

Supplemental table 1. Tests of cognitive function in participants of the HPFS-ProPD study.									
Test	Latent domain	Task description	n	Mean (SD)					Confirmed PD
				Prodromal features					
				No features	Hyposmia	Hyposmia + constipation	Hyposmia + pRBD	Hyposmia, constipation, pRBD	
TICS	“Global cognition”	Modeled on the Mini-Mental State Examination. Scores range from 0 to 42.	803	33.0 (2.5)	32.4 (3.6)	31.8 (3.3)	32.4 (3.4)	31.7 (3.7)	30.5 (4.0)
EBMT									
Immediate recall	Memory	A short story is read to the respondent. Twelve key elements must be repeated immediately. Scores range from 0 to 12.	787	9.4 (1.8)	8.9 (1.9)	9.1 (1.7)	8.8 (1.8)	8.6 (1.8)	8.4 (1.4)
Delayed recall	Memory	A test of delayed recall is given 15 min later asking for the same 12 key elements.	786	8.8 (2.2)	7.9 (3.0)	8.4 (2.2)	8.1 (2.4)	8.0 (2.5)	7.7 (2.4)
TICS 10-word list, immediate recall	Memory	A ten-word list is read to respondent as part of the TICS. These words must be repeated immediately; scores range from 0 to 10.	803	3.9 (1.5)	3.8 (1.8)	3.4 (1.5)	3.7 (1.6)	3.5 (1.7)	3.1 (1.4)
TICS 10-word list, delayed recall	Memory	Participants are asked to recall a ten-word list previously asked to repeat during the TICS; scores range from 0 to 10.	802	1.8 (1.7)	1.4 (1.8)	1.3 (1.7)	1.5 (1.5)	1.3 (1.6)	1.2 (1.3)
Digit span backwards	Executive function/ working memory	Sequences of digits are read to the respondent who must recall them in backward order. Scores range from 0 to 12.	801	6.8 (2.6)	6.3 (2.3)	6.5 (2.4)	6.4 (2.3)	6.7 (2.5)	5.9 (2.5)
OTMT-A	Processing Speed/	Participants are asked to count numbers from 1 to 25. The application time is recorded by a	804	10.7 (3.0)	11.9 (7.9)	12.4 (4.4)	11.3 (4.1)	12.5 (10.4)	14.0 (16.6)

	Attention	chronometer. If there are two errors, or time goes over 2 minutes, time is recorded as "120".							
OTMT-B	Executive function/ working memory	Participants are asked to count to 13 and state the alphabet in alternating order. The application process is the same as for the OTMT-A.	803	42.9 (27.8)	47.0 (28.7)	54.3 (32.8)	49.4 (33.4)	57.2 (36.6)	69.7 (41.1)
Animal naming test	Language/ Verbal fluency	Participants name as many animals as they can during 1 min; their score is the number of animals named.	802	18.8 (5.1)	17.6 (5.9)	16.4 (5.1)	16.8 (5.8)	16.0 (5.4)	13.8 (5.4)

TICS, Telephone Interview for Cognitive Status; EBMT, East Boston Memory Test; OTMT, Oral Trail Making Test.

Supplemental table 2. Adjusted mean z scores differences and 95% confidence interval according to prodromal features and confirmed PD.							
Measure of cognitive function							
function	Domain	n	Prodromal features				Confirmed PD
			No features	Hyposmia only	Hyposmia + constipation	Hyposmia + pRBD	Hyposmia, constipation, pRBD
<i>Mean z score differences (95 percent confidence interval)</i>							
Global cognitive score		771					
Age-adjusted			ref -0.28 (-0.49, -0.07)	-0.33 (-0.55, -0.10)	-0.31 (-0.54, -0.09)	-0.48 (-0.72, -0.25)	-0.84 (-1.18, -0.50)
Multivariate-adjusted			ref -0.30 (-0.50, -0.09)	-0.32 (-0.55, -0.10)	-0.32 (-0.55, -0.09)	-0.46 (-0.70, -0.22)	-0.80 (-1.15, -0.47)
TICS score		803					
Age-adjusted			ref -0.11 (-0.32, 0.09)	-0.27 (-0.49, -0.04)	-0.17 (-0.39, 0.06)	-0.32 (-0.55, -0.08)	-0.79 (-1.11, -0.47)
Multivariate-adjusted			ref -0.13 (-0.33, 0.08)	-0.26 (-0.48, -0.03)	-0.16 (-0.38, 0.07)	-0.29 (-0.52, -0.05)	-0.75 (-1.07, -0.43)
TICS immediate 10-word list	Memory	803					
Age-adjusted			ref 0.01 (-0.20, 0.22)	-0.21 (-0.43, 0.01)	-0.16 (-0.39, 0.06)	-0.19 (-0.42, 0.05)	-0.55 (-0.87, -0.23)
Multivariate-adjusted			ref 0.00 (-0.21, 0.20)	-0.20 (-0.43, 0.02)	-0.16 (-0.39, 0.06)	-0.15 (-0.39, 0.09)	-0.53 (-0.85, -0.21)
TICS delayed 10-word list	Memory	802					
Age-adjusted			ref -0.16 (-0.37, 0.05)	-0.21 (-0.44, 0.02)	-0.18 (-0.41, 0.04)	-0.24 (-0.48, 0.00)	-0.43 (-0.75, -0.10)
Multivariate-adjusted			ref -0.17 (-0.39, 0.04)	-0.21 (-0.44, 0.01)	-0.20 (-0.43, 0.03)	-0.24 (-0.49, 0.00)	-0.44 (-0.77, -0.11)
EBMT							
Immediate recall	Memory	787					

	Age-adjusted	ref	-0.25 (-0.46, -0.03)	-0.12 (-0.36, 0.11)	-0.34 (-0.57, -0.11)	-0.42 (-0.67, -0.18)	-0.63 (-0.97, -0.29)
	Multivariate-adjusted	ref	-0.26 (-0.48, -0.05)	-0.12 (-0.36, 0.11)	-0.35 (-0.59, -0.12)	-0.40 (-0.65, -0.15)	-0.60 (-0.94, -0.26)
Delayed recall	Memory	786					
	Age-adjusted	ref	-0.30 (-0.51, -0.08)	-0.12 (-0.35, 0.12)	-0.26 (-0.49, -0.02)	-0.29 (-0.54, -0.04)	-0.45 (-0.79, -0.11)
	Multivariate-adjusted	ref	-0.30 (-0.52, -0.08)	-0.11 (-0.34, 0.13)	-0.26 (-0.50, -0.02)	-0.28 (-0.53, -0.03)	-0.44 (-0.79, -0.10)
Digit span backwards	Executive function/ working memory	801					
	Age-adjusted	ref	-0.19 (-0.40, 0.03)	-0.09 (-0.33, 0.15)	-0.16 (-0.39, 0.08)	-0.01 (-0.26, 0.24)	-0.41 (-0.75, -0.07)
	Multivariate-adjusted	ref	-0.20 (-0.42, 0.02)	-0.10 (-0.34, 0.14)	-0.17 (-0.41, 0.07)	-0.02 (-0.27, 0.23)	-0.41 (-0.75, -0.06)
OTMT-B	Executive function/ Working memory	803					
	Age-adjusted	ref	-0.10 (-0.32, 0.11)	-0.32 (-0.55, -0.09)	-0.21 (-0.44, 0.03)	-0.42 (-0.67, -0.18)	-0.85 (-1.19, -0.51)
	Multivariate-adjusted	ref	-0.11 (-0.32, 0.11)	-0.33 (-0.56, -0.09)	-0.22 (-0.45, 0.02)	-0.44 (-0.69, -0.19)	-0.87 (-1.21, -0.53)
OTMT-A	Processing speed/ Attention	804					
	Age-adjusted	ref	-0.14 (-0.36, 0.08)	-0.21 (-0.44, 0.03)	-0.08 (-0.32, 0.16)	-0.23 (-0.48, 0.02)	-0.45 (-0.79, -0.11)
	Multivariate-adjusted	ref	-0.14 (-0.36, 0.08)	-0.20 (-0.43, 0.04)	-0.06 (-0.30, 0.18)	-0.22 (-0.47, 0.03)	-0.43 (-0.77, -0.09)
Animal naming test	Language/ Verbal fluency	802					
	Age-adjusted	ref	-0.18 (-0.38, 0.03)	-0.37 (-0.60, -0.15)	-0.37 (-0.60, -0.14)	-0.48 (-0.71, -0.24)	-0.97 (-1.29, -0.65)
	Multivariate-adjusted	ref	-0.18 (-0.39, 0.03)	-0.37 (-0.59, -0.14)	-0.36 (-0.59, -0.14)	-0.46 (-0.70, -0.22)	-0.94 (-1.26, -0.61)

*TICS, Telephone Interview for Cognitive Status; EBMT, East Boston Memory Test; OTMT, Oral Trail Making Test. The global score is a composite of all cognitive tests.

Multivariate-adjusted models were adjusted for age (years, continuous), physical activity (met-h/week, quartiles), body-mass index (normal weight, overweight, and obese), smoking status (never, ever, unknown), alcohol consumption (g/day, continuous) and coffee consumption (servings/day, continuous).

Supplemental table 3. Adjusted odds ratios of subjective cognitive decline items according to presence of prodromal features and confirmed PD.						
Subjective cognitive decline item	Prodromal features					Confirmed PD
	No features	Hyposmia only	Hyposmia + constipation	Hyposmia + pRBD	Hyposmia, constipation, and pRBD	
<i>Odds ratios (95 percent confidence interval)</i>						
Perceived recent change ability to:						
1. Remember things	Ref	1.67 (1.04, 2.68)	1.95 (1.17, 3.25)	2.15 (1.29, 3.58)	2.4 (1.41, 4.10)	2.51 (1.22, 5.18)
2. Remember recent events	Ref	3.38 (1.58, 7.23)	3.48 (1.57, 7.69)	4.81 (2.21, 10.50)	5.67 (2.58, 12.47)	11.46 (4.57, 28.78)
3. Remember a short list of items	Ref	1.03 (0.62, 1.72)	1.46 (0.85, 2.49)	1.62 (0.95, 2.76)	1.94 (1.11, 3.37)	3.62 (1.73, 7.55)
4. Remember things from one second to the next	Ref	1.03 (0.56, 1.92)	1.31 (0.68, 2.50)	1.98 (1.06, 3.69)	1.65 (0.85, 3.20)	1.57 (0.65, 3.78)
5. Understand or follow spoken instructions	Ref	1.45 (0.64, 3.30)	0.83 (0.32, 2.19)	1.84 (0.78, 4.33)	2.90 (1.25, 6.73)	7.74 (2.99, 20.08)
6. Follow a group conversation or plot of a television program	Ref	1.13 (0.43, 2.93)	2.64 (1.05, 6.61)	3.98 (1.62, 9.79)	3.00 (1.18, 7.62)	7.97 (2.77, 22.94)
7. Find one's way on familiar streets	Ref	2.33 (0.48, 11.28)	2.13 (0.40, 11.36)	2.68 (0.52, 13.70)	6.98 (1.51, 32.35)	13.72 (2.68, 70.15)
Multivariate-adjusted models included age (years, continuous), physical activity (met-h/week, quartiles), body-mass index (normal weight, overweight, and obese), smoking status (never, ever, unknown), alcohol consumption (g/day, continuous), coffee consumption (servings/day, continuous), and depressive symptoms (yes, no).						