Space Fortress: stats on HD and SHAM groups

Learning Rates on Total and Sub Scores for HD and SHAM groups

Akaike's information Criterion (AIC)
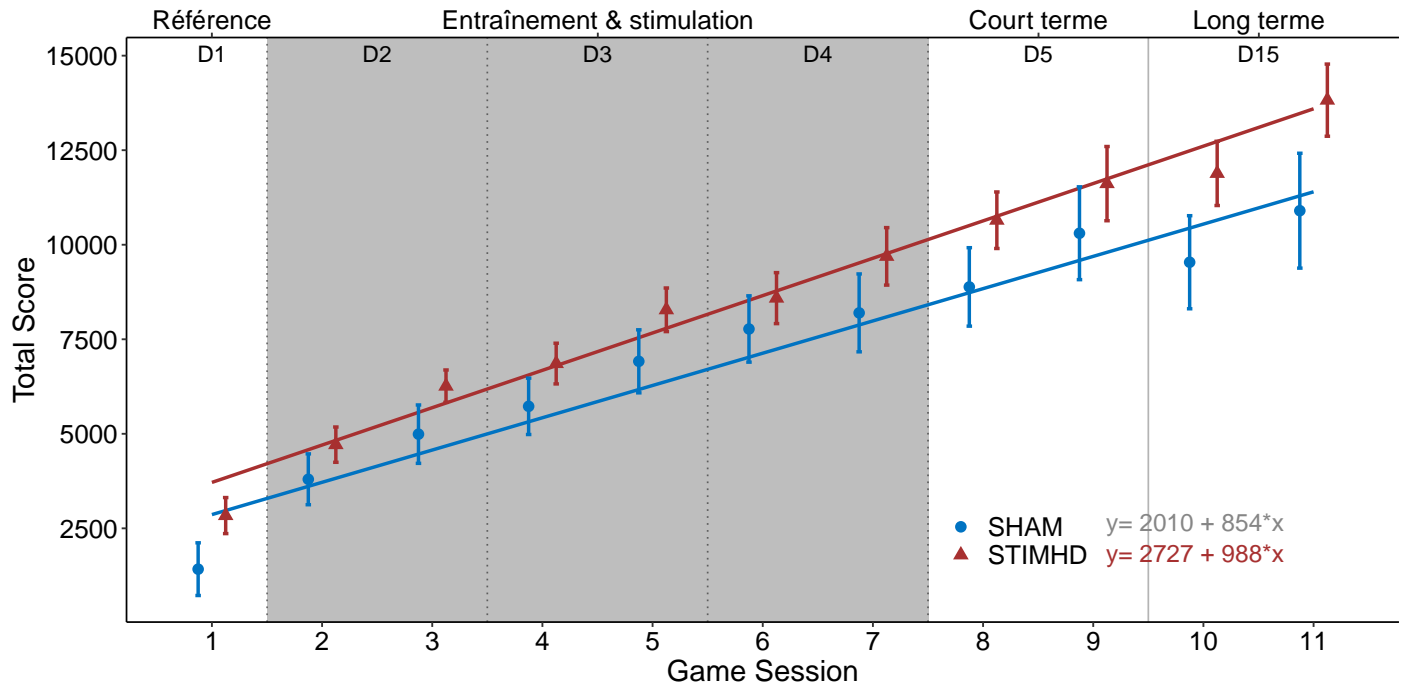
Table of Akaike's Information Criterion for each Sub-Score with a natural logarithme model lm(Score~ln(Days)) or a linear model lm(Score~Days). Select the smallest.

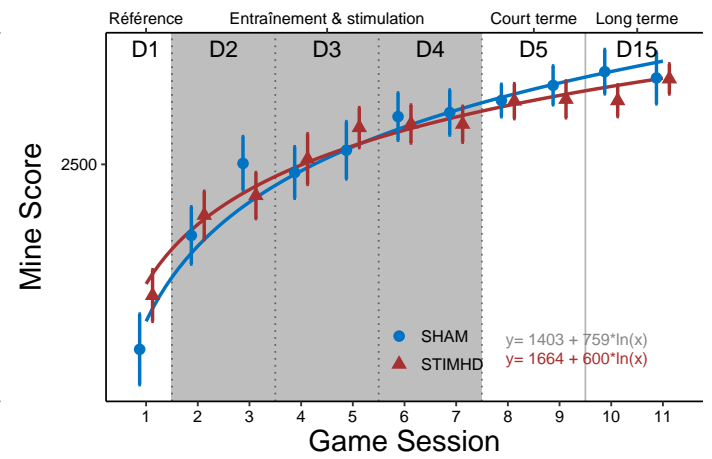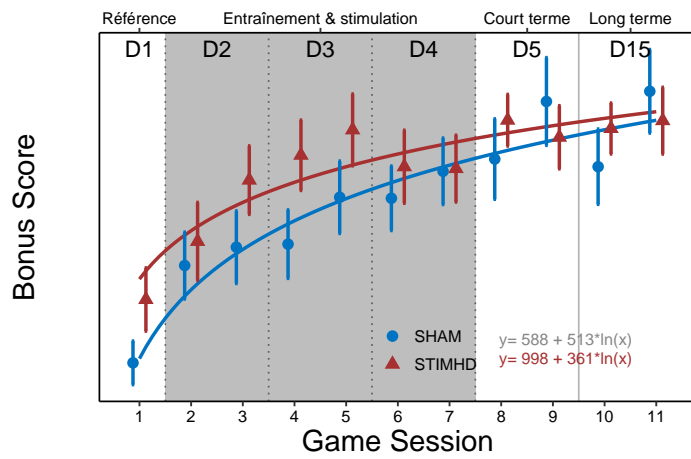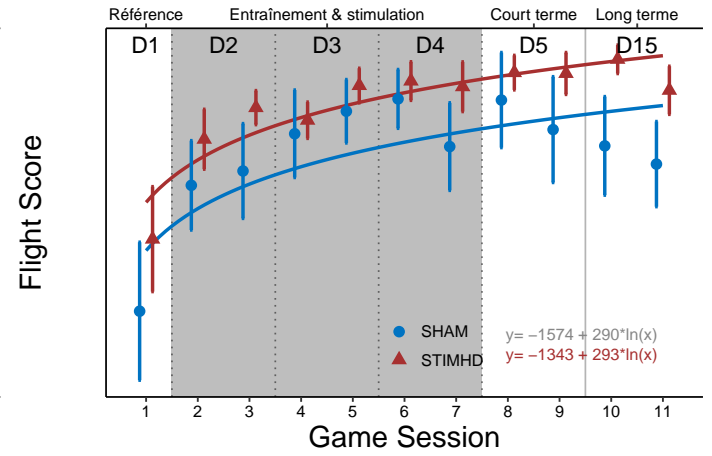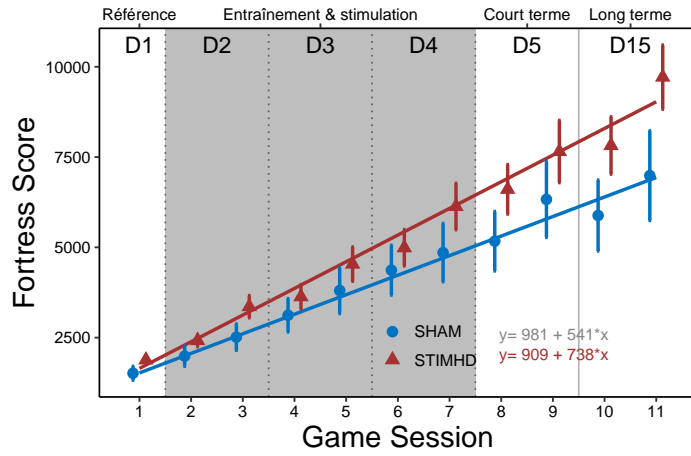|	Total	Fortress	Flight	Bonus	Mine
Ln	8517.514	8321.206	7121.945	7127.336	7027.817
Linear	8515.631	8298.054	7134.132	7136.437	7060.661

We choose a linear model for the Total Score as well as for the Fortres Score. For the remaining sub-scores, we can select the natural logarithme model.

### Regressions Figures (linear or ln)

Total Score (linear)

Sub-Scores : Fortress (linear), Flight (ln), Bonus (ln), Mine (ln)

Fortress Score (top left):
- Référence D1 | Entraînement & stimulation D2 D3 D4 | Court terme D5 | Long terme D15
- y= 981 + 541*x
- y= 909 + 738*x
- SHAM, STIMHD

Flight Score (top right):
- Référence D1 | Entraînement & stimulation D2 D3 D4 | Court terme D5 | Long terme D15
- y= −1574 + 290*ln(x)
- y= −1343 + 293*ln(x)
- SHAM, STIMHD

Bonus Score (bottom left):
- Référence D1 | Entraînement & stimulation D2 D3 D4 | Court terme D5 | Long terme D15
- y= 588 + 513*ln(x)
- y= 998 + 361*ln(x)
- SHAM, STIMHD

Mine Score (bottom right):
- Référence D1 | Entraînement & stimulation D2 D3 D4 | Court terme D5 | Long terme D15
- y= 1403 + 759*ln(x)
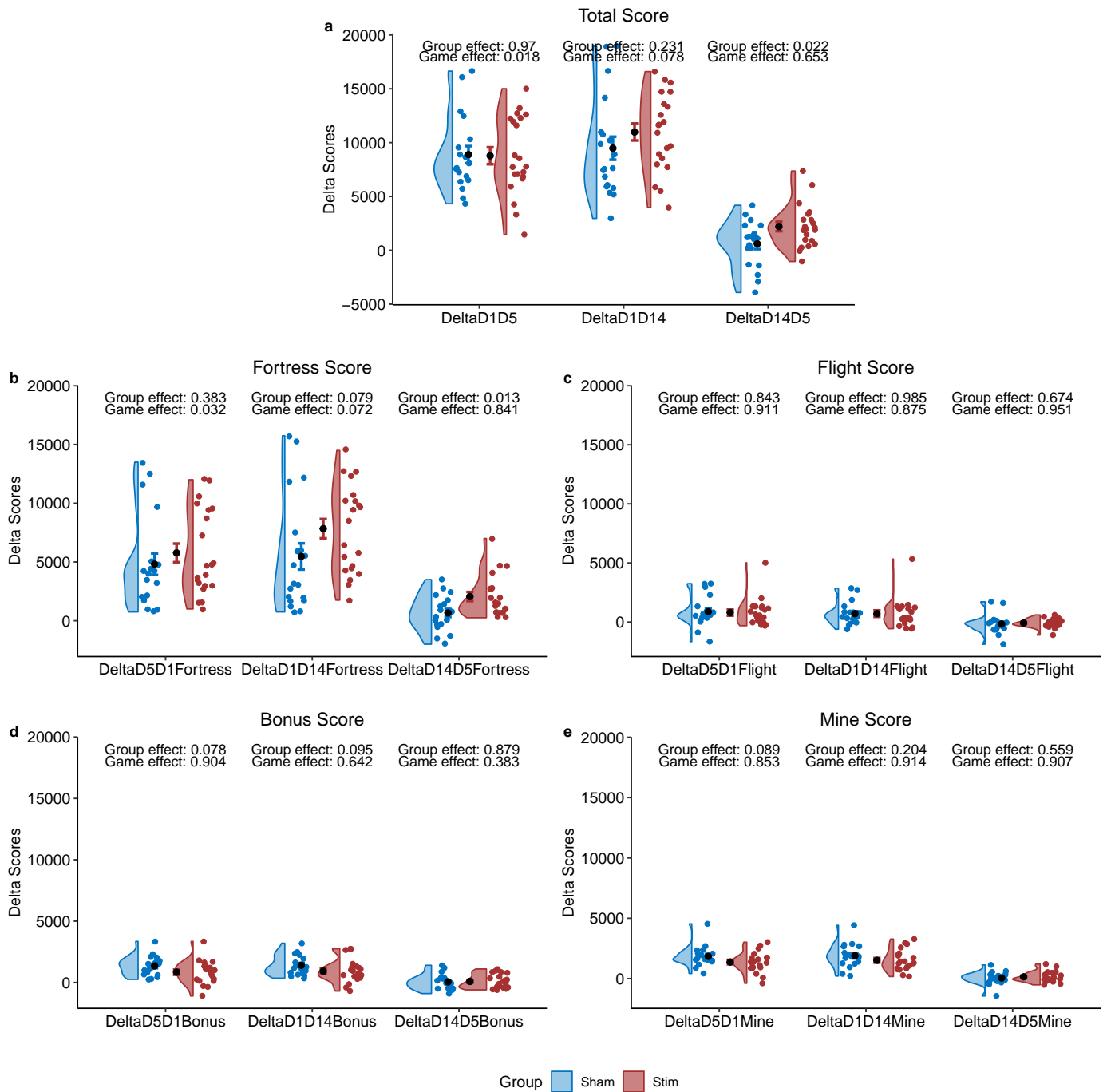- y= 1664 + 600*ln(x)
- SHAM, STIMHD

Game Session

ANCOVA on Learning Rate by Group with Game Level as covariable

Total Score : Linear learning Rate
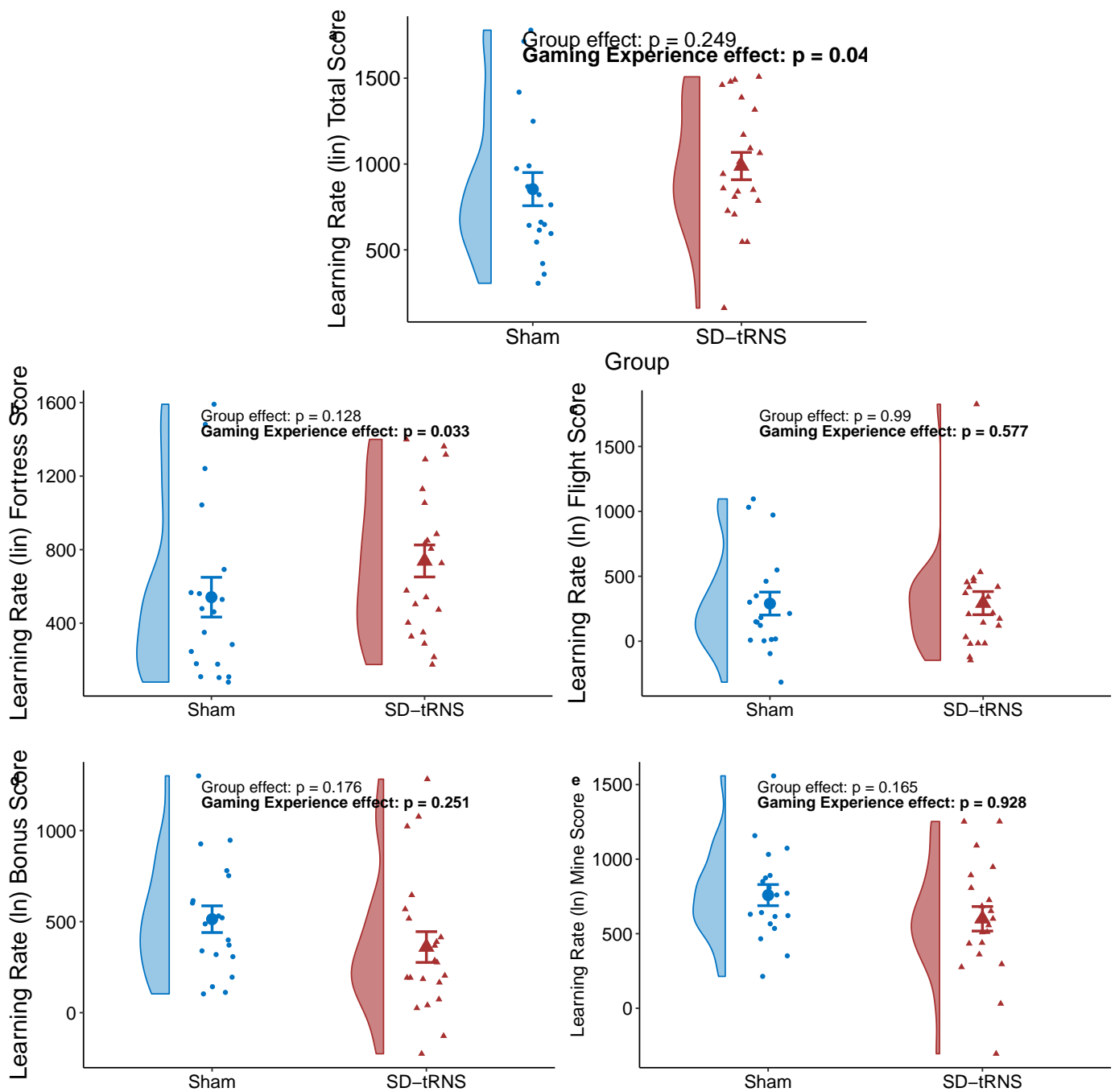
Sub-Scores

ANCOVA on Delta (Sub-Scores and Total Score)

Delta	Effect	TotalScore	Fortress	Flight	Bonus	Mine
ST	Group	0.970	0.383	0.843	0.078	0.089
	Game	**0.018**	**0.032**	0.911	0.904	0.853
LT	Group	0.231	0.079	0.985	0.095	0.204
	Game	0.078	0.072	0.875	0.642	0.914
RT	Group	**0.022**	**0.013**	0.674	0.879	0.559
	Game	0.653	0.841	0.951	0.383	0.907

Other metrics suggestions for the Sub-Scores

In order to evaluate the effects of each sub-score in the form of metrics representing the participants' gaming strategies, we suggest: - For the Fortress Score : the total of destroyed fortress - For the Flight Score : the total of "bad" flight events (border collision, fortress collision, ship damage) - For the Bonus Score : the percentage of captured bonuses during the game - For the Mine Score : the percentage of destroyed mines during the game
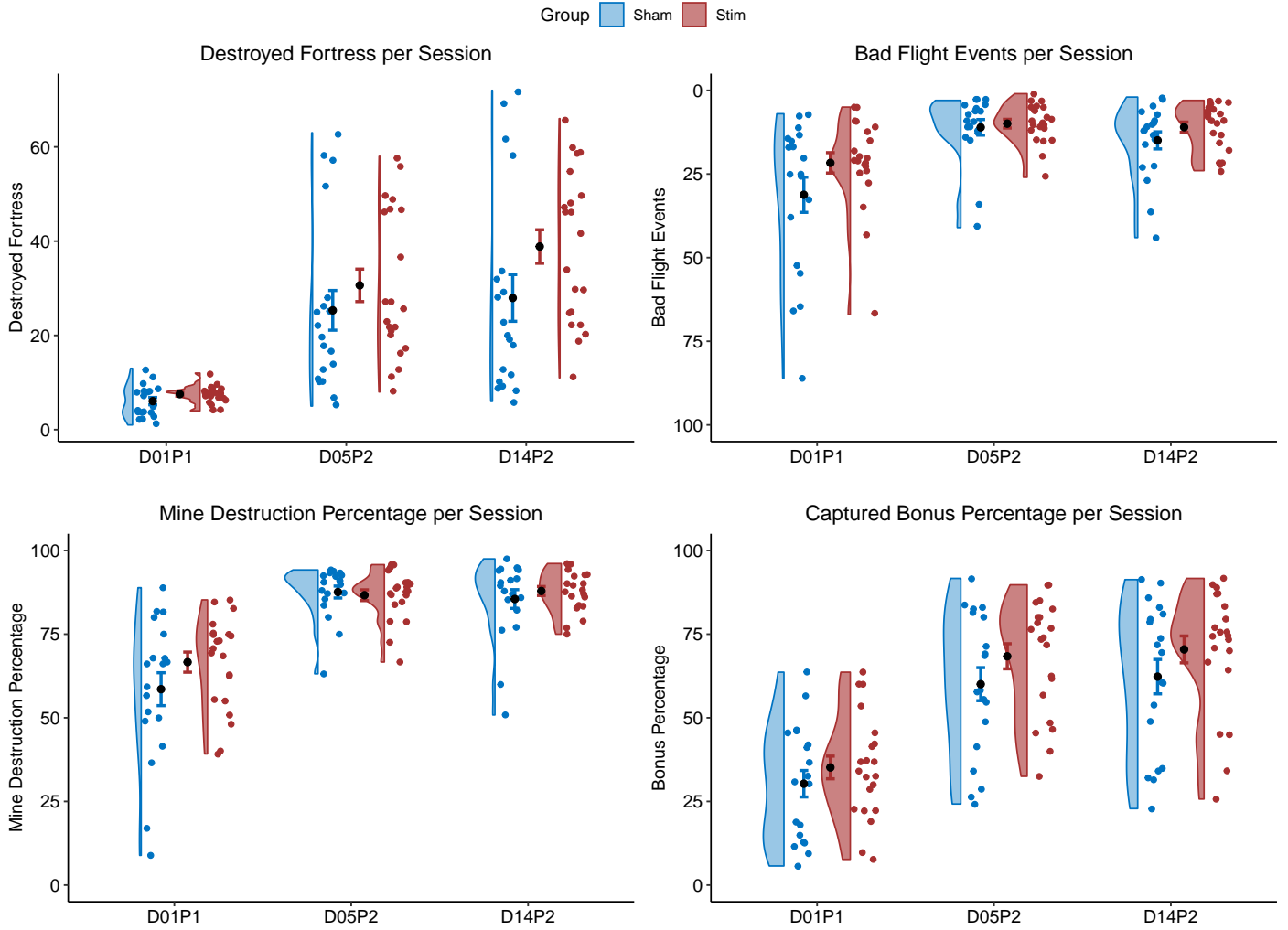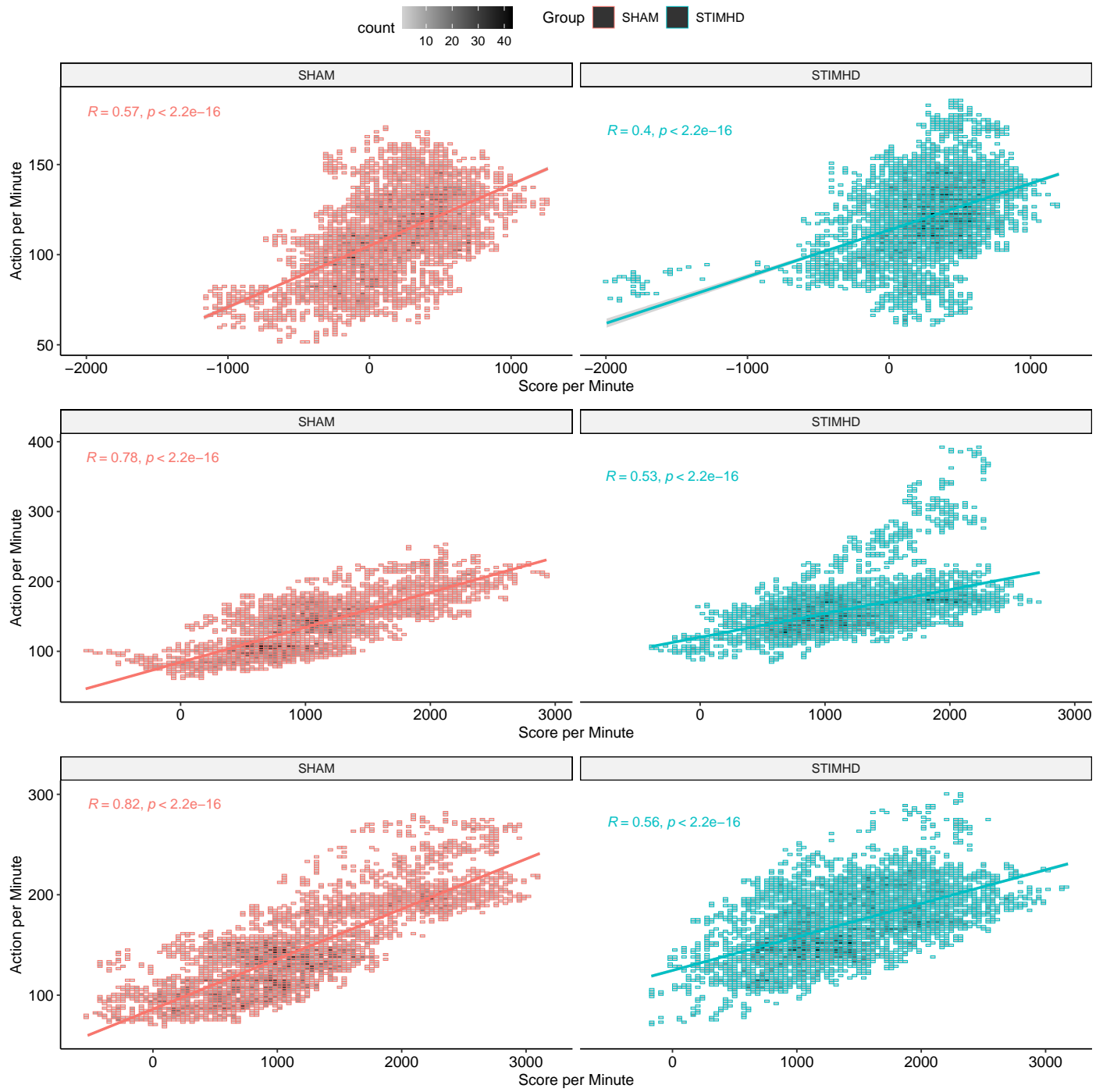

For information : the total score per group on D1, D5 and D14:

Total Score per Session
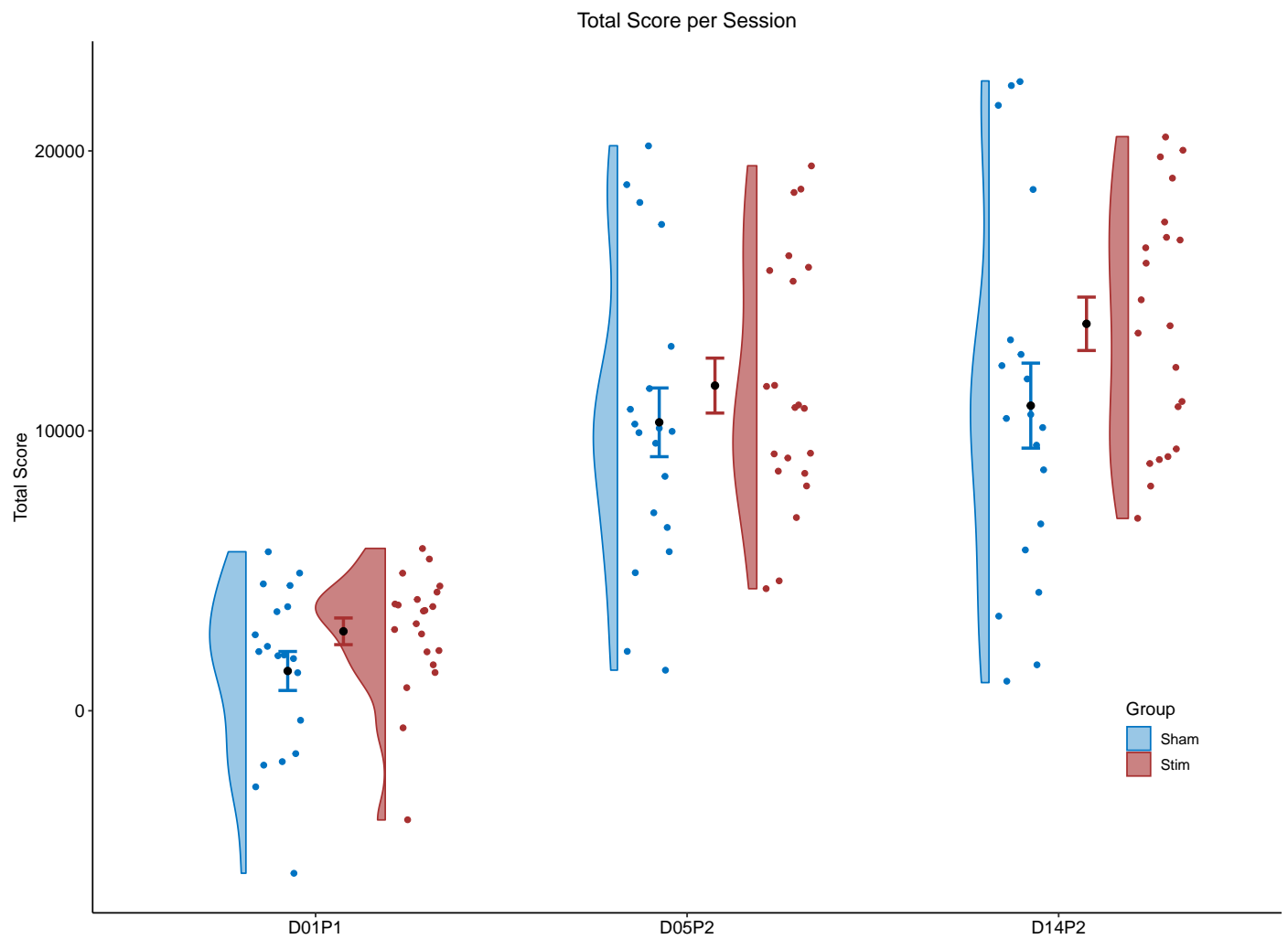
APM and SCM

```
## `geom_smooth()` using formula 'y ~ x'
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```

X	Effect	D01P1	D05P2	D14P2
APM	Group	0.099	**0.043**	**0.018**
	Game	0.197	0.248	0.278
ScM	Group	0.130	0.413	0.117
	Game	0.271	**0.020**	**0.047**