Arthritis is the leading cause of disability in the United States.

In 2003, Arthritis was the highest claim for disability income. *

40% Of Americans 65+ Years

25% Of Americans 55-59 Years

25% Of Americans 45-49 Years

Arthritis is the highest reported disability in the United States. **

2010 2020 2030

In 2003, Arthritis and rheumatic conditions cost the U.S. economy $128 billion. ***

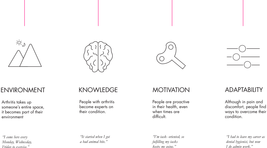
Once in Four - (21%) adults in the United States report having doctor-diagnosed arthritis. ***

Two-thirds - of the people that have doctor-diagnosed arthritis are under the age of 65. ***

An estimated - 20% (1 in 5) of Americans (46 million) with arthritis will report arthritis attributable activity limitations. ****

An estimated - 67 million of Americans aged 18 + are projected to have doctor-diagnosed arthritis. ****

Interview Insights:



ENVIRONMENT

Arthritis takes up someone's entire space, it becomes part of their environment

"I wake here every Monday, Wednesday, Friday in exercise."

"Most of the chores I do is housework."

"My cradle is at home, so I do most of my work there."

" I run a family."

KNOWLEDGE

People with arthritis become experts on their condition.

"It started when I got a bad animal bite."

"I get arthritis because of my celiac disorder."

"Changing my diet to vegan helped me."

"Chemotherapy was not working on me."

MOTIVATION

People are proactive in their health, even when times are difficult

"I'm social, oriented, in fulfilling my roles. Keeps me going."

"I do based exercises especially because I cannot walk."

"I like to find other ways: TV exercises, little gardening."

"I'd rather find other ways than medication."

"I forget about the pain when I am working on my art."

ADAPTABILITY

Although in pain and discomfort, people find ways to overcome their condition.

"I had to learn my career as dental hygienist, but now I do other work."

"I'm bad day I rest my hands more."

"When I have a flare up, I use a splint and I do my illustrations."

"I'm bad days I take more naps."

"When it hurts, I stop doing things that are hard on my hands."

"What I miss the most is doing things that I loved to do..."

The frustration of losing dexterity can take a toll on the human spirit, which can lead to the lack of motivation to move forward. From the adults with arthritis that I was fortunate to spend time with, I found that they were very proactive in exercise and pain management. More often though, they would talk about how arthritis had or was keeping them from doing the things they loved doing.

"My mother always said everyone looks better with a little makeup."

"Made my mother my pal home."

"Painting on medium is becoming difficult."

" I don't want anyone to do my made up for me."

Barbara, (main client) has had arthritis for the past 5 years

How do people put on make-up ?

non-arthritic

eyeliner:

all of the fingers/ parts of the hand can be used to maneuver eyeliner or all times

eyeliner:

eyeliner caps can be used to hold eyelid, mainly the thumb and index fingers to grip and the other fingers for support

lipstick:

the thumb and index fingers are used to hold the lipstick while also balancing on the middle finger during application

nail polish:

nail polish is also done with the thumb and index fingers, other fingers are curled up and can be used as support to

nail polish:

nail polish brush is used with the thumb and index the thumb and index fingers, other fingers are curled up

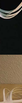
arthritis

eyeliner:

only a few fingers / parts of the hand can be used to maneuver eyeliner even before application

eyeliner:

to open eyeliner, hands must be wrapped around both sides to provide more strength for twisting



lipstick:

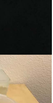
lipstick must be squeezed and held using one method of grip to avoid pain and discomfort

nail polish:

to apply nail polish without pain, hands are formed into a fist around the cap, making it hard to control

nail polish:

to open and pull out nail polish brush without pain, hands are formed into a fist, making it hard to maneuver

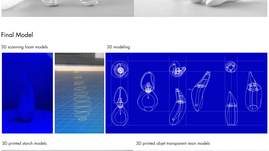


Empathy Research:

to understand how people with arthritis use their hands, I wore gloves and taped my joints during the majority of the design development process

Surface Area Experiments:

It was important to figure out where and how much surface area was covered when arthritic hands held forms, so while my joints were taped I pointed my hands to see where they would imprint on surfaces.



Design Criteria

COMFORT

The physical effects of arthritis, inflammation and pain, forms must be designed not to add discomfort

EASE OF USE

Holding everyday objects, opening jars, using both hands, proper affordances must be designed so there is no confusion on how to use the products.

EMPOWER

Disabilities can take a toll on self esteem, it is important to develop solutions that empower people to keep moving forward.

INDIVIDUAL

Arthritis requires people to be resourceful and uniquely adapt to the everyday, these attributes must be highlighted in the design.

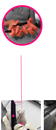
Form Inspiration

Arise products are inspired by aesthetic. Much like the products, the human hand is complex underneath them, Arise provides an outer protective layer to help arthritic hands get to their underlying task.

Experimentation:

Final Model

3D scanning foam models



3D modeling

3D printed starch models

3D printed clear transparent resin models