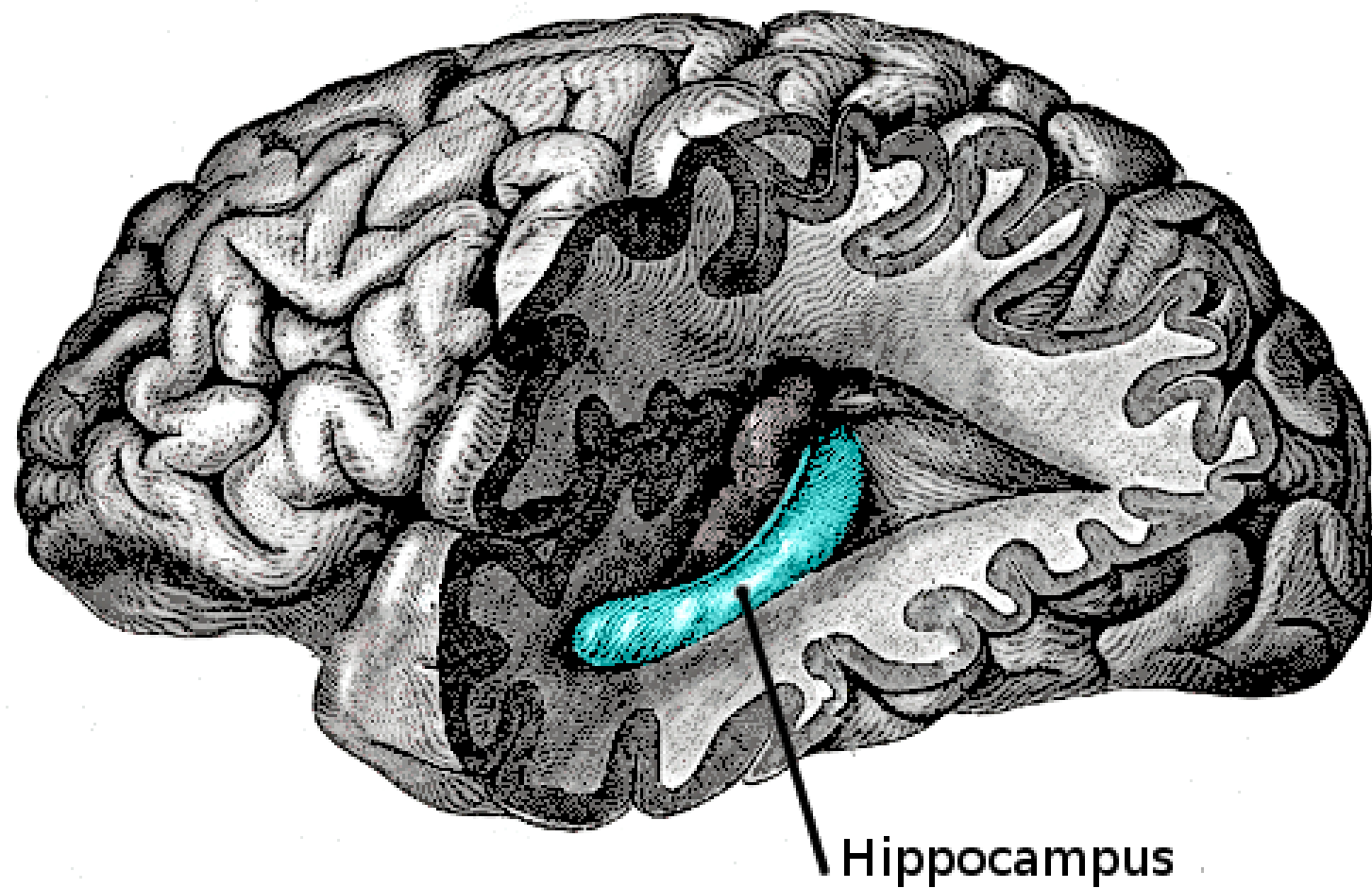
1- REMODELING
2- BBB INTEGRITY
3- MICROINFARCTION

EXERCISE BRAIN

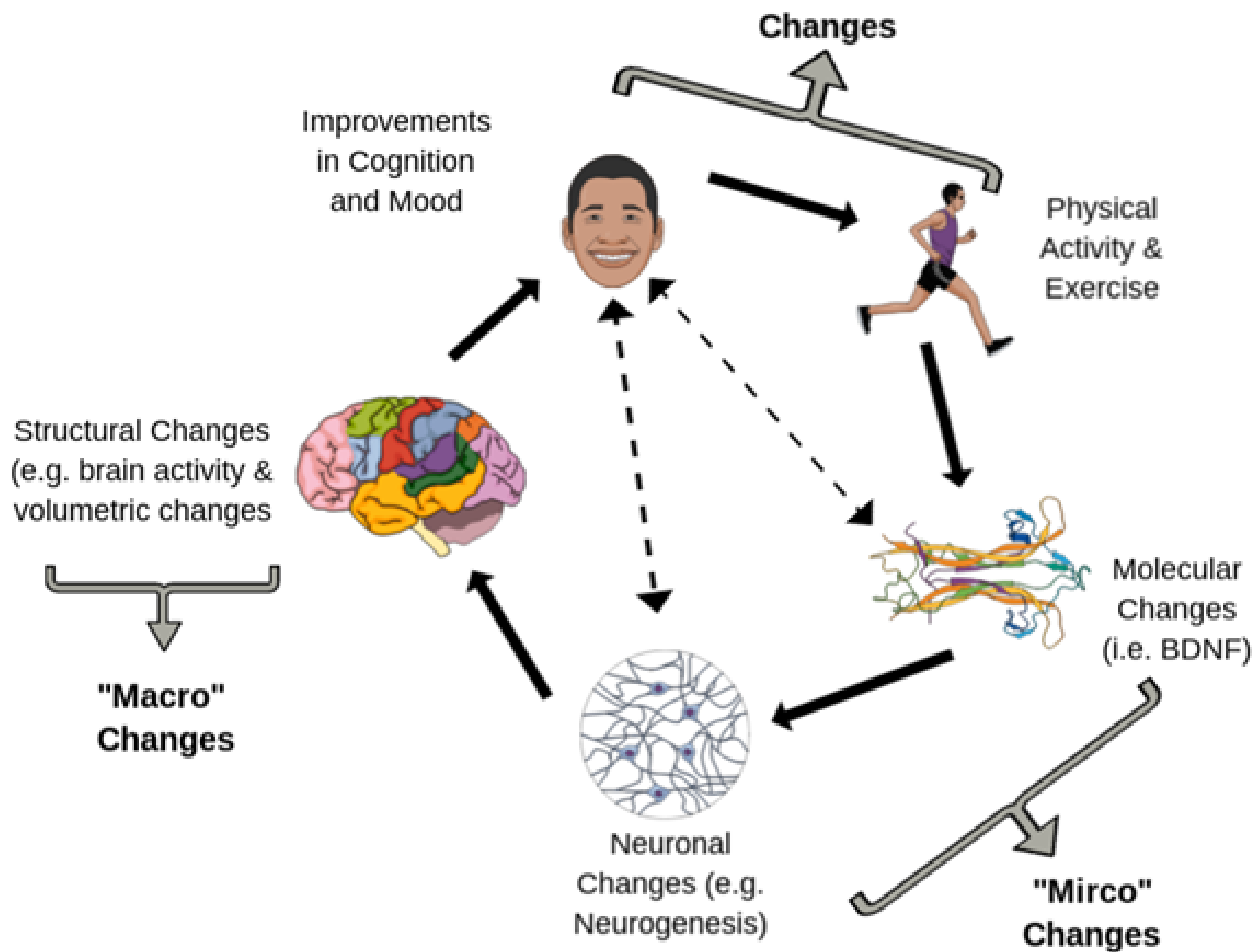
↑ VEGF
↑ BDNF
↑ NEUROGENESIS/PLASTICITY
↑ SYNAPSE



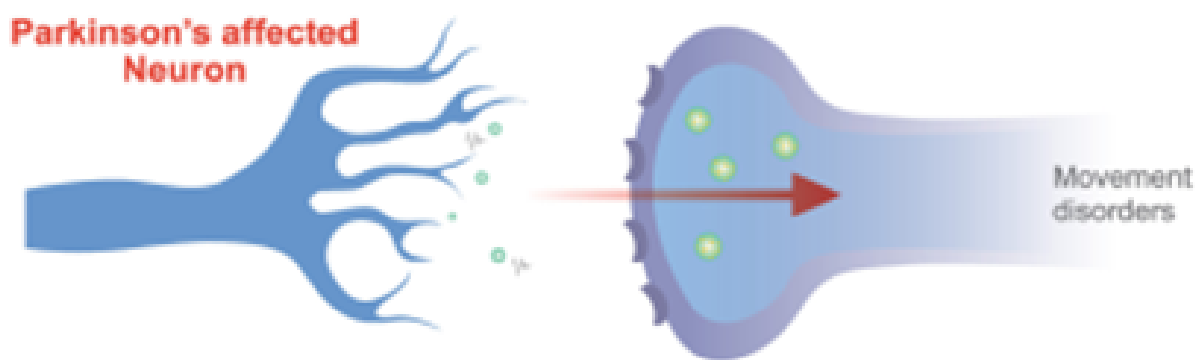
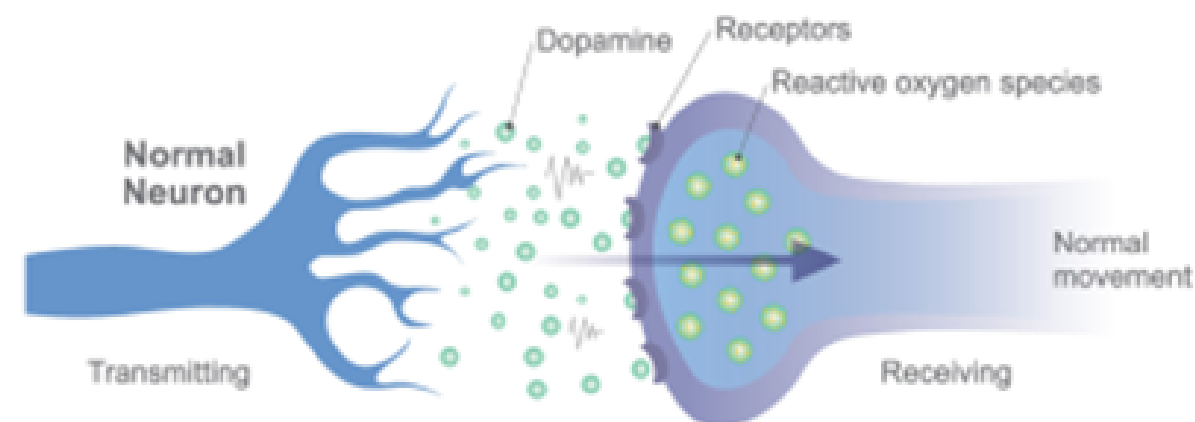




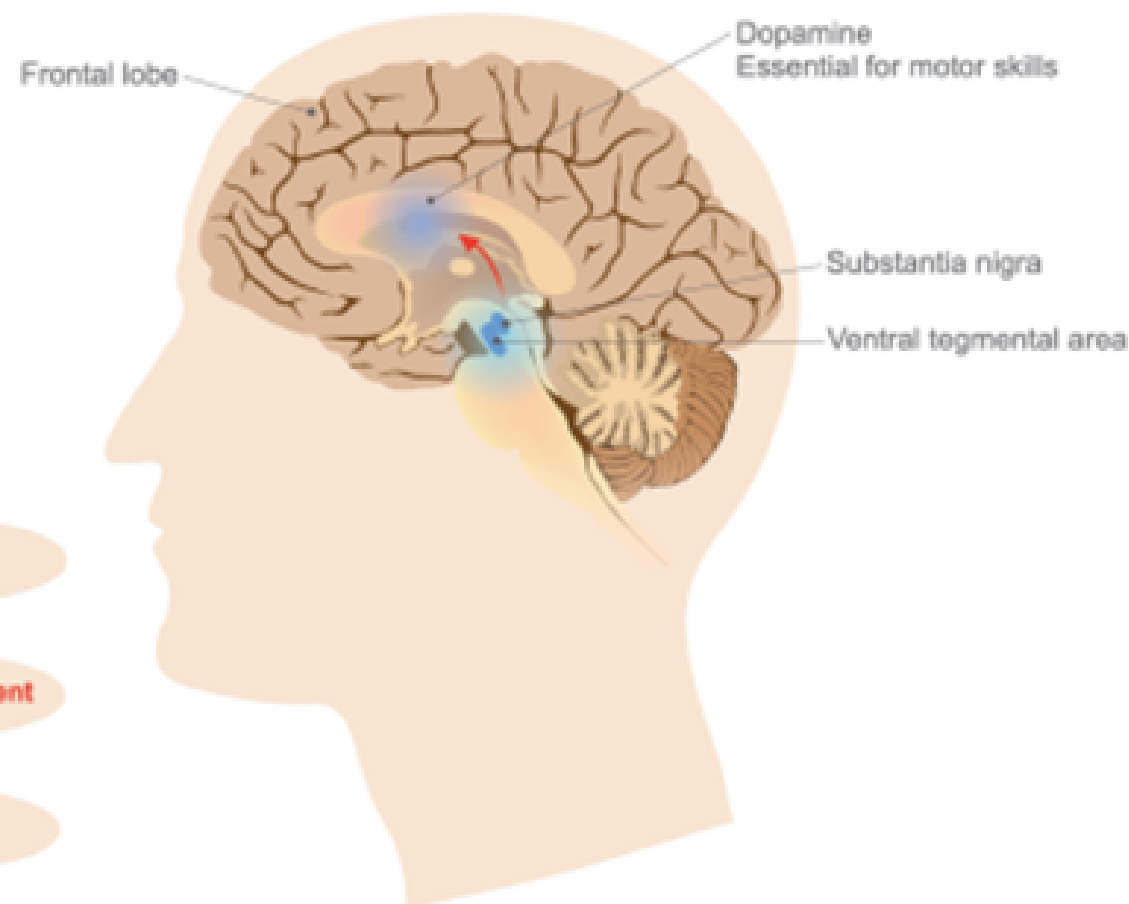
Hippocampus



Parkinson's disease

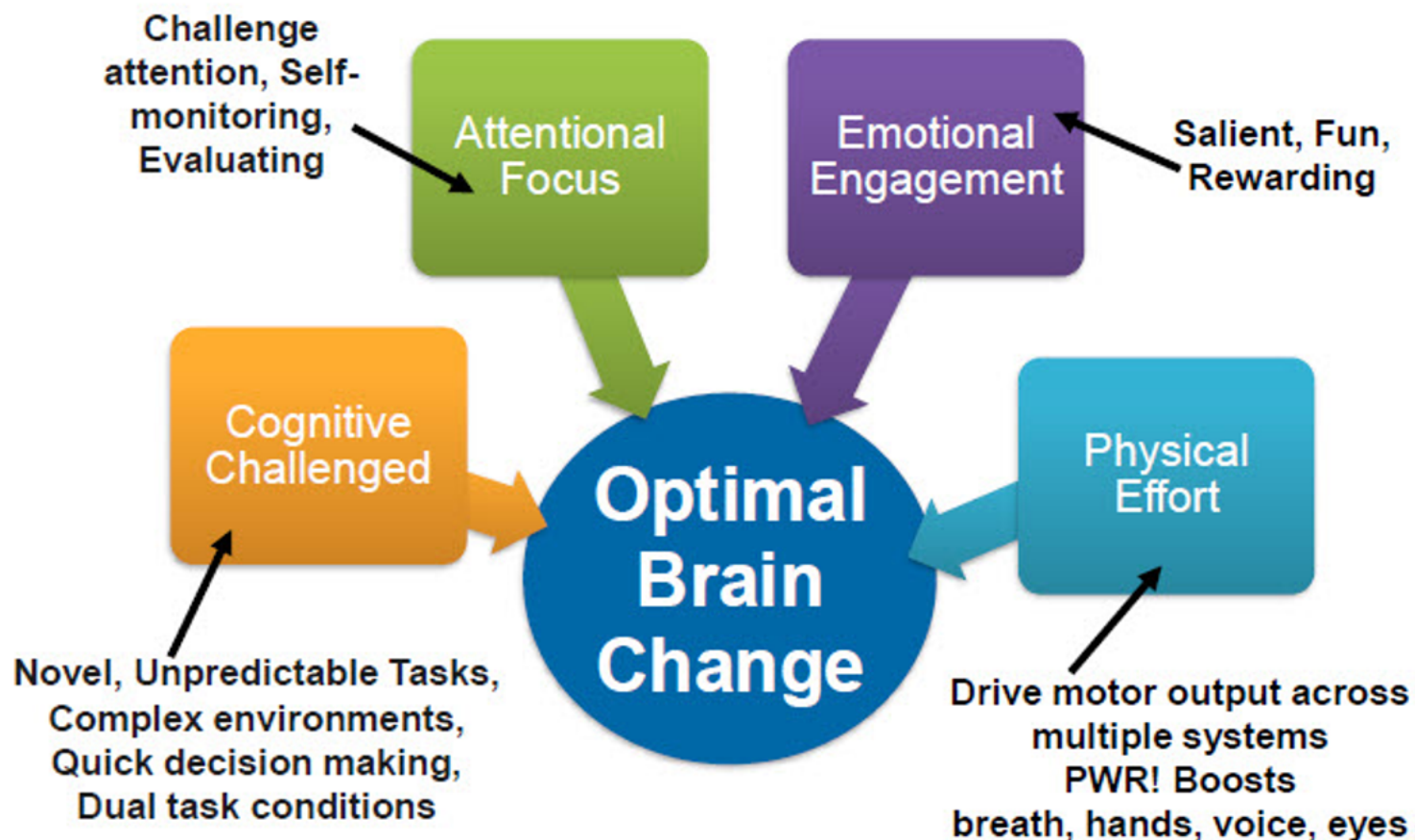


- Tremors
- Slow movement
- Rigidity

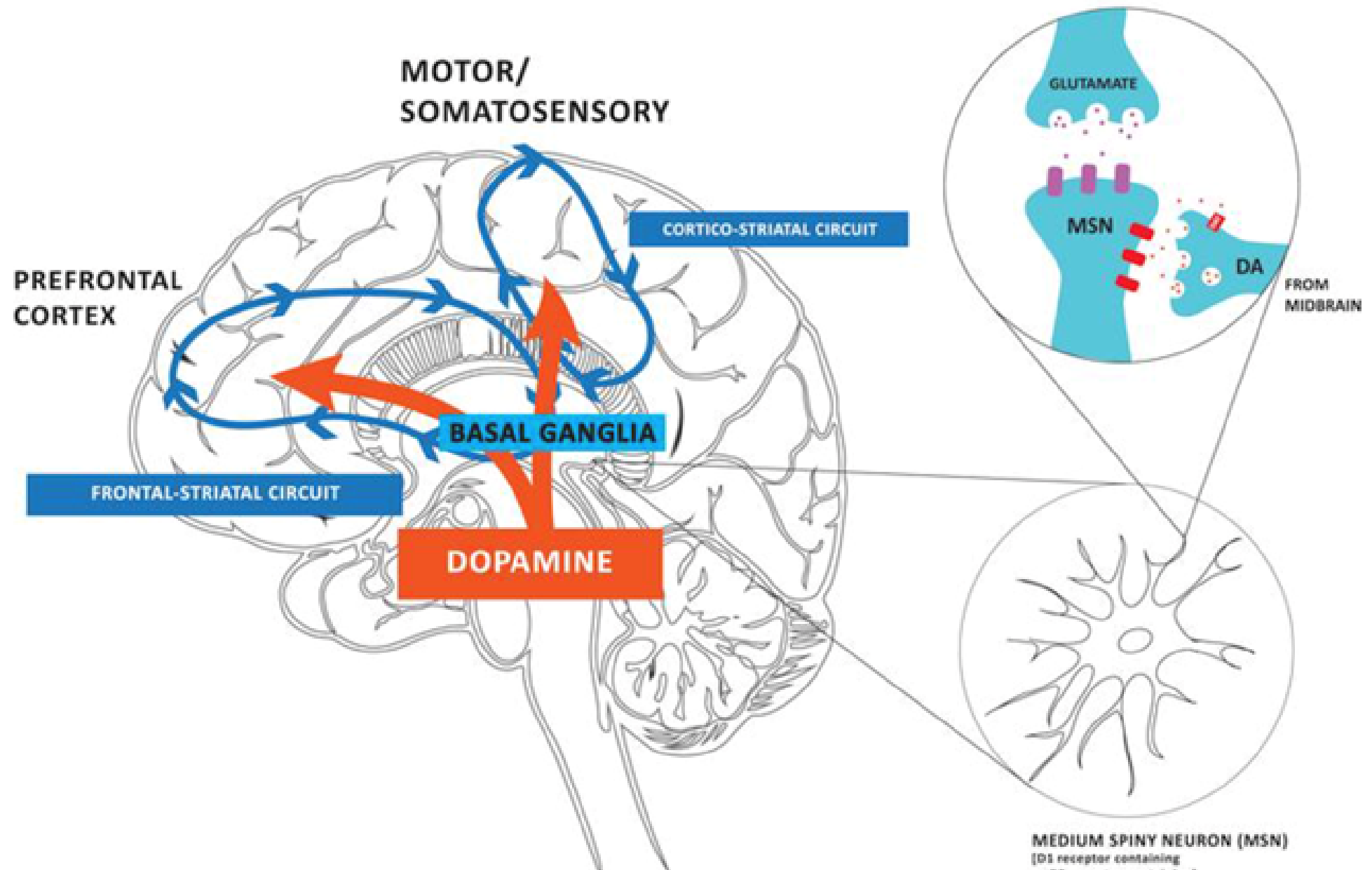


How you Practice is Important!

Exercise 4 BrainChange® Essentials



PWR!
Parkinson Wellness Recovery



A person with dark hair in a ponytail, wearing a red tank top, is shown from the back, performing a resistance band exercise. They are holding a green resistance band with both hands, pulling it upwards. The background is a blurred indoor setting with colorful lights, suggesting a gym or fitness studio.

Exercise Modality Examples

Exercise Recommendations for Brain Health



Cardiovascular Exercise

2-3 days/week



Resistance Training

2-3 days/week



Skill-Based Exercise

2-3 days/week



Cardiovascular Exercise Modalities





Resistance Training Modalities





Skill-Based Exercise Modalities



Enhances Mental
Acuity



Improve
Reflexes



Burns
Calories



Easy on the
Joints



Encourages
Social Bonding



www.pingpongforgood.org



Rehab for PD



Physical Therapy



Occupational Therapy



Speech Therapy

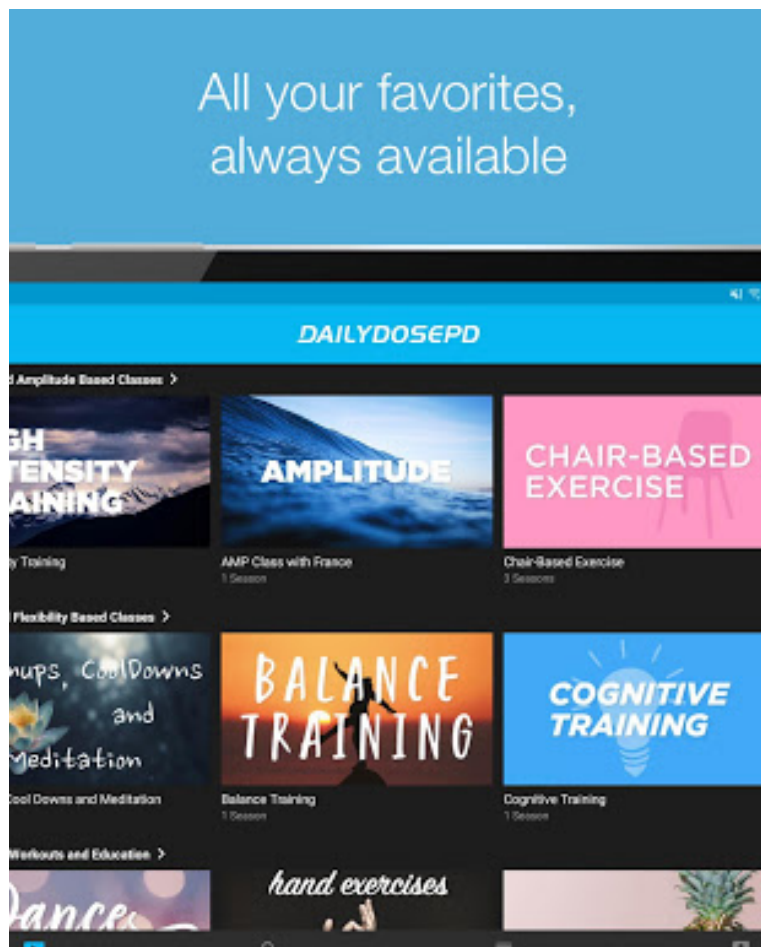


Fitness Trainer

A photograph of a gym interior. In the foreground, there are several rows of dumbbells, with the handles and weights clearly visible. The dumbbells are arranged in a way that creates a strong sense of depth, receding into the background. In the background, a person is visible, slightly out of focus, working out on a piece of equipment. The lighting is bright, and the overall atmosphere is one of a well-maintained fitness center.

Exercise Resources

Digital Parkinson's Resources



DailyDosePD



SmartXPD

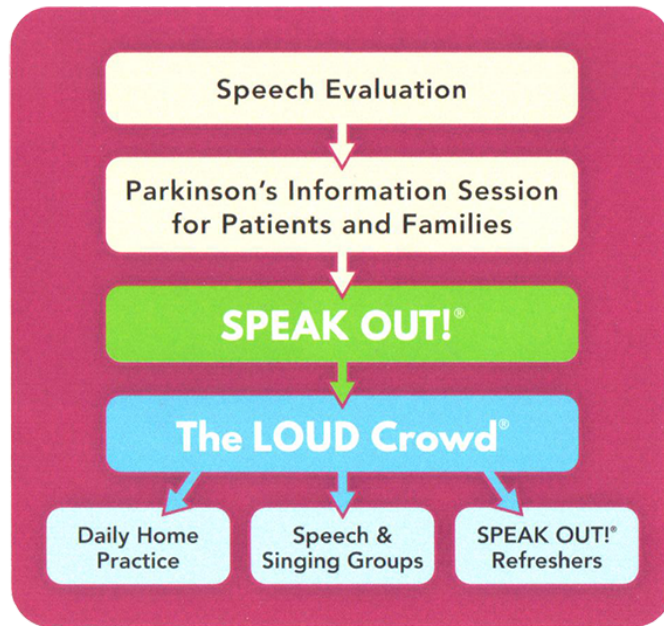


Dance for PD

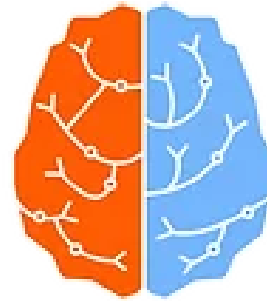
Digital Parkinson's Resources



PARKINSON VOICE PROJECT'S THERAPY PROGRAM



Parkinson's Voice Project



re+active

re+active PT



Dystonia Recovery Program



Digital Exercise Resources (non-PD)



Silver Sneakers OnDemand



YMCA 360



Age Bold

A low-angle, rear-view shot of a person running on a sandy beach. The person is wearing dark shorts and running shoes. The background shows the ocean with waves and a clear sky. The text "Exercise Prescription" is overlaid in a white box in the center of the image.

Exercise Prescription

Exercise Recommendations for Brain Health



Cardiovascular Exercise

- Steady State Exercise
- Interval Training



Resistance Training

- Exercise Machines
- “Functional” Training



Skill-Based Exercise

- Dance, Sports, Martial Arts
- Mind-Body Exercise



6 - 8 / 10 Intensity

10 being the most intense
Except for Mind-Body Exercise



3 -5 days/week

Try to mix it up!
2-3 days/week of each type



20 - 60 minutes/session

At least 150 min/per week
Start with what's fun!

RPE SCALE**RATE OF PERCEIVED EXERTION****10****/****MAX EFFORT ACTIVITY**

Feels almost impossible to keep going. Completely out of breath, unable to talk. Cannot maintain for more than a very short time

9**/****VERY HARD ACTIVITY**

Very difficult to maintain exercise intensity. Can barely breathe and speak only a few words

7-8**/****VIGOROUS ACTIVITY**

Borderline uncomfortable. Short of breath, can speak a sentence

4-6**/****MODERATE ACTIVITY**

Breathing heavily, can hold a short conversation. Still somewhat comfortable, but becoming noticeably more challenging

2-3**/****LIGHT ACTIVITY**

Feels like you can maintain for hours. Easy to breathe and carry a conversation

1**/****VERY LIGHT ACTIVITY**

Hardly any exertion, but more than sleeping, watching TV, etc

Sample Exercise Program - Beginner

	Monday	Wednesday	Friday	Saturday
Type	Bike & Weights	Dance (Zumba)	Bike & Weights	Walking
Time	30 min ea (60 min total)	60 min	30 min ea (60 min total)	60 min
Intensity	6-8/10	4-7/10	6-8/10	2-5/10

Sample Exercise Program - Advanced

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Multi- component <i>(AT +RT + Balance)</i>	Tai Chi <i>(group)</i>	Multi- component <i>(AT +RT + Balance)</i>	Dance <i>(skill- based)</i>	Multi- component <i>(AT +RT + Balance)</i>	Tai Chi <i>(home)</i>	Dance <i>(skill- based)</i>
<i>- 60 min (20 min/type)</i> <i>- Moderate intensity</i>	<i>-30 min</i> <i>-Low Intensity</i>	<i>- 60 min (20 min/type)</i> <i>- Moderate intensity</i>	<i>- 60 min</i> <i>-Low to Moderate Intensity</i>	<i>- 60 min (20 min/type)</i> <i>- Moderate intensity</i>	<i>-30 min</i> <i>-Low Intensity</i>	<i>- 60 min</i> <i>-Low to Moderate Intensity</i>

Strategies for Staying Motivated

- Remind yourself of the tremendous benefits!
- Get accountability (sig. other, friend, family, medical team, therapist)
- Schedule like a doctor's appointment!
- Set alarms, reminders, notes, calendars, etc
- Establish a habit! Start small, then go far!
- Focus on what you do well, not where you could be
- Treat exercise like medication
- Do something, instead of only the ideal



Questions



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