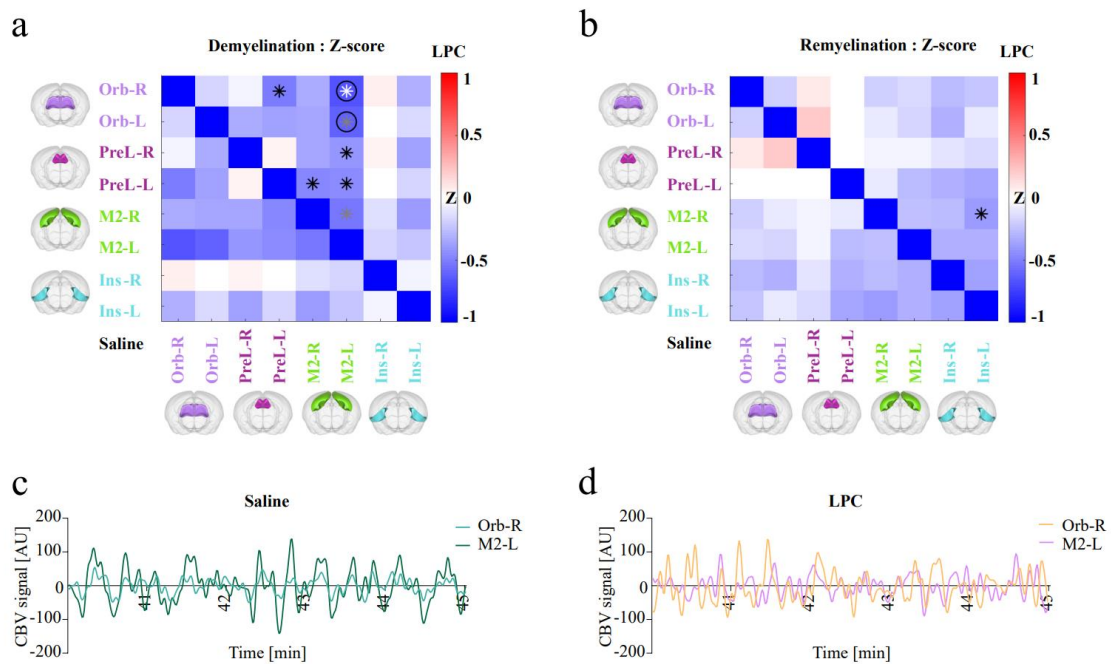


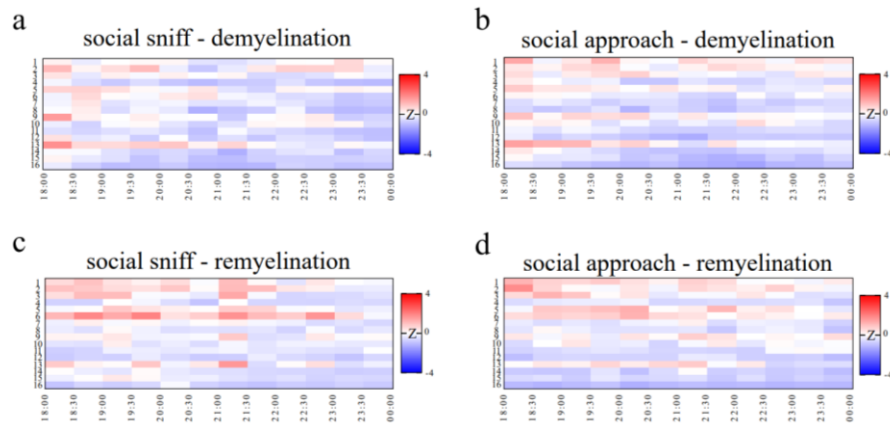
Supplementary information

Supplementary Figure S1: Z-score analysis and CBV curves



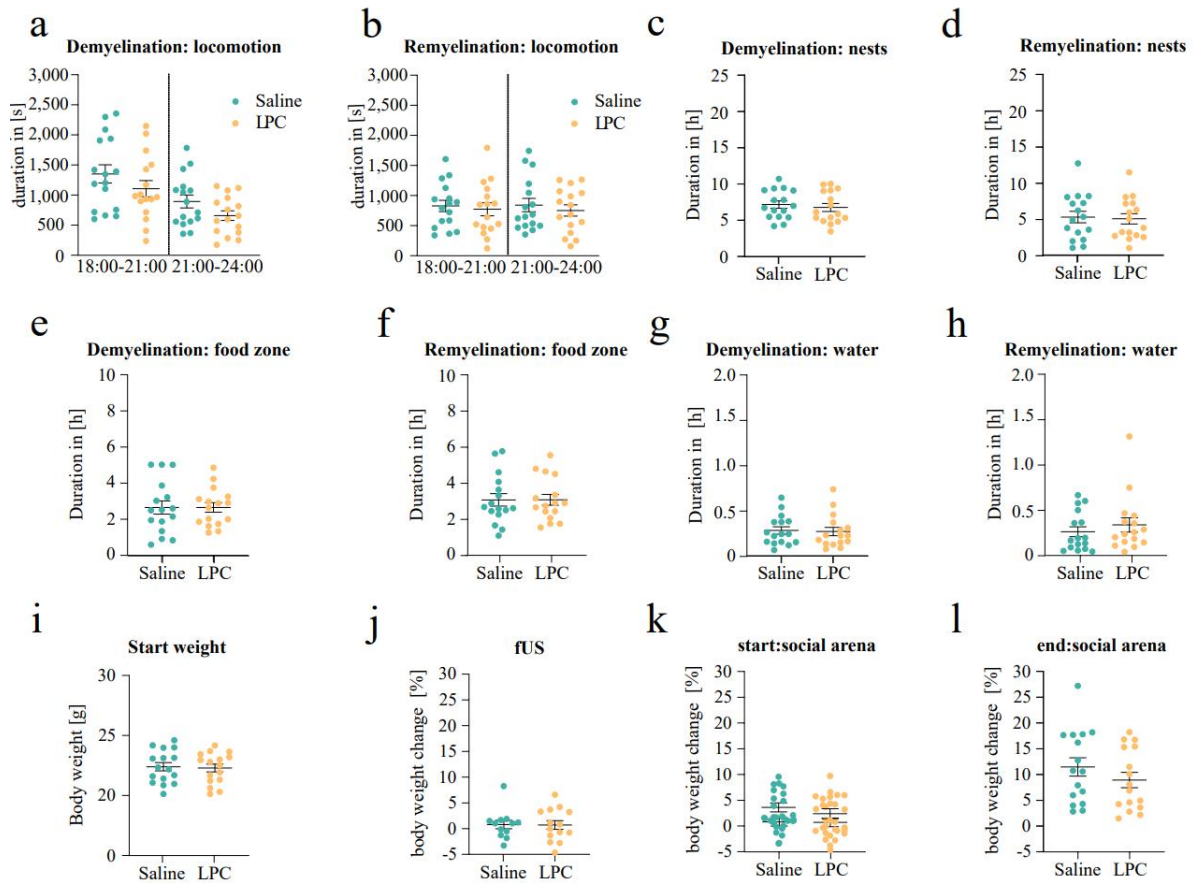
Supplementary Figure S1: (a) Z-score matrices obtained in control group (n = 12) and LPC group (n = 14) during demyelination phase and (b) remyelination phase in control group (n = 11) and LPC group (n = 12). Orb-R, Orbital Area Right; Orb-L, Orbital Area Left; PreL-R, Prelimbic Area Right; PreL-L, Prelimbic Area Left; M2-R, Secondary Motor Cortex Right; M2-L Secondary Motor Cortex Left; Ins-R, Insular Cortex Right; Ins-L, Insular Cortex Left, r = Fisher's z-transformed Pearson's r correlation coefficient. Black asterisk $p < 0.05$, grey asterisk $p < 0.01$, white asterisk $p < 0.001$, circle FDR-corrected. Representative example of (c) control animal and (d) LPC animal during recording minute 40-45 focusing on cerebral blood volume (CBV) arbitrary unit [AU] curves between Orb-R and M2-L.

Supplementary Figure S2: Social sniff and approach during demyelination



Supplementary Data Figure S2: (a) Social sniff and (b) Social approach: mean during the demyelination phase from day 5 to 9. Z-score heatmaps indicate behavioural changes induced by Lysolecithin (LPC) injection to 16 animals compared to control group mean. (c) Social sniff and (d) Social approach: mean during the remyelination phase from day 12 to 16. Z-score heatmaps indicate behavioural changes induced by Lysolecithin (LPC) injection to 16 animals compared to control group mean.

Supplementary Fig. S3: Additional analysed parameters

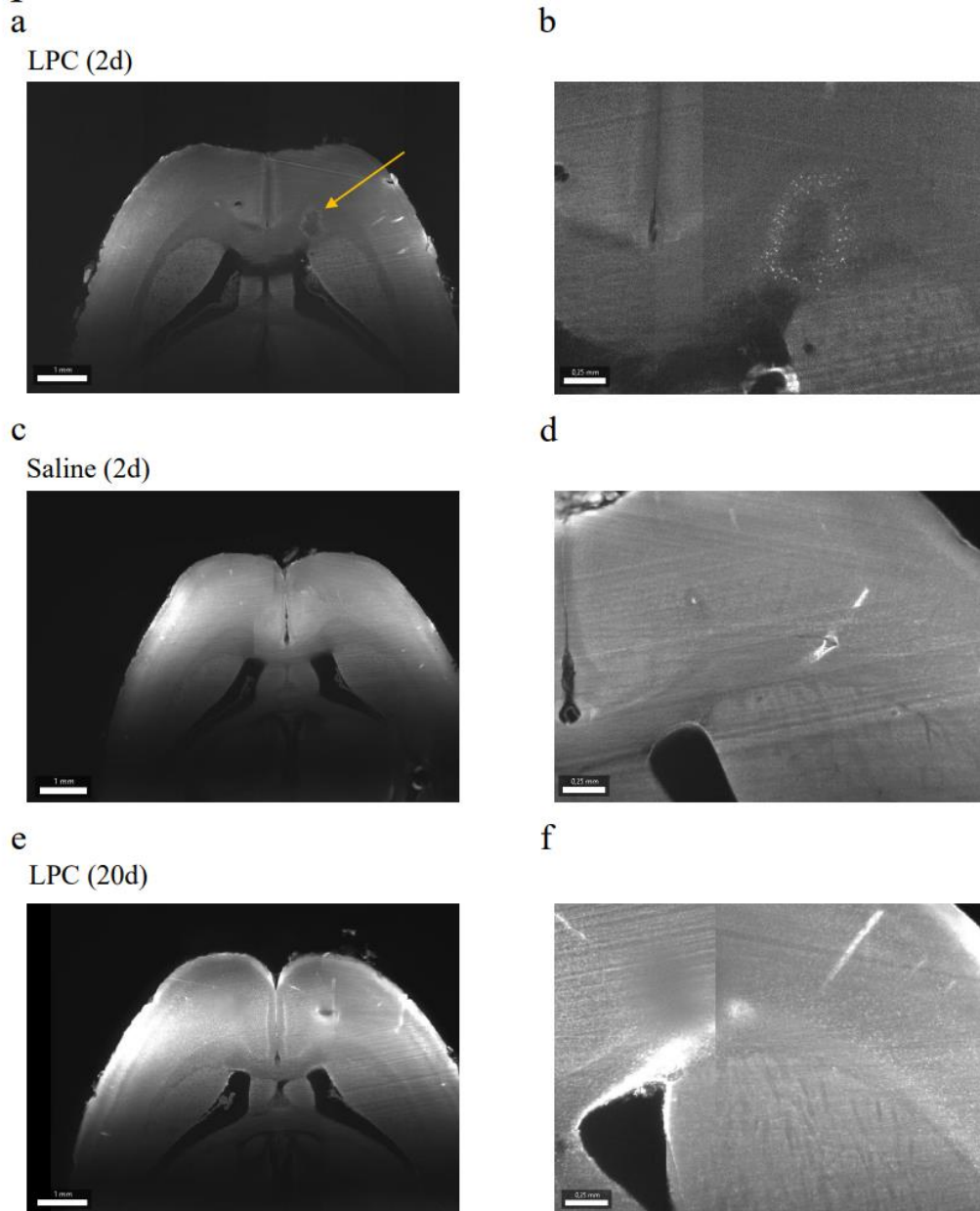


22

23 **Supplementary Data Figure S3:** (a,b) locomotion behavior during de-/remyelination phase,
 24 duration in seconds [s]. Proportion of time spend in nests (c,d), food zone (e,f), nose in water
 25 (g,h), data are expressed as means over 5 days \pm SEM and compared by unpaired t-test. (i) start
 26 weight in grams (g). Body weight changes of animals (j) between injection day and functional
 27 ultrasound (fUS) scan, (k) injection day and first day in social arena, (l) first and last day in
 28 social arena, data are expressed as means \pm SEM and compared by unpaired t-test.

29

Supplementary Fig. S4 MACS clearing processed brains



30

31 **Supplementary Data Figure S4:** MACS-clearing processed mouse brains were stained
 32 against Myelin Basic Protein (MBP) in a preliminary experiment (a-b) mouse brain two days
 33 after unilateral Lysolecithin (LPC) injection; injection side in forceps minor (fmi), yellow
 34 arrow indicates injection side in fmi part of corpus callosum. (c-d) mouse brain two days after

- 35 unilateral Saline injection; injection side in fmi. (e-d) mouse brain twenty days after unilateral
- 36 LPC injection; injection side in fmi