

Dissolving Pills You Don't Want to Swallow

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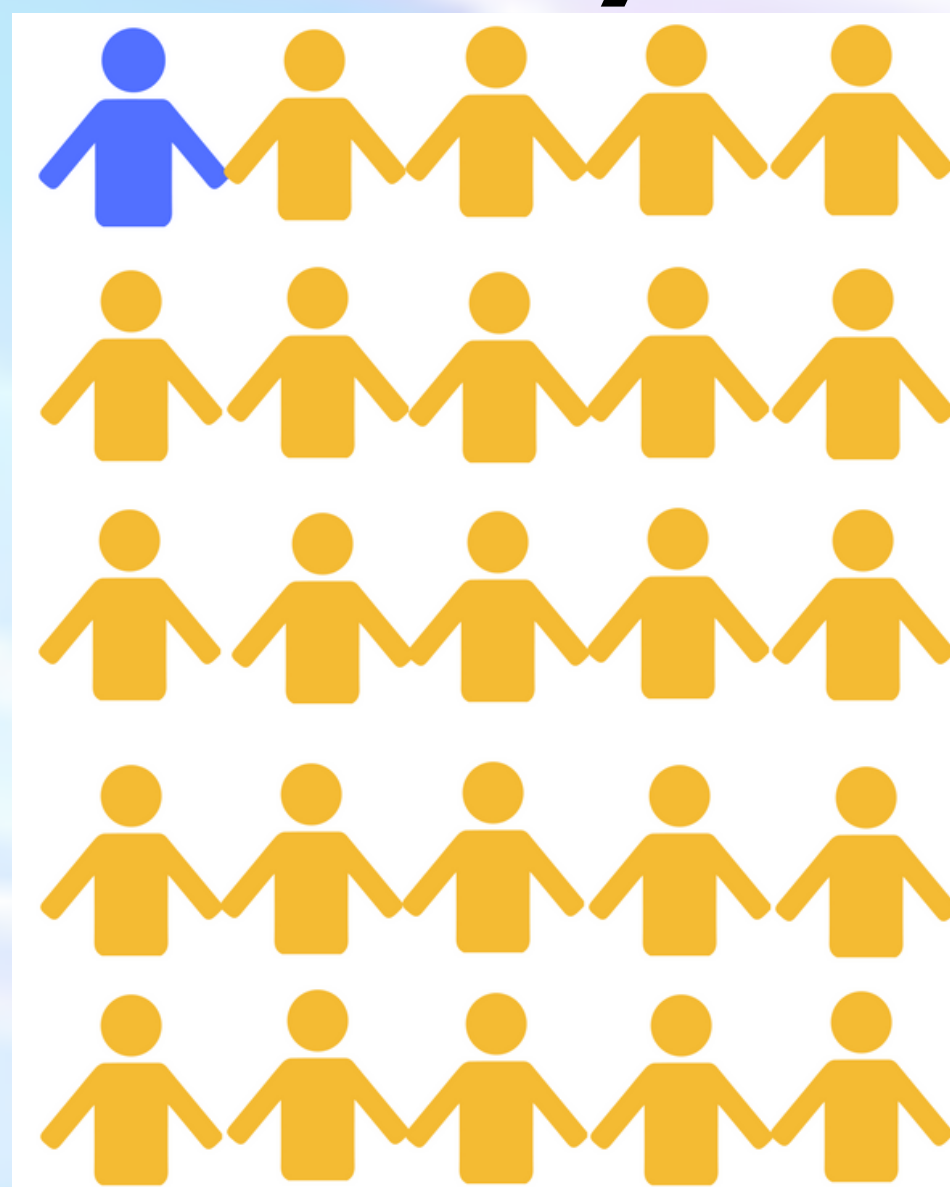
Why a Pill Dissolver

- Swallowing pills can be difficult for children or people with dysphagia.
- The current solution is placing a coating on pills to disguise the bitter taste of medicine. But, there is no available device with the ability to dissolve pills to make it easier for individuals to ingest.
- We created a prototype that **grinds** the pill and **dissolves** it in a solution to be ingested through a straw embedded into the dissolver cup.

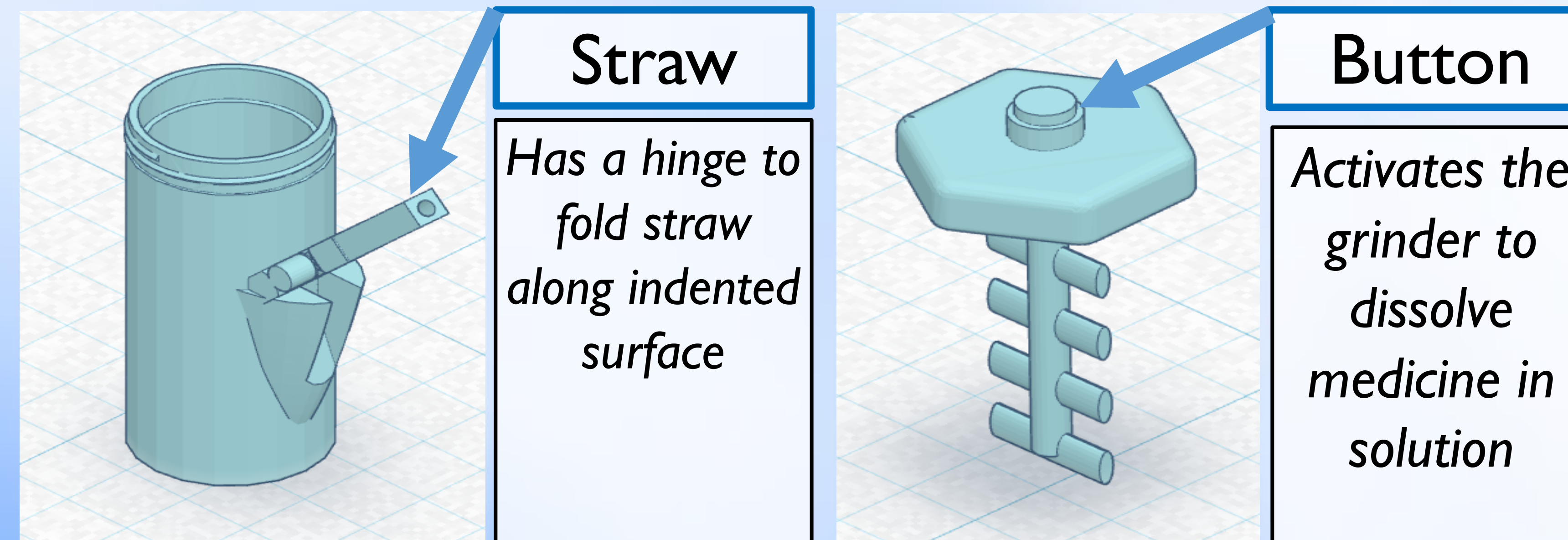


Introduction

- Targets children, elderly, and people with **dysphagia**.
- Dysphagia is another term for difficulty swallowing. There may be a problem with the individual's throat/esophagus or it could be a psychological issue.
- Each year, about **one in every 25 adults** will have difficulty swallowing (Adult Dysphagia).
- Thus, this problem is not exclusive to children.



Components

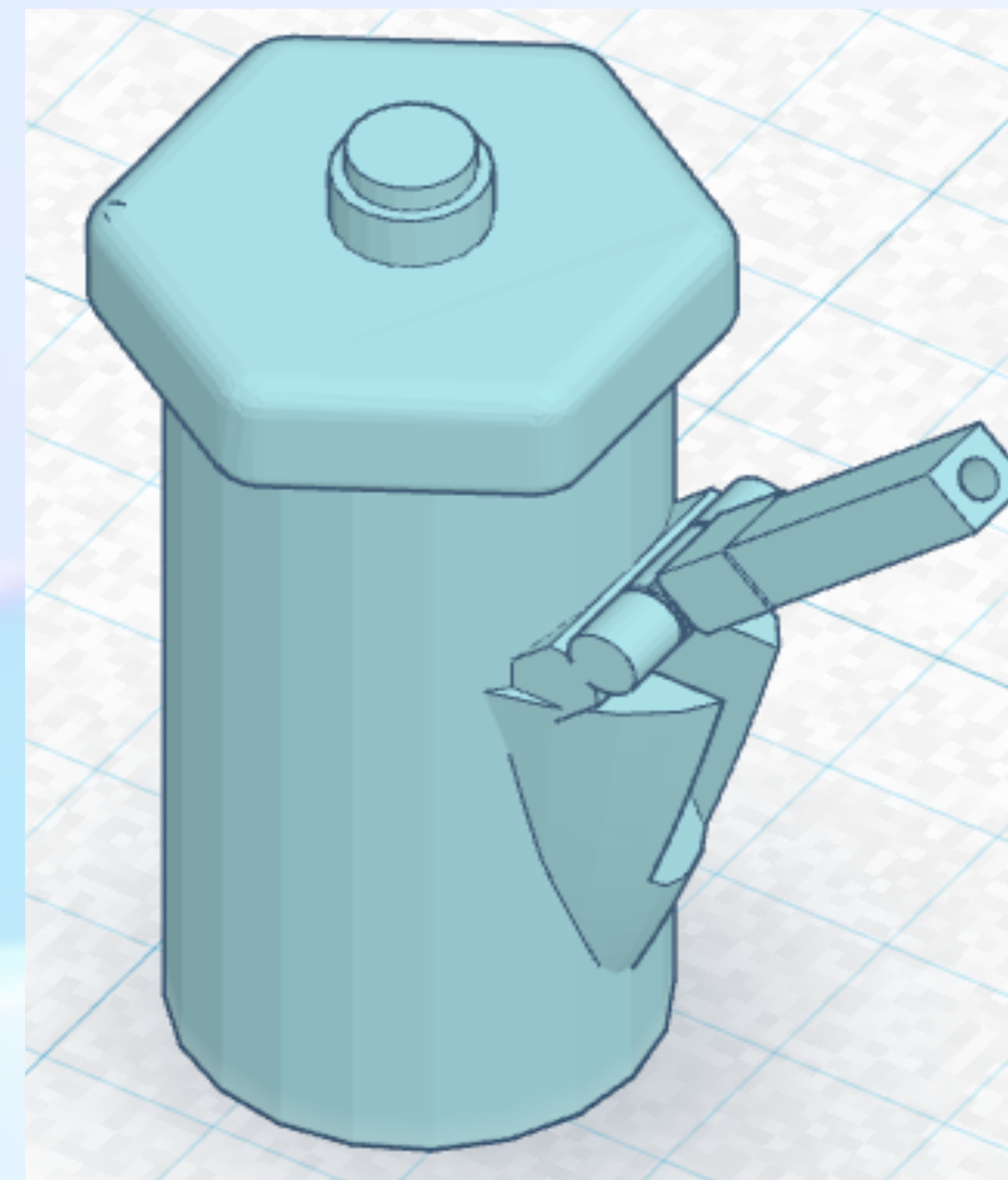


How it Works

- Pill is placed in solvent
- Lid shuts the bottle tight
- Button is pressed
- Grinder rotates, crushing pill
- Solvent dissolves further
- Medication is taken through the straw

Design Specifics

- Portable Capsule Design – similar to pill canisters
 - Base 2.5 in x 2.5 in; Height of 6 in
- Crushes pill to dissolve into liquid form
 - Target group drinks medication
- Useful for urgent situations
 - Portable
 - Can serve as water bottle when not taking medication
- Must rinse bottle after every use
- Must wash grinder for pill debris
- Easy to mass produce using an assembly line



Discussion of Constraints

- Difficult to prototype mechanical component within the button component
- Not all pills may be compatible
 - Toxicity of medication as it passes through esophagus
 - Lose time release function of pills
- Examples of effective pills
 - Water soluble medications
 - Vitamin B-Complex
 - Vitamin C
- Medical advisory sticker would be placed on each dissolver to advise patients about this hazard

Conclusion

- Further research must be done to determine which medications are water soluble and effective after dissolved
- To test for effectiveness, patients would answer a series of questions about whether design made it easier for them to ingest oral medicine.

References

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