

## “Supplementary material\_2”

### Explain statistical analysis

#### Movement speed

#### Figure 3a

As soon as the divider was opened, the initial movement speed in the sound and control treatments, showed a significant decrease ( $df=34$ ,  $P=0.000$ ) (Figure 3a). I did not see such this figure in other papers to refer to. However, Paired samples t test used to compare mean differences between treatments when the observations have been obtained in pairs. The difference between the paired values is assumed to be normally distributed, and the null hypothesis that the expectation is zero is tested by Student's t test. The robustness properties are discussed, as is the asymptotic relative efficiency of nonparametric alternatives (Hsu and Lachenbruch, 2014).

Hsu, H. and Lachenbruch, P.A. (2014). Paired t Test. In Wiley StatsRef: Statistics Reference Online (eds N. Balakrishnan, T. Colton, B. Everitt, W. Piegorsch, F. Ruggeri and J.L. Teugels). <https://doi.org/10.1002/9781118445112.stat05929>

Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Control									
Pair 1	Cmin9 - Cmin11	.25675	.18575	.02566	.33447	.36574	13.557	34	.000
Pair 2	Cmin9 - Cmin12	.36453	.19900	.02569	.31312	.41594	14.189	34	.000
Pair 3	Cmin9 - Cmin13	.27351	.20170	.02604	.22141	.32562	10.504	34	.000
Pair 4	Cmin9 - Cmin14	.27128	.17140	.02710	.21646	.32610	10.010	34	.000
Pair 5	Cmin9 - Cmin20	-.03162	.19614	.02532	-.08229	.01905	-1.249	34	.217

Paired Samples Test									
		Paired Differences							Sig. (2-tailed)
			Std.	Std. Error	95% Confidence Interval of the Difference				
Sound		Mean	Deviation	Mean	Lower	Upper	t	df	
Pair 1	Smin9 - Smin11	.37278	.18896	.02440	.32397	.42160	15.281	34	.000
Pair 2	Smin9 - Smin12	.30158	.23949	.03092	.23971	.36344	9.754	34	.000
Pair 3	Smin9 - Smin13	.11423	.21799	.02814	.05792	.17054	4.059	34	.000
Pair 4	Smin9 - Smin14	.20458	.15391	.01987	.16482	.24434	10.297	34	.000
Pair 5	Smin9 - Smin20	.08700	.21147	.02730	.03237	.14163	3.187	59	.002

**Figure 3b**

However, There were no significant changes between total movement speed for the control(df=34, P=0.137) and sound treatments (df=34, P=0.097), (Figure 3b). (Hsu and Lachenbruch, 2014).

Paired Samples Test									
		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
Control					Lower	Upper			
Pair 1	Before.control – After.control	.11248	.43655	.07379	-.03748	.26244	1.524	34	.137

Paired Samples Test									Sig. (2-tailed)
		Paired Differences							
			Std.	Std. Error	95% Confidence Interval				
		Mean	Deviation	Mean	Lower	Upper	t	df	
Noise									
Pair 2	Before.noise – After.noise	.17035	.59113	.09992	-.03271	.37341	1.705	34	.097

**Figure 5(a and b)**

For spatial distribution (horizontal position, Fig. 5B), was used an “independent t-test.

McCrum-Gardner, E. (2008). Which is the correct statistical test to use? *British Journal of Oral and Maxillofacial Surgery*, 46(1), 38–41. <https://doi.org/10.1016/j.bjoms.2007.09.002>

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
cont 2	Equal variances assumed	1.709	.193	.861	69	.391	.13936	.16179	-.18063	.45936
	Equal variances not assumed			.861	69	.391	.13936	.16179	-.18064	.45937
soun d2	Equal variances assumed	.002	.969	-3.073	69	.003	-.58305	.18975	-.95891	-.20719

Equal variances not assumed			- 3.073	69	.003	-.58305	.18973	-.95889	-.20721
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**Figure 6 a**

In the sound treatment, individuals found the food source significantly later than the control treatment (Figure 6 A, N=35, df=57, P=0.005,). One individual in the control treatment and 9 in the sound treatment were not successful in finding the food source during the entire 10 minutes. We used **independent t test** for Latency graph.

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
Speed	Equal variances assumed	.024	.879	-2.929	57	.005	-96.92706	33.09350	-163.19565	-30.65847
	Equal variances not assumed			-2.953	53.338	.005	-96.92706	32.82498	-162.75591	-31.09821

**Figure 6 b**

The number of revisits to the food source was significantly reduced in the sound treatment (Figure 6 B, N=35, df=68, P <0.000).

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
Revisit	Equal variances assumed	10.451	.002	4.966	68	.000	4.457	.898	2.666	6.248
	Equal variances not assumed			4.966	46.194	.000	4.457	.898	2.651	6.264

### Figure 6 c

Significantly more individuals succeeded in finding the food source in the control treatment compared to the sound treatment (Figure 6 C, N=35, df=1, P=0.006). **We used The “Chi-square test of independence”** (Wale et al., 2013)

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2- sided)	Exact Sig. (1- sided)
Pearson Chi-Square	7.467 <sup>a</sup>	1	.006		
Continuity Correction <sup>b</sup>	5.717	1	.017		
Likelihood Ratio	8.431	1	.004		
Fisher's Exact Test				.013	.007
Linear-by-Linear Association	7.360	1	.007		
N of Valid Cases	70				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.00.

b. Computed only for a 2x2 table

## Figure 7

In the sound treatment significantly more individuals (,  $df=1$ ,  $P=0.000$ ) were distracted during feeding than in the control treatment (Figure 7). **We used The “Chi-square test of independence”** (Wale et al., 2013)

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2- sided)	Exact Sig. (1- sided)
Pearson Chi-Square	16.733 <sup>a</sup>	1	.000		
Continuity Correction <sup>b</sup>	14.822	1	.000		
Likelihood Ratio	17.522	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	16.494	1	.000		
N of Valid Cases	70				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 15.50.

b. Computed only for a 2x2 table