

LAUGH, LEARN, EMPOWER

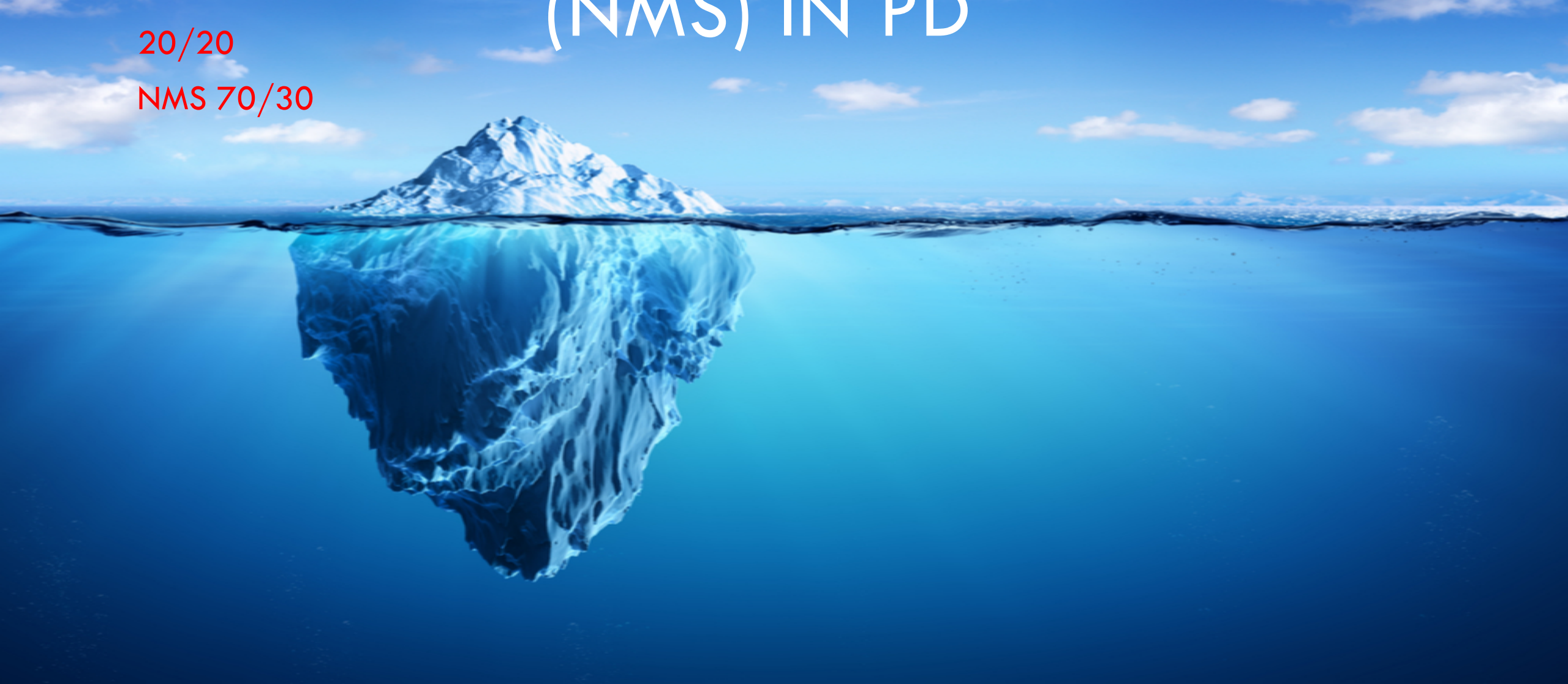
MELISSA HOUSER, M.D. – SCRIPPS CLINIC



NON MOTOR SYMPTOMS (NMS) IN PD

20/20

NMS 70/30



Parkinson's

what people see

tremors

what people don't see

anxiety
bladder issues
central pain
cognitive issues
constipation
depression
difficulty sleeping
fatigue
involuntary movement

loss of smell
muscle spasms
restlessness
sciatica
sexual dysfunction
skin cancer
slowed movement
speech changes
stiff muscles

my**parkinsons**team

Parkinsonism

Substantia Nigra

Pons

Basal Forebrain

Medulla

Amygdala

Hypothalamus

Olfactory Bulb

Spinal Cord (intermediolateral column)

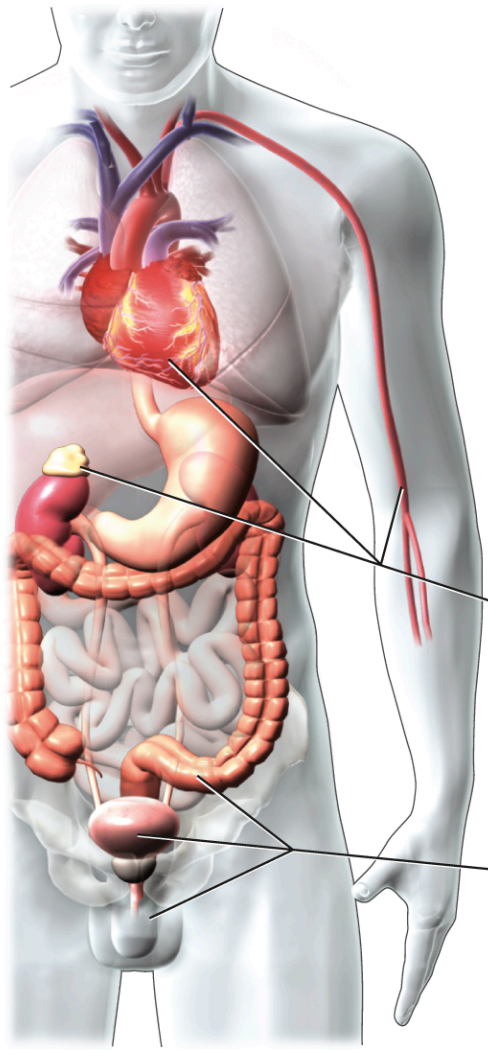
Peripheral Autonomic Nervous System
(heart, intestinal tract, bladder)

Neocortex

Olfactory Cortex

Temporal Cortex





Cognitive impairment
Subcortical nuclei, limbic regions, cerebral cortex

Olfactory deficit
Olfactory bulb, anterior olfactory nucleus, cortical nucleus of amygdala

Visual hallucinations
Subcortical nuclei (e.g. amygdala), ventral temporal lobe, other cortical regions

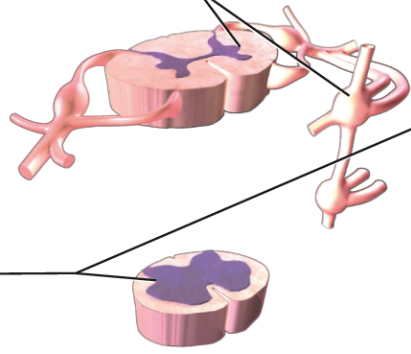
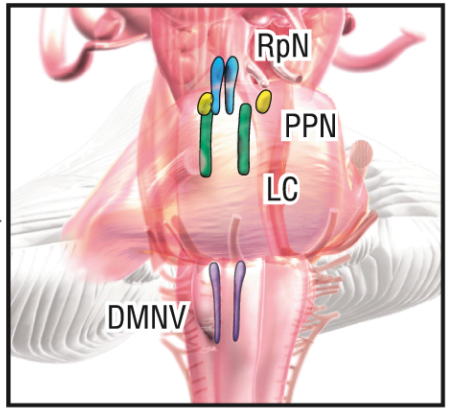
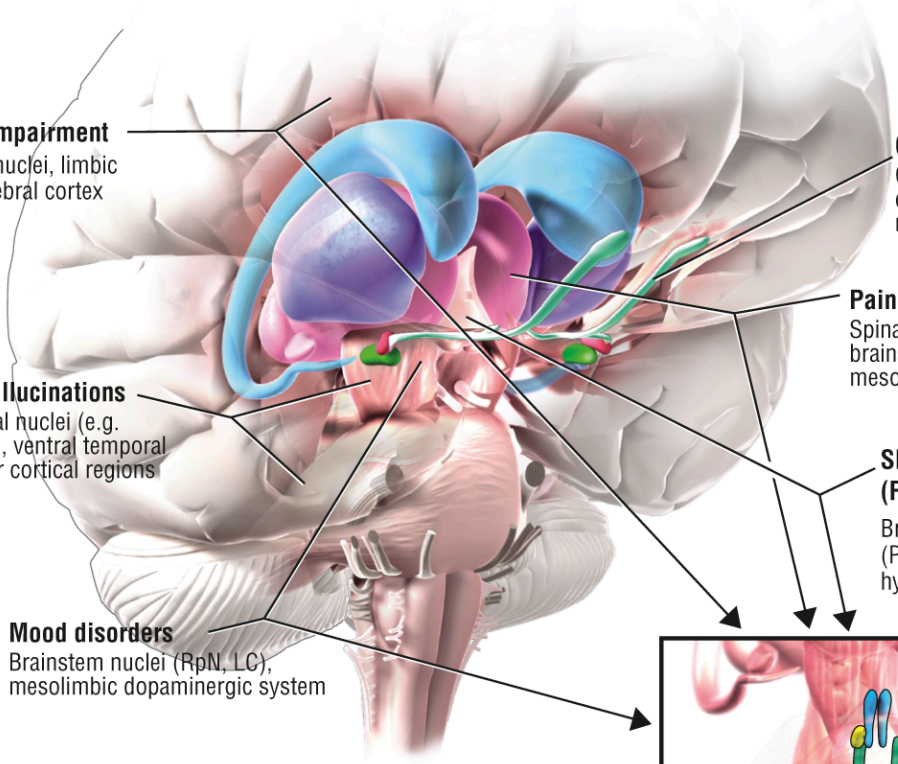
Pain
Spinal cord dorsal horn, brainstem nuclei, thalamus, mesolimbic system

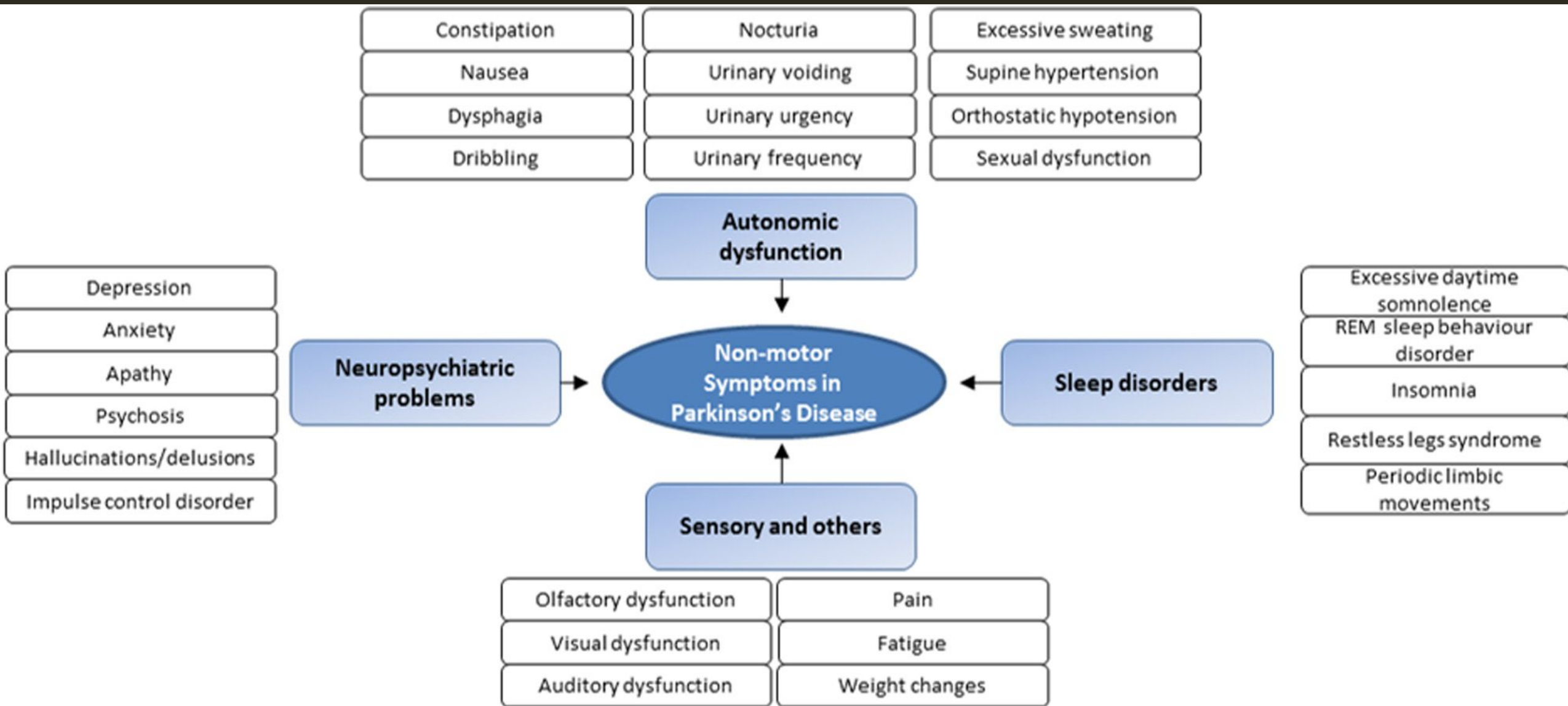
Mood disorders
Brainstem nuclei (RpN, LC), mesolimbic dopaminergic system

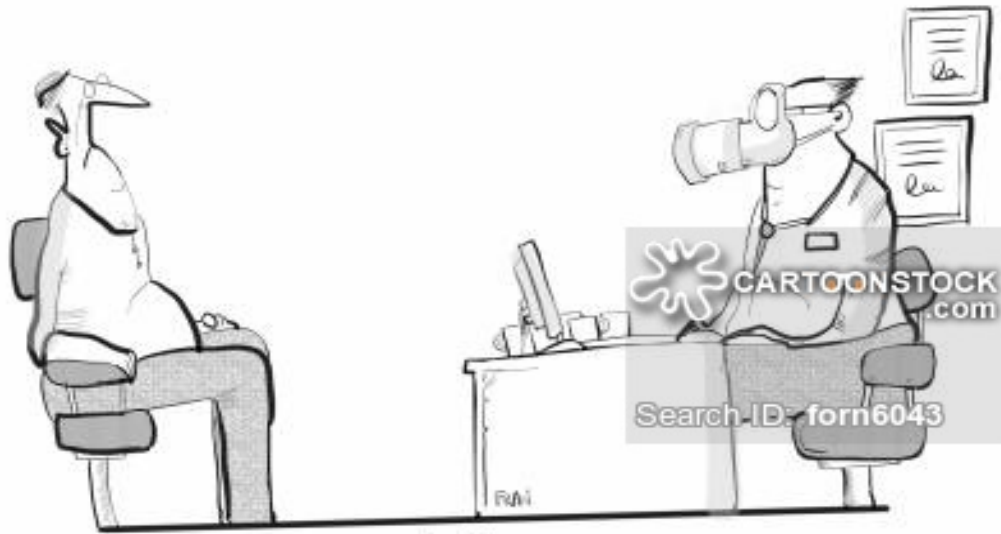
Sleep disorders (RBD, hypersomnolence)
Brainstem nuclei (PPN, LC, RpN), hypothalamus

Orthostasis
ANS (DMNV, cardiac, vasomotor, spinal cord sympathetic nuclei, sympathetic ganglia, adrenal glands)

Constipation, urine, and erectile dysfunction
ANS (DMNV, visceral plexus, spinal cord parasympathetic nuclei)







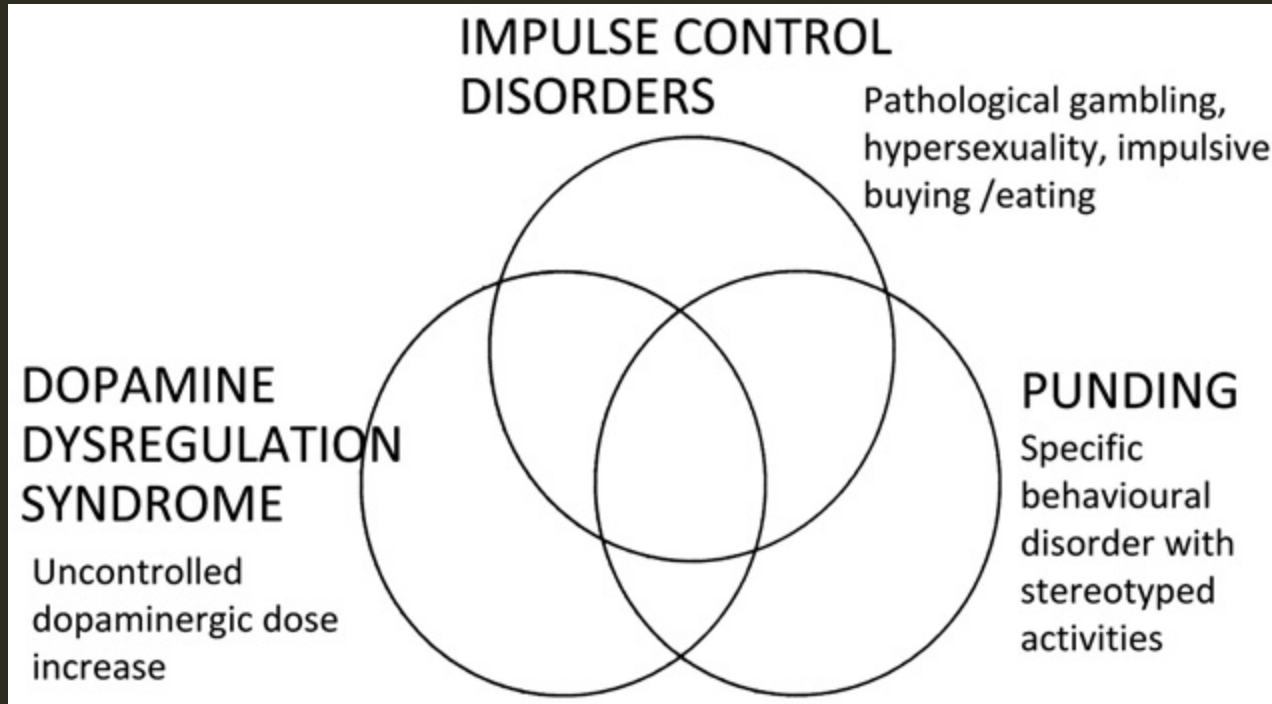
How is the halitosis Mr Potter?



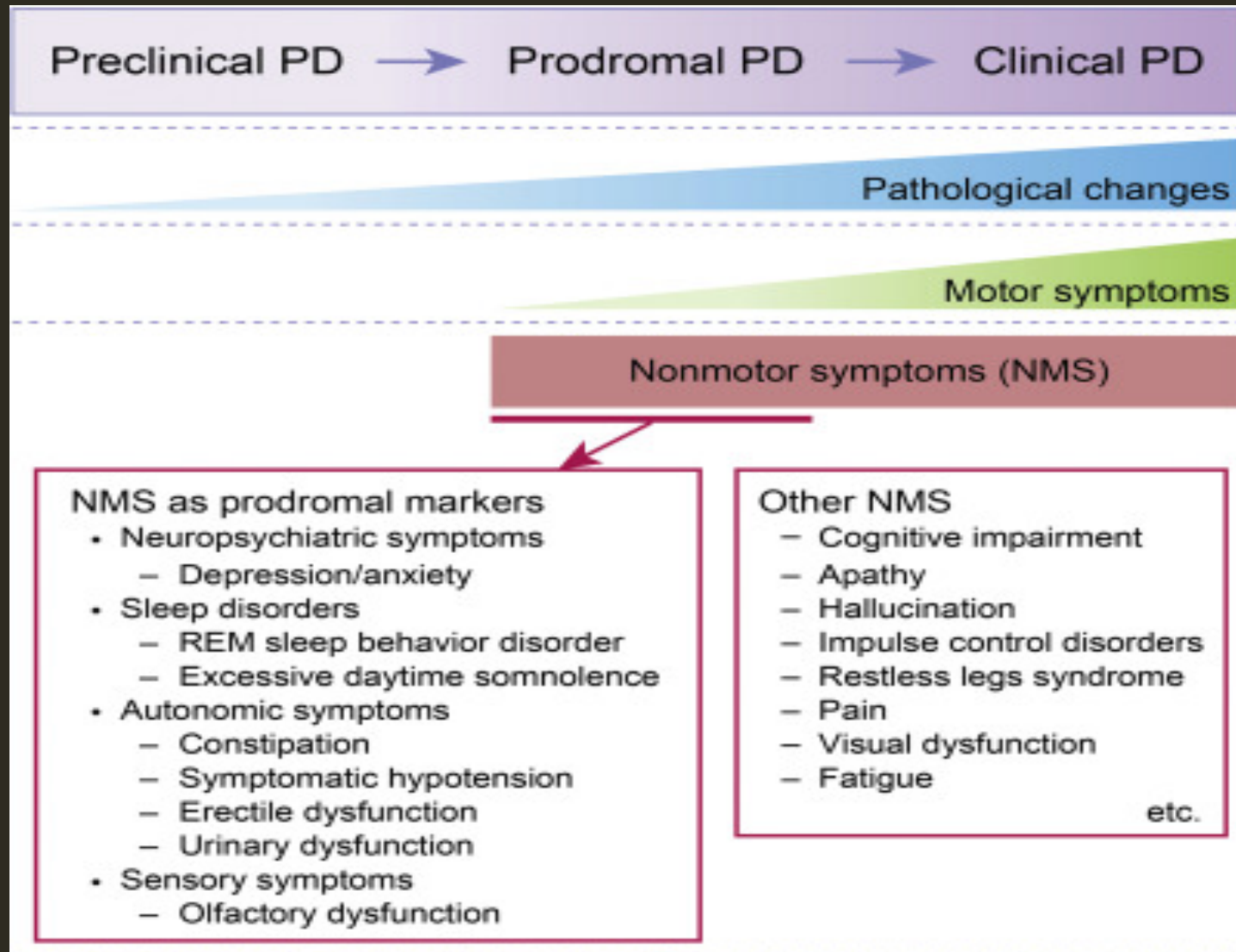
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THE PROBLEM WITH DOPAMINE....



NONMOTOR PRECEDES MOTOR



Treatment of Non-Motor Symptoms in Parkinson's Disease – Autonomic Dysfunction

	Treatment option
Bladder urgency	<ul style="list-style-type: none">• Oxybutinin• Tolterodine• Amitriptyline (if concomitant depression)
Erectile dysfunction	<ul style="list-style-type: none">• Sildenafil• Apomorphine
Sialorrhoea	<ul style="list-style-type: none">• Simple measures: chewing gum, sucking sweets• Anticholinergic drugs (glycopyrrolate)• Botulinum toxin for refractory cases
Constipation	<ul style="list-style-type: none">• Consider dopamine agonists• Adequate fluid intake, exercise• Aperients: psyllium fibre, lactulose, polyethylene glycol
Orthostatic hypotension	<ul style="list-style-type: none">• Adjust dopamine agonist dose if needed• Fludrocortisone• Midodrine

Stocchi F. In: *Principles of Treatment in Parkinson's Disease*; 2005.

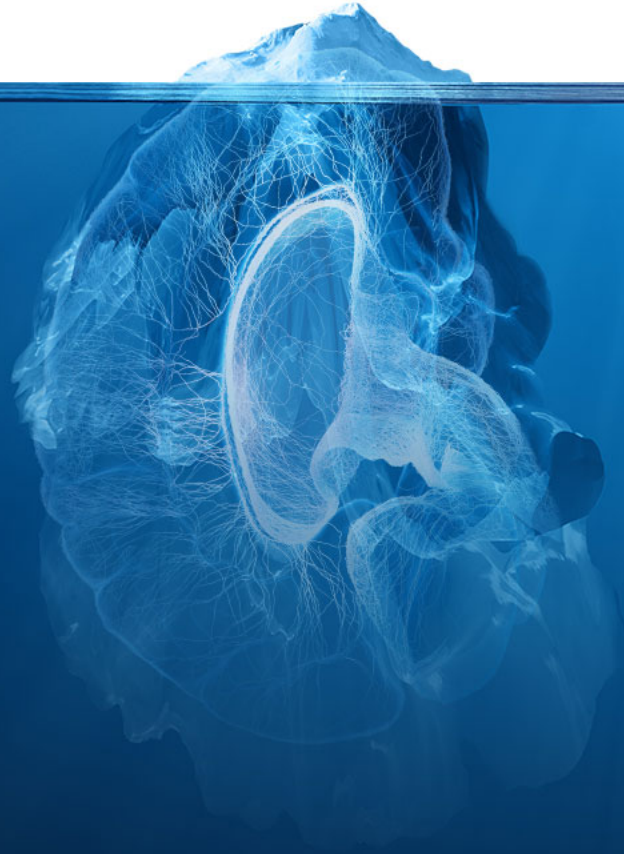
Raffaiele R, et al. *Eur Urol* 2002;41:382-6.

O'Sullivan JD. *J Neurol Neurosurg Psychiatry* 2002;72:681.

Tetrad JW. In: *Parkinson's Disease*; 2005.

Goldstein DS. *Lancet Neurol* 2003;2:669-76.

HOW TO LOOK FOR THE ENTIRE ICEBERG?



Non-motor symptoms questionnaire

This questionnaire should be completed and **given to your GP, specialist or Parkinson's nurse at your next appointment**. Please **do not** return it to Parkinson's UK. Thank you.

Name: _____ Date: _____ Age: _____

Centre ID: Male Female

Have you experienced any of the following in the last month?

All the information you supply through this form will be treated with confidence and will only be used for the purpose for which it has been collected. Information supplied will be used for monitoring purposes. Your personal data will be processed and held in accordance with the Data Protection Act 1998. Developed and validated by the International PD Non Motor Group.

Non-movement problems in Parkinson's

The movement symptoms of Parkinson's are well known. However, other problems can sometimes occur as part of the condition or its treatment. It is important that the doctor knows about these, particularly if they are troublesome for you.

A range of problems is listed below. Please tick the box 'Yes' if you have experienced it during the past month. The doctor or nurse may ask you some questions to help decide. If you have not experienced the problem in the past month tick the 'No' box. You should answer 'No' even if you have had the problem in the past but not in the past month.

	Yes	No
1 Dribbling of saliva during the daytime.	<input type="checkbox"/>	<input type="checkbox"/>
2 Loss or change in your ability to taste or smell.	<input type="checkbox"/>	<input type="checkbox"/>
3 Difficulty swallowing food or drink or problems with choking.	<input type="checkbox"/>	<input type="checkbox"/>
4 Vomiting or feelings of sickness (nausea).	<input type="checkbox"/>	<input type="checkbox"/>
5 Constipation (less than three bowel movements a week) or having to strain to pass a stool.	<input type="checkbox"/>	<input type="checkbox"/>
6 Bowel (faecal) incontinence.	<input type="checkbox"/>	<input type="checkbox"/>
7 Feeling that your bowel emptying is incomplete after having been to the toilet.	<input type="checkbox"/>	<input type="checkbox"/>
8 A sense of urgency to pass urine makes you rush to the toilet.	<input type="checkbox"/>	<input type="checkbox"/>
9 Getting up regularly at night to pass urine.	<input type="checkbox"/>	<input type="checkbox"/>
10 Unexplained pains (not due to known conditions such as arthritis).	<input type="checkbox"/>	<input type="checkbox"/>

	Yes	No
11 Unexplained change in weight (not due to change in diet).	<input type="checkbox"/>	<input type="checkbox"/>
12 Problems remembering things that have happened recently or forgetting to do things.	<input type="checkbox"/>	<input type="checkbox"/>
13 Loss of interest in what is happening around you or in doing things.	<input type="checkbox"/>	<input type="checkbox"/>
14 Seeing or hearing things that you know or are told are not there.	<input type="checkbox"/>	<input type="checkbox"/>
15 Difficulty concentrating or staying focused.	<input type="checkbox"/>	<input type="checkbox"/>
16 Feeling sad, 'low' or 'blue'.	<input type="checkbox"/>	<input type="checkbox"/>
17 Feeling anxious, frightened or panicky.	<input type="checkbox"/>	<input type="checkbox"/>
18 Feeling less interested in sex or more interested in sex.	<input type="checkbox"/>	<input type="checkbox"/>
19 Finding it difficult to have sex when you try.	<input type="checkbox"/>	<input type="checkbox"/>
20 Feeling light-headed, dizzy or weak standing from sitting or lying.	<input type="checkbox"/>	<input type="checkbox"/>
21 Falling.	<input type="checkbox"/>	<input type="checkbox"/>
22 Finding it difficult to stay awake during activities such as working, driving or eating.	<input type="checkbox"/>	<input type="checkbox"/>
23 Difficulty getting to sleep at night or staying asleep at night.	<input type="checkbox"/>	<input type="checkbox"/>
24 Intense, vivid or frightening dreams.	<input type="checkbox"/>	<input type="checkbox"/>
25 Talking or moving about in your sleep, as if you are 'acting out' a dream.	<input type="checkbox"/>	<input type="checkbox"/>
26 Unpleasant sensations in your legs at night or while resting, and a feeling that you need to move.	<input type="checkbox"/>	<input type="checkbox"/>
27 Swelling of the legs.	<input type="checkbox"/>	<input type="checkbox"/>
28 Excessive sweating.	<input type="checkbox"/>	<input type="checkbox"/>
29 Double vision.	<input type="checkbox"/>	<input type="checkbox"/>
30 Believing things are happening to you that other people say are not.	<input type="checkbox"/>	<input type="checkbox"/>

Chaudhuri KR, Martinez-Martin P, Schapira AHV, Stocchi F, Sethi K, Odin P et al (2006) 'An international multicentre pilot study of the first comprehensive self-completed non motor symptoms questionnaire for Parkinson's disease: The NMSQuest study' *Mov Disord* 21(7):916-923.

