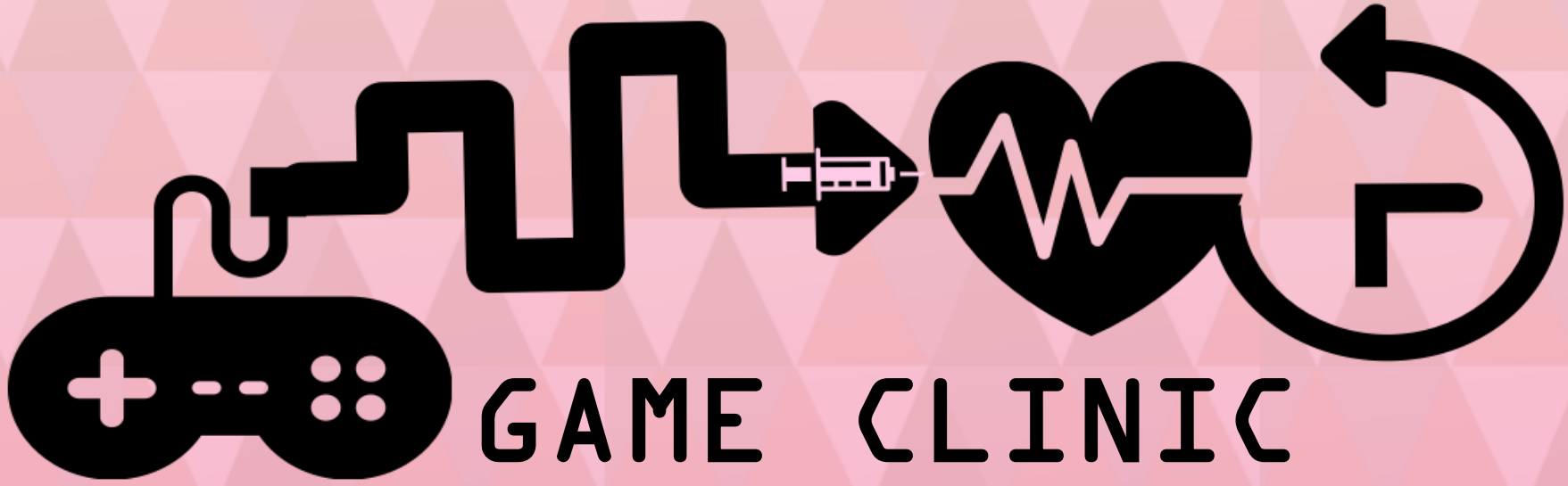
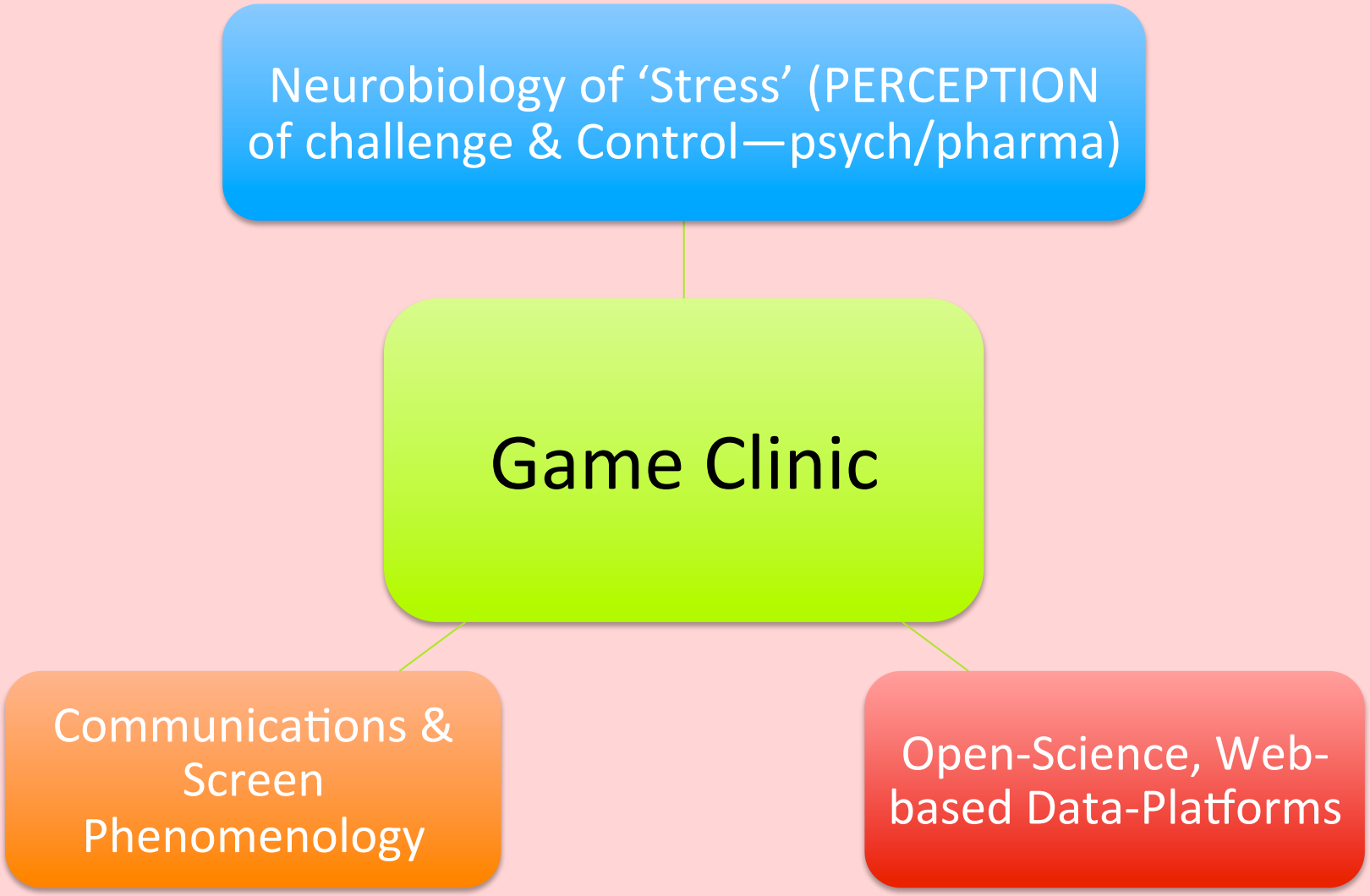

GAME CLINIC

media-health.ca



Why “Game”?

- Because Games “can” be addictive
- Because Games require “learning”
- Because Games require “performing” and “winning”
  - M Palaus et al (2017), Neural Basis of Video Gaming, **Frontiers in Human Neuroscience, vol 11**
  - RL Mandryk et al (2017), Toward Game-Based Digital Mental Health Interventions***, J Med Internet Research, vol 19:4***
  - Amado Velazquez et al (2017), Adaptive Exergame to Support Active Aging, **Pervasive and Mobile Computing, vol 34**

FIND BETTER GAMES FOR OLDER ADULTS

Experiment Setup

EXPLAIN

GAME DEMO
(5 min)

Cog test 1

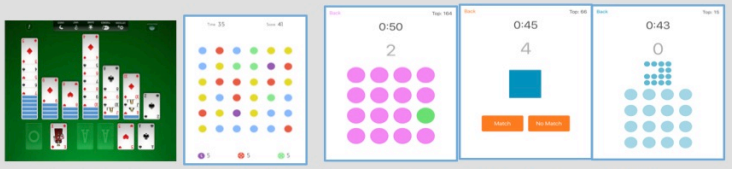
LEARN IT
(10 min)

Cog test 2

PLAY for FUN
(15 min)

Cog test 3

EVALUATE



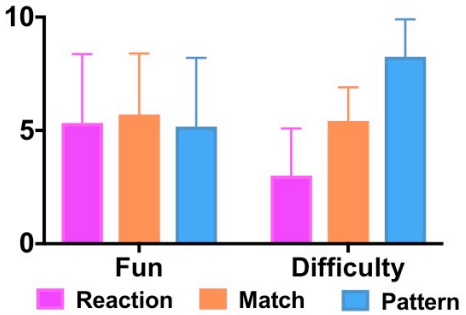
Solitaire Dots Reaction Match Pattern — Session 1

Real Racing 3 — Session 2

Dance Central — Session 3

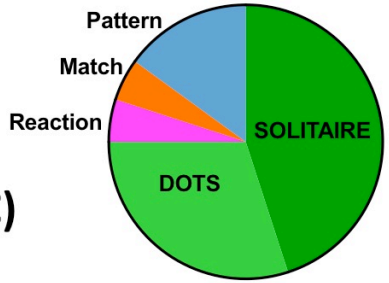
(A)

Session1: Learn MindGames



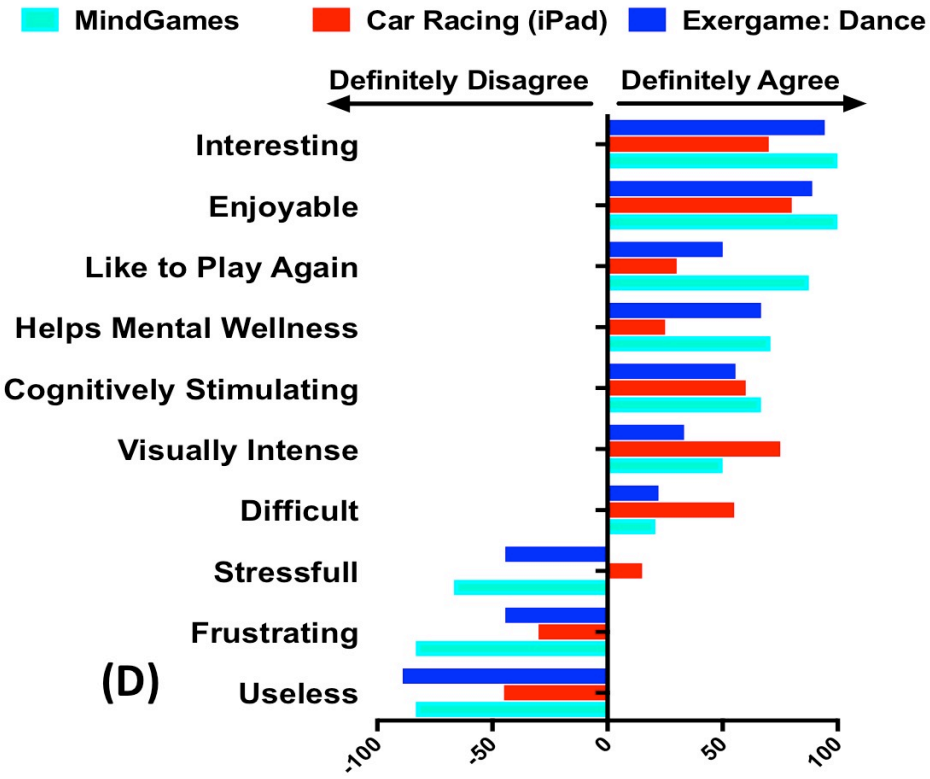
(B)

Session1: Play for fun



(C)

End of Session Survey



(D)

What do We need?

- Age-***appropriate*** exer-games
  - Familiar music not Lady Gaga
  - Hip/Knee friendly movements
  - Realistic 'coaches' that are not 'dressed like pimps and 'prostitutes' *(I am quoting!)*
  - Duo-Dances like Cha-Cha
  - More rewarding feedback (make it less difficult to nail a movement)
  - Instructions that are clear but not '*patronizing'*

Scientific Background

- Hippocampal-related memory function (e.g. memorizing a set of pictures and trying to recall them later) is affected by “stress” hormones.
  - Psychological Stress by threatening ‘ego’
  - Pharmacological Stress by a drug

- You see pictures in stack A; some of which are repeated.
- Press “M” as soon as you “recall” a picture.
- Try to remember all of them because after a few hours/days:
- You see pictures in stack B; some of which are repeated from stack A. Press “M” as soon as you “recall” a picture.

PERFORMANCE metrics:

Hits, False Alarms and Misses (time-outs), reaction time

DESIGN FEATURES

Change stack, change stack size, Change time-out , feedback

REWARD (player): % Hits

SEEN BEFORE? PRESS M!

Effect of Psychological Stress

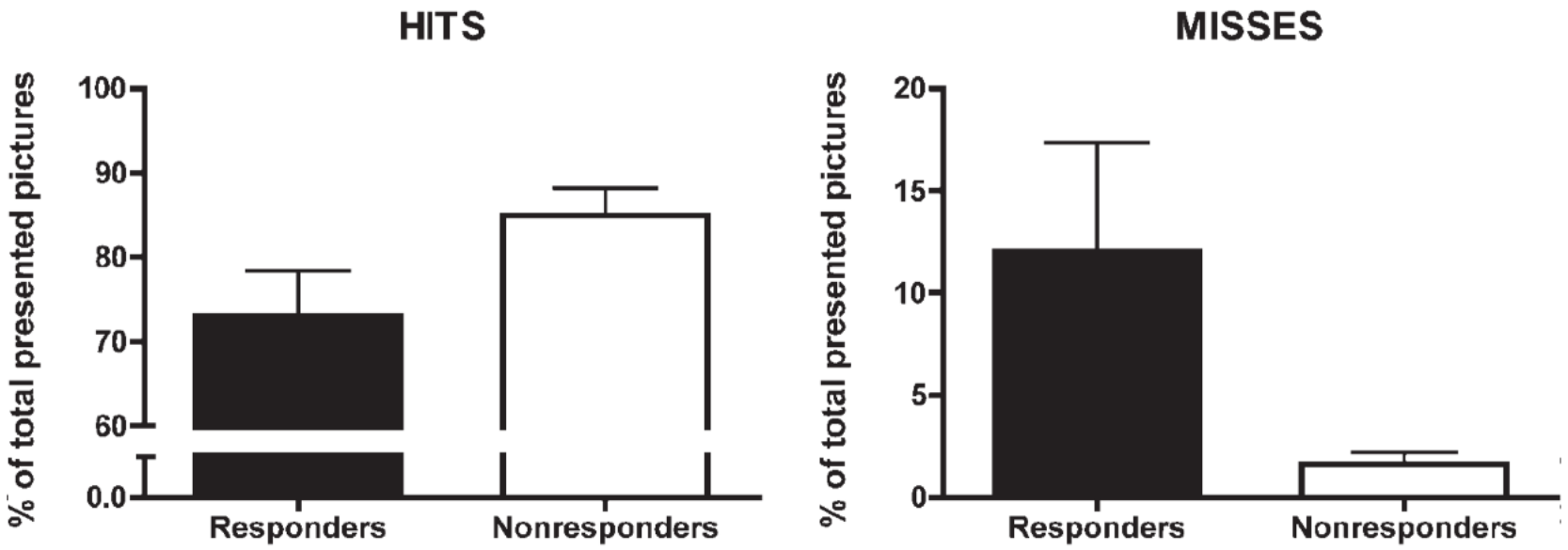
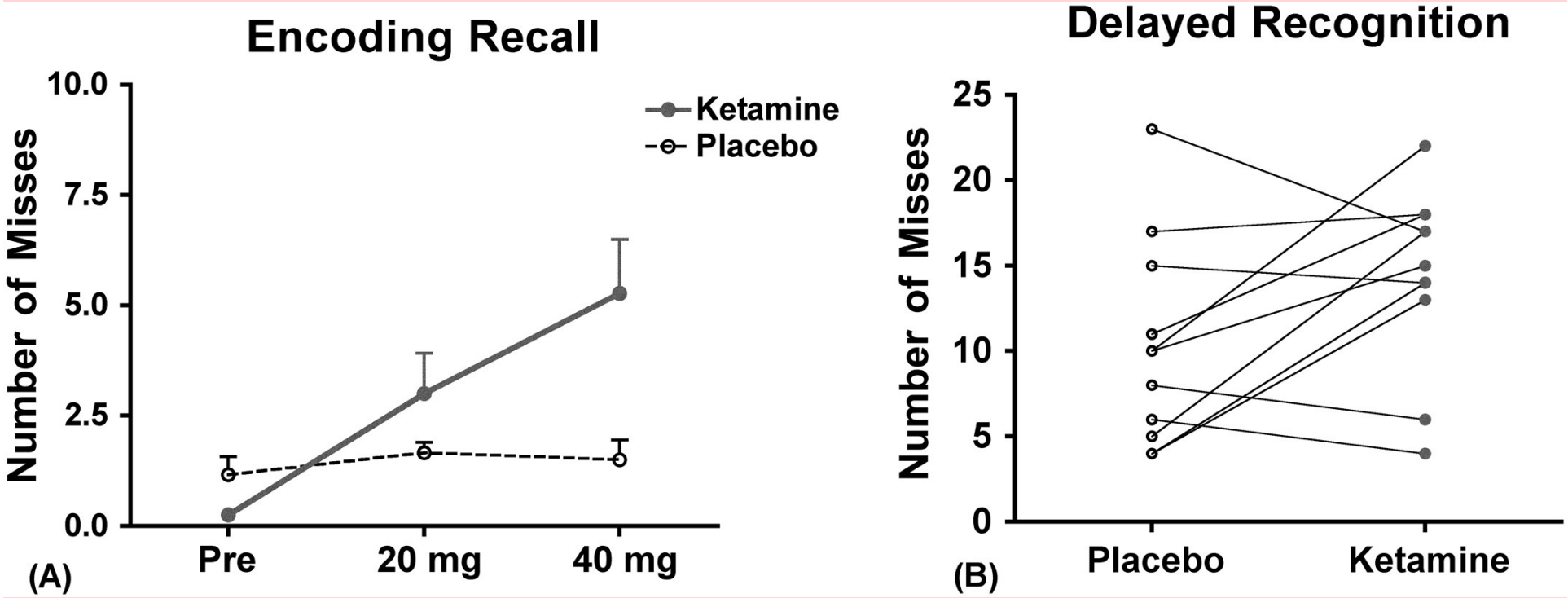


FIGURE 5. Differences in recognition performance between responders and nonresponders. A hit corresponds to a correct recognition. A miss corresponds to no answer or timeout. Responders have statistically significant higher number of misses.

Effect of Pharmacological Stress



What do we need?

1. For science:
   - An easy way to allow people play this ‘game’ at home and record their performance
   - Log the scores and the time of the day, and maybe a little ‘mood’ assessment survey.
2. For fun And Science:
   - Allow players to change the level of difficulty (speed, content similarity)
   - Allow players to ‘dump’ their photo albums in the app.