SUPPLEMENTARY MATERIAL
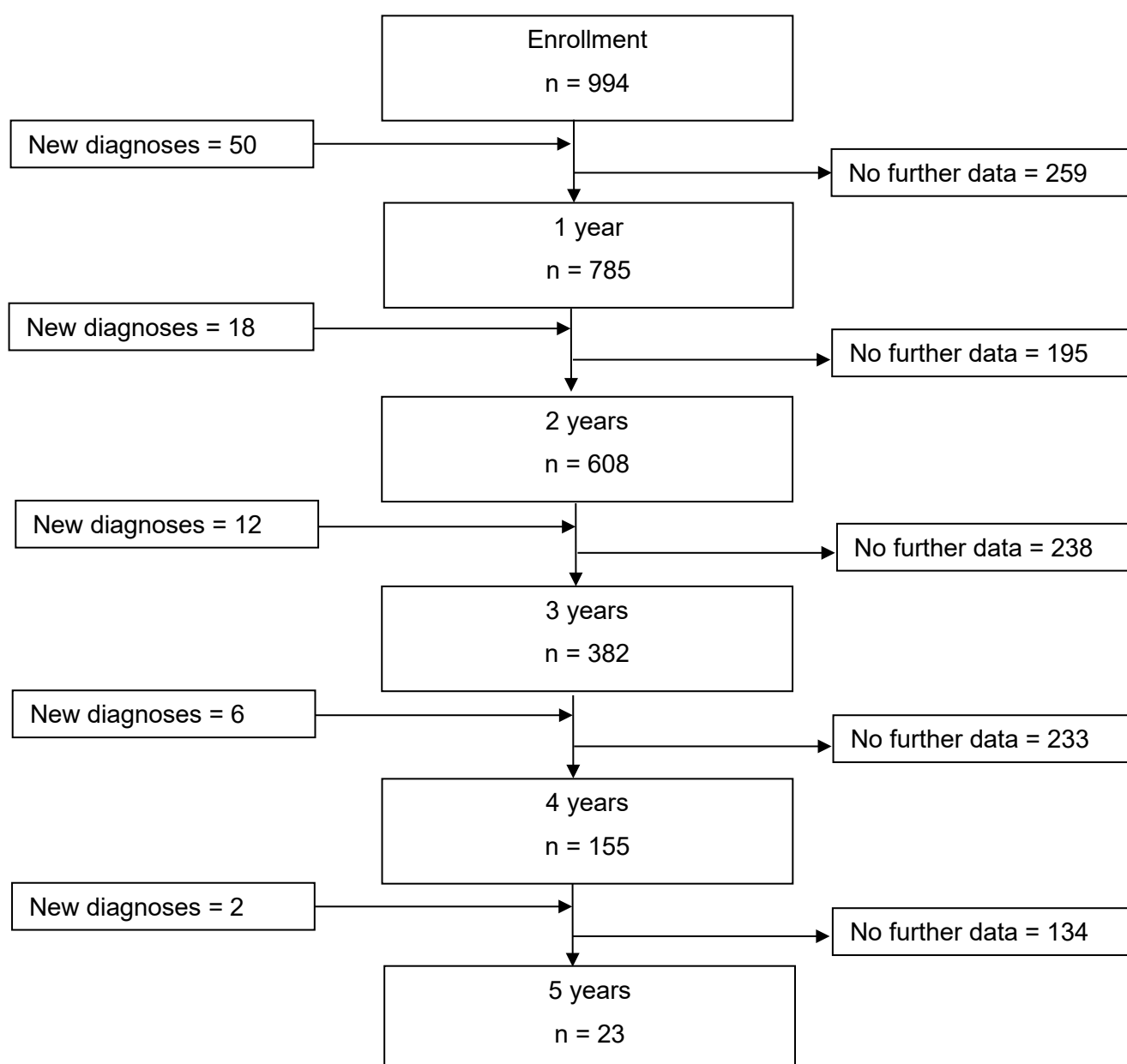
Appendix 1: Supplementary Figure

Flow diagram indicating sample sizes across time points (patients diagnosed with Huntington disease on the basis of clinician confidence ≥ 99% in diagnosis according to UHDRS motor criteria and CAG counts greater than 35).

Appendix 2: Trajectory of Apathy over Time

Table 1

Linear mixed model examining the trajectory of apathy over time

Parameter	Estimate	95% CI	Sig
Apathy over time			
Intercept[1]	3.33	0.06, 6.61	0.046
Time effect[2]	0.10	0.05, 0.14	**< 0.001**
CAG	-0.03	-0.08, 0.03	0.325
Age	-0.01	-0.03, 0.01	0.328
Sex (female)	0.09	-0.24, 0.41	0.593
Controlling for depression and medications			
Intercept[3]	1.36	-2.00, 4.72	0.427
Time effect[4]	0.07	0.03, 0.11	**0.002**
CAG	-0.01	-0.07, 0.05	0.710
Age	0.00	-0.02, 0.02	0.873
Sex (female)	-0.28	-0.61, 0.04	0.086
Depression	0.42	0.37, 0.46	**< 0.001**
Antidepressant	0.33	0.03, 0.64	**0.034**
Stimulant	-0.31	-1.42, 0.79	0.580
Antipsychotic	0.84	0.51, 1.17	**< 0.001**

Note. Apathy and depression were measured using the Unified Huntington Disease Rating Scale (UHDRS). Numbers in bold indicate p-values < 0.05.

[1]*Random effect with mean 3.33 and SD = 1.71*

[2]*Random effect with mean 0.10 and SD = 0.17*

[3]*Random effect with mean 1.36 and SD = 1.34*

[4]*Random effect with mean 0.07 and SD = 0.17*

Table 2

Linear mixed model examining the trajectory of depression

Parameter	Estimate	95% CI	Sig
Depression over time			
Intercept[1]	6.23	3.51, 8.95	**< 0.001**
Time effect[2]	-0.01	-0.04, 0.02	0.610
CAG	-0.07	-0.12, -0.03	**0.002**
Age	-0.03	-0.05, -0.01	**< 0.001**
Sex (female)	0.64	0.38, 0.91	**< 0.001**
Controlling for apathy and medications			
Intercept[3]	4.98	2.20, 7.76	**< 0.001**
Time effect[4]	-0.04	-0.07, 0.00	**0.029**
CAG	-0.06	-0.11, -0.01	**0.015**
Age	-0.03	-0.04, -0.01	**0.001**
Sex (female)	0.65	0.38, 0.91	**< 0.001**
Apathy	0.26	0.23, 0.28	**< 0.001**
Antidepressant	0.29	0.05, 0.54	**0.019**
Stimulant	0.31	-0.54, 1.17	0.471
Antipsychotic	-0.12	-0.38, 0.15	0.385

Note. Apathy and depression were measured using the Unified Huntington Disease Rating Scale (UHDRS). Numbers in bold indicate p-values < 0.05.

[1]*Random effect with mean 6.23 and SD = 1.67*

[2]*Random effect with mean -0.01 and SD = 0.00*

[3]*Random effect with mean 4.98 and SD = 1.39*

[4]*Random effect with mean -0.04 and SD = 0.05*

Appendix 3: Trajectory of Apathy over Time

Table 1

Unadjusted mean scores of apathy and depression across the first four years of the study

	Apathy	**Depression**
Baseline	1.96 (3.45)	1.71 (2.95)
1 year	2.18 (3.67)	1.62 (2.88)
2 years	1.99 (3.36)	1.49 (2.61)
3 years	2.50 (3.86)	1.75 (2.87)
4 years	2.71 (4.05)	1.56 (2.66)

Note. Apathy and depression were measured using the Unified Huntington Disease Rating Scale (UHDRS). Characteristics are summarized as means (standard deviations). Analyses focused on the first four years of the study due to the small number of participants returning thereafter (see main text).

Appendix 4: Subdomain Outcomes

Table 1

Linear mixed models for cognitive tests other than the Mini-Mental State Examination

Parameter	Estimate	95% CI	Sig
Symbol Digit Modalities Test			
Intercept[1]	133.13	118.63, 147.62	**< 0.001**
Time effect[2]	-1.32	-1.45, -1.18	**< 0.001**
Apathy	-0.13	-0.21, -0.05	**0.001**
Depression	-0.05	-0.15, 0.04	0.265
CAG	-1.75	-2.00, -1.50	**< 0.001**
Age	-0.53	-0.61, -0.45	**< 0.001**
Sex (female)	0.30	-0.97, 1.57	0.647
Verbal Fluency			
Intercept[3]	117.40	100.91, 133.90	**< 0.001**
Time effect[4]	-0.62	-0.76, -0.48	**< 0.001**
Apathy	-0.18	-0.27, -0.09	**< 0.001**
Depression	0.12	0.01, 0.23	**0.026**
CAG	-1.64	-1.93, -1.36	**< 0.001**
Age	-0.39	-0.48, -0.30	**< 0.001**
Sex (female)	0.21	-1.25, 1.66	0.780
Stroop Interference Test			
Intercept[5]	103.44	89.30, 117.58	**< 0.001**
Time effect[6]	-0.97	-1.12, -0.83	**< 0.001**
Apathy	-0.39	-0.54, -0.25	**< 0.001**
Apathy*Time	0.03	0.01, 0.05	**0.003**
Depression	-0.04	-0.15, 0.07	0.457
CAG	-1.11	-1.36, -0.87	**< 0.001**

Age	-0.48	-0.56, -0.40	**< 0.001**
Sex (female)	0.30	-0.95, 1.55	0.642

Note. Apathy and depression were measured using the Unified Huntington Disease Rating Scale (UHDRS). Numbers in bold indicate p-values < 0.05.

[1] *Random effect with mean 133.13 and SD = 9.03*

[2] *Random effect with mean -1.32 and SD = 0.75*

[3] *Random effect with mean 117.40 and SD = 10.90*

[4] *Random effect with mean -0.62 and SD = 0.59*

[5] *Random effect with mean 103.44 and SD = 8.99*

[6] *Random effect with mean -0.97 and SD = 0.58*

Table 2

Linear mixed models for occupational functioning, suicidal ideation, and psychosis

Parameter	Estimate	95% CI	Sig
Occupational Functioning			
Intercept[1]	5.17	4.16, 6.18	**< 0.001**
Time effect[2]	-0.10	-0.11, -0.09	**< 0.001**
Apathy	-0.03	-0.05, -0.02	**< 0.001**
Apathy*Time	0.00	0.00, 0.00	**< 0.001**
Depression	-0.01	-0.02, 0.01	0.321
CAG	-0.06	-0.08, -0.05	**< 0.001**
Age	-0.02	-0.02, -0.01	**< 0.001**
Sex (female)	-0.08	-0.18, 0.02	0.097
Suicidal Ideation			
Intercept[3]	-0.75	-1.73, 0.24	0.138
Time effect[4]	-0.01	-0.02, 0.00	0.154
Apathy	0.01	-0.01, 0.02	0.326
Depression	0.09	0.08, 0.11	**< 0.001**
Independence	0.00	0.00, 0.00	0.784
Cognition	-0.01	-0.02, 0.00	0.303
Motor	0.00	0.00, 0.00	0.284
CAG	0.02	0.00, 0.03	0.054
Age	0.00	0.00, 0.01	0.523
Sex (female)	-0.02	-0.09, 0.05	0.559
Antidepressant	0.05	-0.02, 0.13	0.148
Psychosis			
Intercept[5]	-1.42	-3.22, 0.38	0.123
Time effect[6]	-0.02	-0.04, 0.01	0.193

Apathy	0.02	0.00, 0.04	**0.026**
Depression	0.05	0.03, 0.08	**< 0.001**
CAG	0.03	-0.01, 0.06	0.107
Age	0.01	0.00, 0.02	0.173
Sex (female)	-0.01	-0.19, 0.17	0.927
Antipsychotic	0.54	0.37, 0.72	**< 0.001**

Note. Independence, occupational functioning, and neuropsychiatric symptoms were measured using the Unified Huntington Disease Rating Scale (UHDRS). Psychosis was calculated as the sum of the total scores of delusions and hallucinations within the UHDRS. Numbers in bold indicate p-values < 0.05.

[1] *Random effect with mean 5.17 and SD = 0.74*

[2] *Random effect with mean -0.10 and SD = 0.01*

[3] *Random effect with mean -0.75 and SD = 0.17*

[4] *Random effect with mean -0.01 and SD = 0.00*

[5] *Random effect with mean -1.42 and SD = 0.15*

[6] *Random effect with mean -0.02 and SD = 0.00*

Table 3

Linear mixed models for measures of individual motor symptoms

Parameter	Estimate	95% CI	Sig
Chorea			
Intercept[1]	-2.75	-8.18, 2.67	0.319
Time effect[2]	0.20	0.14, 0.27	**< 0.001**
Apathy	-0.02	-0.07, 0.02	0.294
Depression	0.01	-0.04, 0.07	0.670
CAG	0.16	0.07, 0.25	**0.001**
Age	0.10	0.06, 0.13	**< 0.001**
Sex (female)	0.01	-0.53, 0.55	0.979
Antipsychotic	0.01	-0.43, 0.46	0.953
Tetrabenazine	0.38	-0.35, 1.11	0.305
Dystonia			
Intercept[3]	-15.43	-19.14, -11.71	**< 0.001**
Time effect[4]	0.30	0.24, 0.35	**< 0.001**
Apathy	0.02	-0.01, 0.05	0.274
Depression	0.01	-0.03, 0.05	0.525
CAG	0.32	0.25, 0.38	**< 0.001**
Age	0.07	0.05, 0.09	**< 0.001**
Sex (female)	-0.03	-0.40, 0.34	0.870
Antipsychotic	0.53	0.22, 0.85	**0.001**
Tetrabenazine	-0.32	-0.85, 0.21	0.243
Rigidity			
Intercept[5]	-5.48	-7.04, -3.93	**< 0.001**
Time effect[6]	0.10	0.08, 0.12	**< 0.001**
Apathy	0.02	0.00, 0.03	**0.032**

Depression	0.01	-0.01, 0.03	0.391
CAG	0.12	0.10, 0.15	**< 0.001**
Age	0.02	0.01, 0.03	**< 0.001**
Sex (female)	-0.17	-0.32, -0.01	**0.035**
Antipsychotic	0.16	0.03, 0.30	**0.020**
Tetrabenazine	0.01	-0.22, 0.24	0.930
Balance			
Intercept[7]	-16.32	-18.88, -13.77	**< 0.001**
Time effect[8]	0.32	0.29, 0.35	**< 0.001**
Apathy	0.03	0.01, 0.05	**0.004**
Depression	0.02	0.00, 0.05	**0.042**
CAG	0.29	0.24, 0.33	**< 0.001**
Age	0.11	0.09, 0.12	**< 0.001**
Sex (female)	0.85	0.59, 1.11	**< 0.001**
Antipsychotic	0.64	0.44, 0.83	**< 0.001**
Tetrabenazine	0.58	0.26, 0.90	**< 0.001**
Bradykinesia			
Intercept[9]	-4.78	-5.84, -3.72	**< 0.001**
Time effect[10]	0.09	0.08, 0.10	**< 0.001**
Apathy	0.02	0.01, 0.02	**0.001**
Depression	0.01	0.00, 0.02	0.182
CAG	0.10	0.08, 0.12	**< 0.001**
Age	0.02	0.01, 0.03	**< 0.001**
Sex (female)	-0.02	-0.13, 0.08	0.668
Antipsychotic	0.27	0.18, 0.36	**< 0.001**
Tetrabenazine	0.13	-0.01, 0.28	0.076

Note. Movement disturbances and neuropsychiatric symptoms were measured using the Unified Huntington Disease Rating Scale (UHDRS). Numbers in bold indicate p-values < 0.05.

[1] *Random effect with mean -2.75 and SD = 3.70*

[2] Random effect with mean 0.20 and SD = 0.26

[3] Random effect with mean -15.43 and SD = 2.21

[4] Random effect with mean 0.30 and SD = 0.32

[5] Random effect with mean -5.48 and SD = 0.93

[6] Random effect with mean 0.10 and SD = 0.11

[7] Random effect with mean -16.32 and SD = 1.74

[8] Random effect with mean 0.32 and SD = 0.17

[9] Random effect with mean -4.78 and SD = 0.69

[10] Random effect with mean 0.09 and SD = 0.06

Appendix 5: Apathy as Dichotomous Trait

Table 1

Linear mixed models for measures of function

Parameter	Estimate	95% CI	Sig
Independence Scale			
Intercept[1]	170.75	155.29, 186.22	**< 0.001**
Time effect[2]	-2.38	-2.56, -2.19	**< 0.001**
Apathy	-4.03	-4.97, -3.08	**< 0.001**
Depression	-0.57	-1.61, 0.47	0.281
CAG	-1.33	-1.59, -1.07	**< 0.001**
Age	-0.38	-0.47, -0.29	**< 0.001**
Sex (female)	-2.61	-4.15, -1.06	**0.001**
Total Functional Capacity			
Intercept[3]	27.09	23.72, 30.46	**< 0.001**
Time effect for apathy*[4]	-0.43	-0.47, -0.39	**< 0.001**
Time effect for no apathy*[5]	-0.49	-0.53, -0.45	**< 0.001**
Apathy at time of diagnosis	-0.98	-1.26, -0.69	**< 0.001**
Depression	-0.03	-0.24, 0.19	0.816
CAG	-0.28	-0.34, -0.22	**< 0.001**
Age	-0.08	-0.10, -0.06	**< 0.001**
Sex (female)	-0.60	-0.94, -0.27	**< 0.001**

Note. Function and neuropsychiatric symptoms were measured using the Unified Huntington Disease Rating Scale (UHDRS). Numbers in bold indicate p-values < 0.05.

*Interaction significant at p = 0.06. Separate time effects reported for different values of categorical variable.

[1] *Random effect with mean 170.75 and SD = 10.46*

[2] *Random effect with mean -2.38 and SD = 1.28*

[3] *Random effect with mean 27.09 and SD = 2.41*

[4] *Random effect with mean -0.43 and SD = 0.22*

[5] *Random effect with mean -0.49 and SD = 0.22*

Table 2

Linear mixed models for measures of cognition

Parameter	Estimate	95% CI	Sig
Mini-Mental State Examination			
Intercept[1]	46.15	41.58, 50.72	**< 0.001**
Time effect for apathy[*2]	-0.44	-0.51, -0.37	**< 0.001**
Time effect for no apathy[*3]	-0.38	-0.45, -0.30	**< 0.001**
Apathy at time of diagnosis	-0.38	-0.83, 0.08	0.108
Depression	-0.06	-0.40, 0.29	0.741
CAG	-0.33	-0.41, -0.25	**< 0.001**
Age	-0.09	-0.12, -0.06	**< 0.001**
Sex (female)	-0.41	-0.86, 0.04	0.073
Symbol Digit Modalities Test			
Intercept[4]	135.82	121.20, 150.44	**< 0.001**
Time effect[5]	-1.21	-1.35, -1.07	**< 0.001**
Apathy	-1.64	-2.36, -0.92	**< 0.001**
Depression	-0.30	-1.09, 0.50	0.469
CAG	-1.79	-2.04, -1.53	**< 0.001**
Age	-0.54	-0.62, -0.46	**< 0.001**
Sex (female)	0.33	-0.94, 1.59	0.615
Verbal Fluency			
Intercept[6]	118.09	101.39, 134.78	**< 0.001**
Time effect[7]	-0.60	-0.75, -0.45	**< 0.001**
Apathy	-1.17	-2.00, -0.34	**0.006**
Depression	0.56	-0.37, 1.48	0.237
CAG	-1.65	-1.94, -1.36	**< 0.001**
Age	-0.40	-0.49, -0.30	**< 0.001**

Sex (female)	0.25	-1.21, 1.70	0.741
Stroop Interference Test			
Intercept[8]	106.02	91.63, 120.41	**< 0.001**
Time effect[9]	-0.83	-0.97, -0.68	**< 0.001**
Apathy	-1.60	-2.41, -0.80	**< 0.001**
Depression	-0.73	-1.62, 0.16	0.107
CAG	-1.16	-1.40, -0.91	**< 0.001**
Age	-0.49	-0.58, -0.41	**< 0.001**
Sex (female)	0.35	-0.90, 1.61	0.581

Note. Neuropsychiatric symptoms were measured using the Unified Huntington Disease Rating Scale (UHDRS). Numbers in bold indicate p-values < 0.05.

*Interaction significant at p = 0.97. Separate time effects reported for different values of categorical variable.

[1]*Random effect with mean 46.15 and SD = 2.75*

[2]*Random effect with mean -0.44 and SD = 0.46*

[3]*Random effect with mean -0.38 and SD = 0.46*

[4]*Random effect with mean 135.82 and SD = 9.04*

[5]*Random effect with mean -1.21 and SD = 0.74*

[6]*Random effect with mean 118.09 and SD = 10.90*

[7]*Random effect with mean -0.60 and SD = 0.60*

[8]*Random effect with mean 106.02 and SD = 9.03*

[9]*Random effect with mean -0.83 and SD = 0.59*

Table 3

Linear mixed models for measures of motor and behavioral symptoms

Parameter	Estimate	95% CI	Sig
Motor Total			
Intercept[1]	-92.92	-110.91, -74.94	**< 0.001**
Time effect[2]	2.38	2.16, 2.59	**< 0.001**
Apathy	1.44	0.35, 2.53	**0.010**
Depression	0.44	-0.76, 1.63	0.474
CAG	2.04	1.73, 2.34	**< 0.001**
Age	0.57	0.46, 0.68	**< 0.001**
Sex (female)	1.84	0.04, 3.63	**0.045**
Antipsychotic	2.75	1.53, 3.96	**< 0.001**
Tetrabenazine	1.52	-0.42, 3.47	0.124
Neuropsychiatric Symptoms			
Intercept[3]	0.06	-11.48, 11.60	0.992
Time effect[4]	-0.25	-0.38, -0.12	**< 0.001**
Apathy	5.21	4.20, 6.21	**< 0.001**
Depression	4.55	3.49, 5.61	**< 0.001**
CAG	0.13	-0.07, 0.32	0.209
Age	-0.02	-0.09, 0.05	0.656
Sex (female)	0.47	-0.65, 1.58	0.411
Antipsychotic	2.19	1.16, 3.22	**< 0.001**

Note. Movement disturbances and neuropsychiatric symptoms were measured using the Unified Huntington Disease Rating Scale (UHDRS). Numbers in bold indicate p-values < 0.05.

[1] *Random effect with mean -92.92 and SD = 12.32*

[2] *Random effect with mean 2.38 and SD = 1.42*

[3] *Random effect with mean 0.06 and SD = 7.24*

[4] *Random effect with mean -0.25 and SD = 0.00*

Appendix 6: Baseline Apathy as a Predictor of Disease Course

Apathy assessed as a continuous measure (score 0-16) at baseline; outcome measures assessed longitudinally across the study.

Table 1

Linear mixed models for measures of function

Parameter	Estimate	95% CI	Sig
Independence Scale			
Intercept[1]	169.23	153.79, 184.67	**< 0.001**
Time effect[2]	-2.76	-2.97, -2.56	**< 0.001**
Apathy	-1.09	-1.42, -0.77	**< 0.001**
Apathy*Time	0.09	0.04, 0.14	**< 0.001**
Depression	-0.12	-0.40, 0.17	0.422
CAG	-1.29	-1.56, -1.03	**< 0.001**
Age	-0.37	-0.46, -0.27	**< 0.001**
Sex (female)	-2.76	-4.32, -1.20	**0.001**
Total Functional Capacity			
Intercept[3]	26.84	23.50, 30.19	**< 0.001**
Time effect[4]	-0.53	-0.57, -0.49	**< 0.001**
Apathy	-0.24	-0.31, -0.17	**< 0.001**
Apathy*Time	0.02	0.01, 0.03	**< 0.001**
Depression	0.00	-0.06, 0.06	0.947
CAG	-0.27	-0.33, -0.22	**< 0.001**
Age	-0.07	-0.10, -0.05	**< 0.001**
Sex (female)	-0.65	-0.99, -0.31	**< 0.001**

Note. Function and neuropsychiatric symptoms were measured using the Unified Huntington Disease Rating Scale (UHDRS). Numbers in bold indicate p-values < 0.05.

[1] *Random effect with mean 169.23 and SD = 10.45*

[2] *Random effect with mean -2.76 and SD = 1.30*

[3]*Random effect with mean 26.84 and SD = 2.38*

[4] *Random effect with mean -0.53 and SD = 0.23*

Table 2

Linear mixed models for measures of cognition

Parameter	Estimate	95% CI	Sig
Mini-Mental State Examination			
Intercept[1]	45.92	41.38, 50.46	**< 0.001**
Time effect[2]	-0.44	-0.50, -0.38	**< 0.001**
Apathy	-0.12	-0.19, -0.05	**0.001**
Depression	0.02	-0.06, 0.10	0.617
CAG	-0.32	-0.40, -0.25	**< 0.001**
Age	-0.08	-0.11, -0.06	**< 0.001**
Sex (female)	-0.46	-0.92, -0.01	**0.045**
Symbol Digits Modalities Test			
Intercept[3]	134.70	120.07, 149.34	**< 0.001**
Time effect[4]	-1.43	-1.58, -1.28	**< 0.001**
Apathy	-0.47	-0.74, -0.19	**0.001**
Apathy*Time	0.06	0.02, 0.10	**0.005**
Depression	-0.04	-0.28, 0.21	0.775
CAG	-1.76	-2.02, -1.51	**< 0.001**
Age	-0.53	-0.61, -0.45	**< 0.001**
Sex (female)	0.25	-1.03, 1.53	0.702
Verbal Fluency			
Intercept[5]	118.07	101.46, 134.68	**< 0.001**
Time effect[6]	-0.62	-0.77, -0.48	**< 0.001**
Apathy	-0.39	-0.63, -0.16	**0.001**
Depression	0.21	-0.06, 0.48	0.120
CAG	-1.65	-1.94, -1.36	**< 0.001**
Age	-0.39	-0.48, -0.30	**< 0.001**

Sex (female)	0.09	-1.38, 1.55	0.908
Stroop Interference Test			
Intercept[7]	104.72	90.46, 118.99	**< 0.001**
Time effect[8]	-1.07	-1.23, -0.91	**< 0.001**
Apathy	-0.74	-1.02, -0.45	**< 0.001**
Depression	0.08	0.04, 0.12	**< 0.001**
CAG	-0.01	-0.24, 0.22	0.933
Age	-1.12	-1.37, -0.88	**< 0.001**
Sex (female)	-0.49	-0.57, -0.41	**< 0.001**

Note. Neuropsychiatric symptoms were measured using the Unified Huntington Disease Rating Scale (UHDRS). Numbers in bold indicate p-values < 0.05.

[1]*Random effect with mean 45.92 and SD = 0.69*

[2]*Random effect with mean -0.44 and SD = 0.06*

[3]*Random effect with mean 134.70 and SD = 9.03*

[4]*Random effect with mean -1.43 and SD = 0.75*

[5]*Random effect with mean 118.07 and SD = 10.89*

[6]*Random effect with mean -0.62 and SD = 0.61*

[7]*Random effect with mean 104.72 and SD = 8.98*

[8]*Random effect with mean -1.07 and SD = 0.59*

Table 3

Linear mixed models for measures of neuropsychiatric and motor symptoms

Parameter	Estimate	95% CI	Sig
Motor Total			
Intercept[1]	-91.48	-109.45, -73.51	**< 0.001**
Time effect[2]	2.47	2.26, 2.68	**< 0.001**
Apathy	0.17	-0.12, 0.46	0.262
Depression	0.12	-0.21, 0.44	0.485
CAG	2.02	1.71, 2.32	**< 0.001**
Age	0.56	0.45, 0.67	**< 0.001**
Sex (female)	1.84	0.03, 3.66	**0.047**
Antipsychotic	2.74	1.52, 3.96	**< 0.001**
Tetrabenazine	1.59	-0.35, 3.53	0.109
Neuropsychiatric Symptoms			
Intercept[3]	5.89	-5.40, 17.18	0.306
Time effect[4]	0.13	-0.02, 0.28	0.092
Apathy	0.84	0.57, 1.11	**< 0.001**
Apathy*Time	-0.07	-0.11, -0.04	**< 0.001**
Depression	1.18	0.98, 1.39	**< 0.001**
CAG	0.04	-0.15, 0.23	0.676
Age	-0.04	-0.10, 0.03	0.309
Sex (female)	0.30	-0.81, 1.40	0.600
Antipsychotic	2.08	1.04, 3.11	**< 0.001**

Note. Movement disturbances and neuropsychiatric symptoms were measured using the Unified Huntington Disease Rating Scale (UHDRS). Numbers in bold indicate p-values < 0.05.

[1]*Random effect with mean -91.48 and SD = 12.35*

[2]*Random effect with mean 2.47 and SD = 1.43*

[3]*Random effect with mean 5.89 and SD = 6.93*

[4]*Random effect with mean 0.13 and SD = 0.22*