Sexual dysfunction in Parkinson’s Disease

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Sexual dysfunction in PD

- Few systematic studies
- Results contradictory and incomplete
Studies on sexual function in PD


Brown et al. *J Neurol Neurosurg Psychiatry* 1990;**53**:480–6


Basson et al. *Parkinsonism Relat Disord* 1996;**2**:177–85


Jacobs et al. *J Neurol Neurosurg Psychiatry* 2000;**69**:550–2

Sakakibara et al. *Auton Neurosci* 2001;**70**:414–5

Yu et al. *Am J Geriatr* 2004;**12**:221–6

Bronner et al. *J Sex Marital Therapy* 2004;**30**:95–105


**Mean age**
- 67
- 49
- 50
- ~ 60
- 67
- 45
- ?
- 71
- 64
- ~ 65

**Sample size**
- 36M, 14F
- 23M, 11F
- 15M, 10F
- 17M, 6F
- 27F
- 70M, 51F
- 46M, 38F
- 17M
- 43M, 32F
- 22M, 23F

*C* Controlled trials
Individuals experiencing a change in sexual function after PD onset (n=1338)

Woman has PD (n=330x2)
Man has PD (n=1008x2)

- Sexual drive ↓
- Arousal ↓
- Orgasm ↓
- Ejaculation praecox /vaginismus
- Sexual aversion

% of population

Adapted from Beier et al. Fortschr Neurol Psychiatr 2000;68:564–75 [German]

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Sexual dysfunction in PD – qualitative overview

- Common in both men and women with PD (30–85%)
- Relevant impact on QoL (of patients and partners)

<table>
<thead>
<tr>
<th>Men</th>
<th>Women</th>
<th>Both sexes</th>
</tr>
</thead>
<tbody>
<tr>
<td>- ↓ Erection</td>
<td>- ↓ Vaginal sensitivity</td>
<td>- ↓ Sexual drive</td>
</tr>
<tr>
<td>- ↓ Ejacul. control</td>
<td>- Vaginismus</td>
<td>- ↓ Arousal</td>
</tr>
<tr>
<td></td>
<td>- Urine loss</td>
<td>- ↓ Orgasms in frequency and quality</td>
</tr>
<tr>
<td></td>
<td>- Anxiety, ↓ self-esteem</td>
<td>- ↓ Satisfaction</td>
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</tbody>
</table>
Sexual dysfunction: mechanisms?

- Physical problems
- Neurobiological damage
- Psychological aspects
- Pharmacological effects
Dopamine: a ‘sexy’ transmitter

- **Preclinical evidence**
  - Inhibits prolactin release, thus increasing libido
  - Stimulates oxytocin neurons, involved in sexual drive, consummation and reward
  - Released in the medial preoptic area before and during copulation
  - Regulates the nucleus accumbens and is involved in the pleasurable component of reward

![Graph showing the effect of L-deprenyl on sexual activity in rats](image)

Dopamine: A ‘sexy’ transmitter

...approximately 50% of patients reported an increased sexual interest that was not related to improvement in locomotor function ...

Pergolide mesylate can improve sexual dysfunction in patients with Parkinson’s disease: the results of an open, prospective, 6-month follow-up

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Autonomic disturbances

• PD is a multisystem disease (e.g. degeneration of amygdala, intermedio-lateral columns, sympathetic and parasympathetic ganglia)
• Sexual disturbances are very early symptoms of multiple system atrophy (MSA)
• Anatomical substrate unclear
PD: more than sexual impairment

- **Decreased mobility**: e.g. ability to self-stimulate, caress partner, or move hips during intercourse
- **Impaired sexual self-image**: awareness of altered physical appearance, inability to facially express emotions or to sexually satisfy partner, drooling, fear of incontinence
- **Depression**
Men

- Sexual desire (often) preserved
- Erectile, orgasmic and ejaculatory difficulties

Frustration →
potential use of unregulated substances
Therapy of erectile dysfunction

• Exclude other causes
  – Pelvic disease, testosterone deficiency
  – Vascular (establish whether spontaneous erections occur or perform prostaglandin $E_1$ [PGE$_1$] test)
  – Depression
  – Drugs
Drugs inhibiting sexual function

- Alcohol, tobacco smoking, marijuana, opiates, barbiturates
- Anti-androgens, estrogens, luteinising hormone releasing hormone analogues
- Alpha- and beta-blockers, calcium channel blockers, angiotensin-converting enzyme-inhibitors, clonidine, reserpine, thiazide diuretics, spironolactone
- Antidepressants (selective serotonin reuptake inhibitors), benzodiazepines
- Anticholinergics
- Digoxin, lipid-lowering agents
- Cimetidine
- Indometacin
- Baclofen

Therapy of erectile dysfunction

• Evaluate safety
  – Coronary artery disease
  – Symptomatic hypotension
  – History of priapism
  – Dementia
Therapy options for erectile dysfunction

• Options
  – Phosphodiesterase type 5 inhibitors, e.g. sildenafil 25–100 mg, vardenafil, tadalafil.

  N.B.: hypotension, congestive heart failure, diuretic therapy, history of myocardial infarction/cardiovascular incident, renal/hepatic disease, gastroesophageal reflux, cytochrome P450 3A4 inhibitors

  Potentiate nitric oxide-mediated vasodilatation

  No effect in absence of sexual arousal
Therapy options for erectile dysfunction

• Options:
  – PGE1 (intracavernous [i.c.] or intraurethral)
    • No sexual arousal needed: very reliable, less satisfactory
    • 2–1000 μg (N.B.: burning)
  – Dopamine agonists (oral or parenteral)
  – Vacuum-constriction devices, prostheses
  – Alpha-blockers (yohimbine, phentolamine i.c.); papaverin i.c.
  – Testosterone replacement when needed
  – Ejaculatory delay: pseudoephedrine (?), penile ring, vibrator
Hypersexuality

- Most common with dopamine agonists
- Dose-dependent
- Possibly more common in young men
- Frequency up to 22%\(^1\)
- Also observed after pallidotomy or subthalamic nucleus deep brain stimulation and (in relation to dopaminergic therapy) in MSA and restless leg syndrome
- Often part of a complex clinical picture (impulse control disorder, hedonistic homeostatic dysregulation, dopamine dysregulation syndrome)

\(^1\)Kanovský et al. *J Neurol* 2002;**249**:112–4
Hypersexuality

- Excessive libido
- Obsessive masturbation
- Excessive buying/viewing/collecting of pornographic material, voyeurism
- Excessive use of sex phone line or prostitution services
- Inappropriate sexual behaviour

May lead to aberrant, criminal or immoral/antisocial actions
Hypersexuality: therapy?

- Reduce/discontinue dopamine agonists, monoamine oxidase inhibitors
- Levodopa monotherapy
- Dose reduction
- Clozapine, quetiapine

- Medroxyprogesterone (reduced testosterone production through luteinizing hormone inhibition)
- Spironolactone
Patients want more information about sexual problems particularly from their physician.

Adapted from Beier et al. *Fortschr Neurol Psychiatr* 2000;68:564–75 [German]
Rating scales assess more than sexual function

- **SCOPA-Aut** (*SCales for Outcome in *P*Arkinson’s disease – *AUTonomi*ic 23 items)*\(^1\)
  - No differences between PD and controls during validation study

- **PIMS** (*Parkinson’s IMpact Scale, 10 items)*\(^2\)
  - Partner’s situation

- **NMSS** (*Non-Motor Symptoms Scale, 30 items, rates both severity and frequency)*\(^3\)
  - Decreased (or increased) interest in sex
  - Sexual arousal problems

Summary: sexual dysfunction in PD

- Common (30–85%)
- Severe impact on quality of life
- Should be routinely addressed by health professionals
- Pharmacological treatment sometimes helpful
- Although less frequent, hypersexual behaviour may have destructive consequences and must be treated
- Communication is extremely important – physicians should actively promote it
Question 1. Routinely, what do PD patients and their partners complain of most often?

- A) Reduced sexual activity
- B) Hypersexuality
- C) Both, with similar frequency
- D) Sexual complaints are rare

Female partners of patients with PD are more likely to complain about reduced sexual activity than male partners of patients with PD or the patients themselves. Please try another option.

Correct - Click anywhere to continue

Incorrect - Click anywhere to continue

You must answer the question before continuing

Submit  Clear
Question 2. In your daily routine with PD patients, the issue of sexuality mostly emerges because:

- A) Patient’s/partner’s question
- B) Physicians actively ask
- C) Physicians use a structured interview

Currently, few physicians use questionnaires or scales despite patients or their carers wishing sexuality issues to be raised and discussed at clinical visits. Please try another option.