**Supplementary File For:**

# Cannabinoid and nicotine exposure during adolescence induces sex-specific effects on anxiety- and reward-related behaviors during adulthood

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**Figure 1. Adolescent drug exposure paradigm and change in body weight with nicotine and/or a moderate dose of the cannabinoid agonist, WIN.**

**1a. Body weight change from PND38-49: Males**

| Groups: | Control | Nicotine | WIN | Nicotine/WIN |
|---|---|---|---|---|
| | 2.11 | 1.02 | 0.58 | -0.23 |
| | 1.48 | 0.95 | 2 | 2.69 |
| | 1.61 | 3.29 | 1.04 | 2.33 |
| | 2.12 | 1.42 | 1.4 | 0.73 |
| | 2.74 | 2.58 | 2 | 2.39 |
| | | 2.15 | 1.94 | |
| | | 2.7 | | |
| | | 3.34 | | |

**1b. Body weight change from PND38-49: Females**

| Groups: | Control | Nicotine | WIN | Nicotine/WIN |
|---|---|---|---|---|
| | 0.73 | 0.41 | -0.19 | 0.56 |
| | 1.14 | -0.11 | -0.62 | -0.5 |
| | 2.29 | 1.09 | 0.44 | 0.27 |
| | 1.96 | 1.44 | 0.04 | 1.33 |
| | 0.5 | 0.66 | 0.05 | 1.1 |
| | 0.75 | 0.64 | -0.5 | 1.48 |
| | | -0.35 | | -0.16 |
| | | 0.55 | | -0.09 |
| | | 1.96 | | 0.47 |
| | | | | -0.67 |
| | | | | 0.05 |
| | | | | 1.2 |

**1c. Body weight change from PND38-70: Males**

| Groups: | Control | Nicotine | WIN | Nicotine/WIN |
|---|---|---|---|---|
| | 5.82 | 3.57 | 3.59 | 2.52 |
| | 3.44 | 3.56 | 5.39 | 6.62 |
| | 4.37 | 7.41 | 4.44 | 6.11 |
| | 5.58 | 5.5 | 4.75 | 5.39 |
| | 6.97 | 6.66 | 4.53 | -0.5 |
| | | 7.45 | 4.75 | |
| | | 6.99 | | |
| | | 7.29 | | |

**1d. Body weight change from PND38-70: Females**

| Groups: | Control | Nicotine | WIN | Nicotine/WIN |
|---|---|---|---|---|
| | 2.68 | 2.45 | 1.9 | 2.07 |
| | 2.86 | 1.68 | 0.81 | 1.29 |
| | 3.07 | 4.12 | 3.91 | 4.14 |
| | 4.37 | 4.19 | 2.14 | 5.25 |
| | 3.7 | 2.6 | 4.56 | 1.9 |
| | 2.61 | 3.08 | 4.85 | 6.08 |
| | | 2.29 | | 3.26 |
| | | 3.9 | | 1.85 |
| | | 6.05 | | 4.03 |
| | | | | 2.85 |
| | | | | 4.18 |
| | | | | 3.42 |

**Figure 2. Operant learning and cognitive flexibility following adolescent exposure to nicotine and/or a moderate dose of the cannabinoid agonist in adult mice.**

**2a. Food training in males: Number of rewards earned by session**

| Session | Control | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 17 | 22 | 13 | 18 | 37 | 41 | 35 | 6 | 17 |
| 2 | 34 | 21 | 21 | 58 | 46 | 34 | 38 | 34 | 16 |
| 3 | 44 | 15 | 21 | 61 | 51 | 42 | 44 | 25 | 27 |
| 4 | 54 | 30 | 22 | 60 | 54 | 59 | 55 | 41 | 42 |
| 5 | 59 | 48 | 43 | 72 | 43 | 55 | 57 | 44 | 55 |
| 6 | 73 | 59 | 67 | 30 | 60 | 60 | 45 | 44 | 55 |
| 7 | 69 | 46 | 61 | 80 | 65 | 65 | 50 | 44 | 52 |

| Session | Nicotine | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 18 | 13 | 37 | 3 | 23 | 14 | 40 | 40 | 24 |
| 2 | 16 | 26 | 46 | 2 | 29 | 43 | 34 | 37 | 33 |
| 3 | 13 | 39 | 51 | 37 | 53 | 52 | 42 | 43 | 41 |
| 4 | 42 | 50 | 54 | 53 | 47 | 67 | 59 | 60 | 53 |
| 5 | 51 | 44 | 43 | 58 | 61 | 49 | 58 | 54 | 50 |
| 6 | 59 | 58 | 60 | 56 | 61 | 63 | 51 | 45 | 56 |
| 7 | 44 | 38 | 65 | 66 | 62 | 68 | 55 | 53 | 50 |

| Session | WIN | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 13 | 29 | 18 | 34 | 35 | 23 | 23 | 28 | 36 |
| 2 | 24 | 22 | 22 | 27 | 51 | 22 | 40 | 35 | 51 |
| 3 | 20 | 27 | 26 | 53 | 60 | 41 | 34 | 41 | 53 |
| 4 | 33 | 47 | 36 | 50 | 47 | 57 | 56 | 57 | 58 |
| 5 | 36 | 44 | 34 | 49 | 72 | 51 | 58 | 55 | 54 |
| 6 | 52 | 56 | 51 | 41 | 63 | 52 | 55 | 61 | 67 |
| 7 | 34 | 40 | 34 | 53 | 78 | 53 | 51 | 54 | 53 |

| Session | Nicotine/WIN | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 15 | 26 | 23 | 25 | 36 | 23 | 18 | 30 | 31 | 4 |
| 2 | 21 | 22 | 29 | 33 | 27 | 41 | 32 | 53 | 45 | 5 |
| 3 | 18 | 31 | 51 | 45 | 35 | 33 | 27 | 46 | 52 | 31 |
| 4 | 45 | 43 | 52 | 41 | 37 | 53 | 53 | 69 | 47 | 47 |
| 5 | 46 | 45 | 51 | 60 | 66 | 46 | 48 | 57 | 50 | 52 |
| 6 | 60 | 51 | 47 | 66 | 39 | 47 | 51 | 57 | 52 | 57 |
| 7 | 35 | 40 | 61 | 50 | 48 | 51 | 51 | 37 | 54 | 54 |

**2b. Food training in females: Number of rewards earned by session**

| Session | Control | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 21 | 45 | 49 | 27 | 13 | 27 | 20 | | |
| 2 | 33 | 37 | 33 | 36 | 18 | 36 | 26 | | |
| 3 | 45 | 50 | 35 | 38 | 41 | 35 | 32 | | |
| 4 | 56 | 52 | 51 | 43 | 54 | 51 | 44 | | |
| 5 | 53 | 51 | 57 | 41 | 50 | 50 | 44 | | |
| 6 | 59 | 52 | 53 | 48 | 48 | 58 | 49 | | |
| 7 | 50 | 55 | 56 | 51 | 55 | 53 | 32 | | |

| Session | Nicotine | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 27 | 26 | 33 | 16 | 23 | 22 | 26 | 26 | 19 |
| 2 | 27 | 17 | 31 | 27 | 30 | 8 | 46 | 34 | 42 |
| 3 | 39 | 37 | 36 | 53 | 30 | 19 | 46 | 42 | 55 |
| 4 | 58 | 43 | 50 | 45 | 36 | 44 | 56 | 59 | 54 |
| 5 | 58 | 54 | 49 | 56 | 39 | 51 | 49 | 54 | 50 |
| 6 | 58 | 57 | 58 | 42 | 49 | 44 | 53 | 55 | 55 |
| 7 | 48 | 50 | 48 | 64 | 48 | 47 | 55 | 51 | 53 |

| Session | WIN | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 20 | 35 | 47 | 33 | 22 | 16 | 33 | 27 | 24 |
| 2 | 27 | 19 | 43 | 37 | 23 | 24 | 42 | 31 | 42 |
| 3 | 28 | 38 | 60 | 37 | 34 | 33 | 46 | 31 | 35 |
| 4 | 52 | 44 | 56 | 44 | 50 | 53 | 58 | 37 | 42 |
| 5 | 48 | 40 | 54 | 46 | 53 | 50 | 44 | 42 | 42 |
| 6 | 53 | 46 | 46 | 47 | 46 | 49 | 72 | 36 | 47 |
| 7 | 34 | 29 | 64 | 49 | 46 | 44 | 48 | 47 | 46 |

| Session | Nicoitne/WIN | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 11 | 20 | 28 | 34 | 23 | 19 | 28 | 33 | 4 |
| 2 | 20 | 23 | 30 | 34 | 42 | 26 | 45 | 35 | 5 |
| 3 | 37 | 36 | 27 | 41 | 50 | 29 | 48 | 44 | 31 |
| 4 | 51 | 50 | 52 | 44 | 58 | 41 | 56 | 62 | 47 |
| 5 | 47 | 37 | 52 | 47 | 50 | 40 | 53 | 50 | 52 |
| 6 | 45 | 49 | 53 | 45 | 43 | 49 | 56 | 65 | 57 |
| 7 | 41 | 41 | 50 | 52 | 51 | 38 | 53 | 56 | 54 |

**2c. Food training in males: Number of active and inactive lever presses by session**

| Session | Control: Active | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 35 | 53 | 23 | 45 | 119 | 162 | 109 | 8 | 24 |
| 2 | 141 | 105 | 68 | 243 | 273 | 180 | 202 | 94 | 38 |
| 3 | 247 | 84 | 117 | 366 | 290 | 234 | 247 | 128 | 116 |
| 4 | 320 | 158 | 123 | 362 | 329 | 368 | 344 | 216 | 214 |
| 5 | 350 | 292 | 229 | 470 | 232 | 336 | 302 | 255 | 357 |
| 6 | 494 | 412 | 387 | 170 | 360 | 358 | 266 | 248 | 364 |
| 7 | 529 | 277 | 359 | 544 | 417 | 392 | 295 | 226 | 332 |

| Session | Control: Inctive | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 3 | 14 | 13 | 36 | 27 | 49 | 11 | 3 |
| 2 | 0 | 17 | 32 | 42 | 88 | 46 | 31 | 27 | 1 |
| 3 | 0 | 28 | 39 | 58 | 47 | 20 | 24 | 3 | 10 |
| 4 | 0 | 37 | 13 | 26 | 42 | 18 | 22 | 16 | 9 |
| 5 | 0 | 18 | 34 | 16 | 18 | 19 | 17 | 13 | 49 |
| 6 | 45 | 32 | 68 | 2 | 16 | 0 | 20 | 6 | 21 |
| 7 | 19 | 25 | 42 | 21 | 35 | 0 | 21 | 14 | 18 |

| Session | Nicotine: Active | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 39 | 21 | 122 | 4 | 49 | 25 | 149 | 142 | 66 |
| 2 | 39 | 80 | 103 | 2 | 143 | 185 | 183 | 199 | 159 |
| 3 | 55 | 216 | 141 | 162 | 316 | 316 | 215 | 256 | 228 |
| 4 | 237 | 283 | 164 | 299 | 268 | 412 | 358 | 379 | 335 |
| 5 | 282 | 225 | 188 | 434 | 388 | 292 | 346 | 351 | 310 |
| 6 | 372 | 341 | 258 | 293 | 465 | 431 | 294 | 243 | 341 |
| 7 | 249 | 207 | 185 | 483 | 436 | 522 | 325 | 283 | 307 |

| Session | Nicotine: Inactive | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 41 | 3 | 69 | 2 | 12 | 20 | 85 | 48 | 29 |
| 2 | 28 | 17 | 26 | 1 | 27 | 20 | 82 | 35 | 64 |
| 3 | 20 | 14 | 44 | 39 | 20 | 26 | 31 | 27 | 21 |
| 4 | 53 | 30 | 62 | 22 | 20 | 32 | 19 | 28 | 42 |
| 5 | 50 | 21 | 38 | 20 | 14 | 17 | 29 | 46 | 44 |
| 6 | 26 | 40 | 32 | 8 | 47 | 20 | 13 | 16 | 27 |
| 7 | 27 | 30 | 23 | 19 | 31 | 18 | 25 | 16 | 23 |

| Session | WIN: Active | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 33 | 78 | 43 | 123 | 83 | 57 | 60 | 79 | 102 |
| 2 | 94 | 98 | 68 | 155 | 234 | 98 | 211 | 176 | 304 |
| 3 | 111 | 148 | 136 | 315 | 317 | 215 | 179 | 242 | 308 |
| 4 | 170 | 251 | 196 | 305 | 290 | 331 | 321 | 354 | 423 |
| 5 | 185 | 237 | 189 | 282 | 521 | 277 | 353 | 298 | 324 |
| 6 | 287 | 348 | 297 | 216 | 511 | 290 | 307 | 365 | 446 |
| 7 | 200 | 246 | 204 | 319 | 519 | 302 | 286 | 304 | 321 |

| Session | WIN: Inactive | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 40 | 7 | 9 | 6 | 8 | 39 | 10 | 59 |
| 2 | 5 | 47 | 7 | 18 | 45 | 39 | 58 | 20 | 67 |
| 3 | 24 | 21 | 10 | 56 | 22 | 19 | 24 | 21 | 27 |
| 4 | 14 | 22 | 17 | 33 | 36 | 18 | 17 | 23 | 39 |
| 5 | 9 | 24 | 6 | 28 | 30 | 11 | 20 | 15 | 43 |
| 6 | 2 | 31 | 1 | 7 | 14 | 16 | 17 | 14 | 41 |
| 7 | 7 | 38 | 19 | 20 | 30 | 17 | 18 | 21 | 51 |

| Session | Nicotine/WIN: Active | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 26 | 70 | 50 | 66 | 53 | 80 | 44 | 83 | 88 | 6 |
| 2 | 66 | 94 | 136 | 160 | 110 | 222 | 132 | 334 | 252 | 5 |
| 3 | 94 | 170 | 276 | 234 | 193 | 174 | 141 | 283 | 352 | 48 |
| 4 | 243 | 235 | 321 | 212 | 215 | 331 | 328 | 550 | 319 | 231 |
| 5 | 248 | 269 | 322 | 327 | 437 | 281 | 320 | 372 | 364 | 275 |
| 6 | 393 | 362 | 299 | 428 | 273 | 264 | 303 | 395 | 436 | 311 |
| 7 | 204 | 242 | 387 | 281 | 288 | 295 | 307 | 268 | 425 | 317 |

| Session | Nicotine/WIN: Inactive | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 10 | 48 | 10 | 40 | 14 | 20 | 17 | 22 | 35 | 0 |
| 2 | 13 | 20 | 40 | 55 | 20 | 25 | 17 | 14 | 60 | 1 |
| 3 | 4 | 44 | 77 | 44 | 24 | 24 | 12 | 13 | 57 | 0 |
| 4 | 4 | 23 | 52 | 28 | 47 | 6 | 30 | 5 | 81 | 7 |
| 5 | 22 | 33 | 35 | 19 | 35 | 9 | 38 | 14 | 113 | 14 |
| 6 | 21 | 59 | 28 | 60 | 26 | 17 | 42 | 34 | 73 | 53 |
| 7 | 28 | 53 | 21 | 61 | 18 | 18 | 45 | 42 | 197 | 63 |

**2d. Food training in females: Number of active and inactive lever presses by session**

| Session | Control: Active | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 44 | 194 | 236 | 74 | 16 | 75 | 52 |
| 2 | 157 | 200 | 187 | 189 | 50 | 177 | 135 |
| 3 | 263 | 308 | 196 | 217 | 205 | 181 | 182 |
| 4 | 349 | 308 | 316 | 281 | 309 | 283 | 234 |
| 5 | 352 | 311 | 373 | 251 | 328 | 272 | 237 |
| 6 | 409 | 308 | 348 | 325 | 314 | 382 | 269 |
| 7 | 317 | 364 | 389 | 283 | 370 | 355 | 221 |

| Session | Control: Inctive | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 0 | 55 | 115 | 10 | 6 | 32 | 44 |
| 2 | 1 | 60 | 95 | 64 | 19 | 38 | 72 |
| 3 | 0 | 30 | 43 | 18 | 15 | 22 | 37 |
| 4 | 0 | 39 | 27 | 19 | 14 | 15 | 28 |
| 5 | 2 | 21 | 61 | 38 | 31 | 27 | 21 |
| 6 | 71 | 11 | 40 | 65 | 28 | 18 | 26 |
| 7 | 44 | 39 | 30 | 53 | 24 | 33 | 30 |

| Session | Nicotine: Active | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 58 | 67 | 101 | 19 | 55 | 50 | 76 | 65 | 35 |
| 2 | 130 | 80 | 168 | 62 | 147 | 27 | 247 | 170 | 191 |
| 3 | 209 | 207 | 200 | 244 | 168 | 82 | 277 | 225 | 355 |
| 4 | 329 | 239 | 279 | 236 | 208 | 248 | 326 | 358 | 345 |
| 5 | 363 | 339 | 314 | 330 | 264 | 347 | 327 | 313 | 301 |
| 6 | 334 | 403 | 334 | 334 | 348 | 279 | 337 | 338 | 371 |
| 7 | 350 | 441 | 358 | 466 | 281 | 267 | 324 | 275 | 363 |

| Session | Nicotine: Inactive | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 37 | 34 | 23 | 4 | 85 | 11 | 28 | 31 | 42 |
| 2 | 78 | 57 | 60 | 36 | 89 | 18 | 57 | 33 | 22 |
| 3 | 23 | 39 | 80 | 32 | 32 | 25 | 33 | 19 | 36 |
| 4 | 40 | 51 | 75 | 28 | 19 | 14 | 30 | 15 | 28 |
| 5 | 69 | 31 | 73 | 16 | 22 | 18 | 25 | 19 | 36 |
| 6 | 23 | 58 | 31 | 15 | 33 | 2 | 39 | 18 | 15 |
| 7 | 70 | 71 | 84 | 26 | 39 | 0 | 29 | 30 | 84 |

| Session | WIN: Active | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 75 | 52 | 36 | 127 | 96 | 102 | 57 | 33 | 103 |
| 2 | 177 | 135 | 119 | 109 | 189 | 201 | 102 | 82 | 272 |
| 3 | 181 | 182 | 145 | 210 | 347 | 221 | 180 | 180 | 299 |
| 4 | 283 | 234 | 284 | 239 | 330 | 269 | 288 | 314 | 440 |
| 5 | 272 | 237 | 249 | 205 | 314 | 281 | 324 | 281 | 291 |
| 6 | 382 | 269 | 394 | 287 | 387 | 261 | 273 | 311 | 531 |
| 7 | 355 | 221 | 190 | 194 | 403 | 324 | 258 | 276 | 316 |

| Session | WIN: Inactive | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 19 | 34 | 28 | 5 | 21 | 36 | 38 | 63 | 20 |
| 2 | 5 | 38 | 39 | 28 | 24 | 52 | 45 | 62 | 30 |
| 3 | 0 | 41 | 36 | 7 | 21 | 30 | 31 | 47 | 34 |
| 4 | 14 | 23 | 18 | 14 | 25 | 34 | 17 | 85 | 31 |
| 5 | 8 | 16 | 19 | 18 | 40 | 38 | 31 | 48 | 27 |
| 6 | 43 | 18 | 23 | 26 | 59 | 16 | 42 | 46 | 29 |
| 7 | 12 | 48 | 22 | 28 | 43 | 18 | 22 | 22 | 26 |

| Session | Nicotine/WIN: Active | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 15 | 43 | 81 | 100 | 51 | 46 | 89 | 124 | 6 |
| 2 | 69 | 103 | 158 | 182 | 216 | 93 | 255 | 281 | 5 |
| 3 | 204 | 198 | 157 | 226 | 259 | 149 | 287 | 276 | 48 |
| 4 | 369 | 280 | 294 | 242 | 370 | 220 | 329 | 474 | 231 |
| 5 | 274 | 195 | 332 | 285 | 372 | 205 | 295 | 357 | 275 |
| 6 | 295 | 368 | 382 | 249 | 301 | 250 | 336 | 480 | 311 |
| 7 | 277 | 247 | 336 | 335 | 342 | 226 | 322 | 372 | 317 |

| Session | Nicotine/WIN: Inactive | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 15 | 10 | 10 | 48 | 48 | 24 | 46 | 52 | 0 |
| 2 | 7 | 25 | 25 | 37 | 64 | 32 | 42 | 76 | 1 |
| 3 | 17 | 55 | 44 | 24 | 21 | 23 | 51 | 49 | 0 |
| 4 | 35 | 35 | 32 | 32 | 33 | 38 | 30 | 52 | 7 |
| 5 | 41 | 37 | 9 | 33 | 23 | 13 | 34 | 25 | 14 |
| 6 | 27 | 51 | 69 | 29 | 30 | 16 | 35 | 41 | 53 |
| 7 | 30 | 16 | 31 | 24 | 53 | 33 | 21 | 8 | 63 |

**2e. Reversal task for food reward: Reversal ratio in males**

| Groups: | Control | Nicotine | WIN | Nicotine/WIN |
|---|---|---|---|---|
| | 0.32517007 | 1.08635097 | 1.02564103 | 0.35685484 |
| | 0.69270833 | 0.87537092 | 0.58660508 | 0.68809524 |
| | 0.58629442 | 1.08910891 | 0.94525547 | 0.95899054 |
| | 1.65248227 | 0.90979381 | 1.32312925 | 0.54787234 |
| | 0.61728395 | 0.81389578 | 2.41346154 | 1.49361702 |
| | 0.12714777 | 1.14285714 | 0.80555556 | 0.61253561 |
| | 0.39255499 | 0.52863436 | 0.46923077 | 0.46323529 |
| | 0.59335038 | 0.47706422 | 0.75555556 | 1.0486618 |
| | 0.27 | 0.70263789 | 1.06887755 | 0.91067538 |
| | | | | 0.77884615 |

**2f. Reversal task for food reward: Reversal ratio in females**

| Groups: | Control | Nicotine | WIN | Nicotine/WIN |
|---|---|---|---|---|
| | 0.82617188 | 0.89882353 | 0.60560345 | 0.93333333 |
| | 0.1978022 | 0.80528053 | 1.29239766 | 0.56868132 |
| | 0.4411303 | 0.6119403 | 2.62580645 | 0.40271493 |
| | 0.67454068 | 2.98198198 | 0.49577465 | 0.74340528 |
| | 0.47983871 | 0.41538462 | 0.73893805 | 0.7394958 |
| | 0.31601732 | 0.47757848 | 0.54857143 | 0.75985663 |
| | 0.2739726 | 0.28087986 | 1.0787172 | 0.55365854 |
| | | 0.28621291 | 0.27491409 | 0.38461538 |
| | | 0.60507246 | 0.56707317 | 0.77884615 |

**2g. Reversal task for food reward: Reversal index in males**

| Groups: | Control | Nicotine | WIN | Nicotine/WIN |
|---|---|---|---|---|
| | 50.1048218 | 120 | 101.083032 | 61.0344828 |
| | 65.8415842 | 97.359736 | 81.6720257 | 105.860806 |
| | 62.7717391 | 87.6494024 | 95.5719557 | 65.3763441 |
| | 81.6112084 | 68.5436893 | 97.7386935 | 64.375 |
| | 80.3858521 | 93.7142857 | 103.292181 | 101.73913 |
| | 10.9144543 | 41.25 | 107.04698 | 76.2411348 |
| | 72.9559748 | 69.9708455 | 76.4890282 | 77.3006135 |
| | 57.2839506 | 60.8187135 | 75.5555556 | 109.94898 |
| | 30.4511278 | 80.4945055 | 88.2105263 | 98.3529412 |
| | | | | 75.34883721 |

**2h. Reversal task for food reward: Reversal index in females**

| Groups: | Control | Nicotine | WIN | Nicotine/WIN |
|---|---|---|---|---|
| | 103.422983 | 111.046512 | 97.5694444 | 71.3592233 |
| | 21.3017751 | 82.7118644 | 118.817204 | 85.5371901 |
| | 73.9473684 | 71.4285714 | 84.2650104 | 60.9589041 |
| | 96.9811321 | 72.907489 | 48.4848485 | 96.5732087 |
| | 68.9855072 | 58.6956522 | 65.7480315 | 71.9346049 |
| | 19.1099476 | 59.8314607 | 64.4295302 | 65.4320988 |
| | 36.8663594 | 37.1364653 | 67.7655678 | 68.373494 |
| | | 43.3862434 | 43.2432432 | 37.1819961 |
| | | 86.7532468 | 71.8146718 | 64.5418327 |

**Figure 3. Adolescent nicotine and/or cannabinoid agonist exposure does not alter locomotor behavior during adulthood.**

**3a. Distance travelled in the open field in males**

| Groups: | Control | Nicotine | WIN | Nicotine/WIN |
|---|---|---|---|---|
| | 20.383 | 39.006 | 27.35 | 30.737 |
| | 17.277 | 30.206 | 21.227 | 30.741 |
| | 25.839 | 22.895 | 31.516 | 27.462 |
| | 42.617 | 33.765 | 36.354 | 23.9 |
| | 37.228 | 32.918 | 29.916 | 39.63 |
| | 43.178 | 43.147 | 23.868 | 30.429 |
| | 34.389 | 31.926 | 28.451 | 27.065 |
| | 24.148 | 44.817 | 33.366 | 23.626 |
| | 33.187 | 27.098 | 37.067 | |
| | | 36.396 | 22.534 | |
| | | 21.154 | | |
| | | 48.228 | | |

**3b. Distance travelled in the open field in females**

| Groups: | Control | Nicotine | WIN | Nicotine/WIN |
|---|---|---|---|---|
| | 32.789 | 29.54 | 29.263 | 31.064 |
| | 42.969 | 27.598 | 35.525 | 31.181 |
| | 35.634 | 24.047 | 46.473 | 26.16 |
| | 37.894 | 43.715 | 29.771 | 32.676 |
| | 22.463 | 18.488 | 46.271 | 34.301 |
| | 27.751 | 28.27 | 34.552 | 30.771 |
| | 29.148 | 29.928 | | 32.195 |
| | | 42.338 | | 30.37 |
| | | 43.824 | | |
| | | 35.338 | | |

**3c. Center time in the open field in males**

| Groups: | Control | Nicotine | WIN | Nicotine/WIN |
|---|---|---|---|---|
| | 67 | 67.5 | 50.7 | 42.8 |
| | 35.6 | 35.8 | 12.9 | 75.7 |
| | 14.7 | 54.8 | 63.2 | 18.5 |
| | 32.7 | 11.7 | 63.7 | 19.8 |
| | 25.8 | 17.1 | 33.1 | 75 |
| | 72 | 13.2 | 12.4 | 49 |
| | 28.3 | 11.8 | 40.4 | 36.8 |
| | 9.6 | 154.6 | 27.9 | 42 |
| | 37.6 | 26 | 30.3 | |
| | | 16.3 | 43.1 | |
| | | 12.5 | | |
| | | 28.9 | | |

**3d. Center time in the open field in females**

| Groups: | Control | Nicotine | WIN | Nicotine/WIN |
|---|---|---|---|---|
| | 108.4 | 63.6 | 61.1 | 78.4 |
| | 14.2 | 18.2 | 32.8 | 69.7 |
| | 26.6 | 29.7 | 26 | 85.5 |
| | 44.3 | 32.8 | 13.4 | 23.4 |
| | 17.9 | 15.7 | 26.9 | 43.7 |
| | 23.3 | 93.4 | 22.8 | 46.2 |
| | 9.2 | 29.4 | | 11.9 |
| | | 25.3 | | 34.9 |
| | | 26.4 | | |
| | | 21.3 | | |

**Figure 4. Altered anxiety-related behavior in male, but not female, adult mice following adolescent cannabinoid agonist exposure at a moderate dose.**

**4a. Time spent in the open arm of the elevated plus maze in males**

| Groups: | Control | Nicotine | WIN | Nicotine/WIN |
|---|---|---|---|---|
| | 74.6 | 76 | 82.6 | 90.2 |
| | 52.3 | 43.4 | 96.6 | 76.2 |
| | 36.9 | 41 | 63.9 | 109.2 |
| | 19.2 | 42 | 93.1 | 69.3 |
| | 10.5 | 30 | 46.4 | 40.8 |
| | 22 | 19.7 | 45.6 | 63.4 |
| | 50.8 | 26.3 | 73.3 | 48.4 |
| | 60.3 | 56.4 | | |

**4b. Time spent in the open arm of the elevated plus maze in females**

| Groups: | Control | Nicotine | WIN | Nicotine/WIN |
|---|---|---|---|---|
| | 43.8 | 79.4 | 59.7 | 160.1 |
| | 40.1 | 60.4 | 297.4 | 63.9 |
| | 87.6 | 73.1 | 37.8 | 76.1 |
| | 72.3 | 55.6 | 20.8 | 43.9 |
| | 15.9 | 0.9 | 61.2 | 76.1 |
| | | 71.6 | | |
| | | 27.8 | | |

**4c. Number of arm crosses in the elevated plus maze for males**

| Groups: | Control | Nicotine | WIN | Nicotine/WIN |
|---|---|---|---|---|
| | 56 | 63 | 92 | 75 |
| | 76 | 41 | 66 | 49 |
| | 32 | 34 | 54 | 65 |
| | 43 | 72 | 72 | 76 |
| | 1 | 67 | 58 | 54 |
| | 35 | 36 | 62 | 88 |
| | 55 | 51 | 78 | 50 |
| | 51 | 50 | | |

**4d. Number of arm crosses in the elevated plus maze for females**

| Groups: | Control | Nicotine | WIN | Nicotine/WIN |
|---|---|---|---|---|
| | 60 | 70 | 72 | 79 |
| | 99 | 64 | 1 | 46 |
| | 40 | 76 | 68 | 88 |
| | 50 | 73 | 32 | 58 |
| | 34 | 4 | 64 | 40 |
| | | 85 | | |
| | | 72 | | |

**Figure 5. Within sex-specific effects in natural reward consumption, but not other depression-associated behaviors, in adult mice following adolescent exposure to nicotine and/or a moderate dose of WIN.**

**5a. Sucrose consumption in males: sucrose mg by time**

| Time (min) | Control | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **5** | 20 | 0 | 20 | 0 | 0 | 0 | 0 | | |
| **10** | 20 | 0 | 20 | 0 | 0 | 0 | 0 | | |
| **15** | 20 | 0 | 20 | 0 | 40 | 20 | 0 | | |
| **20** | 40 | 20 | 40 | 20 | 40 | 20 | 20 | | |
| **30** | 40 | 20 | 80 | 40 | 40 | 20 | 20 | | |
| **40** | 40 | 20 | 80 | 40 | 40 | 20 | 20 | | |
| **50** | 60 | 20 | 80 | 40 | 40 | 20 | 40 | | |
| **60** | 60 | 20 | 80 | 40 | 40 | 20 | 40 | | |

| Time (min) | Nicotine | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **5** | 0 | 10 | 0 | 0 | 20 | 0 | 0 | 20 | |
| **10** | 0 | 10 | 0 | 20 | 20 | 0 | 0 | 20 | |
| **15** | 20 | 20 | 0 | 40 | 40 | 0 | 0 | 20 | |
| **20** | 20 | 40 | 20 | 40 | 40 | 0 | 0 | 20 | |
| **30** | 20 | 40 | 20 | 60 | 80 | 20 | 20 | 40 | |
| **40** | 20 | 40 | 40 | 80 | 80 | 20 | 20 | 60 | |
| **50** | 40 | 40 | 40 | 80 | 100 | 20 | 20 | 80 | |
| **60** | 60 | 40 | 40 | 80 | 100 | 20 | 20 | 80 | |

| Time (min) | WIN | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **5** | 0 | 20 | 0 | 0 | 0 | 0 | | | |
| **10** | 0 | 20 | 20 | 0 | 0 | 10 | | | |
| **15** | 20 | 20 | 20 | 0 | 0 | 10 | | | |
| **20** | 20 | 40 | 20 | 0 | 20 | 20 | | | |
| **30** | 40 | 60 | 20 | 20 | 40 | 40 | | | |
| **40** | 40 | 60 | 40 | 40 | 60 | 100 | | | |
| **50** | 40 | 60 | 60 | 40 | 80 | 120 | | | |
| **60** | 40 | 60 | 60 | 40 | 80 | 160 | | | |

| Time (min) | Nicotine/WIN | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5 | 20 | 20 | 20 | 20 | 0 | | | | |
| 10 | 20 | 40 | 40 | 20 | 0 | | | | |
| 15 | 40 | 50 | 40 | 40 | 20 | | | | |
| 20 | 40 | 50 | 40 | 60 | 20 | | | | |
| 30 | 60 | 50 | 40 | 60 | 80 | | | | |
| 40 | 60 | 50 | 60 | 120 | 80 | | | | |
| 50 | 80 | 80 | 100 | 120 | 80 | | | | |
| 60 | 80 | 80 | 100 | 120 | 80 | | | | |

**5b. Sucrose consumption in females: sucrose mg by time**

| Time (min) | Control | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5 | 0 | 0 | 0 | 0 | 20 | 20 | 0 | 0 | 0 |
| 10 | 0 | 0 | 0 | 0 | 40 | 20 | 20 | 0 | 0 |
| 15 | 0 | 20 | 20 | 40 | 60 | 100 | 20 | 20 | 20 |
| 20 | 0 | 20 | 20 | 60 | 60 | 100 | 20 | 20 | 20 |
| 30 | 40 | 40 | 80 | 60 | 80 | 100 | 40 | 40 | 80 |
| 40 | 40 | 60 | 100 | 80 | 80 | 100 | 60 | 60 | 100 |
| 50 | 40 | 60 | 120 | 120 | 80 | 120 | 100 | 60 | 120 |
| 60 | 40 | 100 | 140 | 140 | 80 | 160 | 100 | 100 | 140 |

| Time (min) | Nicotine | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 0 |
| 10 | 0 | 0 | 20 | 0 | 20 | 20 | 20 | 20 | 0 |
| 15 | 0 | 20 | 20 | 20 | 20 | 60 | 20 | 40 | 0 |
| 20 | 20 | 40 | 20 | 40 | 40 | 60 | 20 | 60 | 0 |
| 30 | 20 | 60 | 40 | 40 | 40 | 60 | 40 | 60 | 20 |
| 40 | 40 | 60 | 60 | 40 | 60 | 140 | 80 | 80 | 40 |
| 50 | 40 | 60 | 60 | 80 | 60 | 140 | 80 | 140 | 80 |
| 60 | 60 | 60 | 60 | 80 | 60 | 140 | 100 | 140 | 100 |

| Time (min) | WIN | | | | | | |
|---|---|---|---|---|---|---|---|
| 5 | 0 | 0 | 20 | 0 | 0 | 0 | 20 |
| 10 | 0 | 20 | 20 | 0 | 0 | 0 | 20 |
| 15 | 20 | 20 | 20 | 60 | 0 | 0 | 20 |
| 20 | 20 | 60 | 40 | 60 | 0 | 20 | 20 |
| 30 | 20 | 60 | 40 | 60 | 20 | 20 | 20 |
| 40 | 20 | 60 | 60 | 60 | 20 | 20 | 20 |
| 50 | 20 | 60 | 60 | 80 | 40 | 60 | 20 |
| 60 | 40 | 60 | 60 | 80 | 40 | 60 | 20 |

| Time (min) | Nicotine/WIN | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 5 | 0 | 20 | 0 | 0 | 0 | 40 | 40 | 0 |
| 10 | 20 | 20 | 20 | 0 | 0 | 40 | 60 | 0 |
| 15 | 40 | 20 | 20 | 20 | 40 | 40 | 80 | 0 |
| 20 | 40 | 40 | 40 | 20 | 40 | 40 | 120 | 40 |
| 30 | 40 | 60 | 60 | 20 | 80 | 80 | 140 | 60 |
| 40 | 60 | 60 | 60 | 40 | 80 | 100 | 140 | 60 |
| 50 | 80 | 60 | 60 | 40 | 80 | 120 | 140 | 80 |
| 60 | 80 | 60 | 60 | 40 | 80 | 140 | 140 | 80 |

**5c. Food intake during free feeding following food restriction in males**

| Groups: | Control | Nicotine | WIN | Nicotine/WIN |
|---|---|---|---|---|
| | 2.97 | 2.65 | 2.52 | 2.67 |
| | 2.56 | 2.97 | 2.85 | 3.47 |
| | 3.61 | 2.28 | 2.72 | 3.84 |
| | 4.22 | 3.86 | 3.57 | 3.90 |
| | 3.72 | 4.41 | 3.82 | 4.52 |
| | 3.89 | 4.00 | 3.78 | 3.79 |
| | 3.73 | 4.16 | 3.32 | 3.84 |
| | | 4.45 | 3.80 | 3.04 |
| | | 3.72 | 3.56 | 2.41 |

**5d. Food intake during free feeding following food restriction in females**

| Groups: | Control | Nicotine | WIN | Nicotine/WIN |
|---|---|---|---|---|
| | 3.25 | 2.35 | 2.35 | 2.43 |
| | 4.11 | 2.21 | 2.65 | 2.56 |
| | 4.27 | 2.41 | 3.46 | 2.72 |
| | 3.49 | 3.35 | 3.71 | 4.72 |
| | 3.17 | 2.94 | 3.51 | 3.14 |
| | 3.04 | 3.12 | 2.69 | 2.39 |
| | | 3.06 | 2.92 | 2.69 |
| | | 2.69 | 2.12 | 2.75 |
| | | 2.71 | | 3.54 |

**5e. Time immobile in the forced swim test in males**

| Groups: | Control | Nicotine | WIN | Nicotine/WIN |
|---|---|---|---|---|
| | 134 | 82 | 86 | 95 |
| | 235 | 50 | 201 | 80 |
| | 102 | 152 | 153 | 109 |
| | 74 | 39 | 23 | 149 |
| | 81 | 45 | 74 | 33 |
| | 93 | 24 | 35 | |
| | 47 | 63 | | |
| | | 44 | | |

**5f. Time immobile in the forced swim test in females**

| Groups: | Control | Nicotine | WIN | Nicotine/WIN |
|---|---|---|---|---|
| | 124 | 92 | 110 | 39 |
| | 108 | 82 | 162 | 87 |
| | 0 | 63 | 63 | 8 |
| | 23 | 56 | 134 | 130 |
| | 147 | 118 | 15 | 14 |
| | 107 | 91 | 122 | 137 |
| | 88 | 152 | 54 | 30 |
| | 41 | 123 | | 52 |
| | 60 | 71 | | |

**5g. Number of immobile bouts in the forced swim test in males**

| Groups: | Control | Nicotine | WIN | Nicotine/WIN |
|---|---|---|---|---|
| | 12 | 7 | 13 | 9 |
| | 12 | 7 | 16 | 21 |
| | 13 | 24 | 20 | 22 |
| | 15 | 24 | 9 | 23 |
| | 14 | 11 | 11 | 9 |
| | 21 | 11 | 18 | |
| | 15 | 14 | | |
| | | 5 | | |

**5h. Number of immobile bouts in the forced swim test in females**

| Groups: | Control | Nicotine | WIN | Nicotine/WIN |
|---|---|---|---|---|
| | 11 | 8 | 7 | 4 |
| | 11 | 5 | 13 | 12 |
| | 0 | 2 | 19 | 1 |
| | 10 | 12 | 16 | 10 |
| | 26 | 12 | 9 | 7 |
| | 13 | 13 | 24 | 18 |
| | 16 | 36 | 25 | 11 |
| | 8 | 31 | | 22 |
| | 20 | 18 | | |

**Figure 6. Body weight change, operant learning and cognitive flexibility following low dose exposure to the cannabinoid agonist, with or without nicotine.**

**6a. Body weight change from PND38-49: Males**

| Groups: | Control | Low Dose WIN | Nicotine/Low WIN |
|---|---|---|---|
| | 1.92 | 2.9 | 2.27 |
| | 2.87 | 2.61 | 1.84 |
| | 1.5 | 2.32 | 2.19 |
| | 3.6 | 1.55 | 1.11 |
| | 1.4 | 2.32 | 2.17 |
| | 3.4 | 2.14 | 3.19 |
| | 2.42 | 2.01 | 2.44 |
| | 1.27 | 2.16 | 2.46 |
| | 2.7 | 3.09 | 1.81 |
| | | 2.11 | 1.88 |
| | | 3.03 | 2.43 |
| | | 1.7 | 2.34 |
| | | 2.26 | 1.53 |
| | | 1.56 | 1.94 |
| | | 4.67 | 3 |
| | | 2.8 | |

**6b. Body weight change from PND38-49: Females**

| Groups: | Control | Low Dose WIN | Nicotine/Low WIN |
|---|---|---|---|
| | 0.23 | 0.73 | 2.26 |
| | 1.38 | 1.92 | 1.02 |
| | 1.73 | 0.82 | -0.25 |
| | 1.45 | 0.5 | 1.63 |
| | 1.61 | 1.64 | 1.21 |
| | 1.52 | 1.72 | 1.28 |
| | 1.9 | 1.43 | 1.44 |
| | 1.5 | 2.64 | 1.09 |
| | 1.7 | 2.23 | 1.7 |
| | 1.1 | 1.92 | 1.25 |
| | 0.07 | 0.75 | 1.75 |
| | 0.8 | 2.22 | 1.92 |
| | 1.9 | 1.7 | 1.1 |
| | | 1.8 | 1.6 |
| | | 1.8 | 1.6 |
| | | | 1.9 |
| | | | 2 |

**6c. Body weight change from PND38-70: Males**

| Groups: | Control | Low Dose WIN | Nicotine/Low WIN |
|---|---|---|---|
| | 6.36 | 6.84 | 5.11 |
| | 8.08 | 6.61 | 5.59 |
| | 4.47 | 6.06 | 5.55 |
| | 8.92 | 5.8 | 5.16 |
| | 5.17 | 4.21 | 5.36 |
| | 8.26 | 5.63 | 7.92 |
| | 5.38 | 4.51 | 4.44 |
| | 4.93 | 9.53 | 5.55 |
| | 4.87 | 9.22 | 7.04 |
| | | 5.39 | 5.31 |
| | | 6.39 | 6.7 |
| | | 6.32 | 8.76 |
| | | 6.53 | 3.66 |
| | | 5.31 | 6.07 |
| | | 11.36 | 5.61 |
| | | 6.6 | |

**6d. Body weight change from PND38-70: Females**

| Groups: | Control | Low Dose WIN | Nicotine/Low WIN |
|---|---|---|---|
| | 4.82 | 4.41 | 5.4 |
| | 4.62 | 5.01 | 4.27 |
| | 4.18 | 4.54 | 2.37 |
| | 3.65 | 5 | 4.58 |
| | 3.61 | 4.84 | 5.26 |
| | 6.04 | 7.78 | 5.73 |
| | 5.44 | 6.65 | 2.77 |
| | 4.85 | 4.9 | 2.69 |
| | 4.41 | 3.47 | 6.73 |
| | 3.34 | 4.46 | 3.51 |
| | 3.15 | 3.76 | 3.92 |
| | 4.22 | 4.43 | 4.06 |
| | 5.52 | 4.16 | 4.7 |
| | | 4.12 | 4.98 |
| | | 6.7 | 4.8 |
| | | | 3.68 |
| | | | 4.25 |

**6e. Food training in males: Number of rewards earned by session**

| Session | | | | | | | | Control | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 38 | 23 | 3 | 1 | 31 | 17 | 21 | 28 | 24 | 1 | 27 | 27 | 21 | | |
| 2 | 44 | 34 | 25 | 20 | 53 | 26 | 24 | 26 | 28 | 2 | 41 | 44 | 35 | | |
| 3 | 43 | 23 | 30 | 29 | 54 | 41 | 47 | 45 | 46 | 1 | 45 | 44 | 45 | | |
| 4 | 56 | 38 | 38 | 35 | 63 | 41 | 43 | 37 | 46 | 5 | 61 | 70 | 61 | | |
| 5 | 50 | 32 | 31 | 42 | 63 | 42 | 50 | 40 | 50 | 35 | 54 | 55 | 50 | | |
| 6 | 52 | 28 | 33 | 49 | 59 | 44 | 50 | 56 | 47 | 45 | 60 | 60 | 65 | | |
| 7 | 63 | 35 | 44.9 | 45 | 64 | 27 | 31 | 31 | 32 | 38 | 44 | 56 | 55 | | |

| Session | | | | | | | | Low Dose WIN | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 24 | 22 | 16 | 42 | 19 | 35 | 21 | 2 | 31 | 32 | 32 | 26 | 24 | 22 | 23 |
| 2 | 37 | 29 | 29 | 24 | 30 | 43 | 20 | 25 | 47 | 42 | 41 | 44 | 48 | 43 | 18 |
| 3 | 41 | 38 | 32 | 44 | 30 | 46 | 47 | 46 | 49 | 21 | 50 | 42 | 46 | 46 | 40 |
| 4 | 36 | 32 | 26 | 57 | 36 | 40 | 60 | 48 | 51 | 52 | 39 | 58 | 48 | 46 | 46 |
| 5 | 58 | 48 | 52 | 66 | 43 | 60 | 55 | 46 | 53 | 51 | 49 | 31 | 52 | 54 | 47 |
| 6 | 52 | 48 | 46 | 59 | 46 | 54 | 66 | 46 | 52 | 43 | 53 | 64 | 48 | 58 | 49 |
| 7 | 44 | 35 | 50 | 50 | 36 | 44 | 64 | 47 | 54 | 43 | 53 | 58 | 45 | 59 | 26 |

| Session | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Nicotine/Low Dose WIN | | | | | | | | |
| 1 | 24 | 13 | 25 | 13 | 23 | 32 | 35 | 15 | 16 | 15 | 23 | 23 | 16 | 21 | 9 | 13 |
| 2 | 34 | 26 | 43 | 27 | 31 | 24 | 37 | 33 | 20 | 29 | 27 | 29 | 35 | 33 | 6 | 24 |
| 3 | 38 | 25 | 41 | 36 | 46 | 45 | 51 | 21 | 35 | 52 | 34 | 32 | 46 | 42 | 2 | 27 |
| 4 | 35 | 39 | 27 | 27 | 43 | 40 | 46 | 49 | 42 | 49 | 51 | 53 | 48 | 40 | 16 | 43 |
| 5 | 55 | 39 | 53 | 47 | 66 | 54 | 54 | 53 | 43 | 55 | 52 | 43 | 47 | 38 | 15 | 51 |
| 6 | 53 | 40 | 56 | 47 | 55 | 48 | 52 | 49 | 43 | 51 | 49 | 45 | 46 | 42 | 19 | 47 |
| 7 | 43 | 48 | 49 | 45 | 56 | 42 | 57 | 46 | 45 | 50 | 44 | 49 | 46 | 45 | 31 | 42 |

**6f. Food training in females: Number of rewards earned by session**

| Session | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Control | | | | | | | | |
| 1 | 44 | 36 | 22 | 24 | 17 | 24 | 30 | 20 | 18 | 22 | 21 | 12 | 13 | 25 | 28 | 17 |
| 2 | 32 | 45 | 32 | 44 | 42 | 41 | 28 | 37 | 22 | 22 | 16 | 23 | 24 | 32 | 39 | 16 |
| 3 | 43 | 45 | 47 | 30 | 49 | 43 | 32 | 47 | 28 | 37 | 34 | 27 | 34 | 45 | 46 | 27 |
| 4 | 41 | 52 | 48 | 28 | 48 | 44 | 32 | 48 | 32 | 41 | 24 | 28 | 31 | 55 | 61 | 42 |
| 5 | 53 | 50 | 47 | 41 | 51 | 21 | 46 | 57 | 45 | 42 | 37 | 34 | 32 | 48 | 53 | 55 |
| 6 | 48 | 49 | 48 | 45 | 45 | 45 | 52 | 45 | 48 | 50 | 40 | 27 | 26 | 53 | 63 | 55 |
| 7 | 55 | 52 | 48 | 47 | 45.2 | 41 | 46 | 52 | 49 | 38 | 34 | 48 | 42 | 37 | 37 | 52 |

| Session | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Low Dose WIN | | | | | | | | |
| 1 | 18 | 29 | 21 | 27 | 28 | 22 | 7 | 17 | 17 | 22 | 20 | 15 | 23 | 12 | | |
| 2 | 42 | 41 | 36 | 42 | 42 | 10 | 23 | 34 | 38 | 34 | 50 | 33 | 21 | 20 | | |
| 3 | 39 | 43 | 44 | 41 | 30 | 33 | 46 | 47 | 32 | 45 | 45 | 40 | 28 | 22 | | |
| 4 | 37 | 55 | 55 | 51 | 44 | 50 | 39 | 42 | 42 | 50 | 49 | 30 | 39 | 27 | | |
| 5 | 44 | 57 | 60 | 56 | 54 | 57 | 42 | 47 | 50 | 48 | 45 | 42 | 42 | 24 | | |
| 6 | 52 | 58 | 56 | 48 | 62 | 47 | 30 | 30 | 51 | 44 | 47 | 31 | 35 | 26 | | |
| 7 | 44 | 49 | 48 | 50 | 56 | 48 | 34 | 38 | 50 | 42 | 50 | 45.6 | 53 | 31 | | |

| Session | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Nicotine/Low Dose WIN | | | | | | | | |
| 1 | 23 | 23 | 29 | 22 | 31 | 29 | 21 | 30 | 17 | 11 | 25 | 19 | 7 | 14 | 12 | 23 |
| 2 | 24 | 24 | 42 | 50 | 44 | 38 | 11 | 31 | 10 | 31 | 23 | 31 | 23 | 26 | 9 | 29 |
| 3 | 39 | 21 | 38 | 45 | 42 | 39 | 29 | 38 | 28 | 34 | 32 | 36 | 29 | 36 | 23 | 30 |
| 4 | 31 | 11 | 49 | 54 | 54 | 52 | 36 | 39 | 29 | 39 | 34 | 47 | 42 | 36 | 33 | 41 |
| 5 | 46 | 28 | 57 | 57 | 58 | 58 | 45 | 47 | 37 | 41 | 36 | 45 | 36 | 43 | 38 | 36 |
| 6 | 46 | 34 | 56 | 62 | 51 | 48 | 49 | 47 | 25 | 44 | 30 | 33 | 31 | 38 | 30 | 48 |
| 7 | 45 | 40 | 52 | 54 | 42 | 43 | 37 | 57 | 31 | 48 | 44.5 | 49 | 43 | 43 | 38 | 45 |

**6g. Reversal task for food reward: Reversal ratio in males**

| Groups: | Control | Low Dose WIN | Nicotine/Low WIN |
|---|---|---|---|
| | 0.66256158 | 0.3963039 | 0.71710526 |
| | 0.63139932 | 0.72111554 | 0.50544662 |
| | 0.5 | 1.12550607 | 0.76878613 |
| | 0.75958188 | 1.02439024 | 1.02201258 |
| | 0.45380435 | 0.35121951 | 0.79886686 |
| | 0.66304348 | 0.62295082 | 0.34402852 |
| | 0.67521368 | 0.5192053 | 0.5 |
| | 0.35 | 0.9566474 | 0.91608392 |
| | | 0.72303207 | 0.82051282 |
| | | 0.55605381 | 0.88580247 |
| | | 0.25194401 | 0.38809524 |
| | | 0.76982592 | 0.65217391 |
| | | 0.64110429 | 0.79841897 |
| | | 0.7470726 | 0.45643939 |

**6h. Reversal task for food reward: Reversal ratio in females**

| Groups: | Control | Low Dose WIN | Nicotine/Low WIN |
|---|---|---|---|
| | 0.59467456 | 0.65853659 | 0.7562724 |
| | 0.36520076 | 0.80099502 | 0.93777778 |
| | 0.8739255 | 0.7854251 | 0.74352332 |
| | 0.1984127 | 0.50242326 | 0.65952381 |
| | 1.32993197 | 0.63811563 | 0.82451253 |
| | 0.90566038 | 0.3796034 | 1.30769231 |
| | 0.68978102 | 0.94461538 | 1.27878788 |
| | 0.26886792 | 0.81818182 | 0.85 |
| | 0.85964912 | 0.50154799 | 0.26823529 |
| | 0.55277778 | 0.56544503 | 0.29372197 |
| | 0.49132948 | 0.77972028 | 1.46351931 |
| | | 0.64088398 | 0.81120944 |
| | | 1.04545455 | 0.4661191 |
| | | 0.59745763 | 0.41273101 |
| | | | 0.76442308 |
| | | | 1.39344262 |

**6i. Reversal task for food reward: Reversal index in males**

| Groups: | Control | Low Dose WIN | Nicotine/Low WIN |
|---|---|---|---|
| | 85.6687898 | 55.6195965 | 69.4267516 |
| | 89.5883777 | 60.5351171 | 117.766497 |
| | 68.3890578 | 141.116751 | 153.757225 |
| | 77.0318021 | 100.341297 | 85.078534 |
| | 64.4787645 | 52.3636364 | 101.805054 |
| | 64.2105263 | 74.5098039 | 62.4595469 |
| | 70.1183432 | 66.5534805 | 76.6153846 |
| | 82.6839827 | 138.493724 | 106.938776 |
| | | 91.1764706 | 89.7196262 |
| | | 65.2631579 | 101.413428 |
| | | 36.4864865 | 58.0071174 |
| | | 91.0755149 | 83.6065574 |
| | | 80.6949807 | 77.992278 |
| | | 75.0588235 | 126.17801 |

**6j. Reversal task for food reward: Reversal index in females**

| Groups: | Control | Low Dose WIN | Nicotine/Low WIN |
|---|---|---|---|
| | 83.0578512 | 88.8888889 | 146.527778 |
| | 54.8850575 | 86.0962567 | 109.326425 |
| | 98.3870968 | 112.790698 | 90.8227848 |
| | 30.4878049 | 84.9726776 | 101.094891 |
| | 117.065868 | 95.2076677 | 165.363128 |
| | 82.7586207 | 34.5360825 | 102.846975 |
| | 57.9754601 | 112.867647 | 65.1234568 |
| | 40.2826855 | 79.331307 | 74.595843 |
| | 81.6666667 | 83.0769231 | 48.7179487 |
| | 76.2452107 | 73.4693878 | 47.2924188 |
| | 72.3404255 | 64.6376812 | 160.093897 |
| | | 48.9451477 | 73.1382979 |
| | | 111.418685 | 85.9848485 |
| | | 64.3835616 | 66.7774086 |
| | | | 77.184466 |
| | | | 99.4152047 |

**Figure 7. Adolescent low dose cannabinoid agonist exposure with or without nicotine does not alter locomotor or affective-associated behaviors during adulthood.**

**7a. Distance travelled in the open field in males**

| Groups: | Control | Low Dose WIN | Nicotine/Low WIN |
|---|---|---|---|
| | 33.293 | 30.618 | 25.393 |
| | 25.357 | 31.46 | 32.936 |
| | 24.95 | 23.733 | 40.76 |
| | 29.462 | 27.306 | 34.529 |
| | 25.198 | 27.688 | 27.843 |
| | 15.498 | 19.862 | 27.029 |
| | 32.272 | 26.485 | 31.323 |
| | 21.468 | 32.213 | 35.262 |
| | 32.614 | 26.247 | 33.753 |
| | 35.419 | 20.27 | 39.301 |
| | | 25.839 | |
| | | 43.814 | |

**7b. Distance travelled in the open field in females**

| Groups: | Control | Low Dose WIN | Nicotine/Low WIN |
|---|---|---|---|
| | 40.469 | 23.667 | 30.769 |
| | 30.28 | 27.489 | 26.042 |
| | 36.598 | 28.213 | 43.04 |
| | 70.956 | 26.028 | 36.968 |
| | 35.268 | 40.616 | 40.154 |
| | 29.973 | 24.198 | 30.829 |
| | 39.896 | 31.72 | 28.01 |
| | 35.181 | 38.615 | 26.96 |
| | 31.286 | 46.249 | 30.491 |
| | 33.293 | 32.278 | 22.722 |
| | 21.704 | 47.678 | 39.297 |
| | 38.662 | | 35.995 |
| | | | 31.554 |

**7c. Time spent in the open arm of the elevated plus maze in males**

| Groups: | Control | Low Dose WIN | Nicotine/Low WIN |
|---|---|---|---|
| | 28.1 | 19.7 | 29 |
| | 49.9 | 33.9 | 35.8 |
| | 51.7 | 57.4 | 47.9 |
| | 43.2 | 7.9 | 50.8 |
| | 22.5 | 44 | 43.2 |
| | 19.6 | 54.2 | 61.4 |
| | 67.8 | 36.8 | 28.7 |
| | 30.8 | 46.8 | 47.1 |
| | 23.2 | 25.9 | 61.3 |
| | 24.6 | 81.1 | 77.9 |
| | | 121.7 | |

**7d. Time spent in the open arm of the elevated plus maze in females**

| Groups: | Control | Low Dose WIN | Nicotine/Low WIN |
|---|---|---|---|
| | 22.8 | 14.6 | 43.8 |
| | 74.9 | 17.1 | 35.7 |
| | 36.5 | 43.8 | 31.8 |
| | 71.7 | 38.8 | 91.2 |
| | 8.4 | 40.4 | 67.4 |
| | 44.8 | 31.1 | 42.9 |
| | 34.2 | 39.6 | 39.2 |
| | 32.4 | 57.2 | 15.7 |
| | 31.7 | 11 | 26.8 |
| | 75 | 23.3 | 31.5 |
| | 55.6 | 28 | 27.6 |
| | | | 25.7 |
| | | | 50.7 |

**7e. Number of arm crosses in the elevated plus maze in males**

| Groups: | Control | Low Dose WIN | Nicotine/Low WIN |
|---|---|---|---|
| | 128 | 45 | 34 |
| | 64 | 64 | 54 |
| | 47 | 60 | 84 |
| | 54 | 16 | 66 |
| | 74 | 64 | 64 |
| | 65 | 64 | 52 |
| | 64 | 81 | 65 |
| | 51 | 70 | 53 |
| | 45 | 68 | 60 |
| | 41 | 94 | 89 |
| | | 100 | |

**7f. Number of arm crosses in the elevated plus maze in males**

| Groups: | Control | Low Dose WIN | Nicotine/Low WIN |
|---|---|---|---|
| | 59 | 63 | 104 |
| | 95 | 30 | 146 |
| | 73 | 39 | 52 |
| | 87 | 50 | 63 |
| | 94 | 48 | 94 |
| | 79 | 83 | 52 |
| | 67 | 109 | 61 |
| | 46 | 98 | 39 |
| | 64 | 132 | 87 |
| | 80 | 29 | 75 |
| | 60 | 62 | 75 |
| | | | 98 |
| | | | 79 |

**7g. Sucrose consumption in males: sucrose mg by time**

| Time (min) | Control | | | | |
|---|---|---|---|---|---|
| **5** | 0 | 0 | 0 | 0 | 0 |
| **10** | 40 | 0 | 0 | 0 | 0 |
| **15** | 40 | 0 | 0 | 0 | 0 |
| **20** | 40 | 0 | 0 | 0 | 20 |
| **30** | 40 | 20 | 20 | 0 | 20 |
| **40** | 60 | 20 | 20 | 60 | 20 |
| **50** | 120 | 20 | 20 | 60 | 40 |
| **60** | 120 | 60 | 20 | 60 | 40 |

| Time (min) | Low Dose WIN | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **5** | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **10** | 20 | 20 | 0 | 0 | 20 | 20 | 0 | 0 | 0 | 0 |
| **15** | 20 | 20 | 0 | 0 | 20 | 20 | 0 | 0 | 0 | 0 |
| **20** | 20 | 60 | 20 | 40 | 20 | 20 | 0 | 20 | 0 | 0 |
| **30** | 60 | 80 | 20 | 40 | 20 | 60 | 40 | 20 | 20 | 60 |
| **40** | 80 | 80 | 20 | 40 | 20 | 120 | 40 | 20 | 20 | 80 |
| **50** | 80 | 80 | 20 | 60 | 20 | 120 | 40 | 20 | 40 | 80 |
| **60** | 100 | 80 | 20 | 100 | 20 | 120 | 40 | 80 | 40 | 80 |

| Time (min) | Nicotine/Low Dose WIN | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **5** | 0 | 0 | 0 | 0 | 80 | 0 | 20 | 0 |
| **10** | 0 | 20 | 60 | 20 | 80 | 0 | 20 | 0 |
| **15** | 0 | 20 | 60 | 60 | 80 | 0 | 20 | 20 |
| **20** | 0 | 20 | 60 | 80 | 80 | 0 | 40 | 20 |
| **30** | 20 | 40 | 80 | 80 | 80 | 20 | 60 | 20 |
| **40** | 20 | 40 | 80 | 80 | 120 | 60 | 80 | 20 |
| **50** | 80 | 40 | 80 | 80 | 120 | 80 | 100 | 20 |
| **60** | 80 | 40 | 100 | 80 | 140 | 80 | 100 | 20 |

**7h. Sucrose consumption in females: sucrose mg by time**

| Time (min) | Control | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| 10 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | | | | |
| 15 | 20 | 0 | 0 | 20 | 0 | 0 | 20 | 0 | 20 | | | | |
| 20 | 20 | 0 | 0 | 40 | 0 | 0 | 20 | 0 | 20 | | | | |
| 30 | 80 | 20 | 10 | 80 | 80 | 20 | 20 | 40 | 40 | | | | |
| 40 | 100 | 20 | 20 | 80 | 80 | 20 | 100 | 40 | 60 | | | | |
| 50 | 120 | 40 | 40 | 80 | 80 | 60 | 100 | 40 | 60 | | | | |
| 60 | 140 | 60 | 70 | 100 | 80 | 60 | 100 | 40 | 100 | | | | |

| Time (min) | Low Dose WIN | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 20 | 0 | 40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| 10 | 20 | 0 | 80 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| 15 | 40 | 0 | 80 | 40 | 0 | 20 | 0 | 0 | 0 | 0 | | | |
| 20 | 40 | 20 | 80 | 60 | 20 | 40 | 0 | 40 | 20 | 0 | | | |
| 30 | 60 | 160 | 80 | 60 | 20 | 60 | 20 | 40 | 40 | 20 | | | |
| 40 | 60 | 160 | 100 | 60 | 20 | 60 | 20 | 60 | 40 | 20 | | | |
| 50 | 80 | 180 | 100 | 80 | 20 | 60 | 20 | 80 | 40 | 20 | | | |
| 60 | 80 | 160 | 100 | 80 | 60 | 60 | 20 | 80 | 60 | 20 | | | |

| Time (min) | Nicotine/Low Dose WIN | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 0 | 20 | 20 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 | 0 | 20 | 20 | 0 | 0 | 0 | 20 | 0 | 40 | 0 | 0 | 0 | 0 |
| 15 | 0 | 20 | 20 | 40 | 40 | 0 | 20 | 0 | 40 | 0 | 0 | 0 | 0 |
| 20 | 20 | 60 | 20 | 80 | 40 | 20 | 20 | 20 | 40 | 0 | 0 | 0 | 0 |
| 30 | 60 | 80 | 20 | 100 | 40 | 40 | 60 | 20 | 80 | 20 | 20 | 20 | 40 |
| 40 | 80 | 80 | 20 | 100 | 60 | 40 | 120 | 20 | 80 | 40 | 20 | 20 | 40 |
| 50 | 80 | 80 | 20 | 120 | 80 | 40 | 120 | 40 | 80 | 40 | 20 | 40 | 40 |
| 60 | 80 | 80 | 60 | 120 | 80 | 40 | 120 | 40 | 80 | 60 | 20 | 40 | 60 |

**7i. Time immobile in the forced swim test in males**

| Groups: | Control | Low Dose WIN | Nicotine/Low WIN |
|---|---|---|---|
| | 41 | 52 | 20 |
| | 91 | 42 | 77 |
| | 60 | 59 | 42 |
| | 54 | 37 | 112 |
| | 18 | 77 | 152 |
| | 75 | 108 | 46 |
| | 107 | 8 | 70 |
| | 96 | 110 | |
| | 74 | | |
| | 143 | | |

**7j. Time immobile in the forced swim test in females**

| Groups: | Control | Low Dose WIN | Nicotine/Low WIN |
|---|---|---|---|
| | 50 | 48 | 51 |
| | 6 | 29 | 45 |
| | 47 | 21 | 132 |
| | 91 | 178 | 95 |
| | 63 | 27 | 30 |
| | 10 | 26 | 8 |
| | 127 | 90 | 69 |
| | 103 | 120 | 2 |
| | 119 | 56 | 151 |
| | 125 | 198 | 27 |
| | 109 | | 143 |
| | | | 76 |