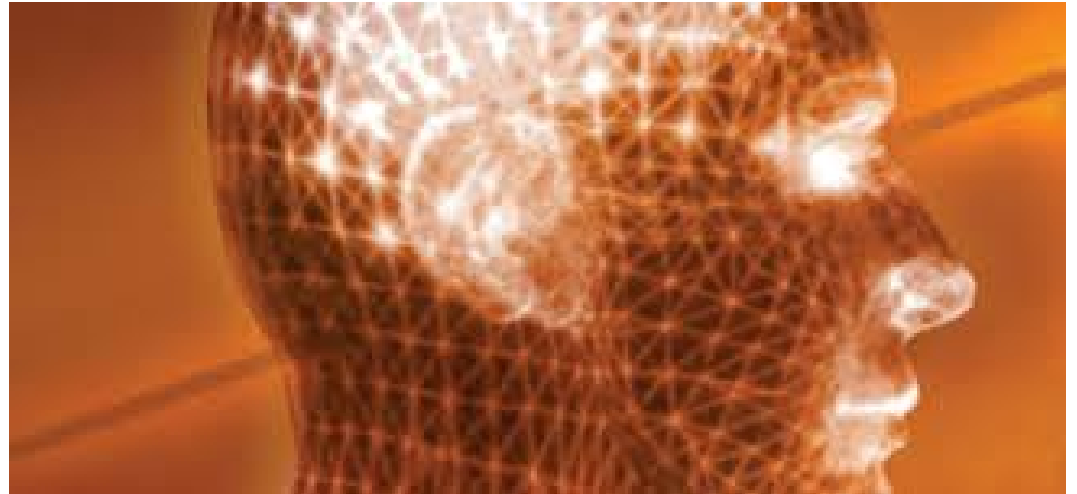


Day 1

Plenary:

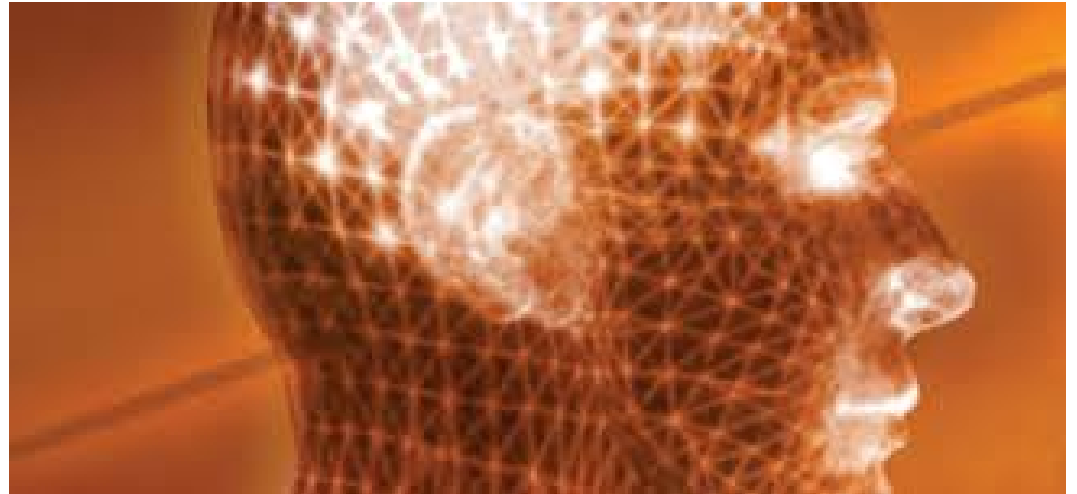
Why and how specific neurons die in Parkinson's disease and what can be done about it



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Propagation of the neurodegenerative process in PD

Virginia Lee

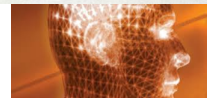
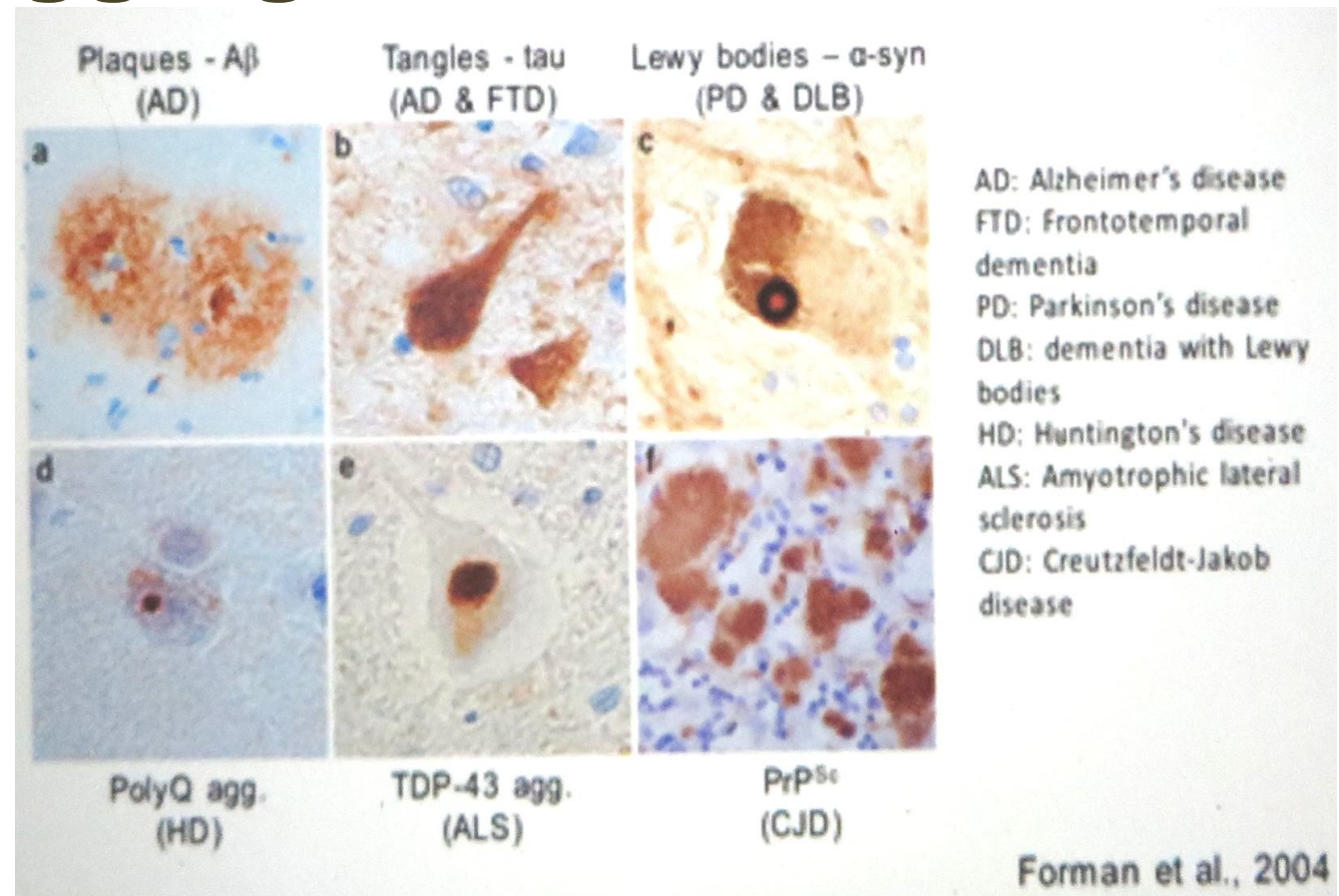


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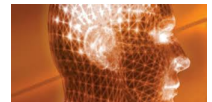
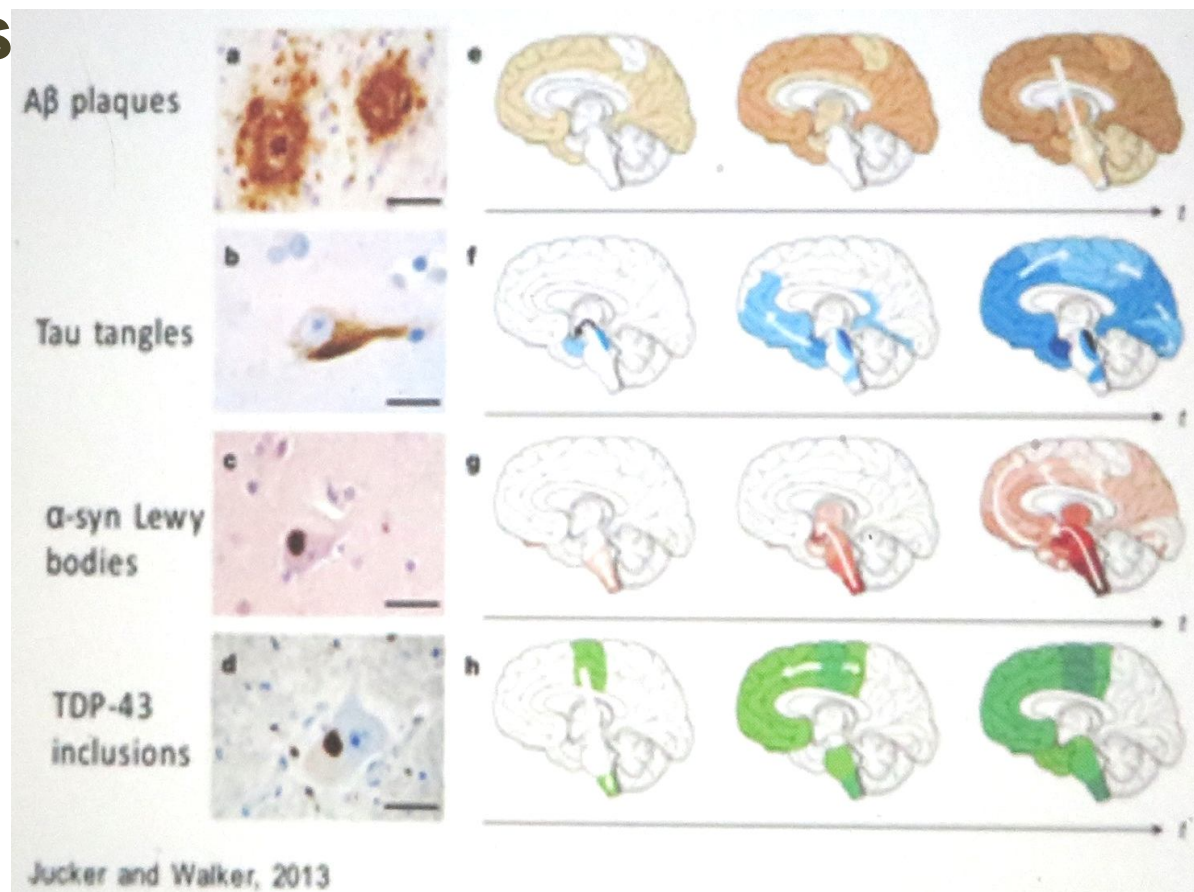
Protein aggregation

as a common
feature of
neuro-
degenerative
diseases



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**Stereotypically spreading of disease
pathology
as shared mechanism among age-related
and dis**



Lewy Pathology Progresses



- Medulla / olfactory bulb → substantia nigra, LC, midbrain, basal forebrain → cerebral cortex
- Progression pattern of Lewy pathology correlate with movement disorder and often cognitive impairment
- Presence of a 'transmittable agent' (α -Synuclein?)
- Hypothesis: Can misfolded α -Synuclein in neurons recruit endogenous α -Synuclein to form Lewy body like pathology and propagate to other healthy neurons?



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Proof of ...

Transmission Hypothesis:

Can the spread of α -Synuclein pathology be mediated by missfolded α -Synuclein in model systems?

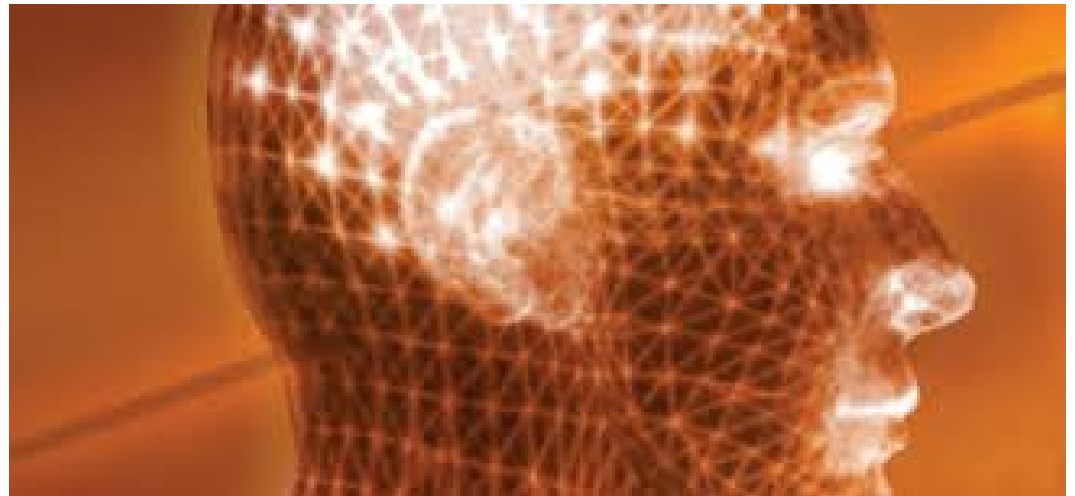
Strain Hypothesis:

Do pathological α -Synuclein strains exist that could potentially explain clinical diversity?



Can the interaction between genetics, environment and behaviour be a key determinant of PD expression?

Christine Klein



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Factors

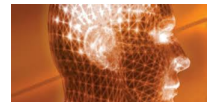
PD and Genetics	7,418 papers
PD and Environment	782 papers
PD and Behaviour (life style)	171 papers

Environmental factor: 100 studies but

- Heterogenous
- Evidence limited and conflicting
- Need for larger studies

Lifestyle:

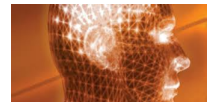
- + Farming, drinking well water, rural living
- smoking, caffeine



Interactions of PD determinants

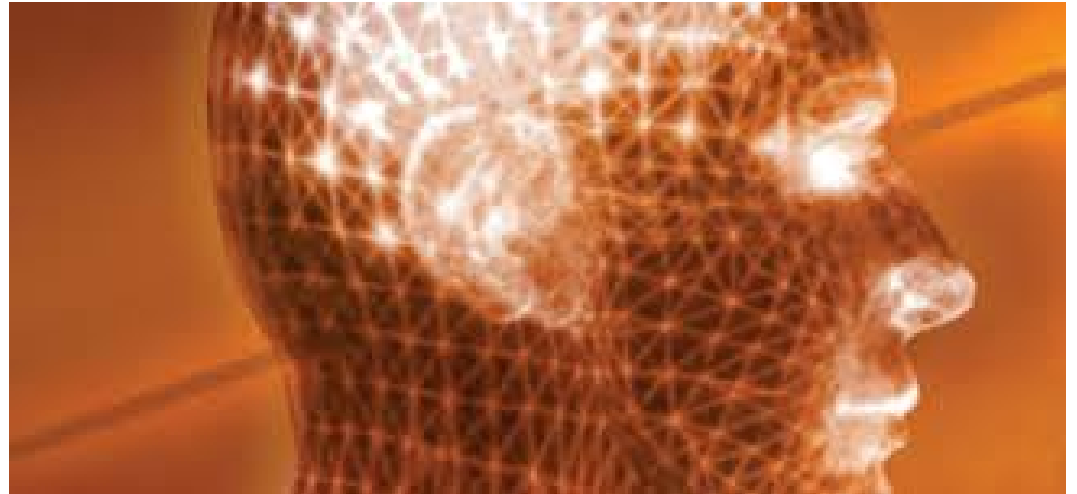
- No significant interactions of either smoking or caffeine intake with PD risk variants
- With combined smoking / caffeine exposure: significant interaction with a variant near LRRK2
- 35% **higher** PD risk among never smokers with low caffeine intake
- 32% **lower** PR risk among smokers with high caffeine intake

Risk: All models are wrong but some are useful



Developing new treatments founded on the basic science of P

Patrick Brundin



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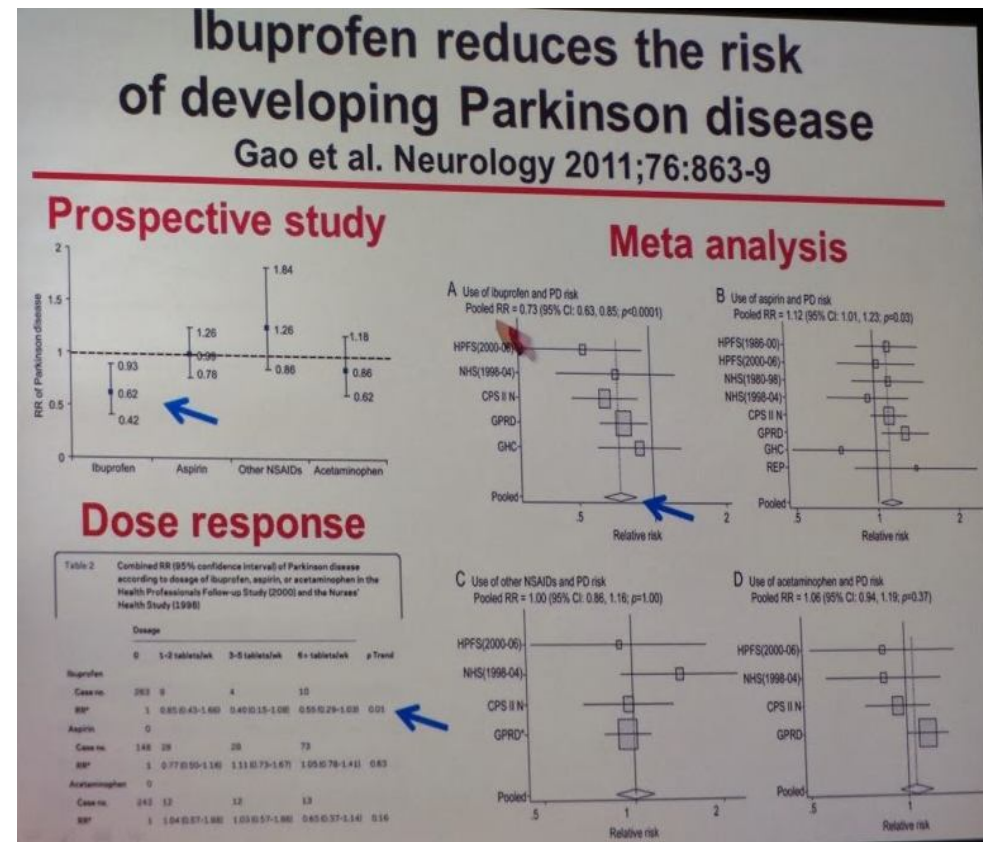
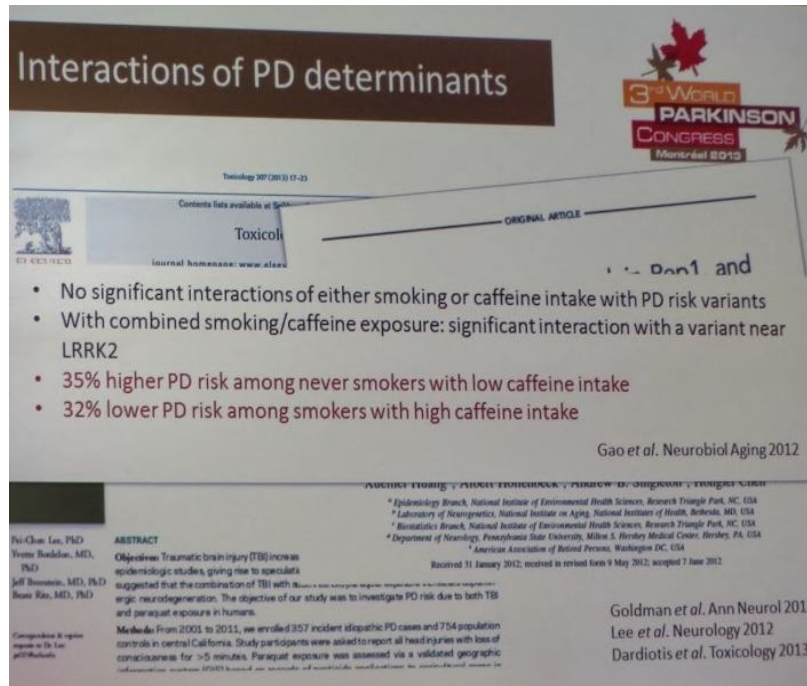
Development of New Treatments

- ❖ Disease modification in PD: still a long way to go.
- ❖ Renewed interest in developing L-DOPA.
- ❖ Develop DA meds for symptomatic *motor* & *non-motor* symptoms.
- ❖ Growing interest in non-pharmacological interventions (Surgery? Physiotherapy?).



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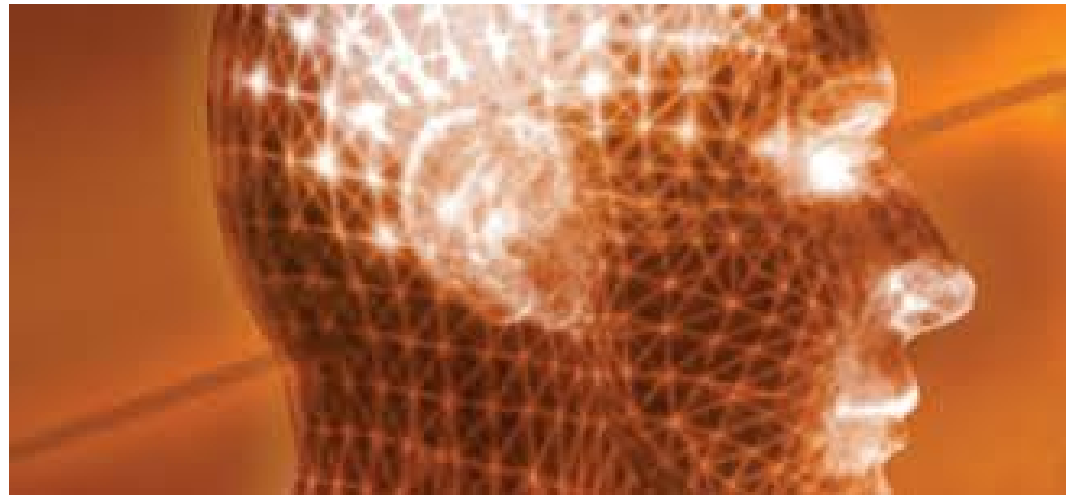
Grabbed my Attention!



How Parkinson's affects attention and memory

Crosstalk

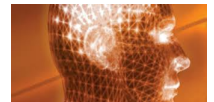
Features, syndromes and mechanisms, evaluation, management of cognitive deficits



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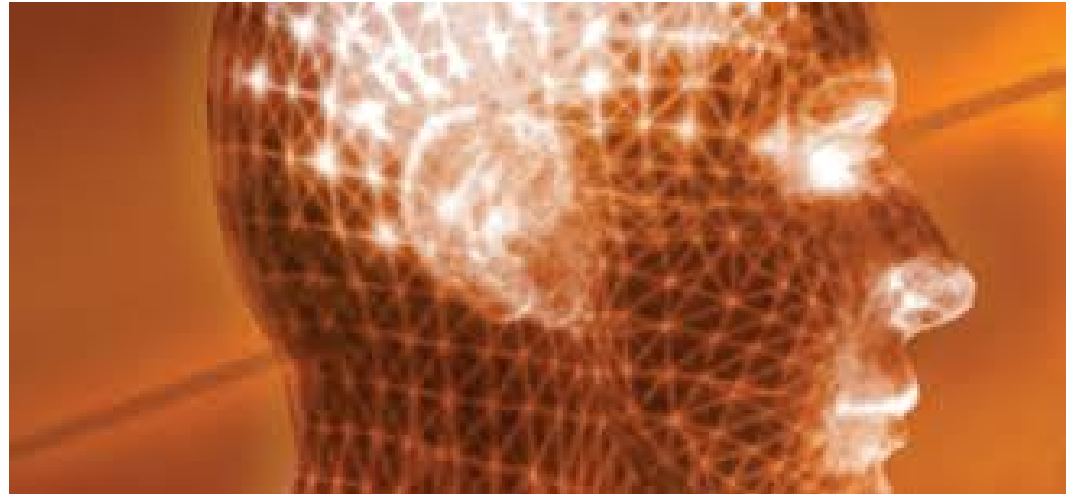
When is neuropsychological assessment appropriate?

- **Diagnosis challenging**
 - Well educated and high functioning but having cognitive complaints
 - Low educational level or language barriers to testing
 - Borderline performance
- **Uncertainty regarding ability to drive**



Memory and attention issues in PD – clinical characteristics and mechanisms

David Burn



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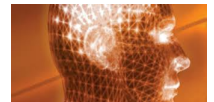
Attention in PD

- **Present in non-demented people with early-moderate PD**
- **Executive impairment associated with poor ability to**
 - **Focus attention**
 - **Resist interference**
- **Orienting impairment associated with**
 - **Difficulty selecting information from numerous sensory inputs**



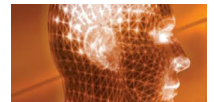
Cognitive fluctuations

- Spontaneous alterations in cognition, attention and arousal
- Carer description
 - Worst: "he couldn't work out how to charge his electric razor!"
 - Best: "he attended to clerical work and paid the bills."
- Difficult to operationalise and assess in practice
- Diagnostic importance in Lewy body dementia
- May have fluctuations in cognition but not in alertness



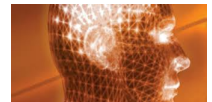
Delirium, PD and Attention

- **Common in older people and often missed**
 - May be hyperactive, hypoactive or mixed
 - Associated with altered level of consciousness, disorganised thinking and cognitive inattention
 - May determine subsequent trajectory of cognitive decline
- **In people with PD**
 - Occurs more commonly than age-matched controls
 - Associated with incident dementia, more severe motor impairment and death over 5 years
 - Difficult management as typical neuroleptics contraindicated



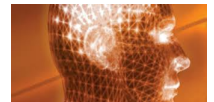
Memory in PD

- **Working memory**
 - More distributed networks according to task
 - Dependent upon genotype, basal DA levels, exogenous drugs
- **Episodic memory**
 - Less severe involvement than Alzheimer's
 - "Retrieval deficit hypothesis"
- **Procedural memory**
 - Ability to acquire skills gradually through practice
 - Impaired motor procedural learning in PD may occur relatively late



Attention and memory in PD

- **Common and variably disruptive**
- **May show inter- and intra-individual variability**
- **Endogenous (e.g. genotype) and exogenous (e.g. drug) factors may influence symptoms**
- **Both present important therapeutic targets**



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What can be done by you?

- ❖ Cannot be a passive bystander and live well with Parkinson's
- ❖ Must be an active participant in your own management
- ❖ Driving and relationships

Physical Solutions - Dr. Sonia Mathur

- ❖ Sleep problems-Fix bed times, Avoid napping, Avoid alcohol & spicy/sugary foods, Comfy bed & room temp
- ❖ Exercise – undertake regularly, realistic in your goals, physically challenging for you, be consistent and enjoy it

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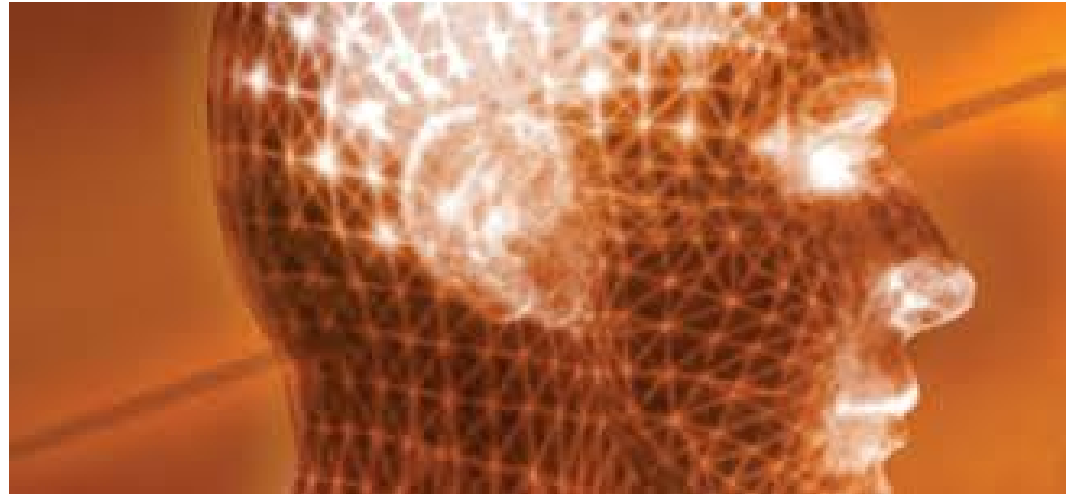
Quality of Life in Late Stages



Workshop:

Mitochondrial defect in PD: myth or reality?

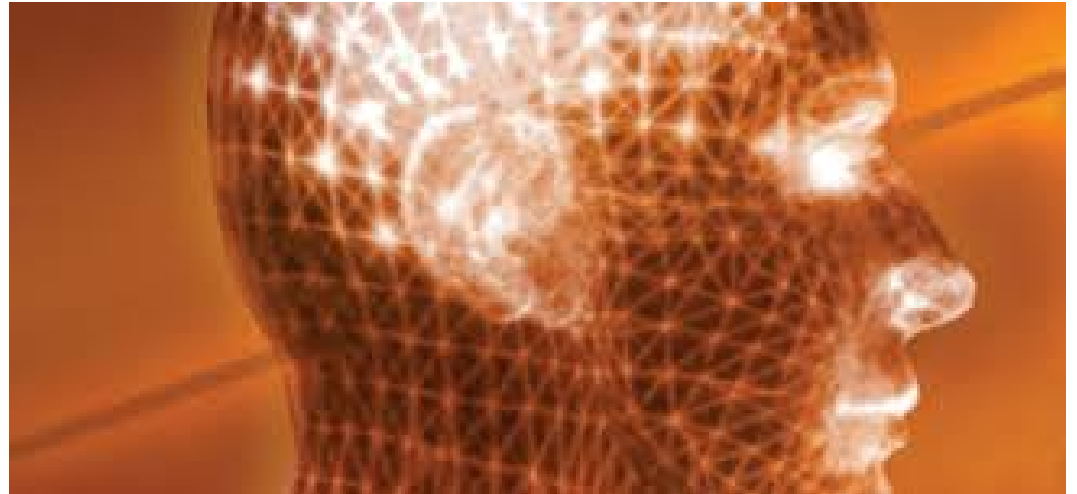
- to learn about mitochondrial biology
- to understand the key issues that surrounds the question of mitochondrial defect in PD
- to participate in a discussion about whether or not at this point there are sound experimental elements to implicate a mitochondrial defect in PD pathogenesis



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Other!

Socialising....*



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drink with Steve Ford....

Discussion re – value of this congress.

**How much dance/ exercise/ movement featured at Congress
– lectures/ practical sessions/ films/ workshops,etc**

**Chance to talk about how P.UK can help the Dance for
Parkinson's Network UK**

**Result – Toby Beazley (Executive Director of Dance
Umbrella)* who has utterly supported the Network from
2008 is now part of the invitees to decide the next 5 year
strategy for P.UK so dance has a firm place in the plan!***

