

Supplementary Materiel

Title: **Do sheep (*Ovis aries*) discriminate human emotional odors?**

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Supplemental table 1 Intra-class correlation coefficients (ICC2) for the double coding of videos and their 95% confidence intervals (CI)

	Sexe	ICC2 for behaviour frequencies and IC at 95%	ICC2 for behaviour durations and IC at 95%
Behaviours	Females	0.96 and [0.95 ; 0.97]	0.98 and [0.97 ; 0.98]
	Males	0.86 and [0.82 ; 0.89]	0.94 and [0.91 ; 0.95]
Animal's position	Females	0.71 and [0.59 ; 0.79]	0.97 and [0.96 ; 0.98]
	Males	0.93 and [0.89 ; 0.95]	0.99 and [0.98 ; 0.99]
Ears positions	Females	0.78 and [0.68 ; 0.85]	0.95 and [0.93 ; 0.97]
	Males	0.80 and [0.70 ; 0.86]	0.90 and [0.85 ; 0.93]

Supplemental table 2 Results (mean score \pm SD) of the habituation-dishabituation test and normality residuals test for male lambs for the habituation phase, with “D” for duration and “O” for occurrence, * $p < .05$ (O1.1 vs. O1.4 refer to the stimuli in the habituation-dishabituation test, see text)

		Odor Presentation		Mixed Model Results	
		O1.1	O1.4	Shapiro test p-values	Kolmogorov test p-values
Animal's Positions	D_Proximal area	34.06 \pm 16.68	24.47 \pm 21.75	.594	.569
	D_Intermediate area	6.55 \pm 6.05	15.07 \pm 12.89	.131	.856
	D_Distal area	18.98 \pm 13.86	20.14 \pm 17.45	.602	.837
	O_Proximal area	3.15 \pm 1.62	1.71 \pm 1.20	.134	.334
	O_Intermediate area	2.76 \pm 2.20	2.5 \pm 1.99	.879	.953
	O_Distal area	2.15 \pm 1.51	2.07 \pm 1.63	.259	.759
Behaviors	D_Attraction behaviors	22.57 \pm 18.16	6.67 \pm 9.96	.092	.433
	D_Aversion behaviors	22.97 \pm 18.39	27.05 \pm 30.35	.107	.328
	O_Attraction behaviors	2.5 \pm 1.65	1.21 \pm 1.42	.015*	.617
	O_Aversion behaviors	5.35 \pm 3.81	5.21 \pm 3.06	.354	.745
Ears	D_Positive Emotion	27.68 \pm 14.46	23.75 \pm 16.13	.298	.95
	D_Negative Emotion	29.01 \pm 15.19	32.13 \pm 15.97	.207	.61
	O_Positive Emotion	3.78 \pm 1.87	3.35 \pm 1.39	.915	1
	O_Negative Emotion	6.57 \pm 3.89	6.42 \pm 2.98	.088	.981
	O_Total Change of position	10.35 \pm 4.40	9.78 \pm 3.80	.424	.942

Supplemental table 3 Results (mean score \pm SD) of the habituation-dishabituation test and normality residuals test for male lambs for the habituation phase, with “D” for duration and “O” for occurrence, * $p < .05$ (O1.4 vs. O2.1 refer to the stimuli in the habituation-dishabituation test, see text)

		Odor Presentation		Mixed Model Results	
		O1.4	O2.1	Shapiro test p-values	Kolmogorov test p-values
Animals Positions	D_Proximal area	24.47 \pm 21.75	24.85 \pm 18.33	.577	.995
	D_Intermediate area	15.07 \pm 12.89	18.89 \pm 15.37	.034*	.411
	D_Distal area	20.14 \pm 17.45	16.07 \pm 15.08	.258	.629
	O_Proximal area	1.71 \pm 1.20	2.14 \pm 0.66	.111	.25
	O_Intermediate area	2.5 \pm 1.99	2.78 \pm 1.71	.067	.892
	O_Distal area	2.07 \pm 1.63	1.85 \pm 1.65	.654	.803
Behaviors	D_Attraction behaviors	6.675 \pm 9.96	7.05 \pm 11.04	.011*	.176
	D_Aversion behaviors	27.05 \pm 30.35	26.18 \pm 15.78	.242	.58
	O_Attraction behaviors	1.21 \pm 1.42	1.35 \pm 1.21	.012*	.617
	O_Aversion behaviors	5.21 \pm 3.06	6.42 \pm 2.76	.024*	.305
Ears	D_Positive Emotion	23.75 \pm 16.13	20.36 \pm 12.94	.335	.578
	D_Negative Emotion	32.13 \pm 15.97	35.92 \pm 13.18	.534	.971
	O_Positive Emotion	3.35 \pm 1.39	3.14 \pm 1.56	.664	.691
	O_Negative Emotion	6.42 \pm 2.98	8.64 \pm 4.97	.369	.905
	O_Total Change of position	9.78 \pm 3.80	11.78 \pm 5.22	1	.987

Supplemental table 4 Results (mean score \pm SD) of the habituation-dishabituation test and normality residuals test for female lambs for the habituation phase, with “D” for duration and “O” for occurrence, * $p < .05$ (O1.1 vs. O1.4 refer to the stimuli in the habituation-dishabituation test, see text)

		Odor Presentation		Results of residual normality test	
		O1.1	O1.4	Shapiro test p-values	Kolmogorov test p-values
Animal's Positions	D_Proximal area	53.15 \pm 6.26	49.30 \pm 13.41	.004**	.376
	D_Intermediate area	3.05 \pm 5.05	3.39 \pm 3.21	<.001***	.447
	D_Distal area	3.42 \pm 3.91	7.23 \pm 11.36	<.001***	.126
	O_Proximal area	3.85 \pm 2.10	4.07 \pm 1.43	.141	.71
	O_Intermediate area	1.5 \pm 1.55	2.07 \pm 1.81	.914	.833
	O_Distal area	1.21 \pm 0.97	1.28 \pm 1.43	.11	.853
Behaviors	D_Attraction behaviors	39.19 \pm 11.38	33.4 \pm 14.84	.601	.916
	D_Aversion behaviors	9.46 \pm 8.65	12.52 \pm 7.86	.888	.981
	O_Attraction behaviors	4.35 \pm 3.97	2.85 \pm 1.02	.822	.986
	O_Aversion behaviors	3.14 \pm 1.29	5.78 \pm 3.74	.953	.960
Ears	D_Positive Emotion	1.14 \pm 1.58	1.06 \pm 2.11	<.001***	.021
	D_Negative Emotion	58.06 \pm 2.76	55.56 \pm 7.25	.028	.289
	O_Positive Emotion	0.71 \pm 0.82	0.57 \pm 0.93	<.001***	.087
	O_Negative Emotion	5.07 \pm 2.97	6.21 \pm 3.16	.403	.87
	O_Total Change of position	5.78 \pm 3.21	6.78 \pm 3.44	.426	.932

Supplemental table 5 Results (mean score \pm SD) of the habituation-dishabituation test and normality residuals test for female lambs for the habituation phase, with “D” for duration and “O” for occurrence, * $p < .05$, ** $p < .01$, *** $p < .001$ (O1.4 vs. O2.1 refer to the stimuli in the habituation-dishabituation test, see text)

		Odor Presentation		Results of residual normality test	
		O1.4	O2.1	Shapiro test p-values	Kolmogorov test p-values
Animal's Positions	D_Proximal area	49.30 \pm 13.41	45.01 \pm 11.13	.15	.702
	D_Intermediate area	3.39 \pm 3.21	5.37 \pm 6.24	.098	.715
	D_Distal area	7.23 \pm 11.36	9.51 \pm 7.57	.007	.745
	O_Proximal area	4.07 \pm 1.43	3.57 \pm 2.02	.926	.995
	O_Intermediate area	2.07 \pm 1.81	2.5 \pm 1.91	.461	.475
	O_Distal area	1.28 \pm 1.43	2 \pm 1.30	.857	.966
Behaviors	D_Attraction behaviors	33.4 \pm 14.84	32.37 \pm 17.15	.326	.617
	D_Aversion behaviors	12.52 \pm 7.86	16.66 \pm 10.17	.663	.982
	O_Attraction behaviors	2.85 \pm 1.02	2.35 \pm 1.21	.218	.402
	O_Aversion behaviors	5.78 \pm 3.74	7.21 \pm 4.87	.621	.938
Ears	D_Positive Emotion	1.06 \pm 2.11	1.99 \pm 3.54	<.001***	.131
	D_Negative Emotion	55.56 \pm 7.25	56.41 \pm 5.25	<.001***	.447
	O_Positive Emotion	0.57 \pm 0.93	0.92 \pm 1.43	.005**	.334
	O_Negative Emotion	6.21 \pm 3.16	8 \pm 4.77	.492	.776
	O_Total Change of position	6.78 \pm 3.44	8.92 \pm 5.34	.567	.85