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APPENDICES

SOLUTION PREPARATION

1. Solutions for AChE staining
   a. Acetylthiocholine solution: prepared 200 ml of this solution by diluting 0.46 g acetylthiocholine, 0.015 g ethoproprazine, 0.15 g glycine, 0.1 g cupric sulfate, 1.36 g sodium acetate in to 200 ml distilled water and added glacial acetic acid drop by drop to bring the pH to 5.0.
   b. Sodium sulfite solution (1.25%): diluted 1.25 g sodium sulfite in to 95~100 ml distilled water and added 10 N HCl drop by drop to bring the pH to 7.8
   c. Silver nitrate solution (1%)
   d. Sodium thiosufide solution (5%)

2. Solutions for Nissl staining

The preparation followed the method described by Paxinos and Watson (2004). Briefly, to make 500 mL of 0.5% cresyl violet of about pH 3.9, mixed 2.5 g of cresyl violet, 300 mL of water, 30 mL of 1.0 M sodium acetate (13.6 g of granular sodium acetate in 92 mL of water), and 170 mL of 1.0 M acetic acid (29 mL of glacial acetic acid added to 471 mL of water). Mixed this solution for at least 7 days on a magnetic stirrer, and then filtered by a filter paper.

3. Solutions for protein assay
   a. Bovine Serum Albumin (BSA) solution: 1 mg/ml in PBS (0.1 M pH 7.4)
   b. Folins Reagent: 1 N, freshly diluted 2 N Folins 1ml in 1ml distill water.
   c. Lowry solution:
      Lowry A (2% Sodium tartrate in distill water)
      Lowry B (1% CuSO4 in distill water)
      Lowry C (0.1 M NaOH, 2% Na2CO3 in distill water).

4. Solutions for catalase activity assay
   a. H_2O_2 (60 mM): H_2O_2 340.1 mg, diluted in distilled water up to 50 ml.
   b. NaN_3 (0.5 mM): NaN_3 3.25 mg, dissolved in distilled water up to 100 ml
   c. $FeSO_4$ (10 mM): $FeSO_4$.7H2O: 139 mg, dissolved in distilled water up to 50 ml

d. KSCN (1.25 M): KSCN 4.9 g, dissolved in distilled water up to 40 ml
e. H_2SO_4 (0.3 M): H_2SO_4: 8.82 g, diluted in 200 ml distilled water, then added distilled water up to 300 ml.

5. Solutions for superoxide dismutase activity assay
   a. PBS (0.05 M, pH 7.4): K_2HPO_4 3.48 g and KH_2PO_4 0.68 g were dissolved in de-ion water up to 500 ml. This buffer was used for preparing the following solutions.
   b. EDTA (0.5 mM): EDTA 18.612 mg was dissolved in PBS up to 100 ml.
   c. NBT (0.25 mM): NBT 1 tablet (10 mg) was dissolved in PBS up to 40 ml, kept in ice box.
   d. Xanthine (0.25 mM): Xanthine 4.93mg was dissolved in 1 ml 0.1 M KOH (0.28g KOH in 50 ml de-ion water), then added PBS up to 100 ml (freshly prepared before use).
   e. Xanthine oxidase (0.16 units/ml): Xanthine oxidase 40 µl, right before running the reaction, was diluted in 10 ml ice cold PBS, then added 5 ml EDTA (0.5mM), mixed well. This 15 ml solution was enough for running the samples of 2 microplates (96 wells)
   f. Superoxide dismutase (1 unit/10 µl): SOD standard 0.73 mg was dissolved in 25 ml ice cold PBS.

6. Solutions for glutathione peroxidase activity assay
   a. PBS 50 mM (pH 7.0, 25°C), this PBS was used for prepare the following solutions
   b. Cocktail solution: EDTA 0.4 mM, NaN3 1 mM, β-NADPH 0.12 mM PBS mentioned above.
   c. Glutathione reductase (GR): 100 units/ml in PBS.
   d. Glutathione, reduced form (GSH): 200 mM in PBS
   e. DL-Dithiothreitol (DDT): 1 mM in PBS
   f. H_2O_2 0.007% in PBS

Table 2 The average latency of 4 trials of short-term Morris water maze test at the time of training, 1 week, 2 weeks and 4 weeks after OVX.

	Training		1 week		2 week		4 week	
	mean	SEM	mean	SEM	mean	SEM	mean	SEM
OVX+C1	14.98	3.96	18.00	5.47	12.64	4.35	13.43	5.58
OVX+C2	17.95	3.82	18.21	3.53	7.71	2.10	12.21	3.34
OVX+E	16.45	3.85	14.71	3.99	12.45	4.83	8.96	2.04
OVX+V	16.56	3.85	11.44	3.10	9.17	1.93	10.00	2.00
Sham+V	17.21	3.79	9.38	1.89	6.32	1.63	6.83	1.10
Sham+C1	16.53	3.81	10.62	2.94	6.32	0.99	6.89	0.55

Table 3 The average latency of the 1st trial of short-term Morris water maze test at the time of 1 week, 2 weeks and 4 weeks after OVX.

	1 week		2 week		4 week	
	mean	SEM	mean	SEM	mean	SEM
OVX+C1	20.88	6.68	12.14	3.15	12.00	4.04
OVX+C2	30.33	8.67	5.17	1.14	11.57	4.22
OVX+E	26.75	8.00	15.38	6.86	13.63	6.84
OVX+V	12.88	3.29	12.29	3.15	14.13	3.75
Sham+V	17.38	4.67	9.13	3.55	10.00	1.95
Sham+C1	20.57	7.01	10.43	3.34	8.57	1.62

Table 4 The uterus weight of the rats of short-term Morris water maze test

	mean	SEM
OVX+C1	0.28	0.02
OVX+C2	0.28	0.02
OVX+E	0.28	0.01
OVX+V	0.21	0.02
Sham+V	0.30	0.03
Sham+C1	0.28	0.02

Table 5 The body weight of the rats of short-term Morris water maze test

	Sham+V	OVX+V	OVX+E	OVX+C1	OVX+C2	Sham+C1
day1	190.75	195.50	200.75	204.38	206.88	208.25
day2	190.25	213.63	199.13	194.13	204.71	199.13
day4	197.25	221.88	196.88	188.25	196.57	196.25
day6	200.50	223.63	199.63	190.50	195.00	193.00
day9	205.50	226.50	206.13	201.88	204.00	199.13
day11	207.25	227.38	204.75	188.50	202.86	203.25
day13	209.13	239.88	203.63	201.25	207.57	201.50
day15	209.75	237.63	204.75	195.75	201.29	203.63
day16	211.25	244.88	207.88	199.88	206.29	202.25
day18	211.13	241.63	209.00	200.88	194.86	199.50
day20	213.88	245.13	210.75	201.38	207.43	199.88
day22	215.88	248.38	211.00	219.86	208.57	204.25
day24	215.88	246.13	210.25	205.57	208.71	200.50
day26	217.00	250.38	215.25	206.29	211.86	204.00
day28	220.38	251.25	216.38	207.71	210.57	208.00

Table 6 The ER mRNA quantification results

	ER alpha		ER beta	
	mean	SEM	mean	SEM
OVX+C1	0.881	0.031	0.035	0.002
OVX+C2	0.977	0.085	0.049	0.005
OVX+E	0.740	0.028	0.069	0.007
OVX+V	0.581	0.030	0.044	0.002
S+V	0.463	0.025	0.050	0.006
S+C1	0.516	0.033	0.042	0.006

Table 7 The result of long-term behaviors test (M-H1, day1)

		tim	pth	ppw	qcg	spd	act	lat	stp	qne	qnw	qse	qsw
OVX+C1	mean	54.60	13.22	38.66	19.72	0.25	96.02	4.24	0.53	21.60	28.08	19.12	31.55
	SEM	1.83	0.60	2.34	1.25	0.01	0.39	0.45	0.12	1.53	1.62	1.33	0.99
OVX+C2	mean	48.21	12.44	37.61	24.12	0.27	95.13	3.19	0.63	24.12	25.75	20.31	30.05
	SEM	2.48	0.58	1.88	1.22	0.01	0.99	0.28	0.10	1.22	1.70	1.11	1.30
OVX+E	mean	46.11	10.94	34.92	23.97	0.26	93.75	3.78	0.88	23.97	25.51	19.53	31.22
	SEM	3.79	1.00	2.95	1.55	0.01	1.69	0.26	0.21	1.55	1.56	1.61	0.67
OVX+V	mean	51.97	11.98	38.73	20.44	0.25	94.20	4.46	1.08	20.44	26.72	18.29	34.79
	SEM	2.47	0.52	2.16	1.20	0.01	0.91	0.48	0.20	1.20	1.53	0.92	1.72
S+V	mean	50.26	11.44	33.28	22.21	0.24	93.59	4.67	1.00	22.21	22.45	21.70	33.94
	SEM	2.82	0.62	1.20	1.40	0.01	1.14	0.32	0.17	1.40	1.14	2.02	1.63

Table 8 The result of long-term behaviors test (M-H1, day2)

		tim	pth	ppw	qcg	spd	act	lat	stp	qne	qnw	qse	qsw
OVX+C1	mean	33.88	8.00	24.53	29.60	0.25	93.29	3.74	0.53	29.60	21.36	18.92	30.33
	SEM	3.98	0.99	1.32	2.50	0.01	2.40	0.37	0.18	2.50	2.60	2.53	2.70
OVX+C2	mean	35.51	9.17	23.90	28.97	0.27	97.76	2.41	0.10	28.97	22.72	17.32	31.46
	SEM	4.62	1.00	2.63	2.30	0.01	0.71	0.26	0.06	2.30	2.30	1.56	2.41
OVX+E	mean	38.58	9.21	26.15	27.79	0.25	95.46	3.58	0.33	27.79	23.94	15.47	33.32
	SEM	5.11	1.13	2.75	3.35	0.01	0.88	0.31	0.15	3.35	1.85	1.86	2.38
OVX+V	mean	37.45	8.95	25.47	27.55	0.25	95.80	3.35	0.30	27.55	26.71	16.44	29.59
	SEM	4.35	1.14	2.24	2.17	0.01	1.49	0.43	0.12	2.17	2.42	1.53	3.11
S+V	mean	34.45	7.39	22.41	29.62	0.24	90.51	4.89	0.47	29.62	20.13	20.39	30.08
	SEM	3.56	0.82	1.55	3.17	0.01	2.46	0.77	0.08	3.17	1.94	2.33	2.38

Table 9 The result of long-term behaviors test (M-H1, day3)

		tim	pth	ppw	qcg	spd	act	lat	stp	qne	qnw	qse	qsw
OVX+C1	mean	32.58	7.59	20.88	34.90	0.24	96.28	3.37	0.38	34.90	25.11	13.38	26.85
	SEM	3.32	0.74	1.65	3.24	0.01	0.85	0.31	0.16	3.24	1.97	1.39	3.07
OVX+C2	mean	18.68	4.77	19.02	42.27	0.26	98.35	2.08	0.05	42.27	16.97	16.04	24.97
	SEM	2.15	0.58	2.05	2.48	0.01	0.38	0.12	0.03	2.48	2.01	2.61	2.64
OVX+E	mean	26.15	6.18	20.83	34.81	0.24	97.32	3.13	0.30	34.81	23.34	15.42	27.04
	SEM	5.92	1.39	3.27	3.27	0.01	0.58	0.49	0.14	3.27	2.36	1.70	2.37
OVX+V	mean	35.86	7.55	24.49	35.34	0.23	91.55	4.14	0.72	35.34	25.92	14.78	24.31
	SEM	3.44	0.63	2.28	2.42	0.01	3.52	0.97	0.26	2.42	3.09	1.78	2.41
S+V	mean	27.55	6.23	21.97	35.32	0.24	95.11	3.30	0.26	35.32	21.93	22.27	20.67
	SEM	4.09	0.93	2.13	2.62	0.01	1.76	0.40	0.10	2.62	2.67	3.57	2.42

Table 10 The result of long-term behaviors test (M-H1, day4)

		tim	pth	ppw	qcg	spd	act	lat	stp	qne	qnw	qse	qsw
OVX+C1	mean	30.32	6.99	20.54	39.83	0.23	96.03	3.31	0.18	39.83	23.90	12.39	24.29
	SEM	4.72	1.16	2.18	4.23	0.01	0.83	0.35	0.05	4.23	4.14	1.45	1.76
OVX+C2	mean	19.06	4.89	18.78	45.33	0.26	98.23	2.08	0.08	45.33	17.73	16.09	20.98
	SEM	4.80	1.13	1.20	2.90	0.01	0.58	0.13	0.05	2.90	3.88	2.50	2.15
OVX+E	mean	23.51	5.37	19.37	38.07	0.25	93.27	2.81	0.50	38.07	17.40	18.03	26.72
	SEM	4.56	0.96	1.59	4.54	0.01	1.95	0.29	0.14	4.54	2.91	2.37	3.71
OVX+V	mean	28.50	6.14	21.20	42.51	0.23	90.96	3.52	0.33	42.51	16.82	18.99	21.76
	SEM	4.31	1.05	1.53	4.47	0.01	3.79	0.62	0.12	4.47	2.32	1.96	2.62
S+V	mean	27.05	5.93	22.14	39.78	0.23	90.88	3.86	0.36	39.78	19.78	19.07	21.54
	SEM	3.45	0.73	1.28	1.30	0.01	2.74	0.62	0.11	1.30	1.86	2.81	1.25

Table 11 The result of long-term behaviors test (M-H1, day5)

		tim	pth	ppw	qcg	spd	act	lat	stp	qne	qnw	qse	qsw
OVX+C1	mean	19.87	4.49	21.38	47.06	0.24	96.57	2.76	0.23	47.06	15.85	17.86	19.56
	SEM	2.03	0.48	1.64	2.74	0.01	1.42	0.37	0.07	2.74	2.75	1.77	1.81
OVX+C2	mean	17.74	4.50	16.84	45.88	0.25	99.00	2.18	0.03	45.88	14.50	16.91	22.95
	SEM	2.93	0.79	1.31	3.13	0.01	0.21	0.17	0.03	3.13	2.39	1.70	3.18
OVX+E	mean	19.01	4.64	18.68	45.34	0.25	97.89	2.52	0.13	45.34	17.46	16.53	20.95
	SEM	2.49	0.66	1.71	3.36	0.01	0.55	0.22	0.06	3.36	1.54	2.09	2.18
OVX+V	mean	22.20	4.06	21.51	37.25	0.23	89.15	3.83	0.48	37.25	19.17	20.99	22.87
	SEM	5.28	0.89	1.92	3.55	0.01	5.24	0.73	0.18	3.55	2.00	3.59	2.46
S+V	mean	18.07	3.95	19.75	45.71	0.24	91.73	3.45	0.19	45.71	14.21	16.21	24.08
	SEM	4.97	1.11	1.32	3.07	0.01	2.14	0.60	0.07	3.07	1.44	2.23	2.08

Table 12 The result of long-term behaviors test (M-P1, day1)

		tim	pth	ppw	qcg	spd	act	lat	stp	qne	qnw	qse	qsw
OVX+C1	mean	60.00	12.16	23.42	25.47	0.22	92.47	4.91	1.07	25.47	25.80	15.90	33.21
	SEM	0.00	0.40	1.22	2.58	0.01	1.55	0.78	0.22	2.58	2.97	1.28	2.12
OVX+C2	mean	60.00	15.22	23.51	35.55	0.26	98.73	2.22	0.19	35.55	26.21	14.67	24.02
	SEM	0.00	0.41	1.49	3.92	0.01	0.39	0.16	0.08	3.92	3.10	1.78	2.75
OVX+E	mean	60.00	14.52	23.92	24.63	0.25	97.23	3.14	0.43	24.63	26.03	15.94	33.71
	SEM	0.00	0.48	1.08	2.31	0.01	0.83	0.39	0.20	2.31	1.83	2.03	2.83
OVX+V	mean	60.00	12.19	25.94	23.80	0.23	87.49	5.57	1.10	23.80	24.52	20.87	31.12
	SEM	0.00	0.74	1.66	3.27	0.00	4.84	1.60	0.29	3.27	2.61	2.89	3.18
S+V	mean	60.00	11.01	26.77	25.94	0.22	83.55	5.42	1.50	25.94	22.09	24.51	27.70
	SEM	0.00	0.92	1.70	2.93	0.01	4.43	1.21	0.35	2.93	2.27	2.59	2.33

Table 13 The result of long-term behaviors test (M-P1, day2)

		tim	pth	ppw	qcg	spd	act	lat	stp	qne	qnw	qse	qsw
OVX+C1	mean	60.00	11.73	27.01	18.56	0.22	86.80	5.51	1.53	18.56	30.75	14.75	36.29
	SEM	0.00	0.81	2.69	2.50	0.01	3.45	0.96	0.43	2.50	3.41	1.34	4.19
OVX+C2	mean	60.00	15.38	24.49	24.22	0.26	97.39	2.55	0.52	24.22	40.16	11.06	24.95
	SEM	0.00	0.56	1.53	3.21	0.01	0.70	0.40	0.17	3.21	3.54	1.67	2.84
OVX+E	mean	60.00	13.28	27.35	22.92	0.23	94.31	3.66	1.07	22.92	28.69	15.16	33.73
	SEM	0.00	0.60	1.66	3.00	0.01	1.56	0.51	0.18	3.00	2.64	1.81	3.40
OVX+V	mean	60.00	11.42	26.98	22.12	0.23	81.17	7.69	1.78	22.12	28.97	18.30	30.95
	SEM	0.00	0.89	2.06	3.31	0.01	5.64	2.27	0.33	3.31	2.11	2.02	3.32
S+V	mean	60.00	10.36	28.58	25.71	0.22	77.18	6.27	1.83	25.71	26.78	16.44	31.94
	SEM	0.00	1.31	1.53	4.84	0.01	6.37	1.14	0.51	4.84	2.04	1.44	4.55

Table 14 The result of long-term behaviors test (M-H2, day1)

	(n=10)	tim	pth	ppw	qcg	spd	act	lat	stp	qne	qnw	qse	qsw
OVX+C1	mean	29.22	5.36	25.05	38.77	0.23	85.99	4.05	0.98	15.85	41.30	18.98	24.22
	SEM	3.74	0.64	1.52	2.53	0.01	2.32	0.47	0.19	3.33	2.72	2.56	2.59
OVX+C2	mean	28.31	7.33	24.93	43.94	0.26	98.39	2.20	0.14	19.38	43.94	13.98	22.91
	SEM	3.79	1.05	2.09	3.36	0.01	0.33	0.22	0.07	2.31	3.36	1.88	2.52
OVX+E	mean	27.40	5.90	26.02	42.64	0.23	94.36	2.57	0.48	14.57	42.64	16.13	26.94
	SEM	3.75	0.79	3.45	1.60	0.01	1.48	0.27	0.22	1.73	1.60	1.79	2.07
OVX+V	mean	42.22	7.71	30.21	34.04	0.23	81.56	5.24	1.23	17.03	34.04	20.79	28.47
	SEM	2.64	0.81	1.57	1.77	0.01	5.82	1.19	0.28	2.19	1.77	1.95	2.18
S+V	mean	26.09	4.90	24.90	47.31	0.23	89.87	3.88	0.50	15.42	47.31	15.81	21.63
	SEM	4.53	0.62	2.23	3.73	0.01	4.51	1.25	0.19	2.29	3.73	2.53	3.21

Table 15 The result of long-term behaviors test (M-H2, day2)

	(n=10)	tim	pth	ppw	qcg	spd	act	lat	stp	qne	qnw	qse	qsw
OVX+C1	mean	21.52	4.98	21.68	43.87	0.25	92.80	2.89	0.50	16.19	43.87	21.68	18.57
	SEM	5.38	1.32	0.99	2.01	0.01	2.42	0.46	0.21	2.95	2.01	2.30	2.36
OVX+C2	mean	13.51	3.64	22.68	51.03	0.26	97.43	2.01	0.06	13.72	51.03	14.23	21.28
	SEM	2.77	0.78	1.46	2.69	0.01	0.94	0.21	0.03	1.92	2.69	1.31	2.28
OVX+E	mean	19.58	4.44	19.35	50.22	0.24	96.26	2.36	0.25	15.70	50.22	15.68	18.60
	SEM	3.64	0.81	1.59	2.32	0.01	1.09	0.42	0.08	2.25	2.32	1.00	2.13
OVX+V	mean	36.51	6.40	32.11	38.95	0.23	81.56	6.13	0.90	15.21	38.95	18.06	28.12
	SEM	4.03	0.82	2.98	2.82	0.01	6.57	2.25	0.25	2.27	2.82	1.60	3.53
S+V	mean	26.18	4.63	21.07	46.37	0.22	88.59	3.70	0.91	12.00	46.37	14.50	27.55
	SEM	5.16	0.79	3.13	3.69	0.01	2.65	0.66	0.25	1.76	3.69	1.96	3.76

Table 16 The result of long-term behaviors test (M-H2, day3)

	(n=10)	tim	pth	ppw	qcg	spd	act	lat	stp	qne	qnw	qse	qsw
OVX+C1	mean	16.19	3.40	20.24	47.85	0.24	91.89	2.60	0.30	11.88	47.85	20.35	20.19
	SEM	2.61	0.56	2.45	3.04	0.01	1.84	0.59	0.10	1.83	3.04	2.19	2.61
OVX+C2	mean	14.17	3.49	19.94	50.40	0.25	98.50	1.79	0.03	15.07	50.40	13.25	21.44
	SEM	2.03	0.47	1.34	2.56	0.01	0.66	0.13	0.03	1.45	2.56	1.08	2.41
OVX+E	mean	12.02	2.38	16.99	51.96	0.21	95.41	2.35	0.20	15.73	51.96	15.69	16.94
	SEM	1.53	0.30	1.67	2.15	0.01	1.59	0.36	0.08	2.25	2.15	1.33	2.47
OVX+V	mean	31.19	5.62	28.69	37.37	0.23	83.68	5.53	0.98	15.01	37.37	20.82	27.13
	SEM	3.51	0.72	2.06	3.46	0.01	4.95	1.41	0.25	2.33	3.46	2.44	2.55
S+V	mean	27.44	4.99	22.53	45.82	0.22	87.61	4.76	0.84	12.81	45.82	19.80	21.97
	SEM	4.93	0.73	3.32	4.01	0.01	3.12	1.13	0.36	1.09	4.01	1.42	3.92

Table 17 The result of long-term behaviors test (M-H2, day4)

	(n=10)	tim	pth	ppw	qcg	spd	act	lat	stp	qne	qnw	qse	qsw
OVX+C1	mean	21.02	4.04	20.51	46.44	0.22	91.48	2.81	0.58	12.81	46.44	19.12	22.18
	SEM	4.94	0.98	2.66	4.65	0.01	2.72	0.61	0.21	1.73	4.65	2.70	2.69
OVX+C2	mean	13.55	3.41	21.33	49.55	0.25	98.15	2.00	0.06	9.18	49.55	15.71	25.85
	SEM	2.57	0.66	1.37	3.76	0.01	0.88	0.32	0.03	1.08	3.76	1.78	2.99
OVX+E	mean	12.94	2.55	18.46	55.01	0.22	92.58	2.93	0.18	14.75	55.01	14.46	15.88
	SEM	2.07	0.33	1.61	2.18	0.01	2.24	0.49	0.08	2.03	2.18	1.33	2.49
OVX+V	mean	30.29	5.09	24.87	44.55	0.22	82.73	5.85	1.00	14.59	44.55	16.85	24.49
	SEM	4.91	0.71	2.69	3.23	0.01	4.54	1.45	0.23	2.23	3.23	1.82	1.58
S+V	mean	27.32	4.83	25.12	43.52	0.21	86.57	5.33	0.81	13.80	43.52	20.30	22.51
	SEM	5.82	1.13	2.88	4.85	0.01	2.90	0.77	0.24	1.83	4.85	1.83	2.78

Table 18 The result of long-term behaviors test (M-H2, day5)

	(n=10)	tim	pth	ppw	qcg	spd	act	lat	stp	qne	qnw	qse	qsw
OVX+C1	mean	15.77	3.18	18.56	51.02	0.23	92.60	2.93	0.40	12.79	51.02	18.82	17.70
	SEM	3.50	0.59	2.32	3.28	0.01	1.83	0.39	0.12	1.67	3.28	2.20	2.26
OVX+C2	mean	12.51	2.81	21.10	54.08	0.24	97.69	2.42	0.14	11.70	54.08	14.93	19.62
	SEM	1.78	0.39	1.06	1.93	0.01	0.93	0.37	0.08	1.83	1.93	1.08	2.35
OVX+E	mean	12.02	2.34	18.02	52.23	0.22	94.16	2.71	0.25	14.01	52.23	17.67	16.44
	SEM	1.95	0.27	1.90	1.66	0.01	2.21	0.33	0.10	1.61	1.66	1.29	2.16
OVX+V	mean	25.99	4.49	27.40	43.53	0.22	85.29	5.45	0.88	15.32	43.53	18.81	22.87
	SEM	4.72	0.71	2.29	3.59	0.01	4.02	1.03	0.35	2.06	3.59	2.55	2.90
S+V	mean	24.18	3.85	28.79	45.44	0.19	84.92	4.61	1.31	17.59	45.44	15.83	21.50
	SEM	5.21	0.64	3.27	2.95	0.01	2.35	0.65	0.37	2.52	2.95	0.99	2.99

Table 19 The result of long-term behaviors test (M-P2, day1)

	(n=10)	tim	pth	ppw	qcg	spd	act	lat	stp	qne	qnw	qse	qsw
OVX+C1	mean	60.00	11.81	23.95	40.93	0.23	85.45	3.51	1.57	19.07	40.93	12.05	28.34
	SEM	0.00	0.89	1.88	3.57	0.01	3.96	0.44	0.46	1.89	3.57	2.70	2.80
OVX+C2	mean	60.00	14.93	22.19	47.03	0.25	98.28	2.55	0.26	14.73	47.03	10.55	27.98
	SEM	0.00	0.69	1.27	2.73	0.01	0.62	0.35	0.15	1.20	2.73	1.11	2.43
OVX+E	mean	60.00	13.96	25.04	38.97	0.24	95.89	2.61	0.67	19.04	38.97	12.87	29.55
	SEM	0.00	0.51	1.66	2.80	0.01	1.79	0.28	0.29	2.37	2.80	1.92	3.98
OVX+V	mean	60.00	12.28	27.80	33.30	0.24	86.31	5.17	1.23	17.75	33.30	16.73	32.36
	SEM	0.00	0.72	2.39	2.27	0.00	4.22	0.97	0.38	1.99	2.27	1.89	2.01
S+V	mean	60.00	11.55	29.31	36.80	0.22	84.13	5.17	1.08	19.72	36.80	17.32	26.47
	SEM	0.00	1.02	3.09	2.77	0.01	5.39	0.96	0.30	1.64	2.77	1.86	2.66

Table 20 The result of long-term behaviors test (M-P2, day2)

	(n=10)	tim	pth	ppw	qcg	spd	act	lat	stp	qne	qnw	qse	qsw
OVX+C1	mean	60.00	10.67	23.81	33.75	0.22	78.71	4.76	1.50	21.18	33.75	16.09	29.23
	SEM	0.00	1.07	1.92	4.16	0.01	5.24	0.86	0.35	3.54	4.16	3.79	4.67
OVX+C2	mean	60.00	14.84	25.63	35.58	0.26	96.83	2.54	0.37	20.96	35.58	14.88	29.05
	SEM	0.00	0.70	2.08	3.68	0.01	1.23	0.34	0.15	2.63	3.68	1.92	3.41
OVX+E	mean	60.00	12.91	30.38	31.76	0.23	91.69	3.06	1.00	21.80	31.76	18.43	28.33
	SEM	0.00	0.90	3.30	3.46	0.01	3.26	0.61	0.22	2.63	3.46	2.80	2.60
OVX+V	mean	60.00	11.50	32.25	29.25	0.23	82.56	6.15	1.57	18.21	29.25	18.04	34.73
	SEM	0.00	0.80	3.84	2.18	0.01	4.81	1.51	0.42	2.78	2.18	2.01	2.95
S+V	mean	60.00	10.98	34.73	31.99	0.22	84.05	5.41	1.75	23.42	31.99	16.56	28.20
	SEM	0.00	0.68	3.67	2.96	0.01	3.81	0.96	0.28	2.48	2.96	1.98	3.23

Table 21 The result of long-term behaviors test (M-H3, day1)

	(n=10)	tim	pth	ppw	qcg	spd	act	lat	stp	qne	qnw	qse	qsw
OVX+C1	mean	31.67	5.96	24.56	32.68	0.23	83.92	3.94	1.05	24.69	31.52	11.47	32.68
	SEM	4.36	0.86	1.83	3.35	0.01	4.21	1.02	0.27	2.53	3.58	1.95	3.35
OVX+C2	mean	25.32	6.02	21.55	37.87	0.25	97.49	2.21	0.25	19.39	31.45	11.60	37.87
	SEM	3.63	0.79	2.25	3.58	0.01	0.71	0.25	0.10	1.61	4.03	2.75	3.58
OVX+E	mean	27.86	6.52	24.15	39.87	0.23	93.80	2.71	0.43	20.83	27.26	12.33	39.87
	SEM	3.38	1.06	1.91	3.15	0.01	2.08	0.42	0.18	2.24	2.89	2.19	3.15
OVX+V	mean	37.65	6.73	25.86	35.93	0.22	83.67	6.51	1.10	22.65	27.13	14.42	35.93
	SEM	4.07	0.67	2.43	3.38	0.01	4.88	1.58	0.30	3.03	3.11	1.75	3.38
S+V	mean	32.12	5.53	29.28	38.42	0.21	84.15	5.19	0.78	19.47	30.70	11.61	38.42
	SEM	4.06	0.68	3.30	4.28	0.01	4.65	0.96	0.23	2.36	3.73	1.90	4.28

Table 22 The result of long-term behaviors test (M-H3, day2)

	(n=10)	tim	pth	ppw	qcg	spd	act	lat	stp	qne	qnw	qse	qsw
OVX+C1	mean	14.82	3.19	16.75	48.03	0.25	91.62	2.93	0.28	20.01	17.56	14.66	48.03
	SEM	4.23	0.83	2.86	4.06	0.01	4.29	0.92	0.17	1.35	2.68	3.23	4.06
OVX+C2	mean	15.18	3.53	18.81	51.33	0.25	97.86	1.91	0.11	15.35	21.12	12.55	51.33
	SEM	3.27	0.60	2.61	3.76	0.01	1.02	0.22	0.07	2.77	3.03	1.24	3.76
OVX+E	mean	12.89	2.79	20.65	49.83	0.24	94.14	2.40	0.28	17.83	21.48	11.83	49.05
	SEM	1.52	0.33	2.20	2.50	0.01	2.41	0.50	0.13	1.26	2.86	1.92	1.46
OVX+V	mean	28.47	5.13	26.65	39.72	0.22	82.38	6.10	0.93	24.14	22.63	13.94	39.72
	SEM	3.95	0.61	2.94	3.32	0.01	4.45	2.04	0.26	2.83	3.02	2.80	3.32
S+V	mean	22.40	4.12	22.89	46.99	0.22	89.75	4.76	0.56	19.05	21.89	12.25	46.99
	SEM	4.71	0.71	3.36	2.58	0.01	2.93	1.21	0.14	2.23	3.17	1.40	2.58

Table 23 The result of long-term behaviors test (M-H3, day3)

	(n=10)	tim	pth	ppw	qcg	spd	act	lat	stp	qne	qnw	qse	qsw
OVX+C1	mean	17.92	4.02	19.35	50.49	0.25	93.22	2.32	0.40	16.45	17.20	15.96	50.49
	SEM	4.49	1.00	2.84	3.81	0.01	2.95	0.34	0.14	1.73	3.37	2.50	3.81
OVX+C2	mean	12.46	2.92	16.44	56.75	0.24	97.42	1.81	0.06	15.74	15.68	12.51	56.75
	SEM	2.11	0.47	1.85	2.66	0.01	0.96	0.16	0.03	1.99	1.56	1.27	2.66
OVX+E	mean	14.30	3.03	18.42	51.07	0.24	93.57	2.50	0.25	15.71	18.56	15.06	51.07
	SEM	3.03	0.55	2.32	2.48	0.01	2.33	0.48	0.10	1.37	2.31	1.60	2.48
OVX+V	mean	25.67	3.96	25.92	39.57	0.21	81.03	6.87	0.78	22.18	24.54	13.90	39.57
	SEM	3.16	0.50	3.40	3.31	0.01	6.48	2.43	0.24	2.22	2.78	2.49	3.31
S+V	mean	17.96	3.14	25.61	42.99	0.22	90.14	4.11	0.63	18.78	24.15	14.45	42.99
	SEM	4.62	0.54	3.17	2.79	0.02	4.57	0.94	0.26	2.51	3.48	2.08	2.79

Table 24 The result of long-term behaviors test (M-H3, day4)

	(n=10)	tim	pth	ppw	qcg	spd	act	lat	stp	qne	qnw	qse	qsw
OVX+C1	mean	12.02	2.84	20.40	51.40	0.27	95.49	2.01	0.33	17.66	16.69	14.54	51.40
	SEM	3.51	0.68	3.32	3.95	0.01	1.56	0.30	0.19	2.14	2.22	1.42	3.95
OVX+C2	mean	7.80	2.18	13.95	56.17	0.28	99.34	1.67	0.03	14.98	18.07	10.84	56.17
	SEM	0.56	0.13	1.67	3.03	0.01	0.33	0.13	0.03	1.63	2.49	1.68	3.03
OVX+E	mean	9.24	2.22	18.79	53.39	0.25	97.02	2.17	0.10	16.15	20.38	10.08	53.39
	SEM	1.47	0.27	3.11	1.51	0.01	1.38	0.28	0.06	1.67	1.76	1.88	1.51
OVX+V	mean	22.78	3.72	29.30	43.85	0.23	78.68	6.96	0.68	19.91	21.83	14.64	43.85
	SEM	4.80	0.77	3.32	3.63	0.01	7.27	1.82	0.30	2.47	2.56	1.57	3.63
S+V	mean	19.18	3.34	22.24	45.55	0.22	87.90	4.89	0.72	15.85	21.82	17.32	45.55
	SEM	3.61	0.47	1.32	2.97	0.01	3.74	1.48	0.30	0.91	2.22	0.82	2.97

Table 25 The result of long-term behaviors test (M-P3, day1)

	(n=10)	tim	pth	ppw	qcg	spd	act	lat	stp	qne	qnw	qse	qsw
OVX+C1	mean	60.00	13.21	27.84	40.39	0.24	93.28	2.11	0.97	16.20	28.67	14.99	40.39
	SEM	0.00	0.66	2.33	2.04	0.01	1.84	0.28	0.20	1.43	2.65	2.61	2.04
OVX+C2	mean	60.00	15.99	26.44	41.30	0.27	99.16	1.72	0.15	15.40	30.02	13.66	41.30
	SEM	0.00	0.47	2.05	2.27	0.01	0.33	0.14	0.11	1.68	2.85	1.40	2.27
OVX+E	mean	60.00	13.73	24.32	38.04	0.24	93.85	2.72	0.87	18.71	30.08	13.60	38.04
	SEM	0.00	0.83	3.55	2.22	0.01	2.41	0.64	0.34	1.78	3.12	1.77	2.22
OVX+V	mean	60.00	11.21	35.14	34.93	0.24	78.03	6.82	1.63	16.77	30.27	18.25	34.93
	SEM	0.00	0.97	5.62	3.72	0.01	6.21	1.88	0.31	2.46	2.02	2.39	3.72
S+V	mean	60.00	11.87	31.87	29.55	0.23	86.28	5.92	1.38	22.34	34.19	14.19	29.55
	SEM	0.00	0.83	1.86	2.69	0.01	3.90	1.84	0.32	2.18	2.77	1.90	2.69

Table 26 The result of long-term behaviors test (M-P3, day2)

	(n=10)	tim	pth	ppw	qcg	spd	act	lat	stp	qne	qnw	qse	qsw
OVX+C1	mean	60.00	13.09	27.25	37.69	0.24	90.41	2.74	0.87	16.55	29.73	16.34	37.69
	SEM	0.00	0.75	1.74	1.86	0.01	2.79	0.40	0.29	1.39	3.53	2.04	1.86
OVX+C2	mean	60.00	16.09	26.75	41.39	0.27	98.12	1.71	0.26	14.70	27.72	16.43	41.39
	SEM	0.00	0.68	1.56	3.60	0.01	0.67	0.16	0.13	1.86	3.90	1.67	3.60
OVX+E	mean	60.00	13.24	26.97	35.99	0.24	91.36	3.49	1.13	19.30	29.40	15.50	35.99
	SEM	0.00	0.97	3.28	4.74	0.01	3.56	0.90	0.40	3.03	3.69	2.28	4.74
OVX+V	mean	60.00	10.92	34.49	33.30	0.24	75.73	10.11	1.53	18.70	28.92	19.35	33.30
	SEM	0.00	1.12	3.52	2.91	0.01	6.67	3.19	0.28	2.81	3.49	2.83	2.91
S+V	mean	60.00	10.98	32.69	30.26	0.22	81.90	6.24	1.17	20.24	35.03	14.81	30.26
	SEM	0.00	0.83	2.39	2.80	0.01	4.16	1.41	0.28	3.36	2.98	1.62	2.80