

Don't crack under pressure: Learning to finely grasp mechanical eggs using a myoelectric robotic arm

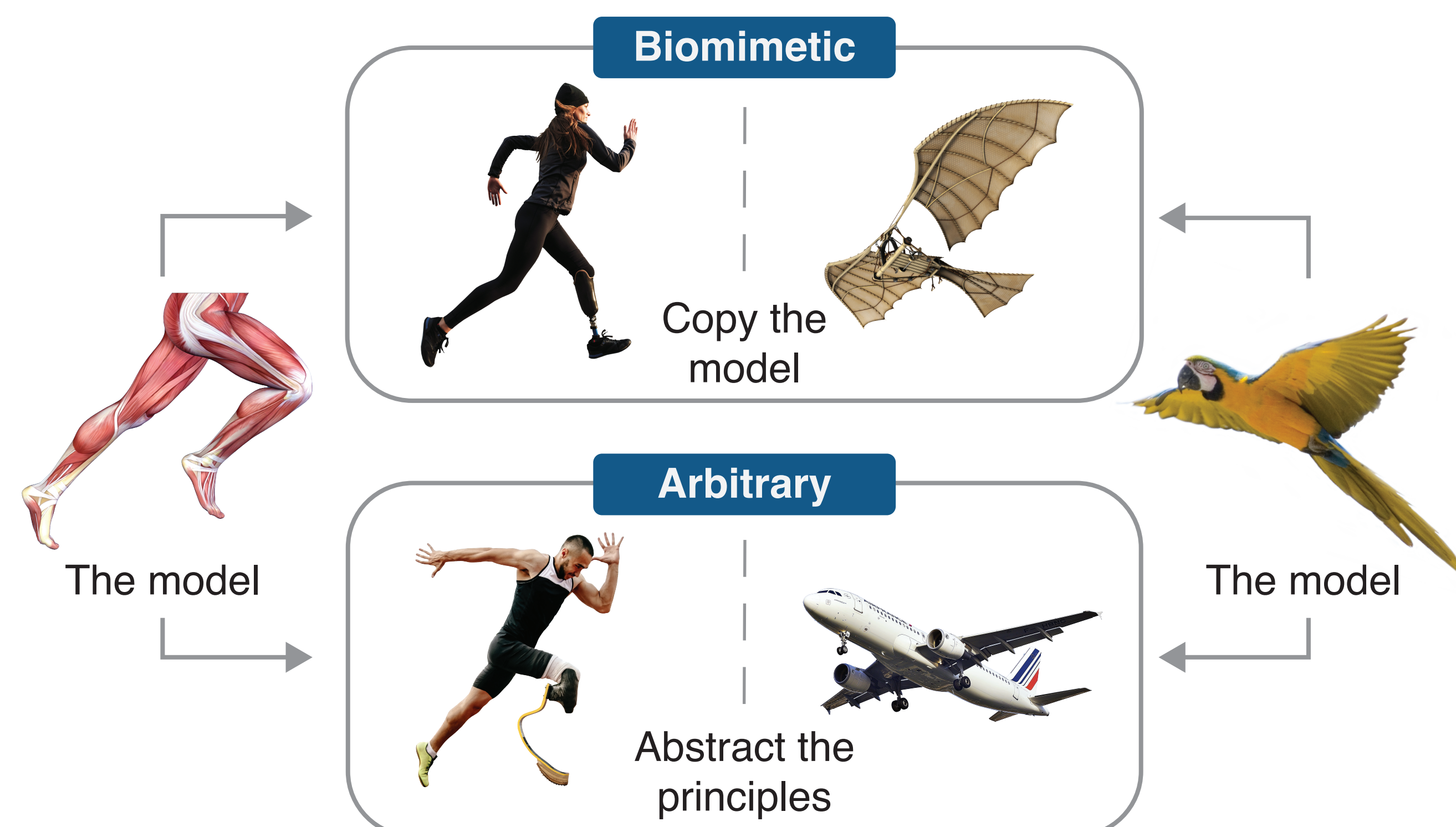
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Background

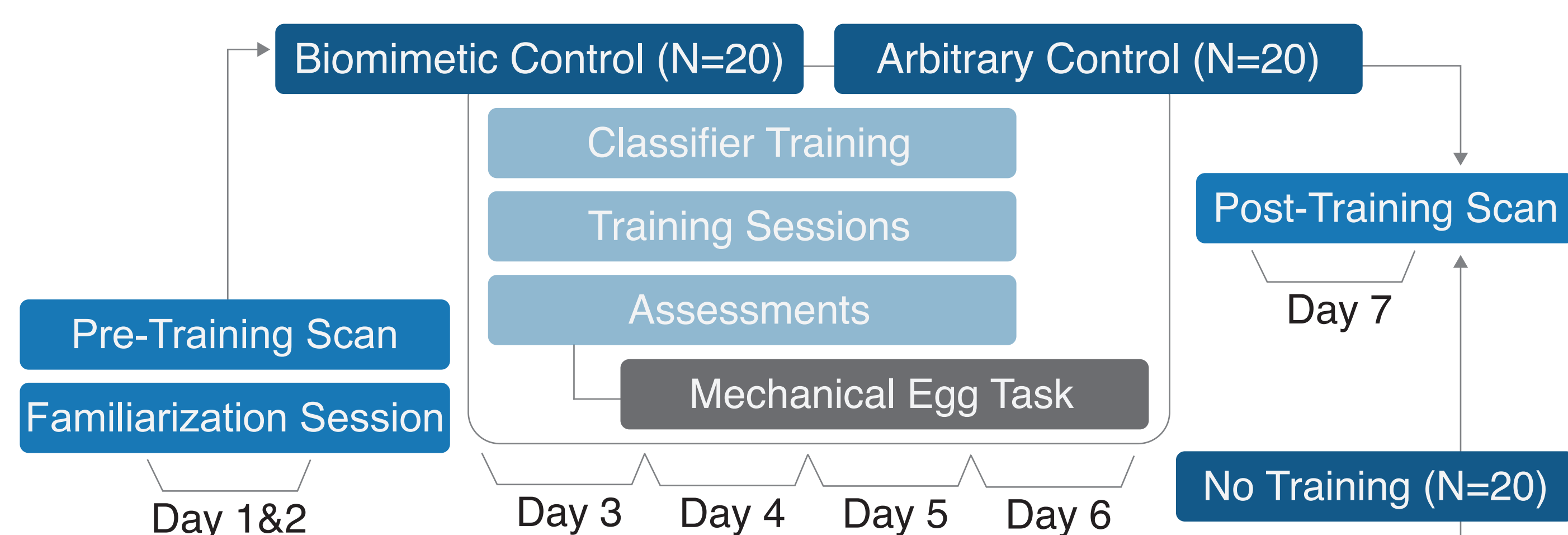
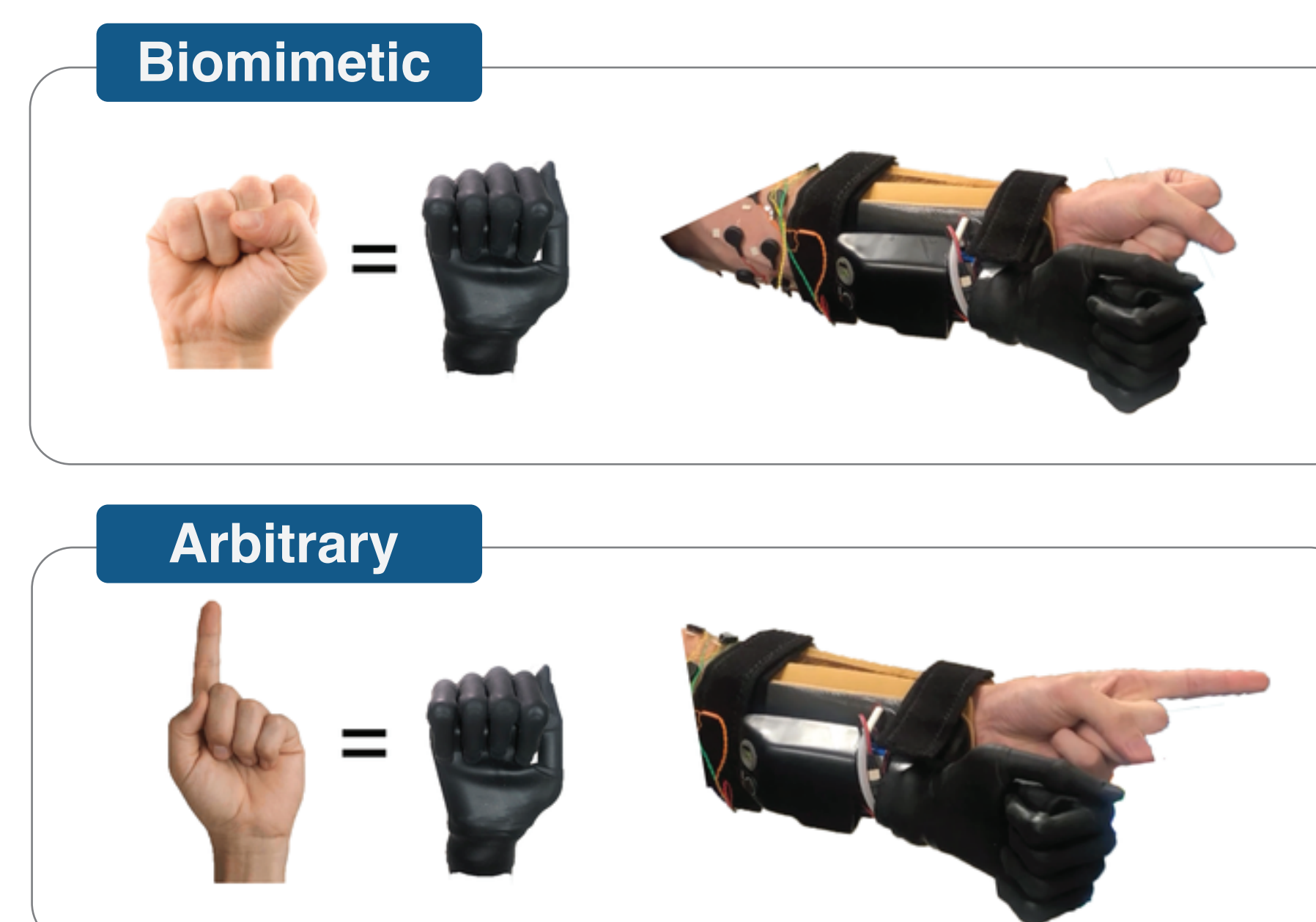
- For individuals missing a limb, robotic prosthesis can serve as a tool to effectively interact with the world.
- Despite technological advancements, prosthesis users find devices unsatisfactory (Biddiss & Chau, 2007).



Should the way we control robotic prosthesis mimic the way we control our own bodies?

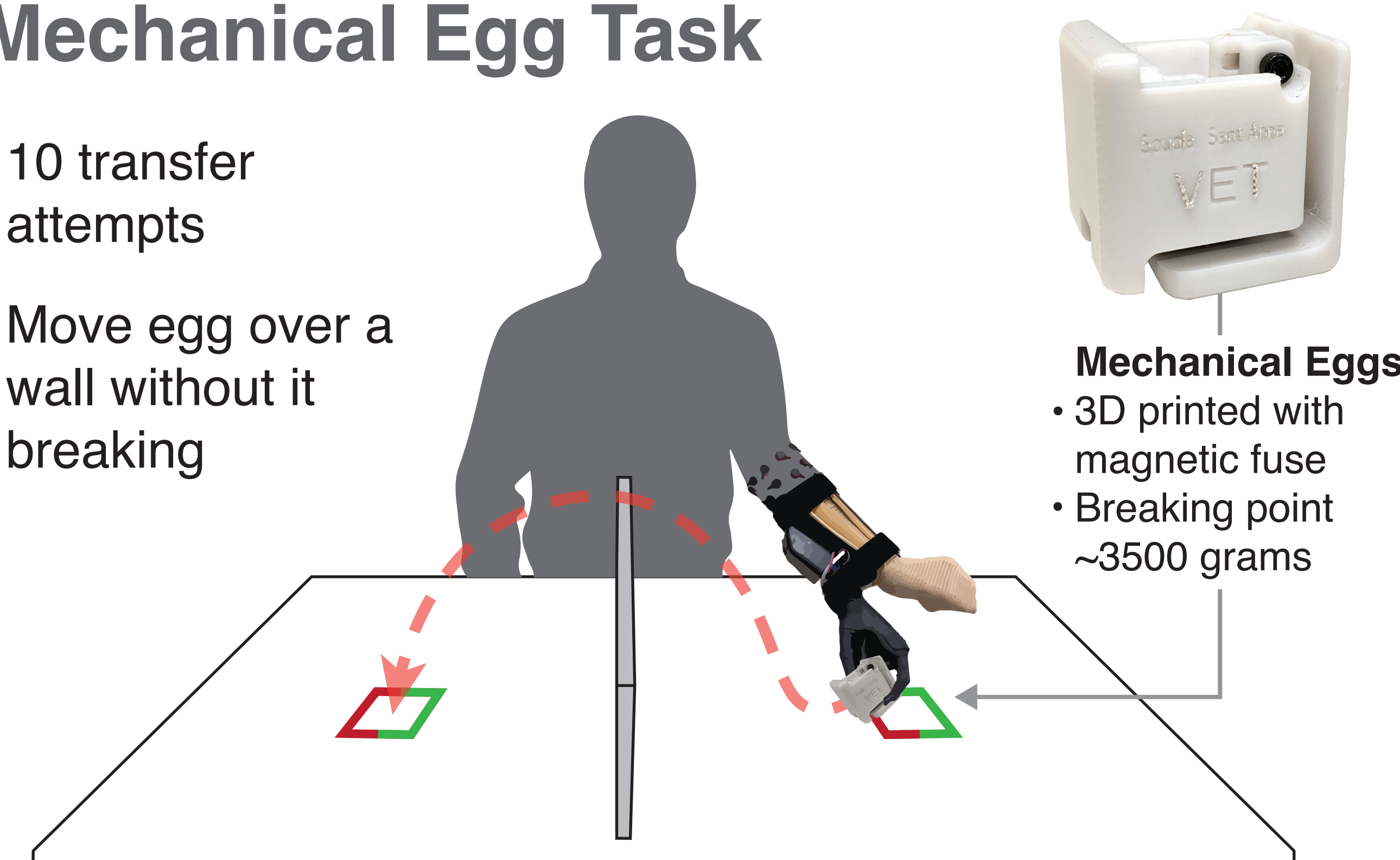
Methods

- Biomimicry vs arbitrary control
- 4 days of training with pressure task on each day



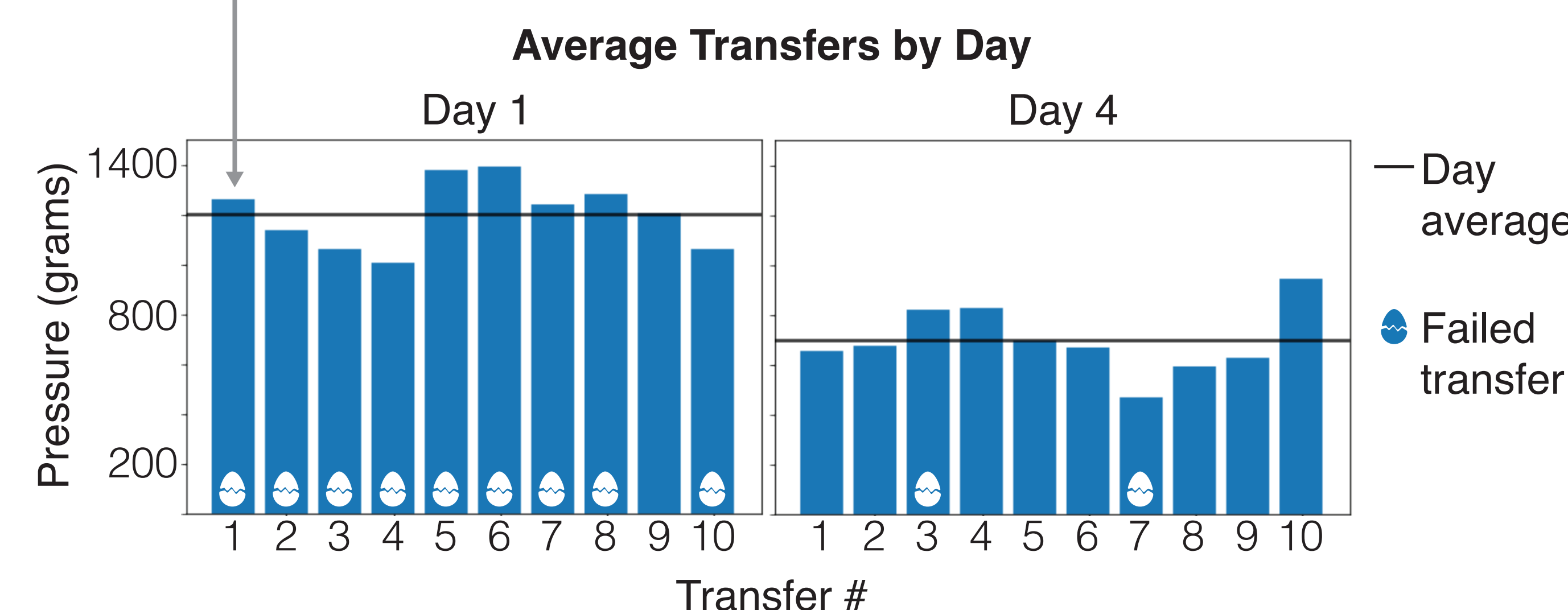
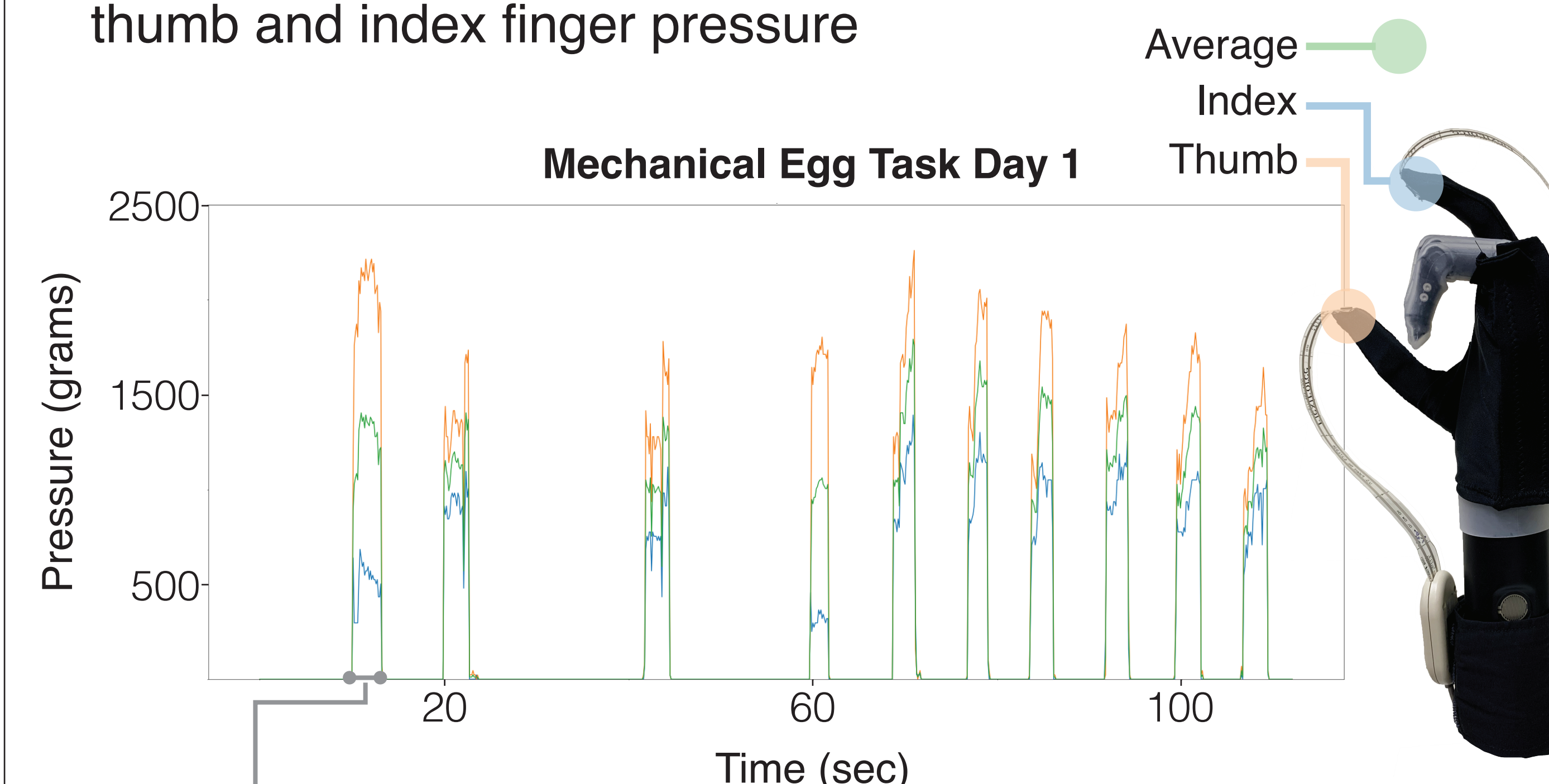
Mechanical Egg Task

- 10 transfer attempts
- Move egg over a wall without it breaking



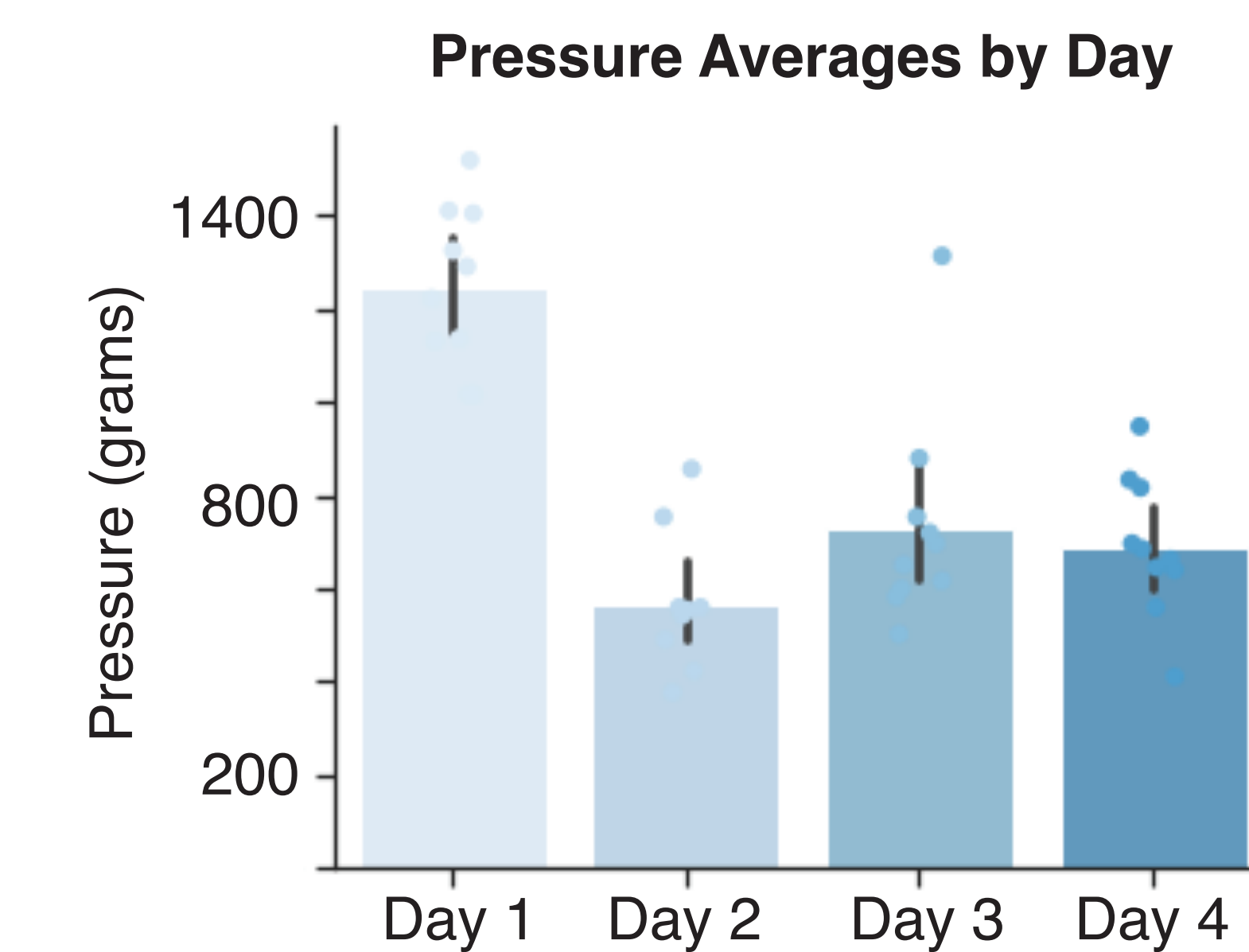
Pilot Data (n=1)

- Custom pressure glove captures thumb and index finger pressure

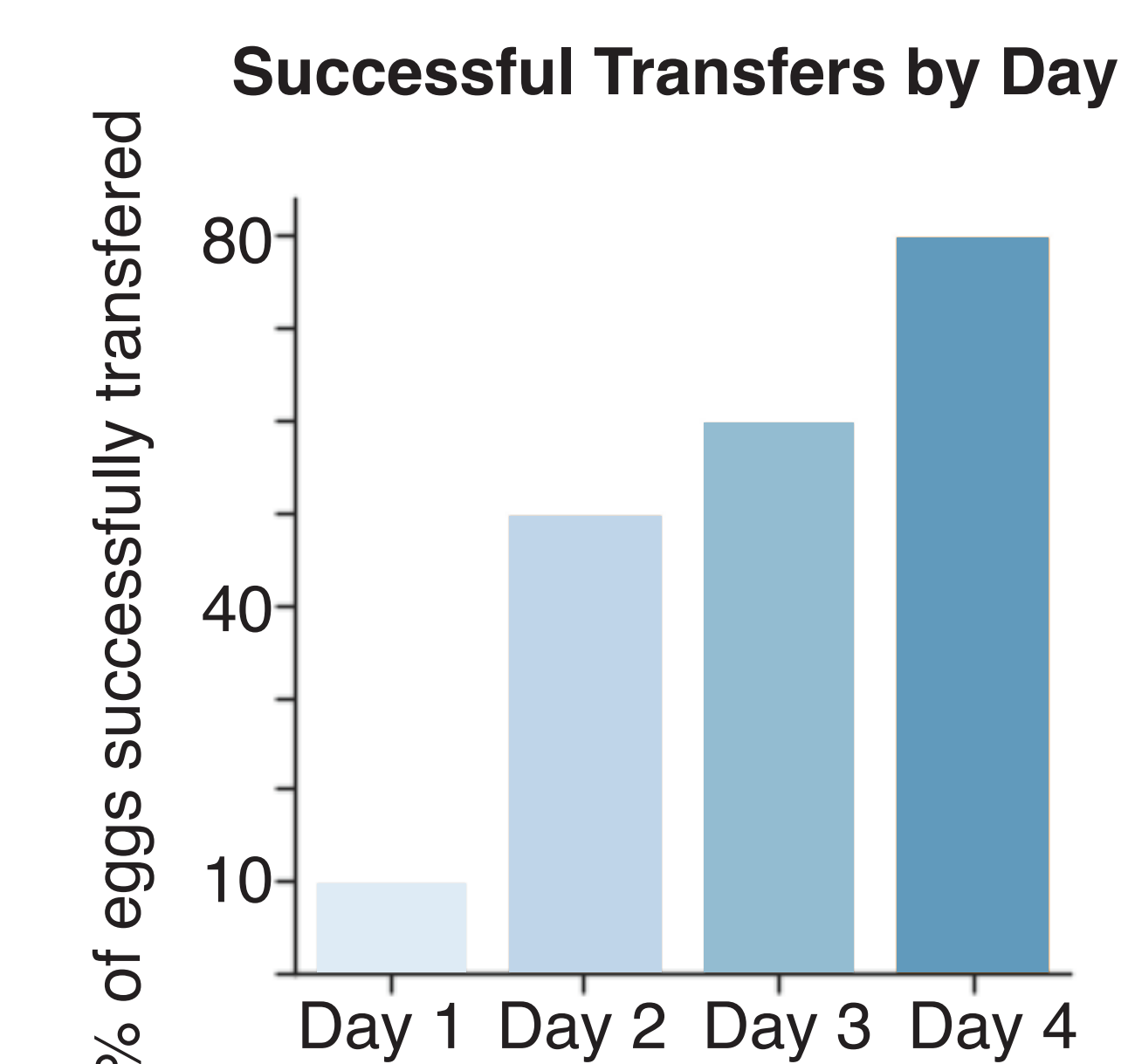


- Pilot participant used arbitrary control scheme

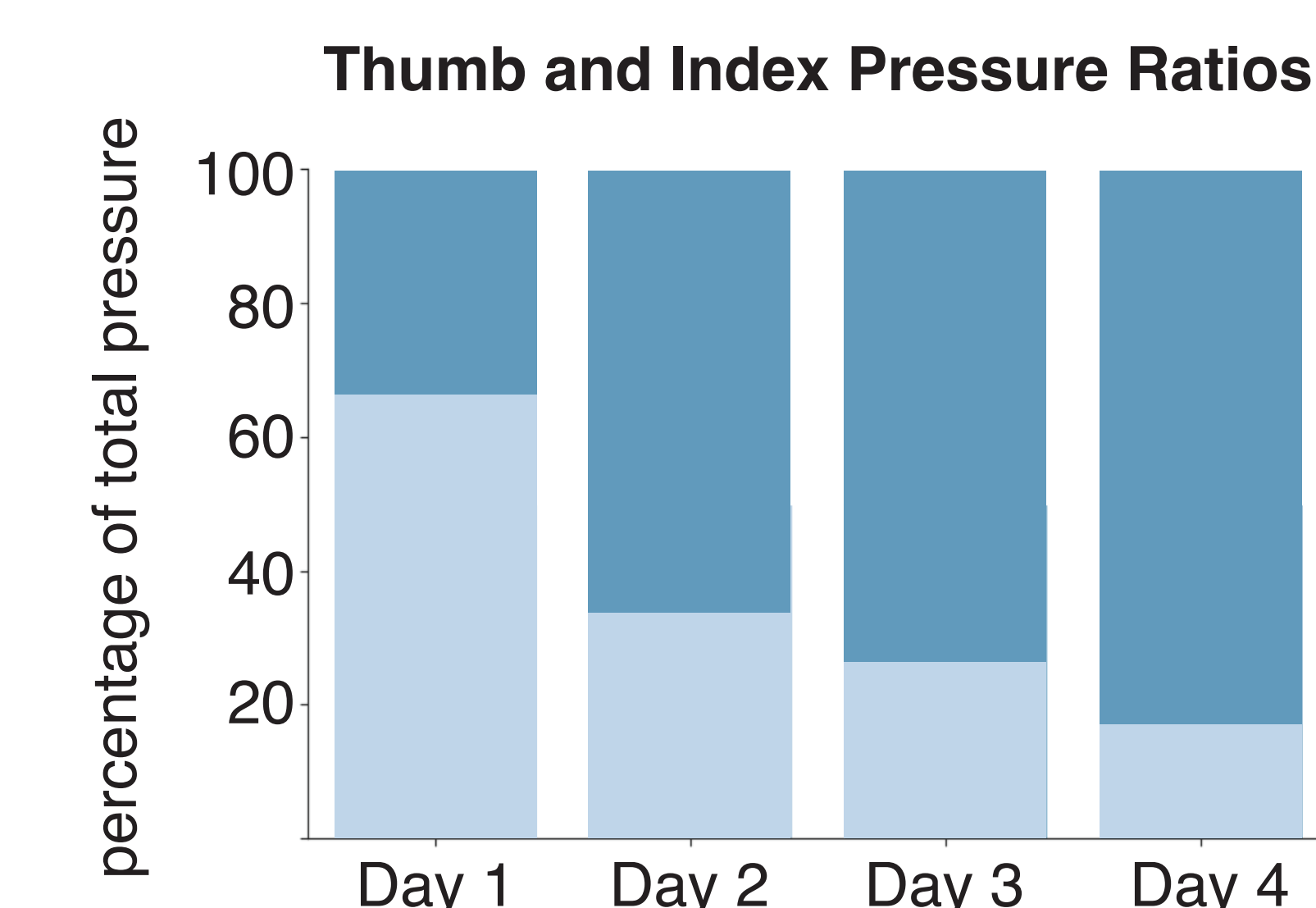
Pilot Results (n=1)



- Pressure use decreases with training
- Large training effect after day 1 with a plateau of decrease on later days



- Number of successful transfers increases each day despite plateau



- Index use increases with successful transfers

Moving forward

- Refine task procedures
- Recruit and test new participants!
- Compare biometric and arbitrary control!

