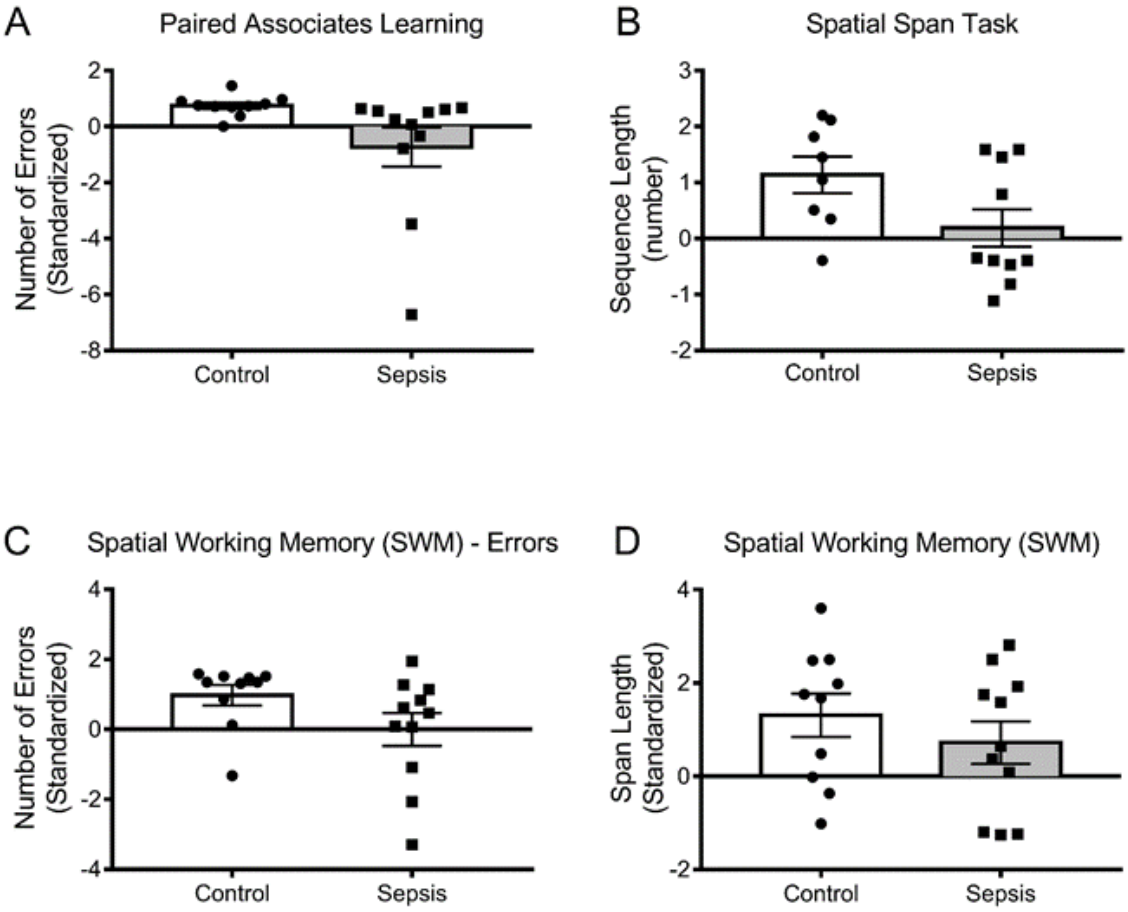
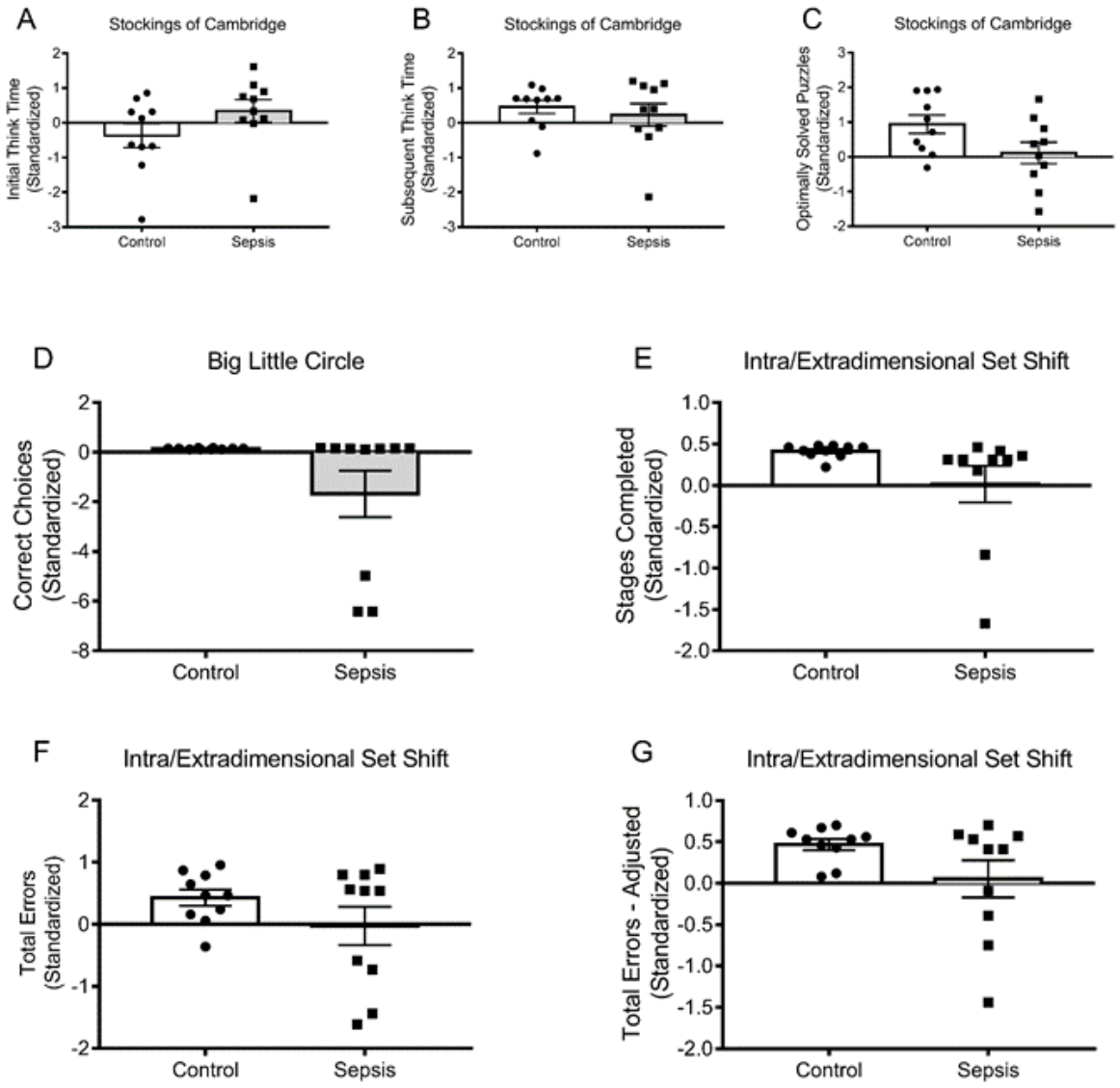
**Supplementary Material**

Supplementary Figure 1



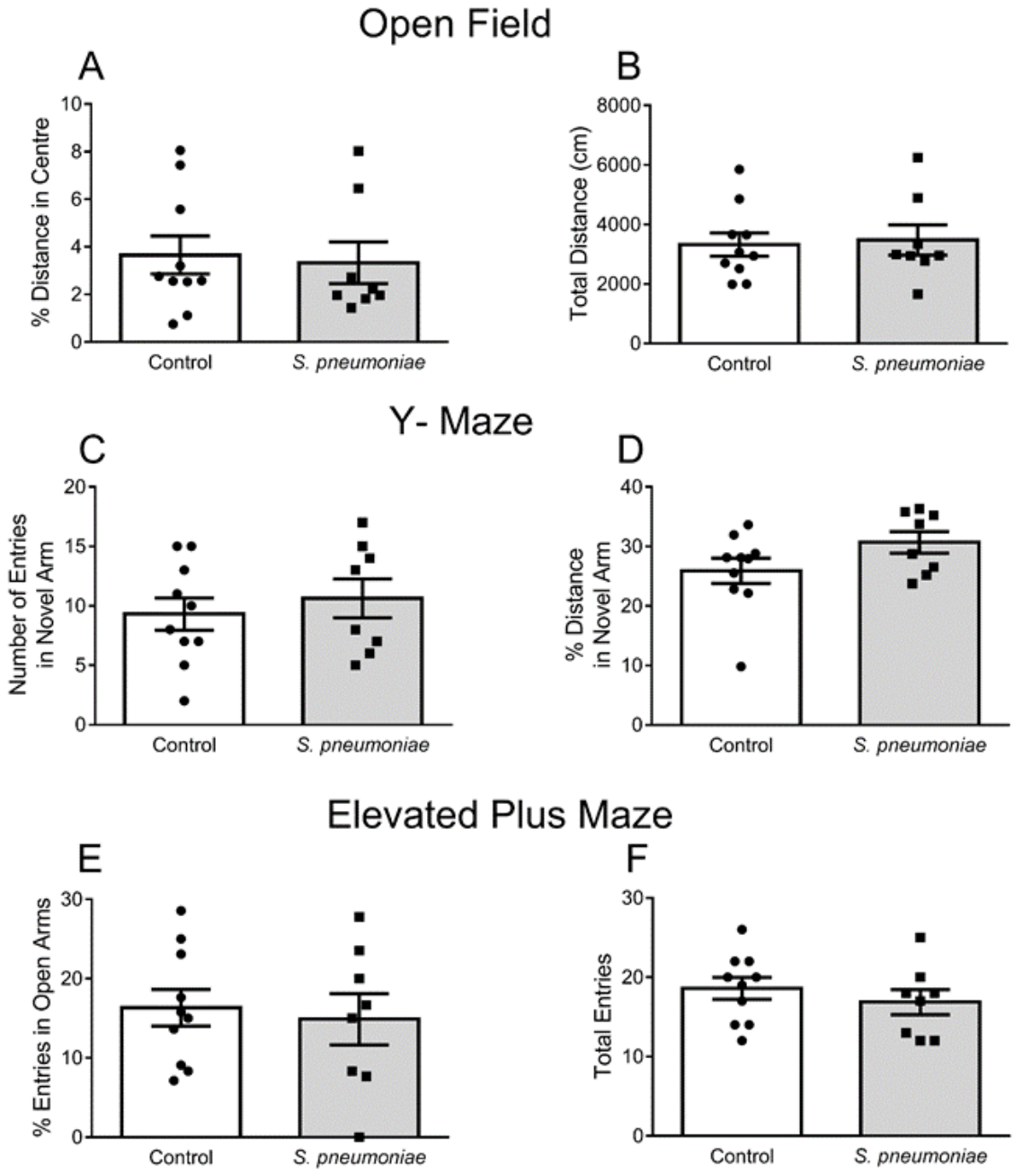

**Supplementary Figure 1. Patients recovered from sepsis standardized scores on the paired associates learning, spatial span, and spatial working memory tasks.** A) Paired associates learning (control N = 10, sepsis N = 11; $p = 0.06$). B) Spatial Span (control N = 10, sepsis N = 10; $p = 0.06$). C) Errors on spatial working memory (control N = 10, sepsis N = 11). D) Span length on spatial working memory (control N = 10, sepsis N = 11). Statistical test unpaired t-test two-tailed. Data represent the mean ± SEM.

Supplementary Figure 2



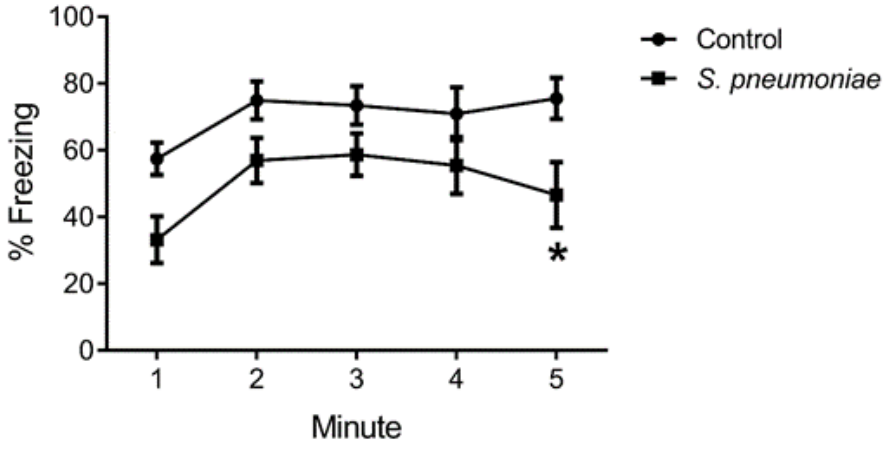

**Supplementary Figure 2**. **Patients recovered from sepsis do not show changes in standardized scores on the stockings of Cambridge, big/little circle and intra/extra-dimensional shift tasks.** A) Stockings of Cambridge initial think time (control N = 10, sepsis N = 11). B) Stockings of Cambridge subsequent think time (control N = 10, sepsis N = 10). C) Stocking of Cambridge puzzles solved using optimal strategy (control N = 10, sepsis N = 11). D) Big little circle (control N = 10, sepsis N = 11). E) Intra/Extradimensional shift task (Stages Completed) (control N = 10, sepsis N = 10), F) Intra/Extradimensional shift task (Total Errors) (control N = 10, sepsis N = 11), and G) Intra/Extradimensional shift task (Total Errors - Adjusted) (control N = 10, sepsis N = 11). Statistical test unpaired t-test two-tailed. Data represent the mean ± SEM.

Supplementary Figure 3



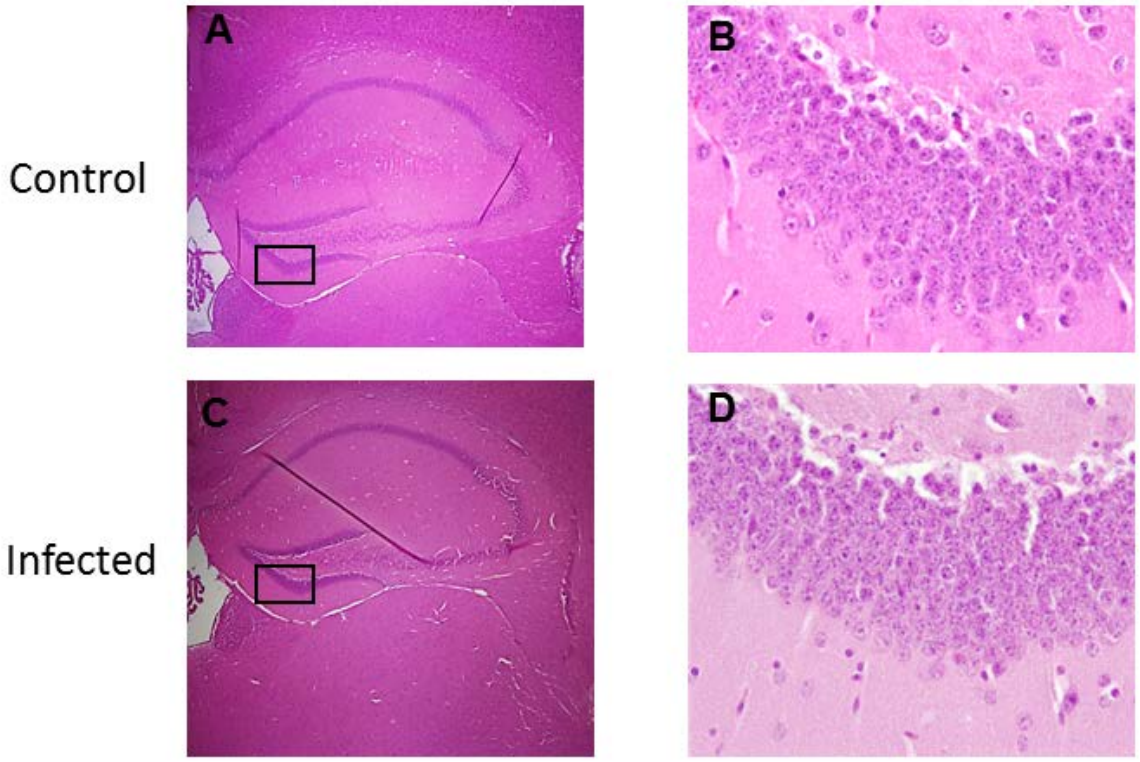

**Supplementary Figure 3. Mice recovered from infection show no changes in Open field, Y-maze and elevated plus maze.** Mice were infected with *S. pneumoniae* and allowed to recover for 2 weeks and at this time the Morris water maze test was assessed (Methods). A) and B) Open-field, C) and D) Y-maze, E) and F) Elevated plus maze. Data in A to C represent mean ± SEM of N = 10 in control and N = 8 in *S. pneumoniae* infected mice group.

Supplementary Figure 4



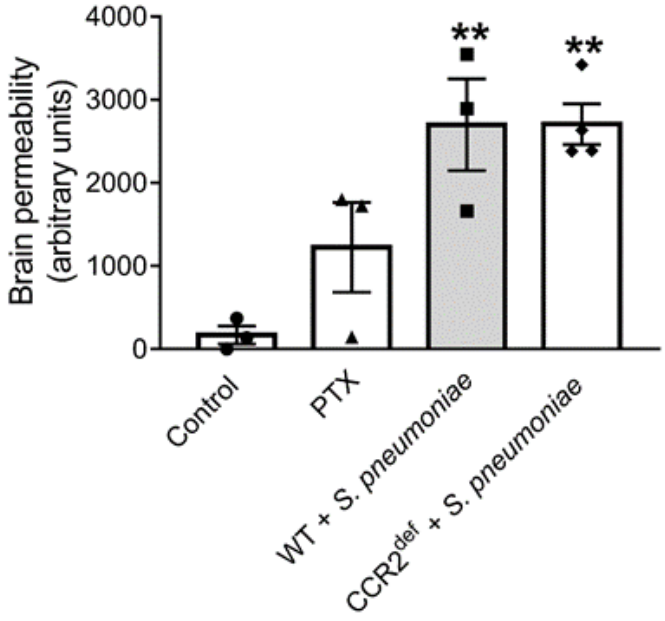

**Supplementary Figure 4. Hippocampus function is altered in mice recovered from *S. pneumoniae* infection.** Mice were infected with *S. pneumoniae* for 18 weeks and at this time the contextual fear conditioning test was assessed (Methods). Data are expressed as the mean ± SEM of N = 10 in control and N = 8 in *S. pneumoniae* infected mice. *$p < 0.05$ vs. control mice. Statistical test two way ANOVA followed by Sidak's multiple comparisons test.

Supplementary Figure 5




**Supplementary Figure 5. Hippocampus dentate gyrus cellularity shows no differences.** Mice were infected with *S. pneumoniae* for 18 weeks and at this time the brains were processed for histology and stained with H&E. Box outlines the area of the dentate gyrus. A and C: Representative sections of the dentate gyrus outlined in B and D. No morphological differences between the dentate gyri of mice recovered from infection vs. controls were apparent (N = 3 in each group). Magnification A & C, 40x, B &D, 200x.

Supplementary Figure 6




**Supplementary Figure 6. Infected CCR2$^{def}$ mice show increased blood-brain barrier permeability.** Mice were treated with *S. pneumoniae* for 24 h and at this time permeability was assessed with Evans Direct Blue. Quantification of brain permeability is shown in control (N = 3), B. pertussis toxin (PTX) used as a positive control (N = 3), wild-type infected with *S. pneumoniae* for 24 h (WT + *S. pneumoniae*, N = 3) and CCR2$^{def}$ infected with S. pneumoniae for 24 h (CCR2$^{def}$ + S. pneumoniae, N = 4). Data represent mean ± SEM. ***p* < 0.01 vs control mice. Statistical test one-way ANOVA followed by Tukey's multiple comparisons test.