

## Supplemental Materials

In the following supplemental materials, we include additional analyses not included in the main text. The additional analyses were not essential to answering the core research questions which is why they appear here. We also provide the R code and data files used to produce the analyses included in the main text and this supplement at <https://data.mendeley.com/v1/datasets/d4mg44r27r/draft?a=2296e773-a09a-4435-bb54-de7b7944a2eb>. The document is separated by experiments and tasks.

### Experiment 1

There are four data files available through Mendeley Data that are needed to complete the Experiment 1 analyses. The data file titled “Exp1SYSLL” is used for the systematic LL Delay analyses. “Exp1ADJLL” is needed for the adjusting LL Delay analyses. “Exp1SYSSS” is used for the systematic SS Delay analysis. Finally, “Exp1Peak” is used for the peak interval analyses. The R script used to analyze Experiment 1 data is titled “Exp1Analyses.”

### Adjusting (ADJ) LL Delay

To provide additional understanding of the ADJ behavior over time, Figure S1 depicts the adjusting delay point of subjective equality (PSE) across successive 4-trial choice blocks for both orders of the ADJ task in both groups. As seen in the figure, the ADJ performance oscillated in all conditions, but was relatively stable after around 10 sessions of training. While the FI and ND groups did show some signs of differences early in training, the two groups stabilized on similar PSE well before the end of training. The groups that received the ADJ task 1<sup>st</sup> (i.e., FI 1<sup>st</sup> and ND 1<sup>st</sup>) showed lower PSEs than the groups that received the ADJ task 2<sup>nd</sup>.

In the manuscript, we included analysis of the last five sessions of the first phase of the ADJ LL Delay task (Figure 3 in main text; FI 1<sup>st</sup> vs. ND 1<sup>st</sup> groups). Here, we analyzed both

phases to assess order effects (see Figure S2 and Table S5). This analysis provides further insight into whether the order of systematic or adjusting LL Delay tasks produced differences in the point of subjective equality (PSE).

For the ADJ model, Phase was effect-coded (1st and 2nd) and rats in the 1<sup>st</sup> phase received the ADJ task first while rats in the 2<sup>nd</sup> phase received the ADJ task second. Session was included as a continuous variable and scaled between 0-1 with 0 corresponding with the 16<sup>th</sup> session in final sessions (16-20) of phase 1 and phase 2. Group assignment was a categorical variable and effect coded with two levels (FI and ND). Group, Phase, and Session were entered as fixed effects in a full factorial model.

There was a significant difference in the PSE between Phases,  $z = -3.06, p = .002$ . Rats that experienced the SYS LL-Delay task first were more self-controlled in the ADJ task (Figure S2). There was also a main effect of session with the PSE decreasing across sessions ( $z = -3.31, p = .001$ ). Although there was no interaction of session with phase, the session main effect appeared to be largely driven by the rats that received the FI and ND tasks 2<sup>nd</sup>. This is consistent with the lack of a session effect during Phase 1, as reported in the main manuscript.

Altogether, the first phase shows the same general trends in the data as was reported in the main manuscript (which coded Session as a continuous variable) in that the PSE did not differ between the FI and ND groups. However, the PSE was higher during the second phase compared to the first phase. Thus, the previous experience with the SYS-LL Delay task led to greater LL choices in the ADJ task. In addition, although there was no interaction of session with phase, the session main effect appeared to be largely driven by the rats that received the FI and ND tasks 2<sup>nd</sup>. This may relate to the carryover effects observed in the second phase. For

this reason, we opted to report the FI and ND groups during the first phase as our primary analysis in the main manuscript.

Using the results from the ADJ procedure, we conducted a power analysis (R package, *simr*; P. Green & MacLeod, 2016) to estimate the number of subjects necessary to detect a group difference between FI and ND on the ADJ task given the effect size observed here. Even with 240 subjects (120 per group), only a power of .21 would be observed for the group effect between FI and ND groups. Thus, we suspect that it is unlikely that the ADJ procedure would reveal an intervention even if we had a much larger sample size.

### **Systematic (SYS) LL Delay Impulsive Choices**

In the manuscript, we included an analysis of the first phase of the SYS LL-Delay task (Figure 3 in manuscript). Here, we analyzed both phases to assess the effect of receiving the SYS LL-Delay first or second on impulsive choices (Figure S3 and Table S5). For the SYS model, Phase was effect-coded (1<sup>st</sup> and 2<sup>nd</sup>). Rats in the first phase received the SYS task first while rats in the second phase received the SYS task second. LL delay was included as a continuous variable and scaled to vary between 0 (5-s LL delay) and 1 (60-s LL delay). Group assignment was a categorical variable and effect coded with two levels (FI and ND). Group, Phase, and LL delay were entered as fixed effects in a full factorial model.

At the 5-s LL delay intercept, there were fewer LL choices in the FI group than the ND group (Group main effect),  $z = -3.64, p < .001$ . Proportion of LL choices decreased as a function of LL delay,  $z = -60.30, p < .001$ , and the slope was steeper in the ND group than FI group (Group  $\times$  LL Delay),  $z = 3.38, p = .001$ . A post-hoc analysis at the 30-s delay disclosed that there more LL choices in the ND group compared to the FI group for Phase 1,  $z = -2.37, p = .018$ , but not Phase 2. These patterns are consistent with the results reported in the main

manuscript. There was no main effect of Phase or significant interactions including Phase. Overall, the effects of the first phase were replicated in the second phase, but the magnitude of the differences was numerically smaller following exposure to the ADJ procedure. However, this trend was not significant.

In addition to the further analysis of the SYS LL-delay task, we graphed the group data as a function of session during each delay as an index of acquisition. The rats experienced five sessions at each delay. As seen in Figure S4, responding was stable during the 5-s LL delay condition. Thus, the analysis of the LL choices at the intercept in the main manuscript appears to reflect stable preferences for the larger reward. As the LL delay increased, the rats showed rapid changes in LL choices, often displaying the largest changes in behavior during the first two sessions. For this reason, we opted to analyze the last three sessions of each LL delay in the main manuscript. By the end of training on the 60-s LL delay, the rats were showing very low LL choices that were relatively stable. We did not conduct a formal analysis of stability, but a visual analysis of the data indicates that LL choices were changing at most by 5-10% over the course of the three sessions included in the analysis in the main manuscript. We did not model the data as a function of session as this variable was highly correlated with LL delay.

### **Systematic (SYS) SS Delay**

Figure S5 shows the proportion of LL choices as a function of sessions at each SS delay. In the SYS SS-delay task, rats received four sessions at the initial SS delay of 10 s. Here, their behavior was relatively stable (within 5-10% over the 4 sessions). LL choices increased sharply with SS delay. We did not conduct a formal assessment of stability due the limited training. In addition, we did not model the data as a function of session as this variable was highly correlated with SS delay.

## **Individual Differences**

Figures S6, S7, and S8 show the choices functions along with the individual rats contributing to each data point. In the SYS LL-delay task, there were smaller individual differences at the extreme choice values than at the middle values of the choice function. This created greater sensitivity to detect effects at the 5-s intercept of the choice function as the groups were more homogeneous. In the SYS SS delay task, individual differences were greatest at the 10-s delay and then the rats become more similar at longer SS delays with a couple of exceptions. The FI group showed greater variation across individuals than the ND group in the SYS SS-delay task. The individual differences in the ADJ task were similar across sessions. There was one FI rat with very long PSEs, especially in Phase 2. Overall, the individual differences support the group-level effects reported in the main manuscript.

## **Experiment 2**

There are two data files needed to replicate the Experiment 2 analyses. The data file titled “Exp2” is used for the impulsive choice analyses. “Exp2Peak” is used for the peak interval analyses. The R script used to analyze Experiment 2 data is titled “Exp2Analyses.”

## **Omnibus Impulsive Choice Model**

Due to complexities associated with interpreting models with 4-way interactions, in the main manuscript, there were two separate 3-way models, one model for each of the SS choice delays. As an additional analysis, we analyzed the choice data from Experiment 2 in a 4-way omnibus model that included SS Delay Choice Group (5 or 10 s) as a factor in the model. The omnibus model included this as a variable, so comparisons could be made across the choice task SS delays (see Figure 7 in main manuscript for the data and Table S6 for the model output).

In the omnibus model, normalized LL Delay (delay ranged between 0 and 1), SS Intervention (5- or 10-s SS delay), SS Choice (5- or 10-s SS delay), and Pre/Post intervention were entered in a full factorial model. Normalized LL delay was included as a continuous variable. SS Intervention Delay, SS Choice Delay, and Pre/Post were all categorical group variables and effect coded with two levels. Given that the focus was on comparisons involving the SS Choice Delay, we only report those effects here in the text, but the full model output is available below in Table S6.

At the intercept, which was the shortest LL delay (5 or 10 s), the 5-s SS Choice resulted in more LL choices than the 10-s SS Choice,  $z = 3.43, p = .001$ . Thus, it appears that the preference for the larger reward under equal delays was promoted by the shorter SS delay. There was an SS Intervention  $\times$  SS Choice interaction,  $z = 2.14, p = .032$ , and an SS Intervention  $\times$  SS Choice  $\times$  Pre/Post interaction,  $z = 7.23, p < .001$ . These interactions are consistent with the results reported in the main manuscript, reflecting an effect of choice-intervention congruency on the preference for the larger reward at the intercept.

The 5-s SS Choice task had a steeper slope of their choice function compared to the 10-s SS Choice task,  $z = 10.16, p < .001$ . This was due to the higher intercept in the 5-s choice task. In addition, there was an SS Choice  $\times$  Pre/Post  $\times$  Delay Ratio interaction,  $z = -5.44, p < .001$ , and an SS Intervention  $\times$  SS Choice  $\times$  Pre/Post  $\times$  Delay Ratio interaction,  $z = -2.50, p = .013$ . LL choices were generally higher in the 5-s choice task compared to the 10-s task across most of the function, but both groups showed similar choices at the longest delay ratio. A post-hoc analysis at the middle 1:3 (SS:LL) delay-ratio showed more LL choices for rats in the 5-s (compared to 10-s) choice delay. This was observed in pre-intervention choice for rats in the 5-s SS intervention delay ( $z = 6.09, p < .001$ ) and 10-s SS intervention delay groups ( $z = 4.70, p < .001$ ).

This was also observed in post-intervention choice for rats in the 5-s SS intervention delay ( $z = 5.39, p < .001$ ) and 10-s SS intervention delay groups ( $z = 1.98, p = .047$ ).

The overall results support the conclusion in the main manuscript that the 5-s/5-s group made more LL choices at the intercept post-intervention while the 10-s/10-s and 10-s/5-s groups did not increase LL choices at the intercept, but this model is burdensome to interpret and report. The primary benefit of testing the SS Choice Delay variable in this model was to observe that in the choice task, rats that received the 5-s SS Delay in the choice task made more LL choices at the intercept and at the middle delay ratio compared the rats that received the 10-s SS Delay in the choice task. This suggests that the absolute SS delay affected choices in addition to the relative delay ratios between the SS and LL delays (Figure 7).

We also display the choice functions across sessions in Figure S9. In general, the choices were stable at the shortest delays in each function, decreased rapidly in the middle delays, and then reached a low asymptote at the longest delay. The greatest changes in the middle delays occurred in the first two sessions after a change in delay and then changed more slowly over the last three sessions of each delay for the middle delays.

### **Individual Differences**

Figures S10 and S11 display the individual differences for the 5-s and 10-s choice groups pre- and post-intervention. Similar to Experiment 1, the individual rats at the shortest and longest LL delays were generally more homogeneous in their choices than at the middle delays, thus leading to greater sensitivity to detect differences at the intercept.

### **Conclusion**

In addition to the analyses in the manuscript, we included supplemental analyses to further characterize the results. In Experiment 1, we analyzed both phases of the ADJ and SYS

LL-delay tasks to assess order effects. The additional analyses showed that there were carry-over effects between the tasks. In the SYS LL-delay task, the carry-over effects dampened the effects found in the initial phase analysis, however this trend was not significant. In the ADJ task, the PSE was higher in the second phase overall, but there were no group differences in either phase. This suggests that experience with the SYS-LL Delay task may have promoted self-control in the ADJ task, although this could also have been due to transfer of a side bias. In Experiment 2, we included supplemental analysis of the impulsive choice results with SS Choice as a factor. While complex to interpret, this model suggests that the rats that received the 5-s SS Choice made more LL choices than the rats that received the 10-s SS Choice, and this occurred across delay ratios.

In both studies, we provided additional graphs to display the choices as a function of sessions. In general, LL choices changed the most rapidly during exposure to the middle delays and were relatively stable at the more extreme delays. The changes at the middle delays were most pronounced in the first two sessions in most cases, and for this reason we opted to analyze choices in the last three sessions of each phase in the main manuscript.

We also provided graphs of individual differences for both experiments. Individuals were generally more homogeneous in their choices at the more extreme values and more variable at intermediate delays. In general, apart from a small number of rats that showed poor sensitivity to delays (especially in the SYS SS-delay task), the individual choice functions were consistent with the group functions.

Altogether, the additional analyses confirm and/or extend on the results in the main text. The original hypothesis for Experiment 1 posited that the FI intervention would increase self-control and that these effects would be more evident in the systematic impulsive choice task than



the adjusting choice task. However, the rats that received the intervention made fewer self-controlled choices in the SYS LL-Delay task and had similar PSEs in the ADJ task. Including order of choice task in the analyses produced results consistent with this conclusion.

Experiment 2 sought to investigate the lack of typical intervention effects produced in Experiment 1. The original hypothesis of Experiment 2 stated that short SS delays trained in conjunction with the longer LL delay may increase impulsive choices. This was partially confirmed in that the rats that received a short SS delay during choice tasks and the intervention made fewer LL choices as a function of LL delay, but these rats also made the most LL choices at the 5-s intercept. Further supplemental analysis with SS Choice as a factor showed that rats that received the shorter SS delay during choice tasks made more LL choices across delay ratios. Here, further analysis provided some support for the original hypothesis but also highlights the complexity of how delay affects choice behavior both in the intervention and in the choice task. Overall, continued research is needed on the interacting mechanisms underlying interventions to improve self-control.

*Table S1.* Model output details for the primary models reported in the main manuscript. The table includes the model estimate (unstandardized b-value coefficient), standard error (SE), z-value, p-value, and significance level for each variable included in the choice models for the SYS LL-Delay, SYS SS-Delay, and ADJ tasks in Experiment 1. \*\*\*  $p < .001$  \*\*  $p < .01$  \*  $p < .05$

<b>Exp 1 ADJ</b>	<b><i>b</i></b>	<b><i>SE</i></b>	<b><i>z</i></b>	<b><i>p</i></b>	<b><i>Sig</i></b>
Group	-0.01	0.09	-0.15	.882	
Session	-0.02	0.02	-1.26	.206	
Group × Session	0.01	0.02	0.17	.864	
<b>Exp 1 SYS LL-Delay</b>	<b><i>b</i></b>	<b><i>SE</i></b>	<b><i>z</i></b>	<b><i>p</i></b>	<b><i>Sig</i></b>
Group	-0.62	0.16	-3.86	< .001	***
LL Delay	-6.48	0.15	-41.82	< .001	***
Group × LL Delay	0.53	0.15	3.43	.001	***
<b>Exp 1 SYS SS-Delay</b>	<b><i>b</i></b>	<b><i>SE</i></b>	<b><i>z</i></b>	<b><i>p</i></b>	<b><i>Sig</i></b>
Group	-0.65	0.26	-2.55	.011	*
SS Delay	4.13	0.13	32.40	< .001	***
Group × SS Delay	0.12	0.13	0.94	.349	

*Table S2.* Model output details for the three phases of the peak procedure. The table includes the model estimate (unstandardized *b*-value coefficient), standard error (*SE*), *t*-value, *p*-value, and significance level for each variable included in the peak timing models for Phases 1-3 in Experiment 1. Note that the models in Phases 1 and 2 examine the effect of choice task (SYS vs. ADJ) on peak trial measures whereas the Phase 3 model examines the effect of Group (FI vs. ND). *m* = maximum response rate at the peak, *v* = variance of the peak, *l* = linear component for right side of tail, *s* = starting response rate, *a* = peak time, \*\*\* *p* < .001 \*\* *p* < .01 \* *p* < .05

<b>Exp 1 Peak Phase 1</b>	<b><i>b</i></b>	<b><i>SE</i></b>	<b><i>t</i></b>	<b><i>p</i></b>	<b><i>Sig</i></b>
Task ( <i>m</i> )	-0.01	0.05	-0.26	.796	
Task ( <i>v</i> )	-1.37	0.61	-2.25	.025	*
Task ( <i>l</i> )	0.00	0.00	-0.18	.859	
Task ( <i>s</i> )	0.07	0.04	1.75	.080	
Task ( <i>a</i> )	-1.42	0.94	-1.50	.133	
<b>Exp 1 Peak Phase 2</b>	<b><i>b</i></b>	<b><i>SE</i></b>	<b><i>t</i></b>	<b><i>p</i></b>	<b><i>Sig</i></b>
Task ( <i>m</i> )	-0.01	0.01	-0.60	.551	
Task ( <i>v</i> )	-2.49	0.14	-18.16	< .001	***
Task ( <i>l</i> )	0.00	0.00	-8.98	< .001	***
Task ( <i>s</i> )	0.05	0.01	5.10	< .001	***
Task ( <i>a</i> )	1.01	0.12	8.72	< .001	***
<b>Exp 1 Peak Phase 3</b>	<b><i>b</i></b>	<b><i>SE</i></b>	<b><i>t</i></b>	<b><i>p</i></b>	<b><i>Sig</i></b>
Group ( <i>m</i> )	0.32	0.08	4.12	< .001	***
Group ( <i>v</i> )	-0.17	0.46	-0.37	.709	
Group ( <i>l</i> )	0.00	0.00	-2.77	.006	**
Group ( <i>s</i> )	-0.17	0.03	-5.08	< .001	***
Group ( <i>a</i> )	-1.23	0.54	-2.27	.023	*

*Table S3.* Model output details for the primary models reported in the main manuscript. The table includes the model estimate (unstandardized b-value coefficient), standard error (SE), z-value, p-value, and significance level for each variable included in the choice models for the 5-s and 10-s SS Delay choice tasks in Experiment 2. \*\*\*  $p < .001$  \*\*  $p < .01$  \*  $p < .05$

<b>Exp 2 5-s SS Delay</b>	<i>b</i>	<i>SE</i>	<i>z</i>	<i>p</i>	<i>Sig</i>
Group	0.44	0.17	2.52	.012	*
Pre/Post	0.03	0.03	0.98	.329	
Group × Pre/Post	0.21	0.03	6.22	< .001	***
LL Delay	-7.22	0.09	-79.60	< .001	***
Group × LL Delay	-0.60	0.09	-6.61	< .001	***
Pre/Post × LL Delay	-0.63	0.08	-7.50	< .001	***
Group × Pre/Post × LL Delay	-0.28	0.08	-3.31	.001	***
<b>Exp 2 10-s SS Delay</b>	<i>b</i>	<i>SE</i>	<i>z</i>	<i>p</i>	<i>Sig</i>
Group	-0.03	0.13	-0.23	.818	
Pre/Post	-0.04	0.03	-1.26	.209	
Group × Pre/Post	-0.11	0.03	-3.85	< .001	***
LL Delay	-8.66	0.11	-77.92	< .001	***
Group × LL Delay	-0.33	0.11	-3.02	.003	**
Pre/Post × LL Delay	0.10	0.11	0.99	.322	
Group × Pre/Post × LL Delay	0.06	0.11	0.56	.578	

*Table S4.* Model output details for the peak procedure. The table includes the model estimate (unstandardized b-value coefficient), standard error (SE), t-value, p-value, and significance level for each variable included in the peak timing models for Phases 2 in Experiment 2. *m* = maximum response rate at the peak, *v* = variance of the peak, *l* = linear component for right side of tail, *s* = starting response rate, *a* = peak time, \*\*\*  $p < .001$  \*\*  $p < .01$  \*  $p < .05$

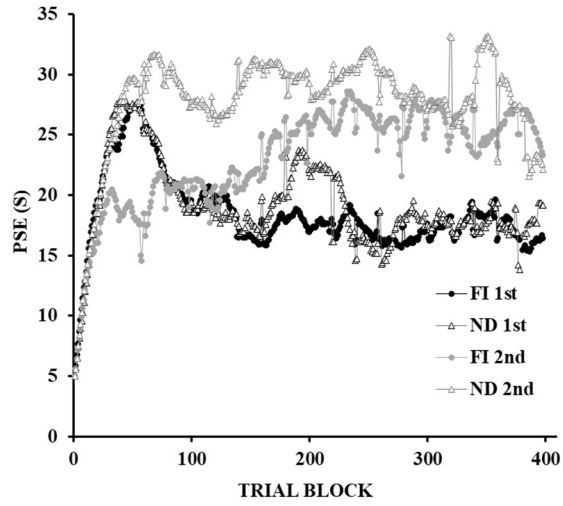
<b>Exp 2 Peak Phase 2</b>	<b><i>b</i></b>	<b><i>SE</i></b>	<b><i>t</i></b>	<b><i>p</i></b>	<b><i>Sig</i></b>
SS Choice ( <i>m</i> )	-0.06	0.08	-0.75	.456	
SS Intervention ( <i>m</i> )	0.08	0.08	1.00	.317	
SS Choice × SS Intervention ( <i>m</i> )	0.05	0.08	0.61	.544	
SS Choice ( <i>v</i> )	0.15	0.49	0.29	.768	
SS Intervention ( <i>v</i> )	0.29	0.49	0.59	.554	
SS Choice × SS Intervention ( <i>v</i> )	-0.04	0.49	-0.09	.930	
SS Choice ( <i>l</i> )	0.00	0.00	0.21	.835	
SS Intervention ( <i>l</i> )	0.00	0.00	0.45	.650	
SS Choice × SS Intervention ( <i>l</i> )	0.00	0.00	-0.43	.667	
SS Choice ( <i>s</i> )	-0.12	0.04	-3.35	.001	**
SS Intervention ( <i>s</i> )	0.01	0.04	0.31	.758	
SS Choice × SS Intervention ( <i>s</i> )	0.02	0.04	0.65	.516	
SS Choice ( <i>a</i> )	0.46	0.76	0.60	.549	
SS Intervention ( <i>a</i> )	0.45	0.76	0.59	.557	
SS Choice × SS Intervention ( <i>a</i> )	-0.26	0.76	-0.35	.729	

*Table S5.* Model output details for the models examining order effects reported above. The table includes the model estimate (unstandardized b-value coefficient), standard error (SE), z-value, p-value, and significance level for each variable included in the choice models for the SYS LL-Delay and ADJ tasks in Experiment 1. \*\*  $p < .01$  \*\*\*  $p < .001$

<b>Exp 1 ADJ</b>	<b><i>b</i></b>	<b><i>SE</i></b>	<b><i>z</i></b>	<b><i>p</i></b>	<b><i>Sig</i></b>
Group	-0.03	0.06	-0.45	.651	
Session	-0.04	0.01	-3.31	.001	**
Phase	-0.19	0.06	-3.06	.002	**
Group × Session	-0.01	0.01	-1.09	.278	
Group × Phase	0.01	0.06	0.24	.811	
Session × Phase	0.02	0.01	1.38	.168	
Group × Session × Phase	0.01	0.01	1.35	.178	
<b>Exp 1 SYS LL-Delay</b>	<b><i>b</i></b>	<b><i>SE</i></b>	<b><i>z</i></b>	<b><i>p</i></b>	<b><i>Sig</i></b>
Group	-0.42	0.12	-3.64	< .001	***
Phase	-0.17	0.12	-1.44	.149	
Group × Phase	-0.20	0.12	-1.71	.088	
LL Delay	-6.48	0.11	-60.30	< .001	***
Group × LL Delay	0.36	0.11	3.38	.001	***
Phase × LL Delay	0.00	0.11	0.01	.989	
Group × Phase × LL Delay	0.17	0.11	1.57	.116	

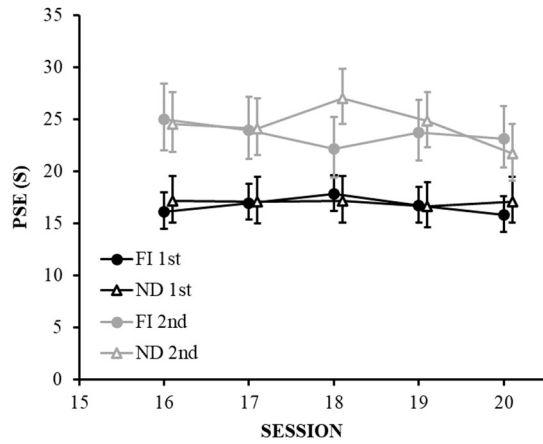
*Table S6.* Model output details the full omnibus model on the choice data in Experiment 2. The table includes the model estimate (unstandardized b-value coefficient), standard error (SE), z-value, p-value, and significance level for each variable included in the choice models for Experiment 2. \*  $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .001$

<b>Exp 2 Omnibus choice model</b>	<b><i>b</i></b>	<b><i>SE</i></b>	<b><i>z</i></b>	<b><i>p</i></b>	<b><i>Sig</i></b>
SS Choice	0.37	0.11	3.43	.001	***
SS Intervention	0.20	0.11	1.87	.062	
Pre/Post	0.00	0.02	-0.07	.942	
SS Choice × SS Intervention	0.23	0.11	2.14	.032	*
SS Choice × Pre/Post	0.03	0.02	1.56	.119	
SS Intervention × Pre/Post	0.05	0.02	2.23	.026	*
SS Choice × SS Intervention × Pre/Post	0.16	0.02	7.23	< .001	***
Delay Ratio	-7.94	0.07	-110.76	< .001	***
SS Choice × Delay Ratio	0.73	0.07	10.16	< .001	***
SS Intervention × Delay Ratio	-0.47	0.07	-6.53	< .001	***
Pre/Post × Delay Ratio	-0.26	0.07	-3.88	< .001	***
SS Choice × SS Intervention × Delay Ratio	-0.13	0.07	-1.84	.066	
SS Choice × Pre/Post × Delay Ratio	-0.37	0.07	-5.44	< .001	***
SS Intervention × Pre/Post × Delay Ratio	-0.11	0.07	-1.62	.105	
SS Choice × SS Intervention × Pre/Post × Delay Ratio	-0.17	0.07	-2.50	.013	*

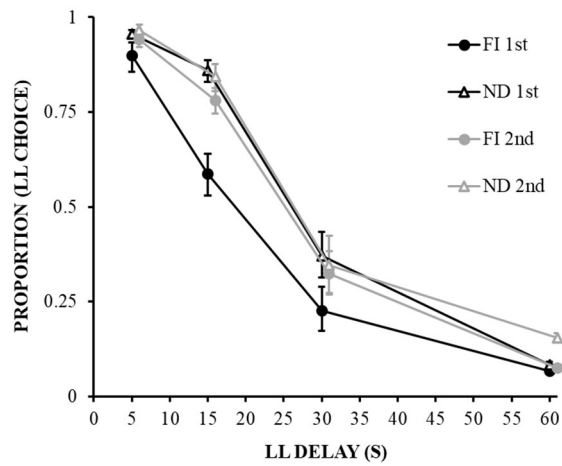


*Figure S1.* Mean point of subjective equivalence (PSE, LL delay duration) across successive 4-trial choice blocks for Experiment 1's FI and ND groups in both Phases of the ADJ task (1<sup>st</sup> = ADJ task first; 2<sup>nd</sup> = ADJ task second).





*Figure S2.* The point of subjective equality (PSE) as a function of the final 5 sessions in a 20-session condition in Experiment 1 for the fixed interval (FI) and no-delay (ND) groups in both Phases of the Adjusting (ADJ) task. 1<sup>st</sup> = ADJ task first; 2<sup>nd</sup> = ADJ task second. Note that the data for the ND conditions in jittered for display purposes.



*Figure S3.* The proportion larger-later (LL) choices as a function of LL delay in Experiment 1 for the fixed interval (FI) and no-delay (ND) groups in both Phases of the SYS LL task (1<sup>st</sup> = SYS-LL Delay task first; 2<sup>nd</sup> = SYS LL-Delay task second). Note that the FI 2<sup>nd</sup> and ND 2<sup>nd</sup> functions are jittered for display purposes.

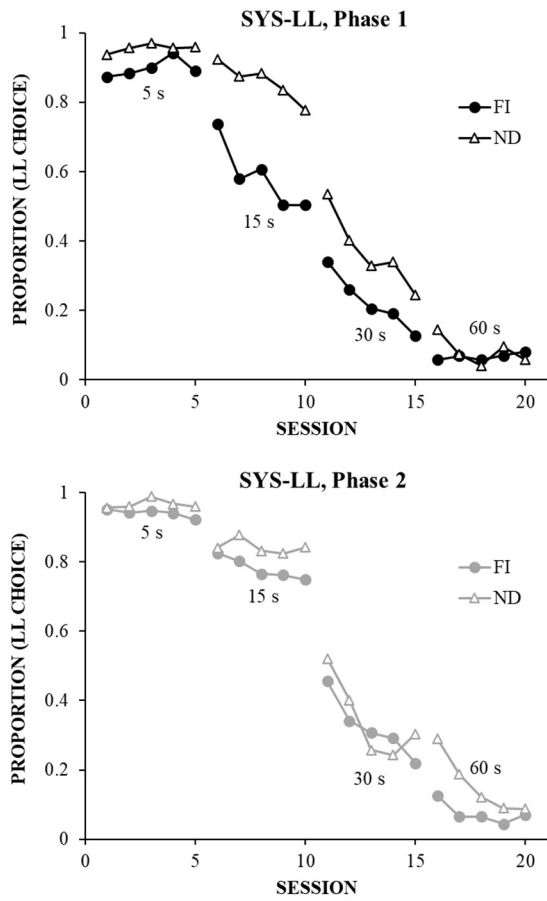


Figure S4. The proportion of LL choices in the FI and ND groups as a function of Session and LL Delay in Phases 1 and 2 of the SYS-LL delay task in Experiment 1.

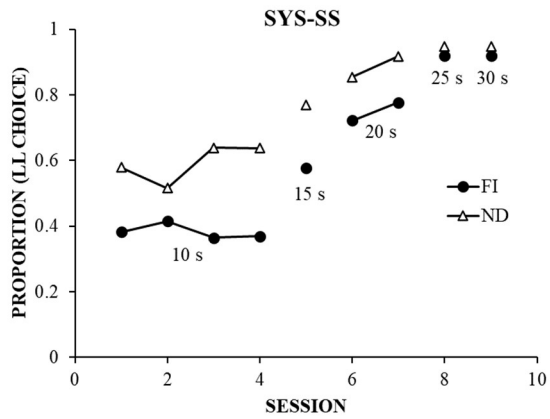
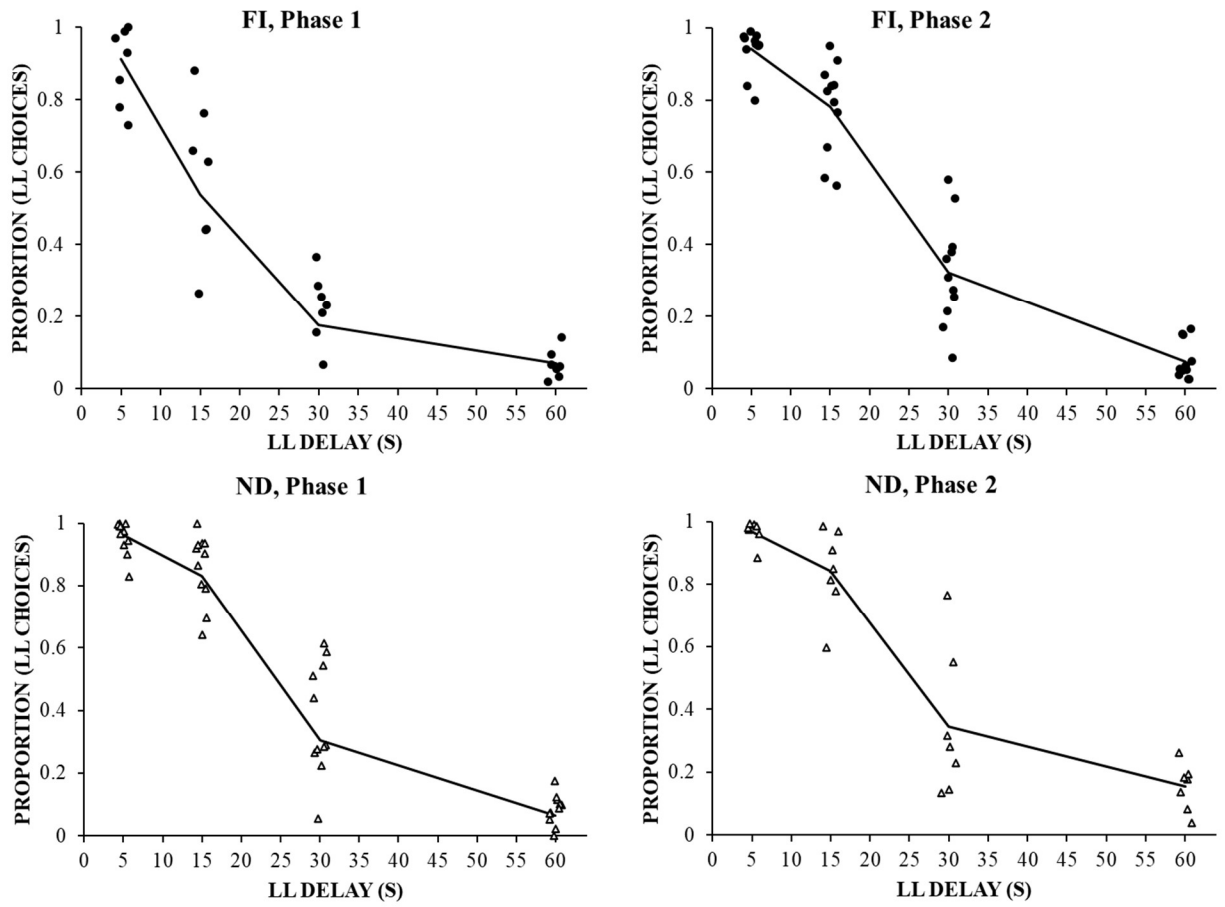


Figure S5. The proportion of LL choices in the FI and ND groups as a function of Session and SS Delay in the SYS-SS delay task in Experiment 1.



*Figure S6.* The proportion of LL choices for individual rats in each group as a function of LL Delay in Phases 1 and 2 the SYS-LL delay task in Experiment 1.

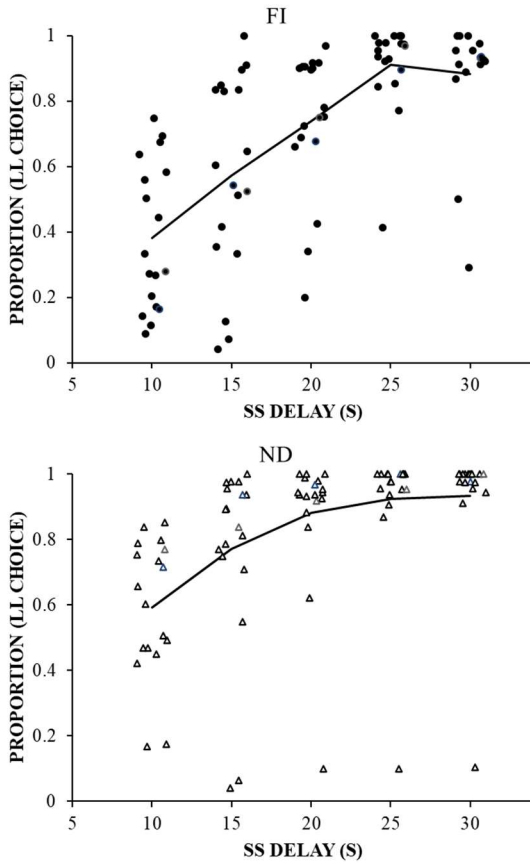


Figure S7. The proportion of LL choices for individual rats in each group as a function of SS Delay in the SYS-SS delay task in Experiment 1.

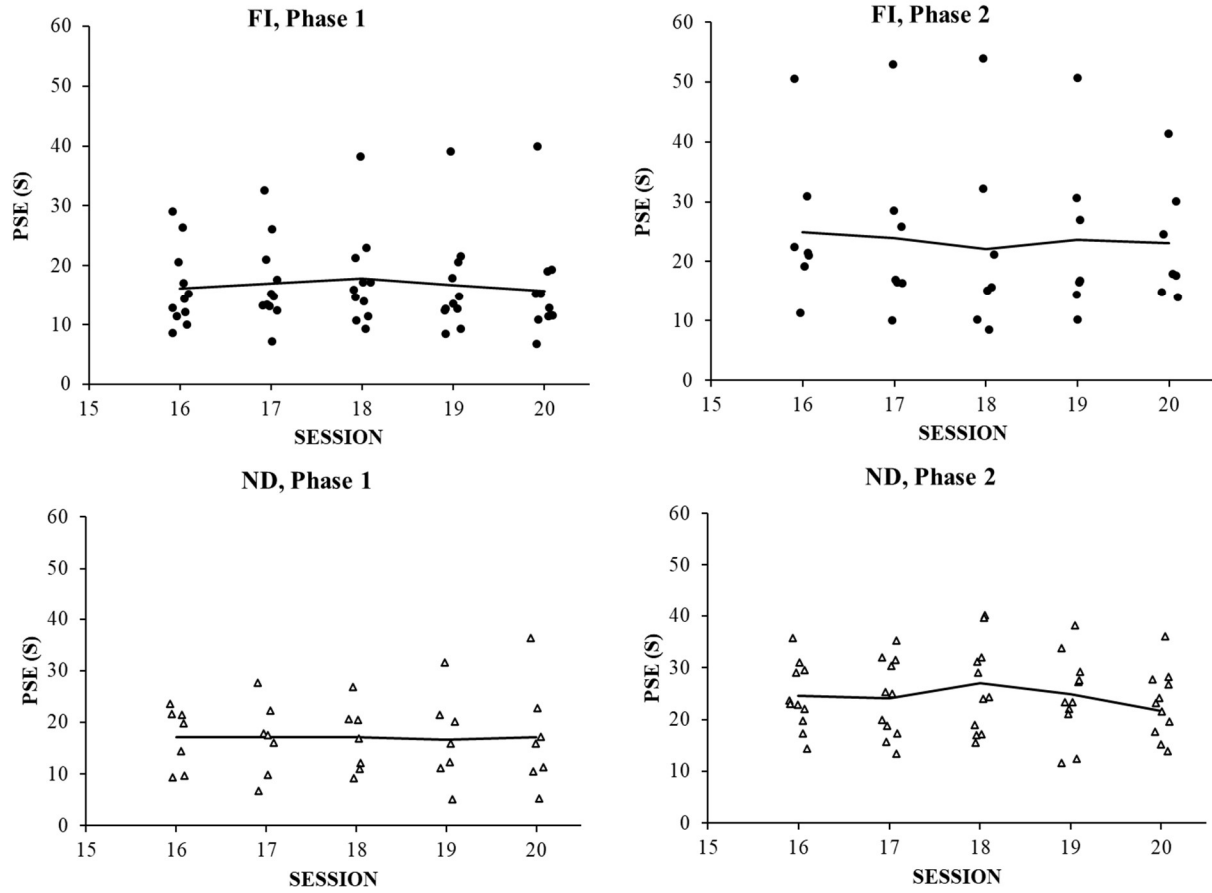


Figure S8. The point of subjective equality (PSE) for individual rats in each group as a function of session in Phases 1 and 2 of the ADJ task in Experiment 1.

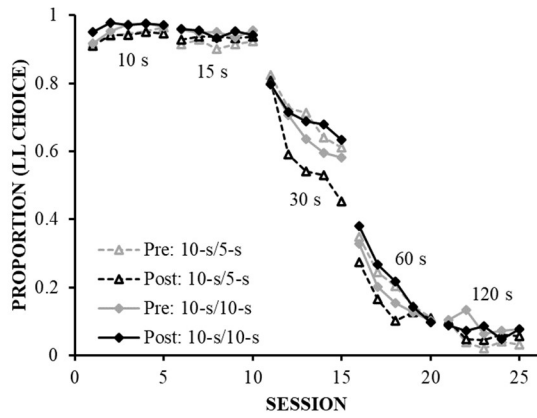
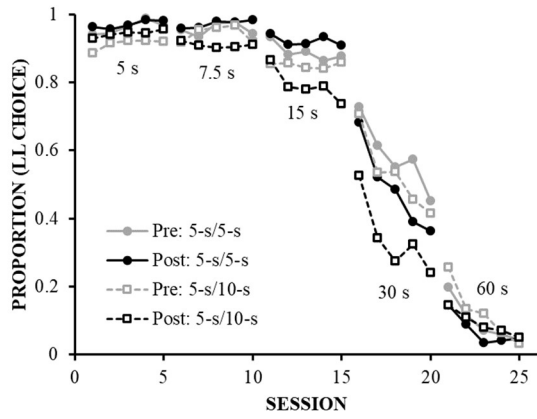
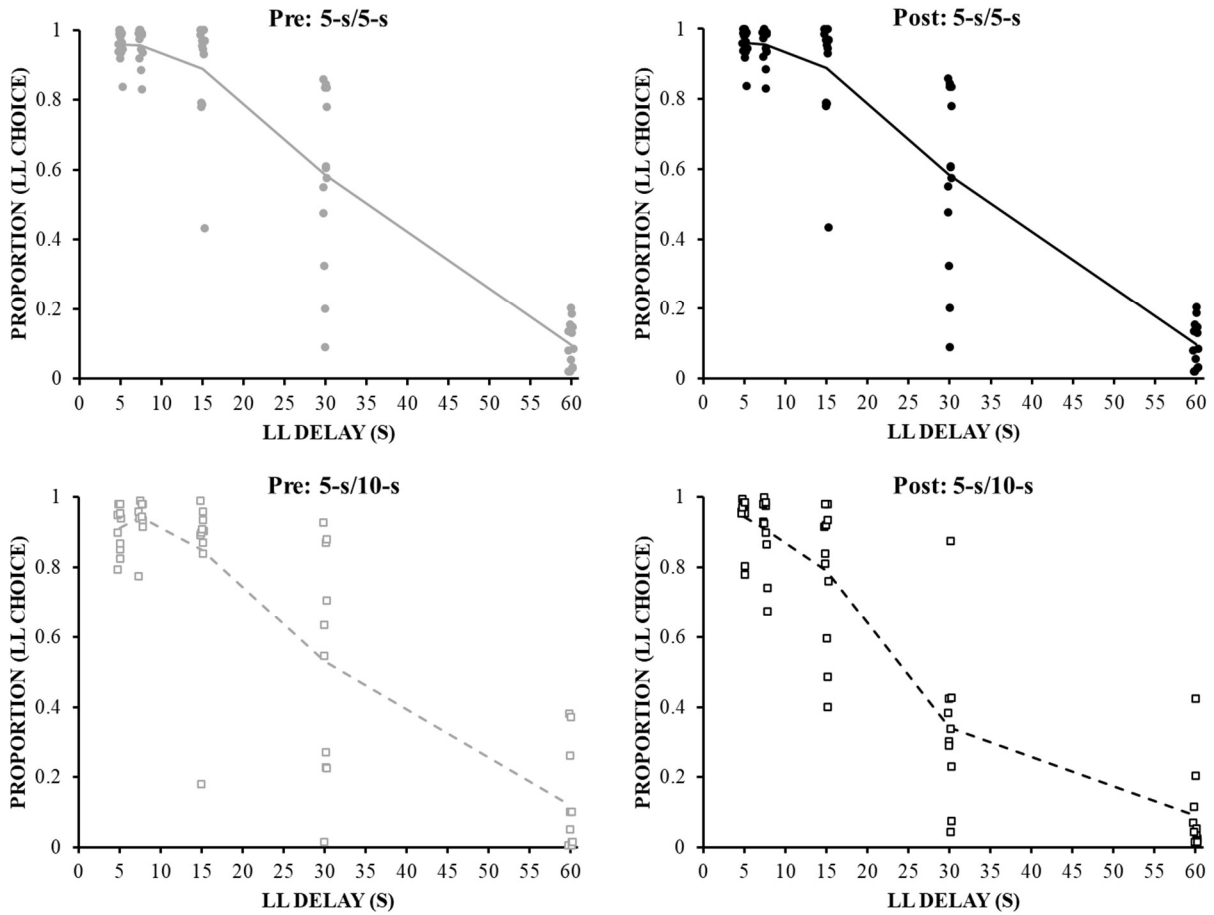
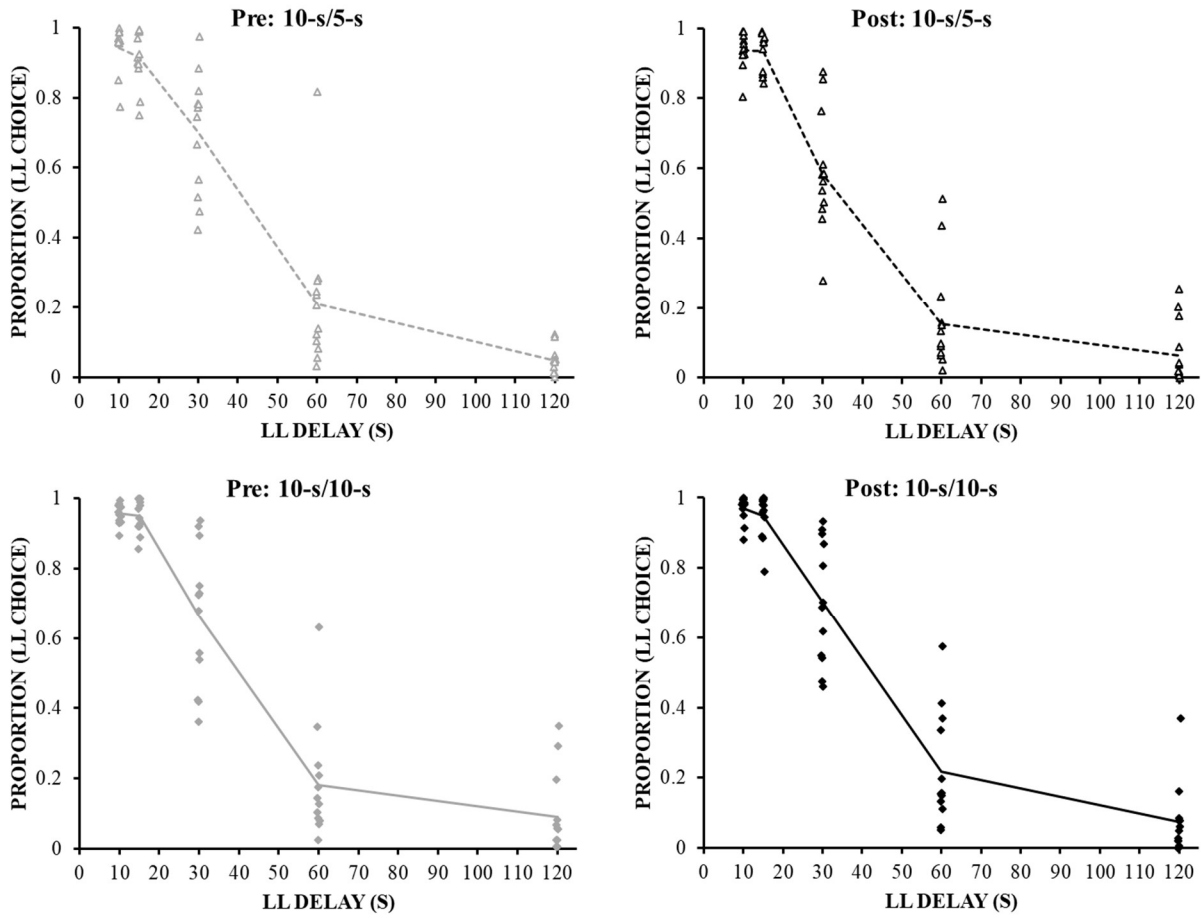


Figure S9. The proportion of LL choices in the four groups as a function of Pre- versus Post-Intervention and LL Delay in SYS LL-delay task in Experiment 2.





*Figure S10.* The proportion of LL choices as a function of LL delay for individual rats during the Pre- and Post-Intervention choice tasks for the two groups that received the 5-s SS delays in the choice tasks in Experiment 2. The lines through the data are the group means and the data points are the individual rats.



*Figure S11.* The proportion of LL choices as a function of LL delay for individual rats during the Pre- and Post-Intervention choice tasks for the two groups that received the 10-s SS delays in the choice tasks in Experiment 2. The lines through the data are the group means and the data points are the individual rats.