

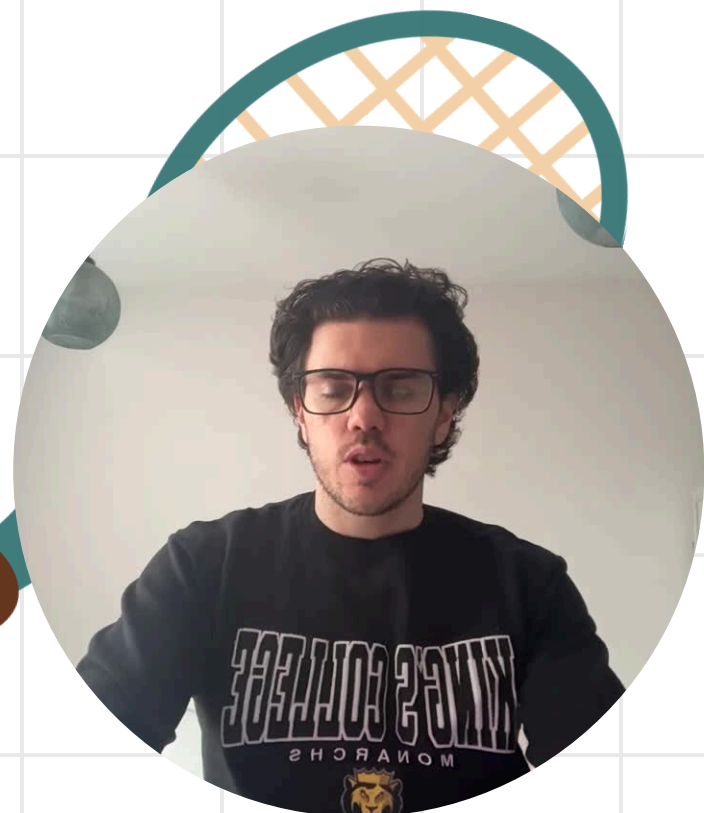
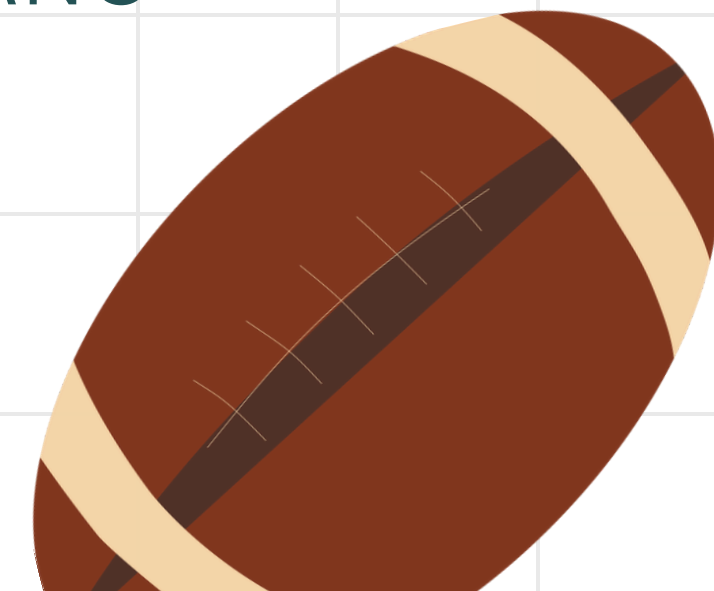
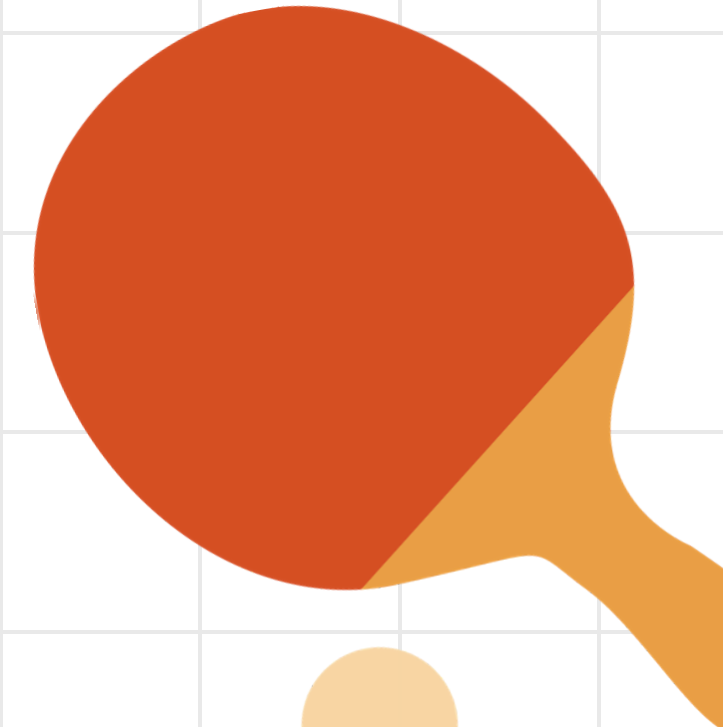
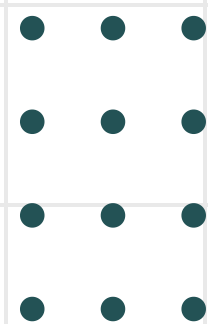
FORMULATE YOUR OWN  
SPORTS DRINK

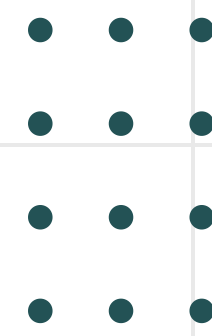
# GOLDEN HOUR HYDRATION

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COREY GUSTAFIK & LUISA ZAMBRANO  
MSND

LUISAZAMBRANO@KINGS.EDU  
COREYGUSTAFIK@KINGS.EDU



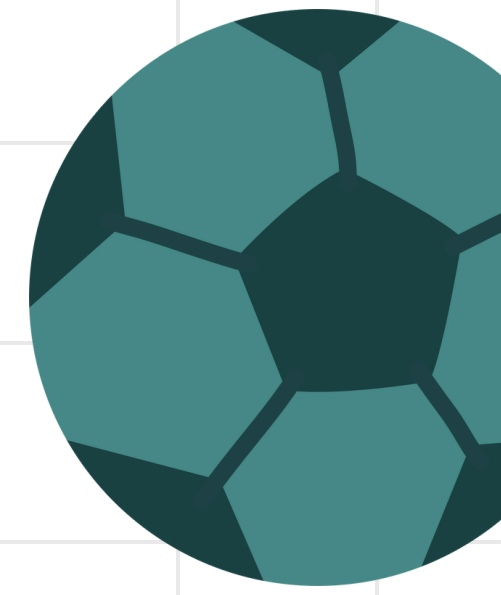
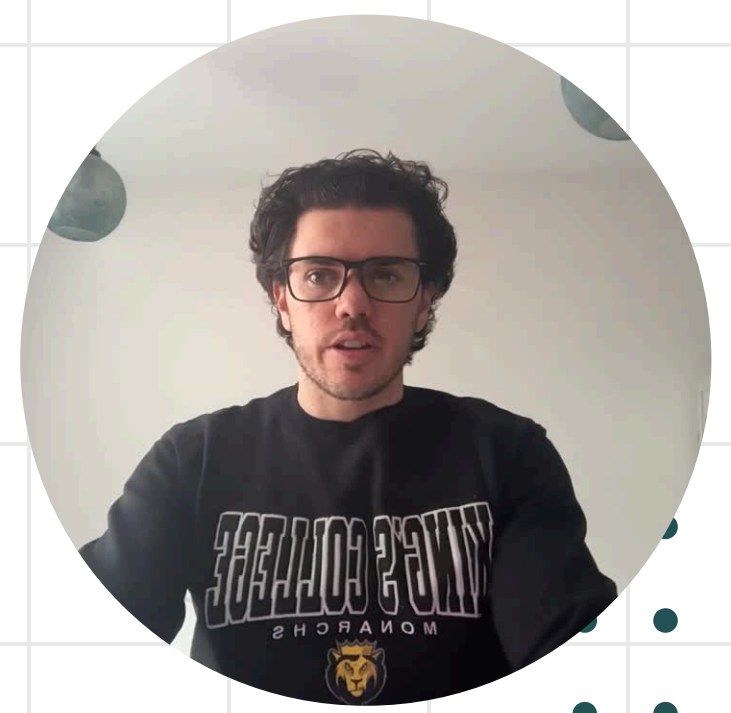


# ASSIGNED ATHLETE GROUP

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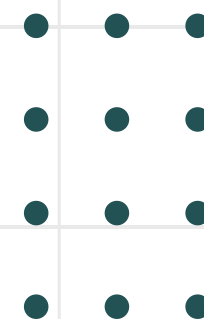
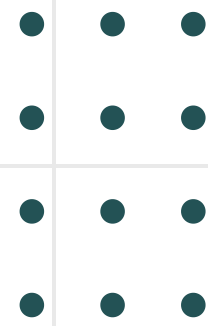
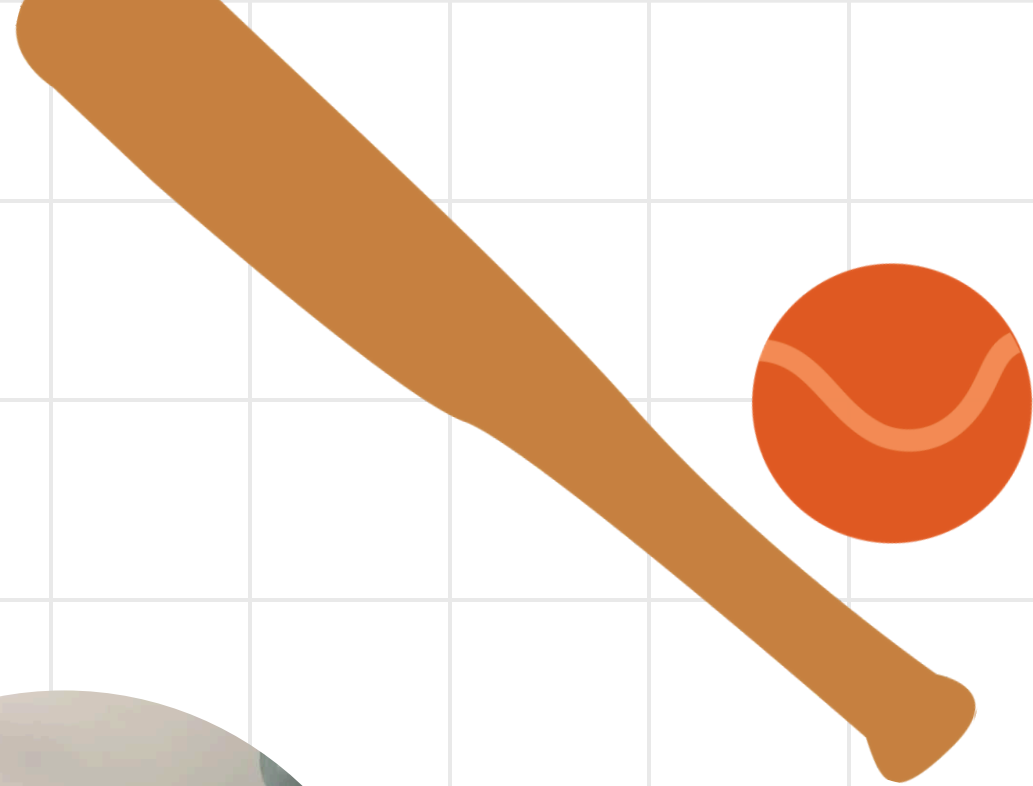


- 15 female collegiate lacrosse players (average height 5'6", weight 145 lbs. or 167.64 cm and 65.9 lbs.)
- **Exercise schedule (4d/ week)**- mod-vigorous training for 2h and light-moderate strength and cross-training for 1.5 h.
- **Preferences:** made in residence hall and citrus flavor



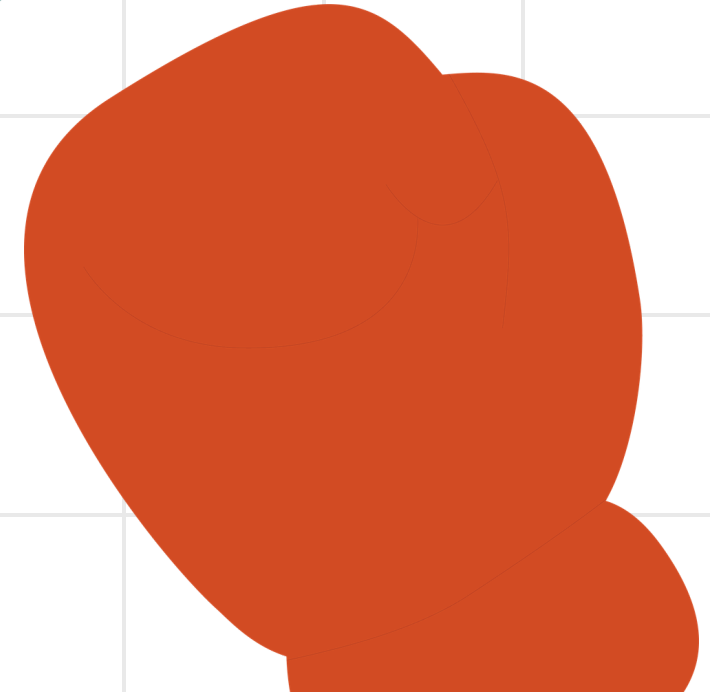
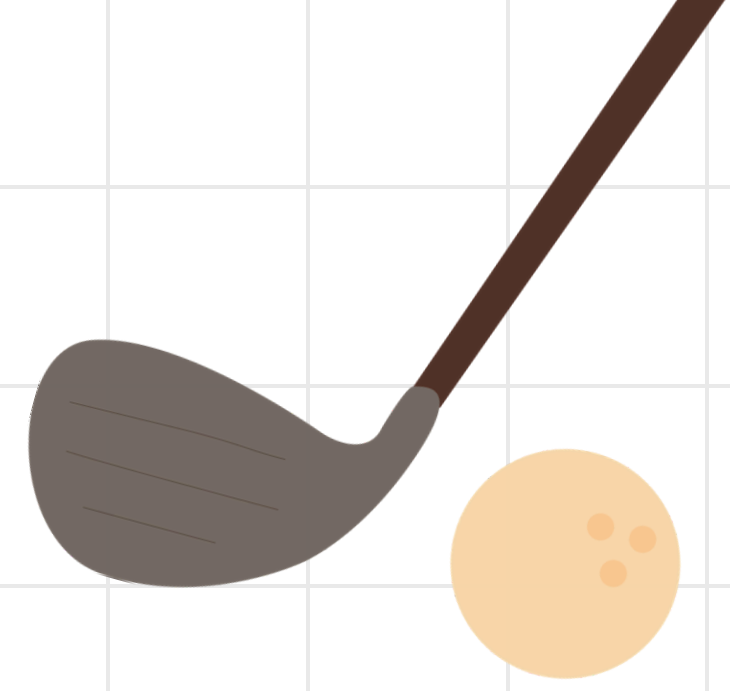
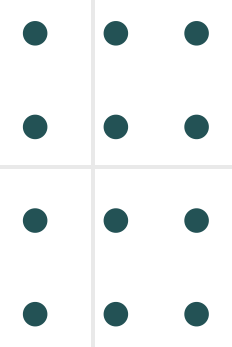
# NUTRITION CALCULATIONS

- **Harris Benedict Eq:** RMR=3,326 kcal
- **Liu Eq:** RMR= 3170 kcal
- **Mifflin St. Joer**= 3225
- **Macronutrients:**
  - **CHO**=(8g/kg) 576g, 2108 kcal, 65%
  - **Protein**= (6-10g/kg) ~110g, 440 kcal, 13.6-14%
  - **Fat**=(Remaining Kcal) 72.25g, 677.27 kcal, 21%.
- **Micronutrients:**
  - **Na:** > 1500mg/day (Higher for sweat loss)
  - **K:** 2,600 mg/day
  - **Ca:** 1,000 mg/day
  - **Mg:** 310-320 mg/day
  - **Fe:** 18 mg/day
  - **Vit D:** 600 IU/day





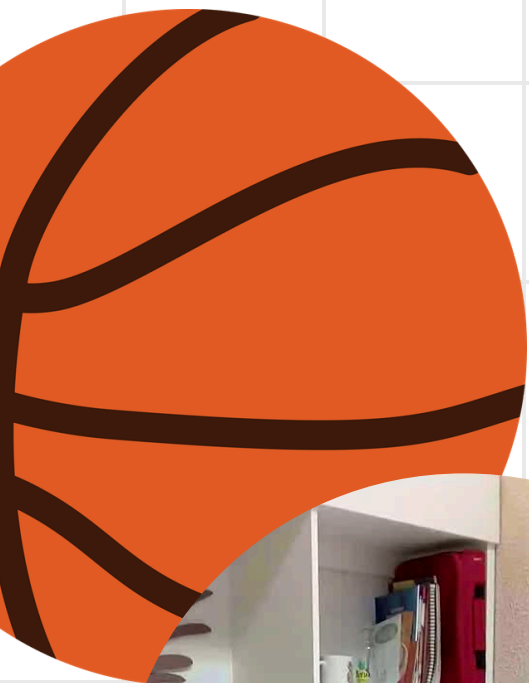
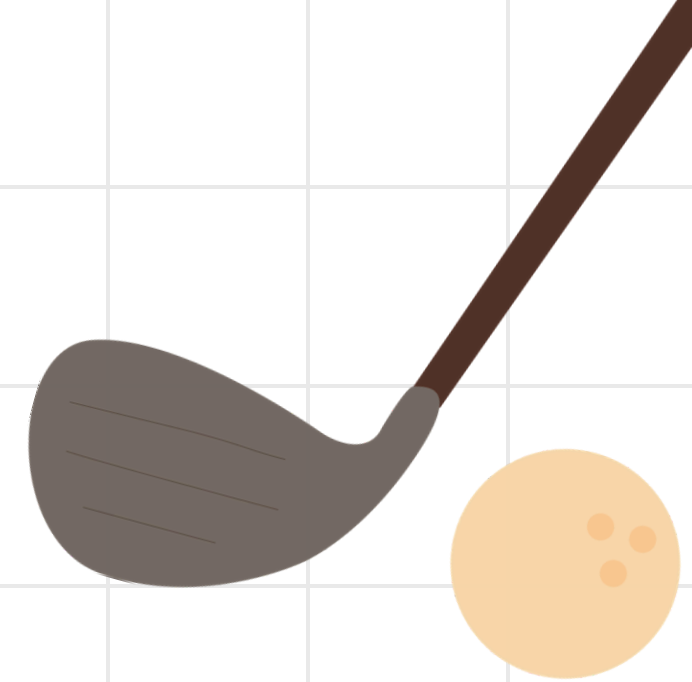
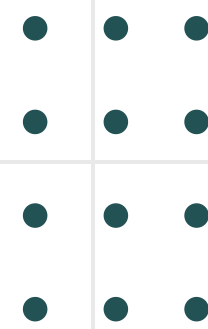
# SWEAT RATE + FLUID NEEDS



**Fluid DRI= 2.7/d or 95oz**  
**Sweat Rate=0.75 L/d or 25.3 oz/hr**  
**Fluids Needed Post Exercise: 0.9-1.1 L**  
**Fluid Needs: (Holliday- Seager Eq.) 3.23 L/d.**  
**Actual Fluid Needs: 3-5 L/d**



# ORS ANALYSIS (VS DR. D'S)



**Table Salt:** (lowered) ¼ tsp

**Nu Salt:** Removed Entirely

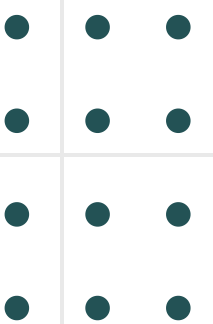
**Sugar:** (Replaced) 1 tbsp honey

**Citric Acid:** (added & reduced) added 4 fl oz fresh mandarin/ tangerine juice & 1 tsp fresh lime juice

**Water:** (Reduced) 12 fl oz

**Green Food Color:** Removed Entirely

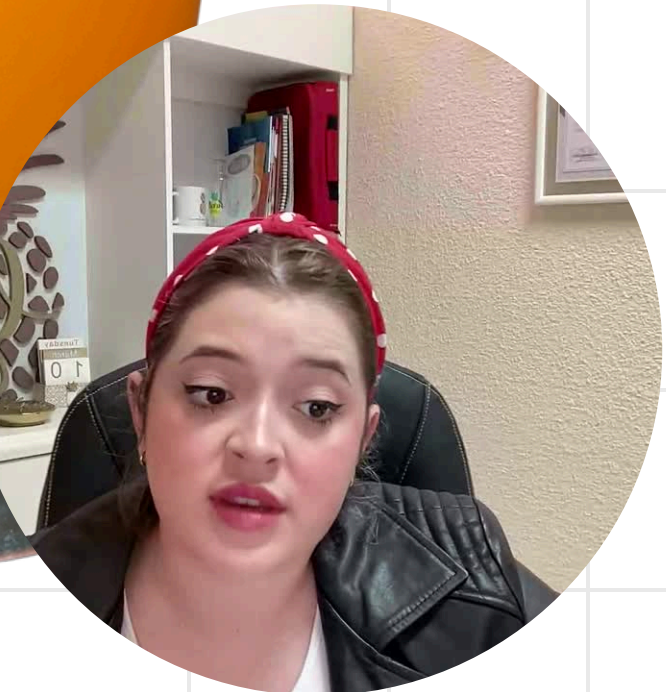
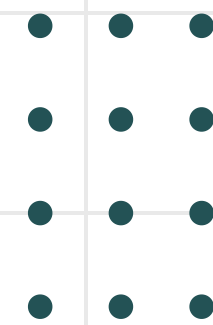


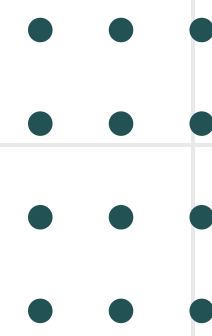


# OUR FORMULATION

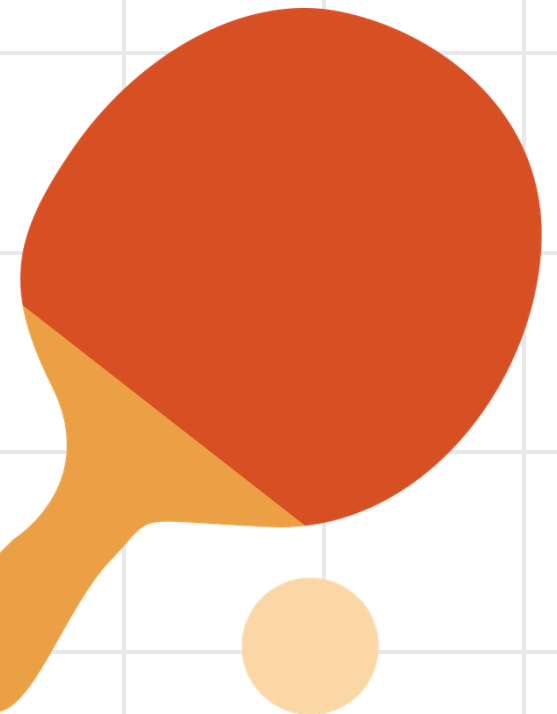
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- ¼ tsp Table Salt** -source of Na and Cl
- 1 tbsp Honey** -Source of CHO
- 4 fl oz fresh Mandarin/ tangerine juice** - natural CHO, K, flavor and fluid
- 1 tsp fresh lime juice**- acid to adjust flavor and reduce sweetness
- 12 fl oz cold water**-source of fluid



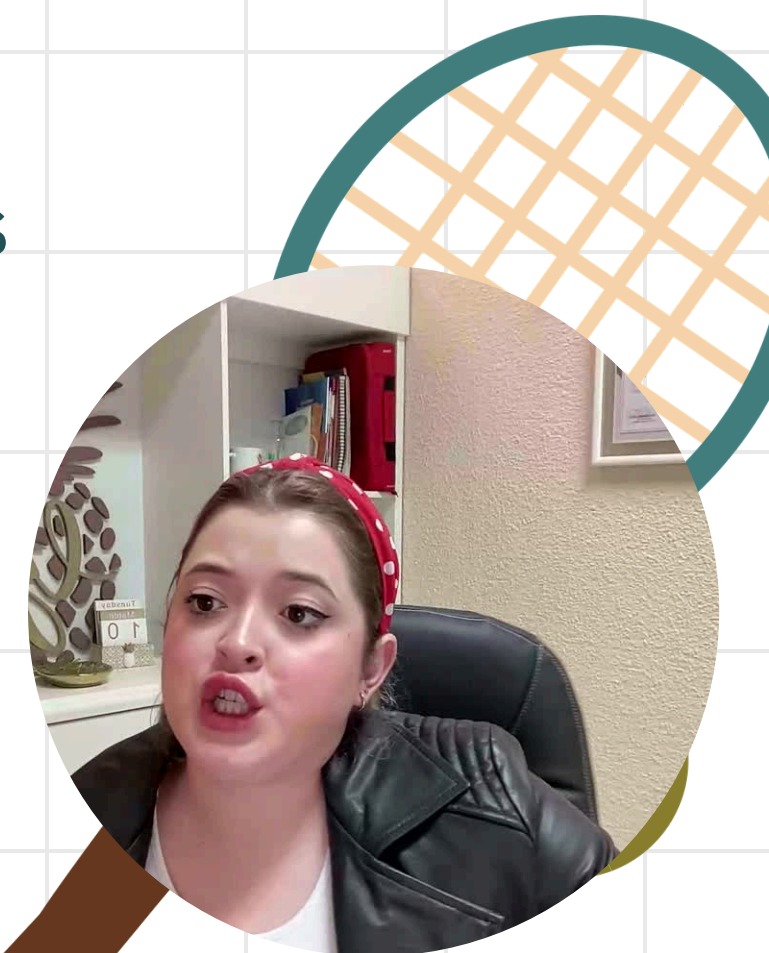
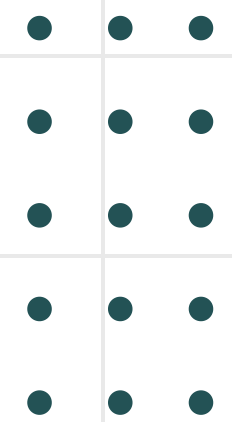


# COMMERCIAL COMPARISON

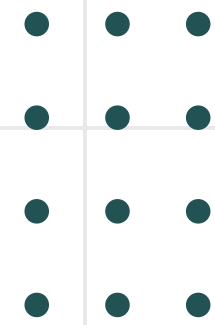


- **Gatorade:**
  - 591 mL serving
  - 140 kcal
  - 36 g CHO
  - 270 mg Na
  - 80 mg K

- **Does it fit their needs?**
  - **serving size:** yes
  - **flavor Preference:** yes
  - **Hydration support:** yes
  - **CHO Concentration:** yes

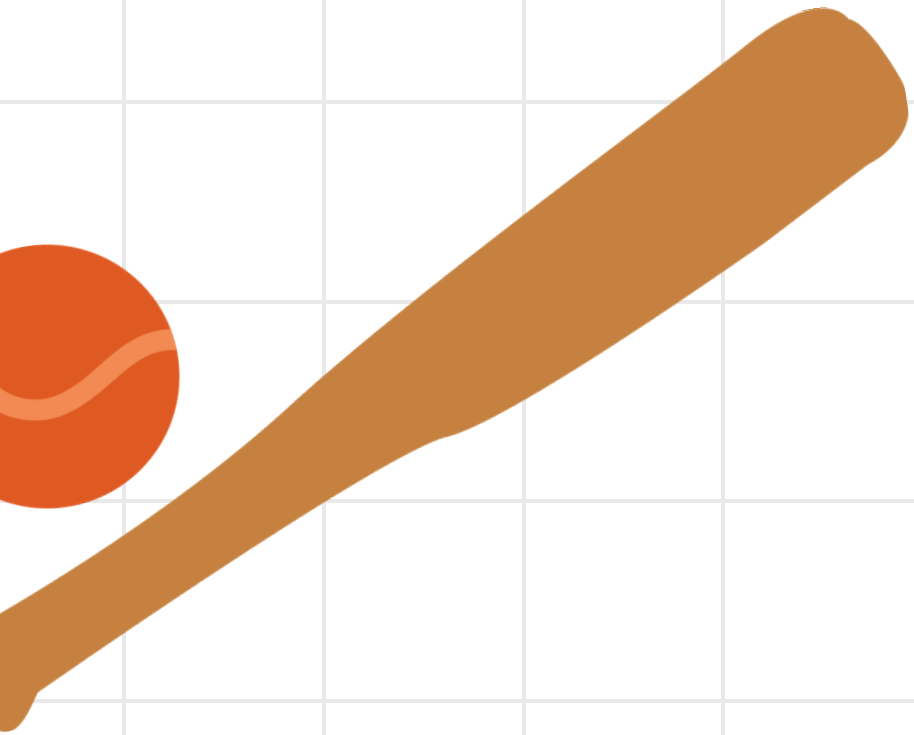
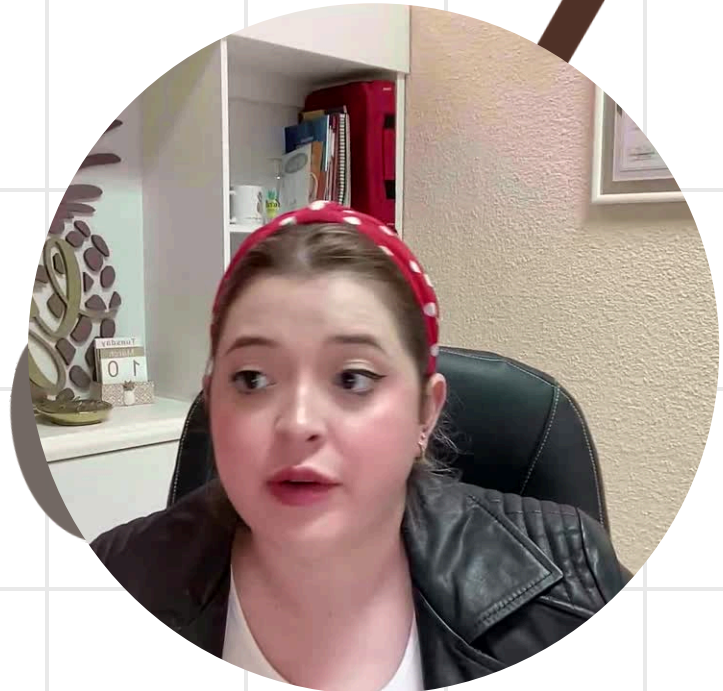
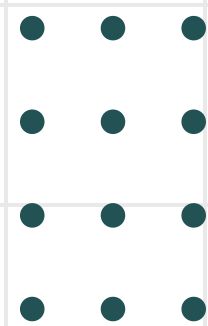


# SENSORY EVALUATION

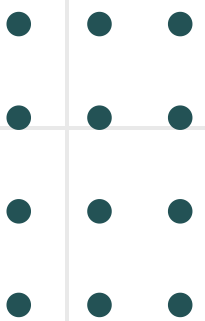


Taste: 88.8  
Sweetness: 88.8  
Portion Size: 100  
Saltiness: 90  
Flavor: 96.3  
Refreshing Quality: 100  
Acidity: 100  
Aroma: 97.5  
Aftertaste: 93.8  
Appearance: 100  
Overall: 96.3

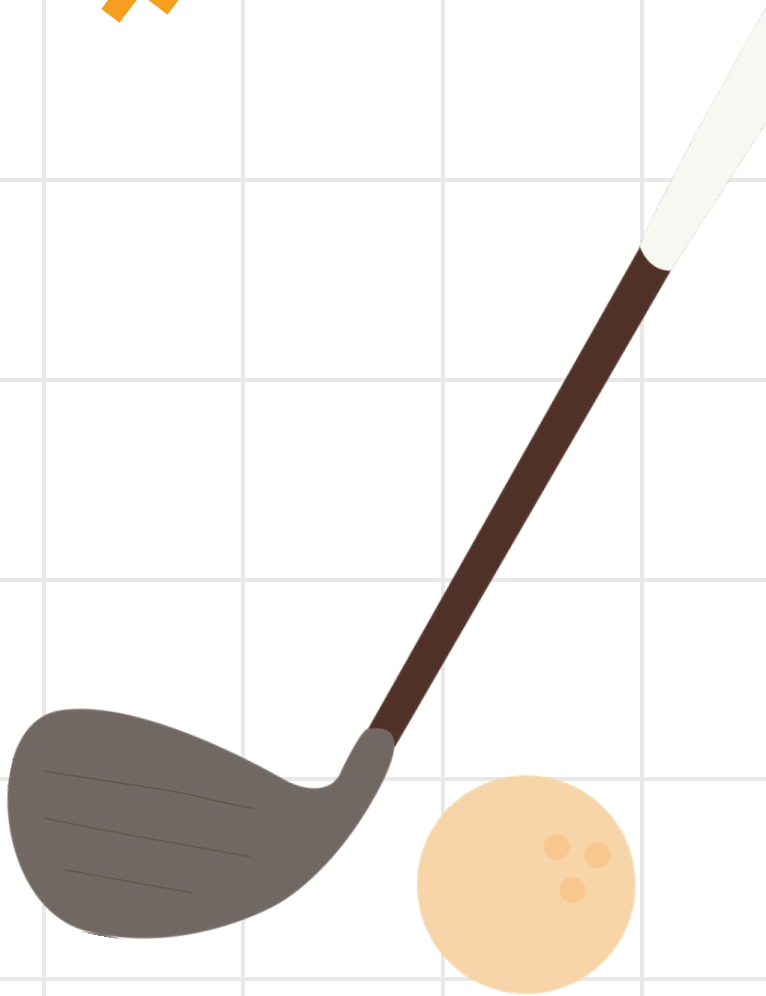
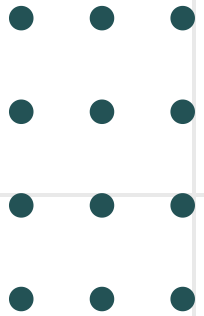
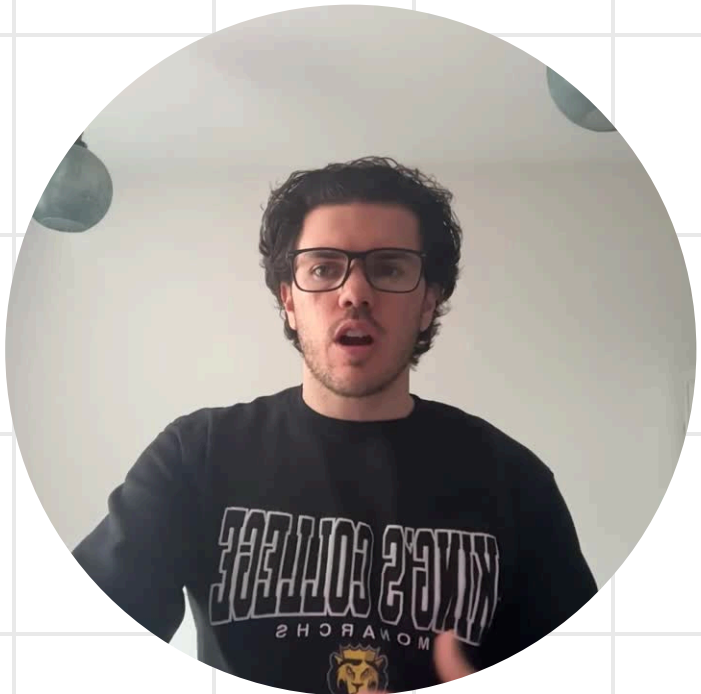
**Possible Changes:** Increase honey  
(improves sweetness and balance)



# COST EVALUATION

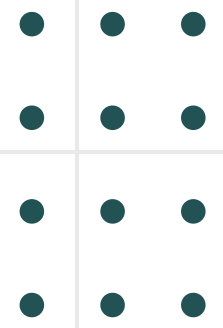


**Tangerine Juice 4oz: \$ 1.596**  
**1 tsp Lime Juice: \$0.25**  
**¼ tsp Salt: \$0.0014**  
**1 tbsp Honey: \$0.14**  
**12 oz water: \$0.13**  
**Total Cost 16 oz: \$2.12**

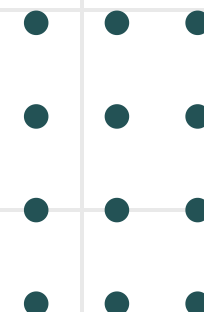
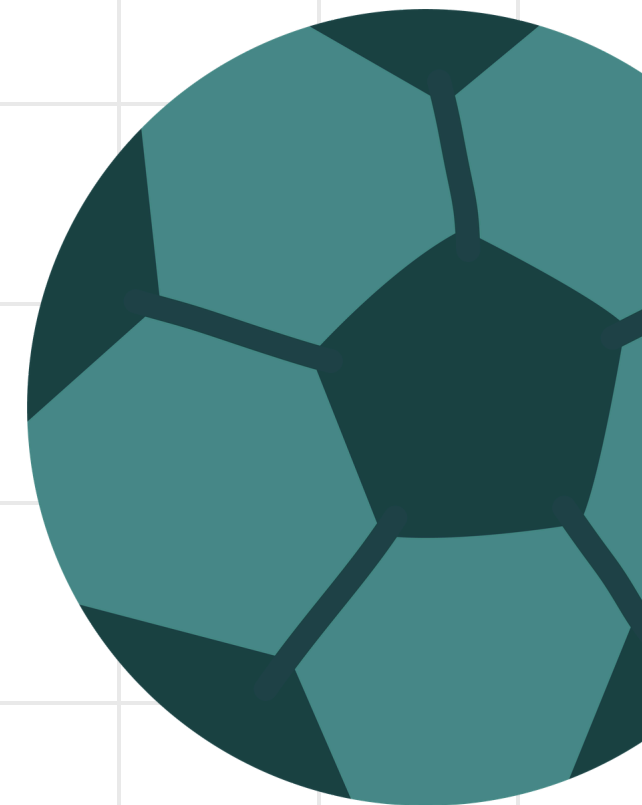




# FINAL EVALUATION/CONCLUSION

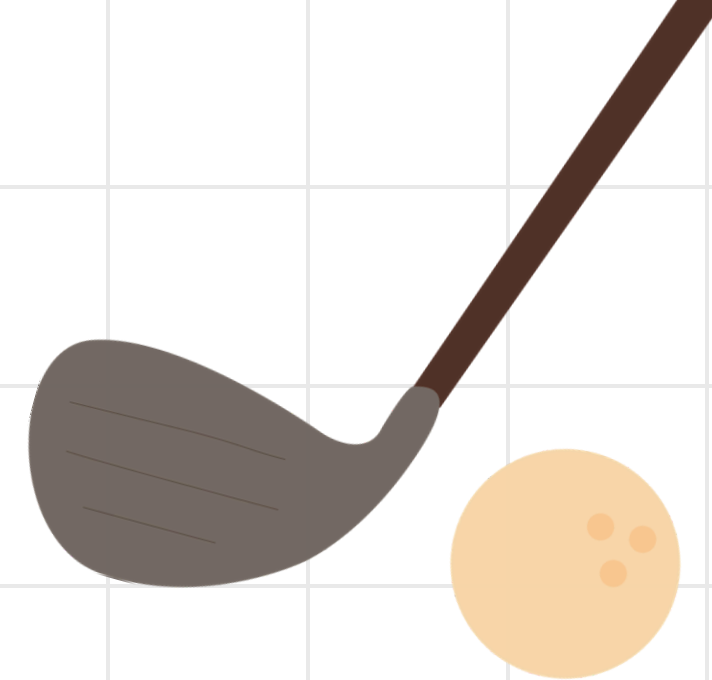
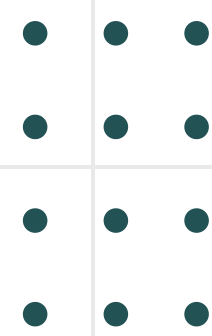


- 
- Golden Hour Hydration was a success
  - Changes that made it perfect:
    - Medical ORS to a personalized creation
    - Flavor enhancement
    - CHO and Na improvements
    - Affordable
    - Fan Favorite
    - Easy to Make
    - Aligns with there needs and preferences



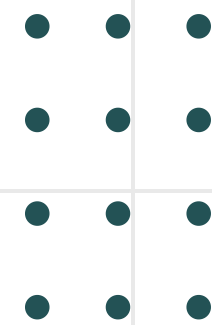
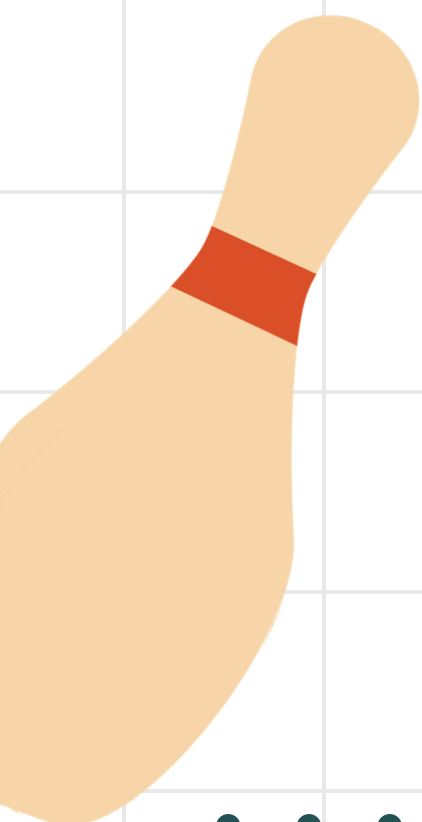
# × THANK YOU FOR YOUR ATTENTION!

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