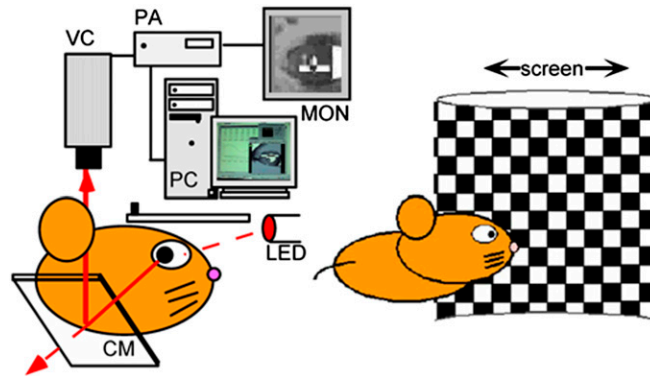
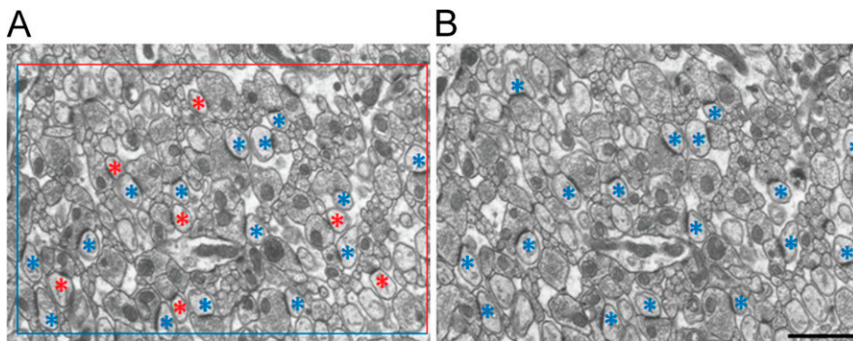


# Supporting Information

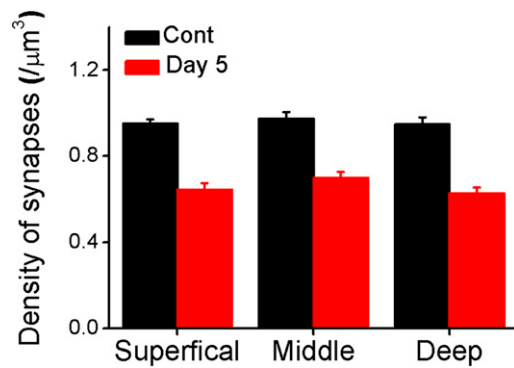
Wang et al. 10.1073/pnas.1315541111



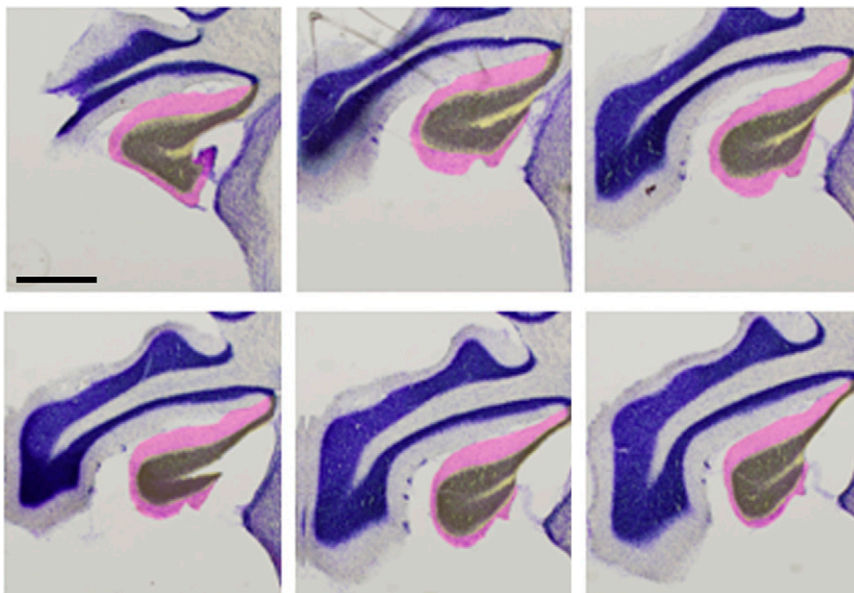
**Fig. S1.** Schematic drawing of the horizontal optokinetic response (HOKR) recording system. The mouse was restrained in a cylinder and mounted on a table surrounded by a checked-pattern screen with its head fixed with a bolt which was embedded on the skull beforehand. The frontal view of the right eye, under the illumination of the infrared-light emitting diodes (LED), was captured using a vertically positioned CCD camera (VC) via the reflection of a cold mirror (CM). The real-time central positions of pupil, showed on the monitor (MON), were captured with the position analyzer (PA) and stored in a personal computer (PC). The HOKR gain was defined as amplitude of eye movements/amplitude of screen movements on the averaged eye position traces.



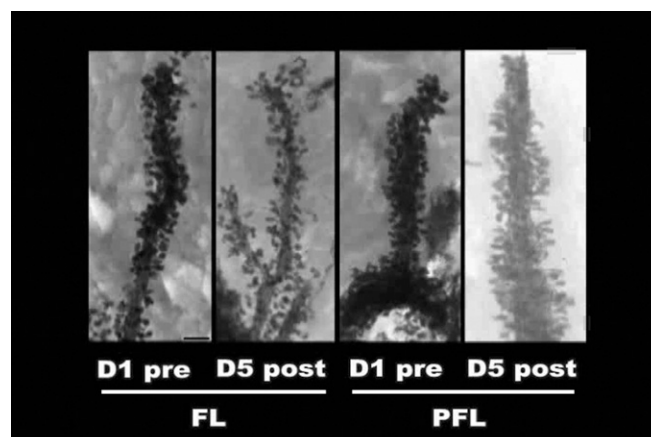
**Fig. S2.** Physical disector method for measurement of synapse density. Synapses that appeared in the same region of interest (ROI, box in A) from both look-up (A) and adjacent (B) sections are indicated with blue asterisks, whereas those appeared only in the look-up section are indicated with red asterisks and were counted to calculate the synaptic density according to the formula:  $\text{synapse density} = \text{number of the newly appeared synapses} / (\text{ROI area} \times \text{section thickness})$ . Synapses over blue lines (inclusion lines) but not red lines (exclusion lines) of ROI were included for the counting. (Scale bar, 1  $\mu\text{m}$ .)



**Fig. S3.** Density of parallel fiber-Purkinje cell (PF-PC) synapses in different depths of the molecular layer. Long-term adaptation was accompanied with significant reduction (paired *t* test,  $P < 0.001$ ) of synaptic density on day 5 (day 5) compared with pretraining control (Cont) at similar ratios in the superficial, middle and deep regions of molecular layer in the cerebellar flocculus (FL).



**Fig. S4.** Nissl-stained serial sections through the FL. Examples of sections used to calculate the total volume of the molecular layer of the FL. (Scale bar, 500 μm.)



**Movie S1.** Movie clip showing the isolated PC dendritic segments in FL and paraflocculus (PFL) from day 1 pre and day 5 post mice.

[Movie S1](#)