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Supplemental material

Supplemental table 1. Raw means and sd's of RHI-measures per group

Means + sd's	**Proprioceptive drift in stimulated hand**		**Subjective RHI**	
	synchronous	asynchronous	synchronous	asynchronous
Case-control				
HC	4.36 (5.31)	1.83 (4.40)	4.11 (1.51)	2.17 (1.60)
SZ	4.40 (6.64)	1.64 (5.83)	4.01 (1.72)	2.75 (1.83)
Offspring				
CO	5.47 (6.62)	3.18 (5.65)	4.39 (1.27)	1.86 (1.41)
SZO	3.75 (6.37)	0.41 (2.50)	4.40 (1.24)	1.69 (1.42)
BPO	5.07 (5.30)	1.77 (4.96)	4.26 (1.57)	2.20 (1.87)

HC=healthy control; SZ=patients with schizophrenia; CO=control offspring; SZO=offspring schizophrenia; BPO=offspring bipolar disorder

Analysis of control aspects – counterbalancing and baseline estimation errors

To check for counterbalancing effects regarding the order in which the conditions were administered, this variable (synchronous-asynchronous and asynchronous-synchronous) was added as a between-subjects factor in the repeated measures ANOVA's. Furthermore, group differences in initial estimation errors at baseline measurement, calculated by subtracting the actual baseline position of the stimulated hand from the estimated baseline position, were assessed using Mann-Whitney U and Kruskall-Wallis tests.

In sample 1 (patients and healthy controls), adding counterbalancing to the repeated measure ANOVA's revealed that the order in which the synchronous and asynchronous conditions were administered did not influence the strength of the synchronicity effects, i.e., no synchronicity*counterbalancing interaction was found (Supplemental table 2, part A). Also, baseline estimation errors did not differ between patients and healthy controls (Supplemental table 3, part A).

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In sample 2 (offspring with and without familial risk for psychosis) a significant synchronicity*counterbalancing interaction in the proprioceptive drift analysis indicated that counterbalancing order influenced the strength of the synchronicity effect (Supplemental table 2, part B). Follow-up analyses showed that a significant effect of synchronicity was found when synchronous stroking was applied first ($F(1,36)=28.62$, $p<.001$, $\eta_p^2=.44$), which was only marginally significant when asynchronous stroking was applied first ($F(1,35)=3.59$, $p=.07$, $\eta_p^2=.09$). Furthermore, Kruskall-Wallis tests showed that baseline estimation errors did not differ between the groups (Supplemental table 3, part B)

Supplemental table 2: Repeated measures ANOVA results on the effect of counterbalancing on synchronicity effects in sample 1 (part A) and sample 2 (part B).

	Effect	**Test statistics**
A.case-control		
Proprioceptive drift	Counterbalancing	$F(1,102)=..01$, $p=.94$, $\eta_p^2<.001$
in stimulated hand	Group x Counterbalancing	$F(2,102)=.07$, $p=.94$, $\eta_p^2=.001$
	Synchronicity x Counterbalancing	$F(1,102)=2.39$, $p=.13$, $\eta_p^2=.02$
	Synchronicity x Group x Counterbalancing	$F(2,102)=.21$, $p=.81$, $\eta_p^2=.004$
Subjective RHI	Counterbalancing	$F(1,105)=1.79$, $p=.18$, $\eta_p^2=.02$
	Group x Counterbalancing	$F(2,105)=.87$, $p=.42$, $\eta_p^2=.02$
	Synchronicity x Counterbalancing	$F(1,105)=.93$, $p=.34$, $\eta_p^2=.01$
	Synchronicity x Group x Counterbalancing	$F(2,105)=3.13$, $p<.05$, $\eta_p^2=.06$*[a]
B. offspring		
Proprioceptive drift	Counterbalancing	$F(1,69)=1.06$, $p=.31$, $\eta_p^2=.02$
in stimulated hand	Group x Counterbalancing	$F(2,69)=1.18$, $p=.32$, $\eta_p^2=.03$
	Synchronicity x Counterbalancing	$F(1,69)=7.67$, $p=.01$, $\eta_p^2=.10$*
	Synchronicity x Group x Counterbalancing	$F(2,69)=.26$, $p=.77$, $\eta_p^2=.01$
Subjective RHI	Counterbalancing	$F(1,71)=.82$, $p=.37$, $\eta_p^2=.01$
	Group x Counterbalancing	$F(2,71)=.26$, $p=.78$, $\eta_p^2=.01$
	Synchronicity x Counterbalancing	$F(1,71)=.52$, $p=.47$, $\eta_p^2=.01$
	Synchronicity x Group x Counterbalancing	$F(2,71)=.42$, $p=.66$, $\eta_p^2=.01$

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*Significant at α=.05. [a] Follow-up analyses showed that in both patients and healthy controls, counterbalancing order had no significant effect on the synchronicity effect (*p*=.19 and *p*=.93, respectively).

Supplemental table 3: Mean (standard deviation) baseline estimation errors in sample 1 (part A) and sample 2 (part B)

A. case-control	**HC (n=54)**	**SZ (n=52)**	**Group differences**
Unstimulated hand			
synchronous condition	1.67 (2.69)	2.25 (2.81)	*U*=1205.00, *p*=.21
asynchronous condition	1.63 (2.57)	2.37 (2.66)	*U*=1198.00, *p*=.19
Stimulated hand			
synchronous condition	-1.68 (3.19)	-1.68 (3.03)	*U*=1358.50, *p*=.77
asynchronous condition	-1.49 (3.47)	-2.87 (4.58)	*U*=1138.00, *p*=.09

B. offspring	**CO (n=17)**	**SZO (n=23)**	**BPO (n=33)**	**Group differences**
Unstimulated hand				
synchronous condition	1.93 (3.82)	2.29 (2.60)	2.05 (2.49)	$\chi^2(2)=.13$, *p*=.94
asynchronous condition	1.90 (2.84)	2.22 (2.57)	2.02 (3.29)	$\chi^2(2)=.30$, *p*=.86
Stimulated hand				
synchronous condition	-2.87 (4.00)	-3.72 (2.75)	-3.92 (3.82)	$\chi^2(2)=1.42$, *p*=.49
asynchronous condition	-2.82 (3.54)	-4.17 (3.18)	-3.89 (4.01)	$\chi^2(2)=1.82$, *p*=.40

HC=healthy control; SZ=patients with schizophrenia; CO=control offspring; SZO=offspring schizophrenia; BPO=offspring bipolar disorder

Relation between proprioceptive drift and subjective RHI experiences

The relationship between the strength of the proprioceptive drift and subjective RHI experiences was examined. In both the synchronous and synchronous condition bootstrapped linear regression analyses were performed using the entry method. In these analyses, proprioceptive drift in the stimulated hand was used as dependent variable and group, subjective RHI (transformed to z-scores), and the interaction between the two as independent variables.

In sample 1 (healthy controls and patients) the strength of the subjective RHI was a significant predictor of proprioceptive drift in the stimulated hand in both the synchronous (B=1.62, *p*=.003, CI=.49-2.72) and asynchronous condition (B=1.29, *p*=.03, CI=.17-2.72). This relation did not differ

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between patients and healthy controls, as the group*subjective RHI interactions were no significant predictors in the regression models (*p*'s>.07).

In sample 2 (offspring with and without familial risk for psychosis), regression analyses revealed a significant relationship between proprioceptive drift and subjective RHI experiences in the synchronous condition (B=3.94, *p*=.001, CI=2.07-6.56), while this was only marginally significant in the asynchronous condition (B=1.72, *p*=.09, CI=-5.99-4.88). Additionally, the relationship in the asynchronous condition differed between SZO and CO (B=-3.56, *p*=.01, CI=-6.48 - -1.20). Follow-up analyses indicated a correlation between subjective experiences and proprioceptive drift (asynchronous) in CO (r_s=0.59, *p*=.01), but not in SZO (r_s=0.11, *p*=.61).

RHI measures and symptoms

Supplemental table 4: Spearman's correlation between symptoms and RHI measures in patients with schizophrenia

	SELF	PANSS positive	PANSS P1 delusions	PANSS P3 hallucinations
Subjective rating - synchronous	.29*	.29*	.36**	.20
Subjective rating - asynchronous	.11	.28*	.30*	.18
Synchronicity effect – subjective RHI	.11	-.15	-.10	-.07
Drift - synchronous	-.10	.12	.11	.20
Drift - asynchronous	.01	.24	.18	.11
Synchronicity effect - proprioceptive drift	-.03	-.02	.00	.02

*significant at α=.05; **significant after Bonferroni correction at α=.0125; SELF=Self-Experiences Lifetime and Frequency; PANSS=Positive and Negative Syndrome Scale

Supplemental table 5: Comparison of RHI measures between offspring of patients with schizophrenia or bipolar disorder with and without lifetime psychotic symptoms.

	Group differences		
	SZO	BPO	SZO + BPO
Subjective rating - synchronous	*U*=54.00, *p*=.41	*U*=57.00, *p*=.96	*U*=255.50, *p*=.56
Subjective rating - asynchronous	*U*=62.00, *p*=.74	*U*=50.50, *p*=.68	*U*=247.00, *p*=.46

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Synchronicity effect – subjective	U=55.00, p=.47	U=57.50, p=.98	U=233.00, p=.31
Drift - synchronous	U=56.00, p=.80	U=57.00, p=.96	U=245.00, p=.70
Drift - asynchronous	U=54.00, p=.70	U=48.00, p=.58	U=222.00, p=.40
Synchronicity effect - proprioceptive drift	U=60.00, p=1.00	U=48.00, p=.58	U=247.00, p=.73

SZO=Offspring schizophrenia; BPO=Offspring bipolar disorder