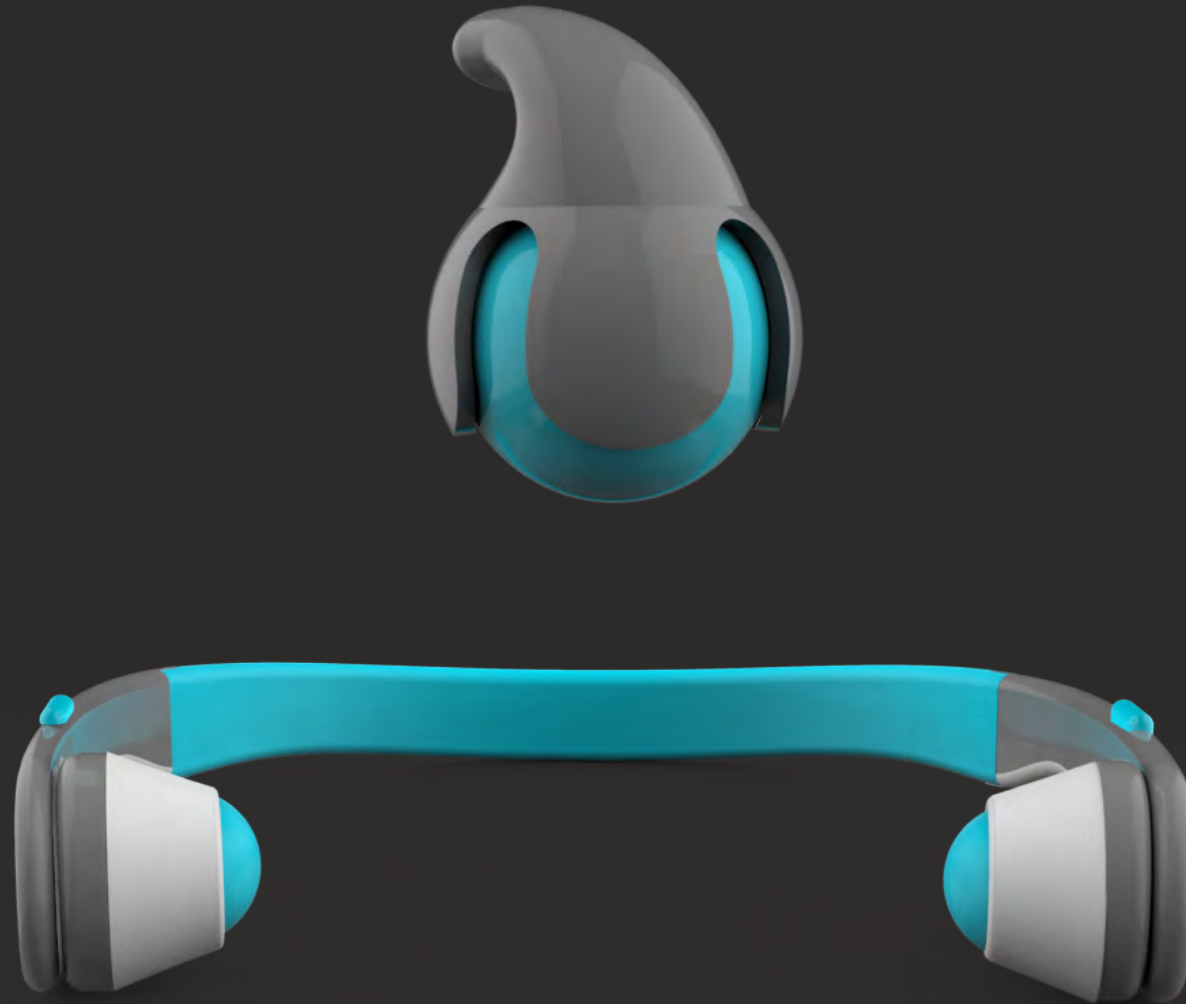
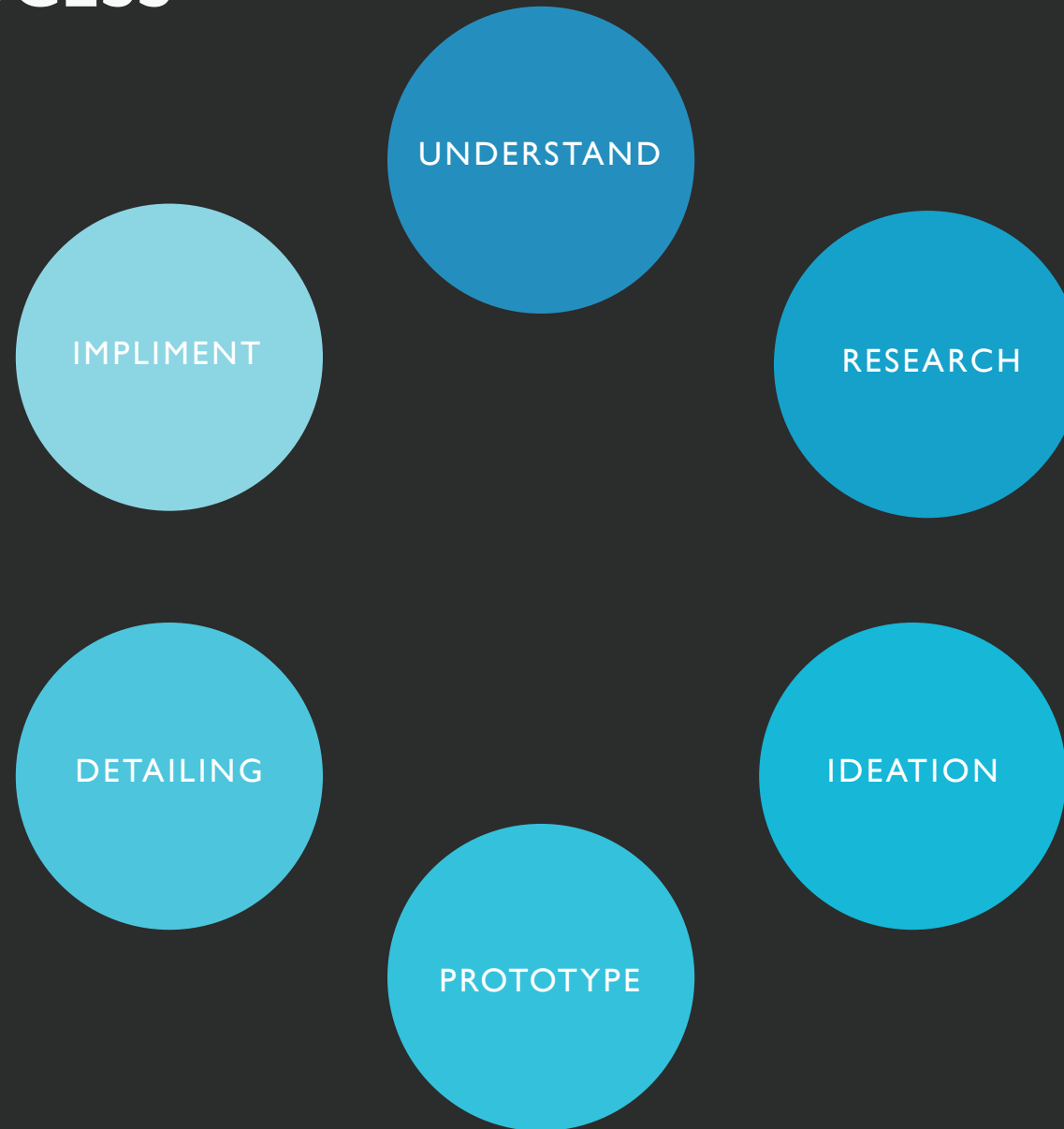


R E V I V E R



ENTRY NUMBER: 36-REVIVER

DESIGN PROCESS



PROBLEM STATEMENT

Migraines are a **neurological disorder** and currently have no cure.

When a migraine attack begins a person **does not** always have the **ability to leave** to address their pain, whether it be **school**, **a job**, or **a social gathering**.

How can I enable an individual to manage migraines so they don't have to remove themselves from daily life?



WHO IS AFFECTED?



6 - 13

Migraines can begin in people as young as **school-age** children.



14 - 18

Most commonly, the first migraine attacks begin in the **teenage years** and early twenties.



19 - 40

Generally these are the most productive **work years** in a human's life. Migraines are at there **worst** in this age group.



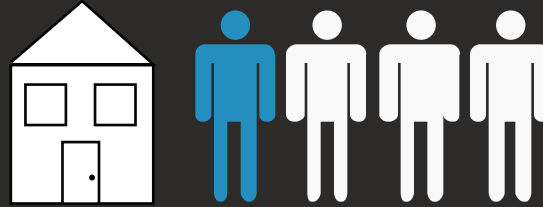
41 - 60

Generally migraines **improve** in peoples **fifties** and **sixties**.

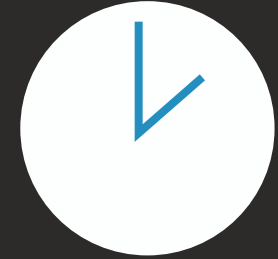
MIGRAINES IN THE U.S.

37 MILLION

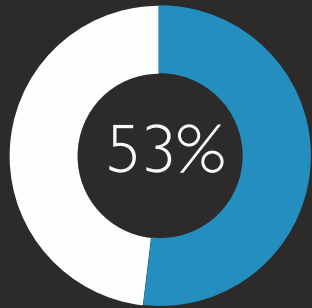
PEOPLE SUFFER FROM
MIGRAINES



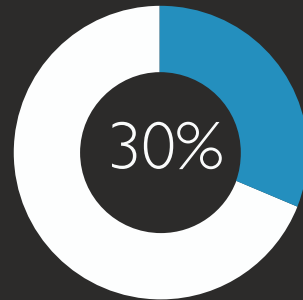
1 IN 4 ARE SUFFERING
WITH A MIGRAINE



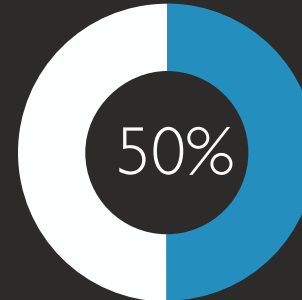
ATTACKS CAN LAST
4 TO 72 HOURS



REPORTED
IMPAIRMENT
IN ACTIVITIES &
REQUIRED BED
REST



MISSED AT
LEAST ONE
DAY OF SCHOOL
OR WORK



REPORTED
WORK OR SCHOOL
ACTIVITIES WERE
REDUCED



MEDICATION OVERDOSE
IS THE COMMON REASON WHY
EPISODIC MIGRAINE
TURNS CHRONIC.

EFFECTS OF CHRONIC MIGRAINE PAIN



DEPRESSION



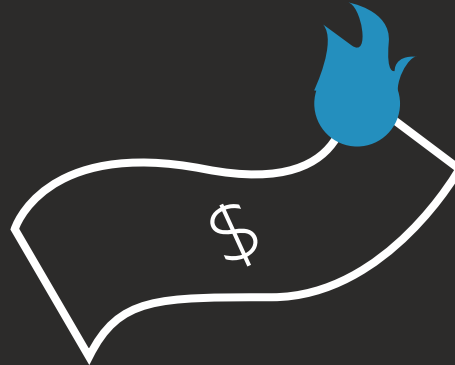
ANXIETY



LOSS OF RELATIONSHIPS
& FRIENDSHIPS



INSOMNIA



ECONOMIC LOSS

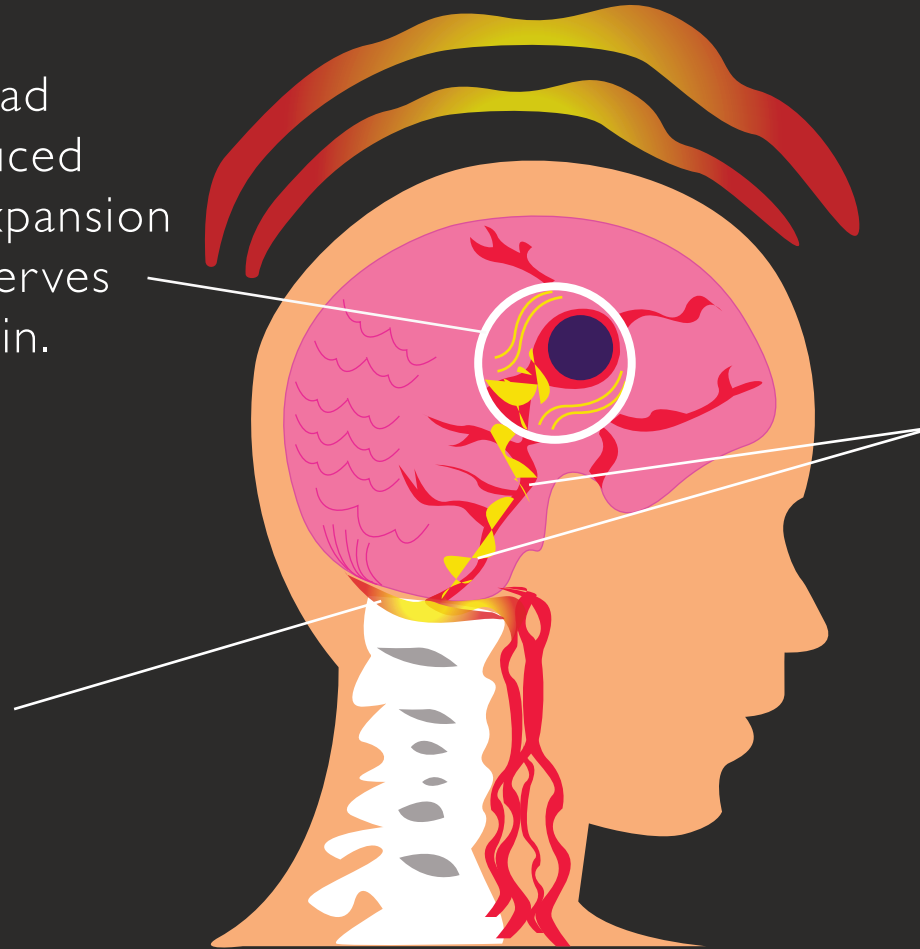


DEMINISHED
QUALITY OF LIFE

WHERE DOES THE PAIN COME FROM?

Blood vessels in the head expand to offset the reduced blood supply. The sudden expansion irritates the surrounding nerves causing the throbbing pain.

Misaligned vertebra or stressed vertebra can pressure blood vessels or irritate spinal nerves.



These pressured blood vessels reduce blood flow to the brain, the irritated nerves tell vessels to narrow further reducing blood flow.

PAIN LOCATIONS ARE EXPERIENCED DIFFERENTLY

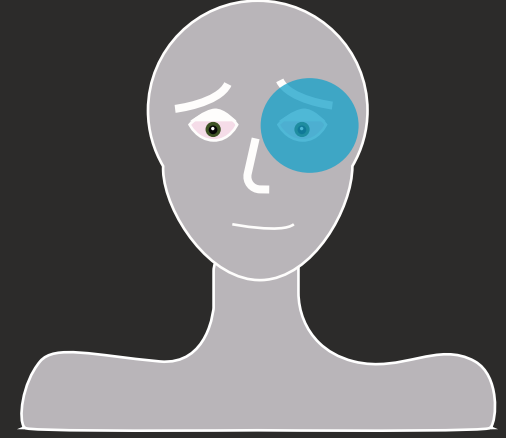
TEMPLES



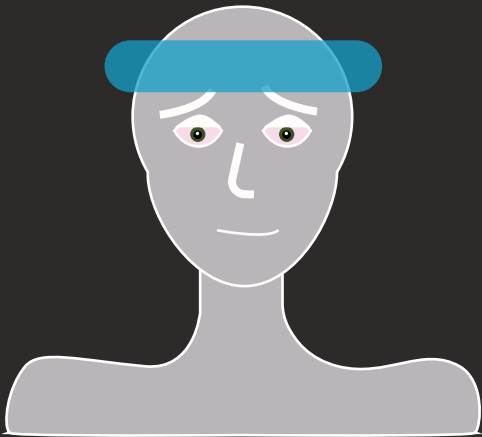
SINUS



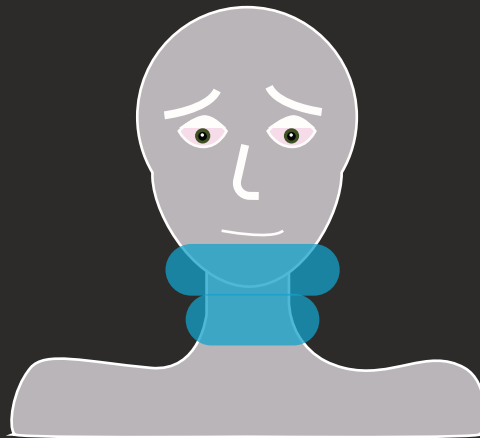
CLUSTER



TENSION



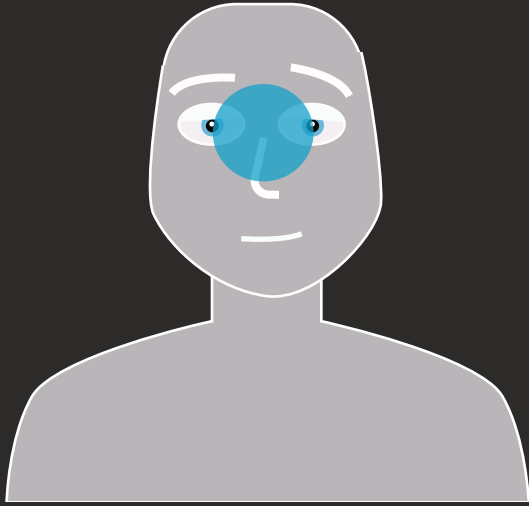
NECK



CHRONIC MIGRAINE



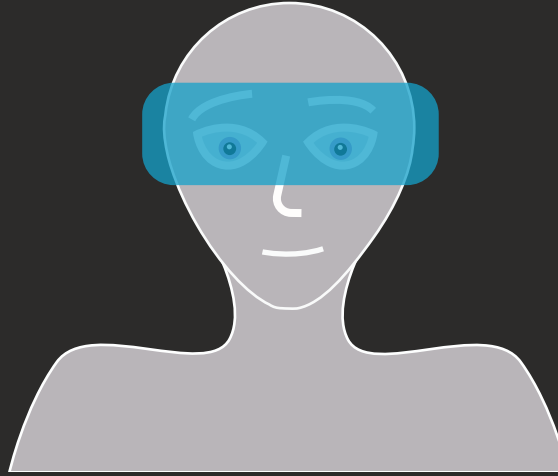
MIGRAINE EXPERIENCE IS INDIVIDUAL



SUBJECT A

MALE
35 YEARS OLD
CHRONIC MIGRAINES

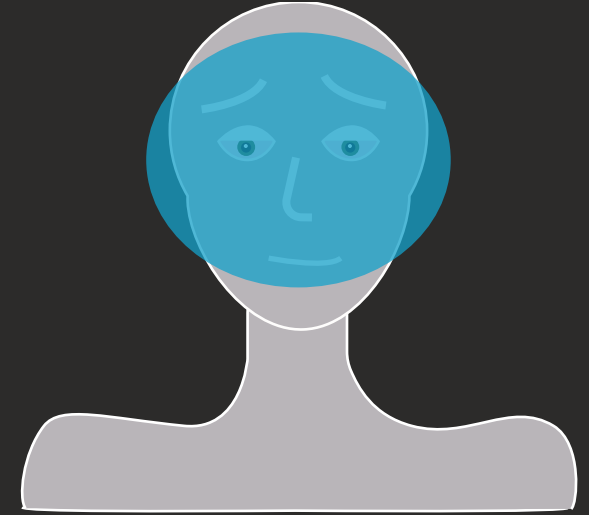
*"WHEN MY HEAD STARTS
TO POUND I LIKE TO
RUB MY THIRD EYE
POINT INBETWEEN MY EYES."*



SUBJECT B

FEMALE
28 YEARS OLD
CLUSTER MIGRAINES

*"WHEN THE PAIN IS RIGHT
BEHIND MY EYES I DESPERATLY
NEED TO COOL THE AREA. I
USUALLY USE ICE OR A PACK
OF FROZEN VEGETABLES."*



SUBJECT C

FEMALE
45 YEARS OLD
TENSION MIGRAINES

*"IF I START TO FEEL THAT
PAIN WRAP AROUND
MY HEAD SOMETIMES IT
HELPS TO MASSAGE MY
FACE. I MAKE LITTLE CIRCLES
WITH MY FINGERS."*

TRADITIONAL SOLUTIONS CURRENTLY AVAILABLE



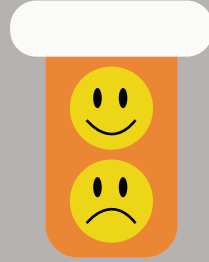
TRIPTANS

PROS

- IN A TABLET, NASAL SPAY, OR INJECTION
- HAS BEEN PROVED TO BE EFFECTIVE IN RELIEVING MIGRAINE SYMPTOMS

CONS

- NAUSEA, DIZZINESS, AND MUSCLE WEAKNESS
- CANNOT TAKE IF AT RISK FOR STROKE OR HEART ATTACKS



ANTIDEPRESSANTS

PROS

- EFFECTIVE IN PREVENTING MIGRAINES
- MAY REDUCE FREQUENCY OF MIGRAINES

CONS

- SLEEPINESS, DRY MOUTH, CONSTIPATION, AND WEIGHT GAIN
- SOME MEDICATIONS: CAN ALSO WORSEN OR TRIGGER HEADACHES



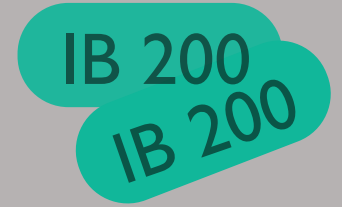
CARDIO-DRUGS

PROS

- CAN REDUCE THE FREQUENCY AND SEVERITY OF MIGRAINES
- POSSIBLE TO NOTICE IMPROVEMENT IN SYMPTOMS WEEKS LATER

CONS

- CANNOT USE BY THOSE WITH ASTHMA
- CAN SLOW THE HEART DOWN CAUSING DIZZINESS AND FAINTING
- ONSET DEPRESSION



IBUPROFEN

PROS

- CAN HELP RELIEVE MILD MIGRAINES
- OVER THE COUNTER

CONS

- NOT EFFECTIVE FOR SEVERE MIGRAINES
- IF TAKEN TOO OFTEN LEADS TO ULCERS, GASTRO-INTESTINAL BLEEDING, AND OVERUSE HEADACHES

ALTERNATIVE SOLUTIONS CURRENTLY AVAILABLE



NATURAL HERBS

PROS

- THERE IS SOME EVIDENCE THAT BUTTERBUR MAY PREVENT MIGRAINES OR REDUCE THEIR SEVERITY

CONS

- CANNOT TAKE LONG-TERM (SAFETY CONDITIONS)



MASSAGE / ACCUPRESSURE

PROS

- MASSAGE THERAPY HELPFUL IN REDUCING THE FREQUENCY OF MIGRAINES
- RELAXING
- CIRCULATION OF BLOOD
- HELPS WITH SLEEP CYCLE
- CAN APPLY TREATMENT AT HOME

CONS

- CAN BE PAINFUL
- FREQUENCY OF VISITS



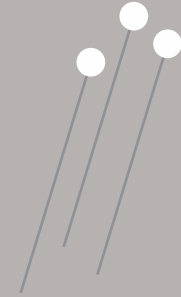
BOTOX

PROS

- BOTOX CAN PREVENT HEADACHES AND MIGRAINES.
- WAS PROVEN EFFECTIVE AT 24 WEEKS FOR CHRONIC MIGRAINERS

CONS

- 2 TREATMENTS, 12 WEEKS APART PAINFUL 31 INJECTIONS PER VISIT
- FACE AND NECK CAN BE STIFF FOR A FEW WEEKS



ACCUPUNCTURE

PROS

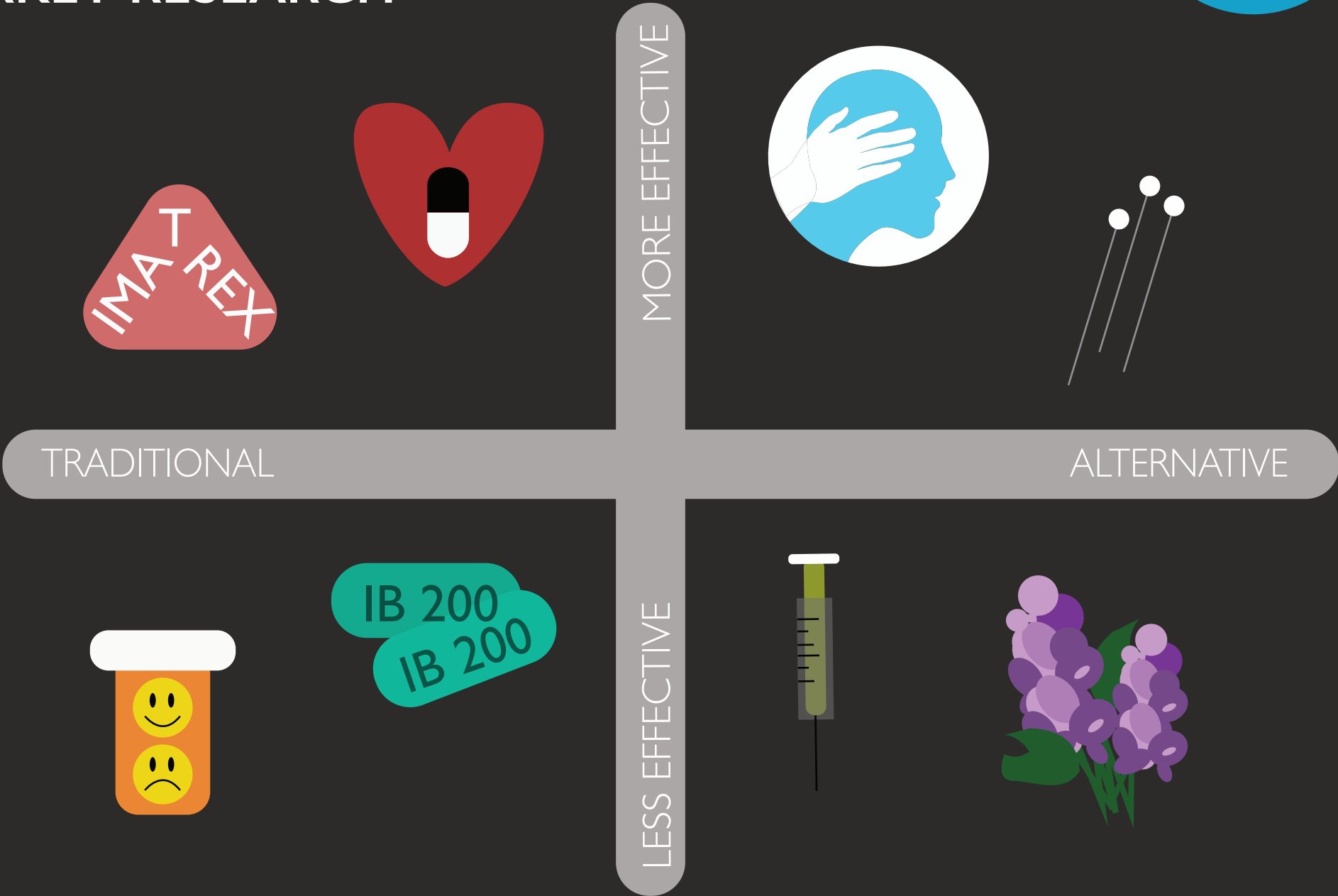
- CLINICAL TRIALS HAVE FOUND THIS TREATMENT MAY BE HELPFUL FOR MIGRAINE PAIN
- NO SIDE EFFECTS
- CAN BE ZEN AND PEACEFUL

CONS

- NEEDLES
- FREQUENCY OF TREATMENTS

MARKET RESEARCH

RESEARCH



MASSAGE / ACCUPRESSURE DIRECTION

- THIS WAS THE DIRECTION I CHOOSE TO PURSUE
- THE AREA I FELT I COULD HAVE THE BIGGEST IMPACT ON A MIGRAINE SUFFERERS LIFE



PROS

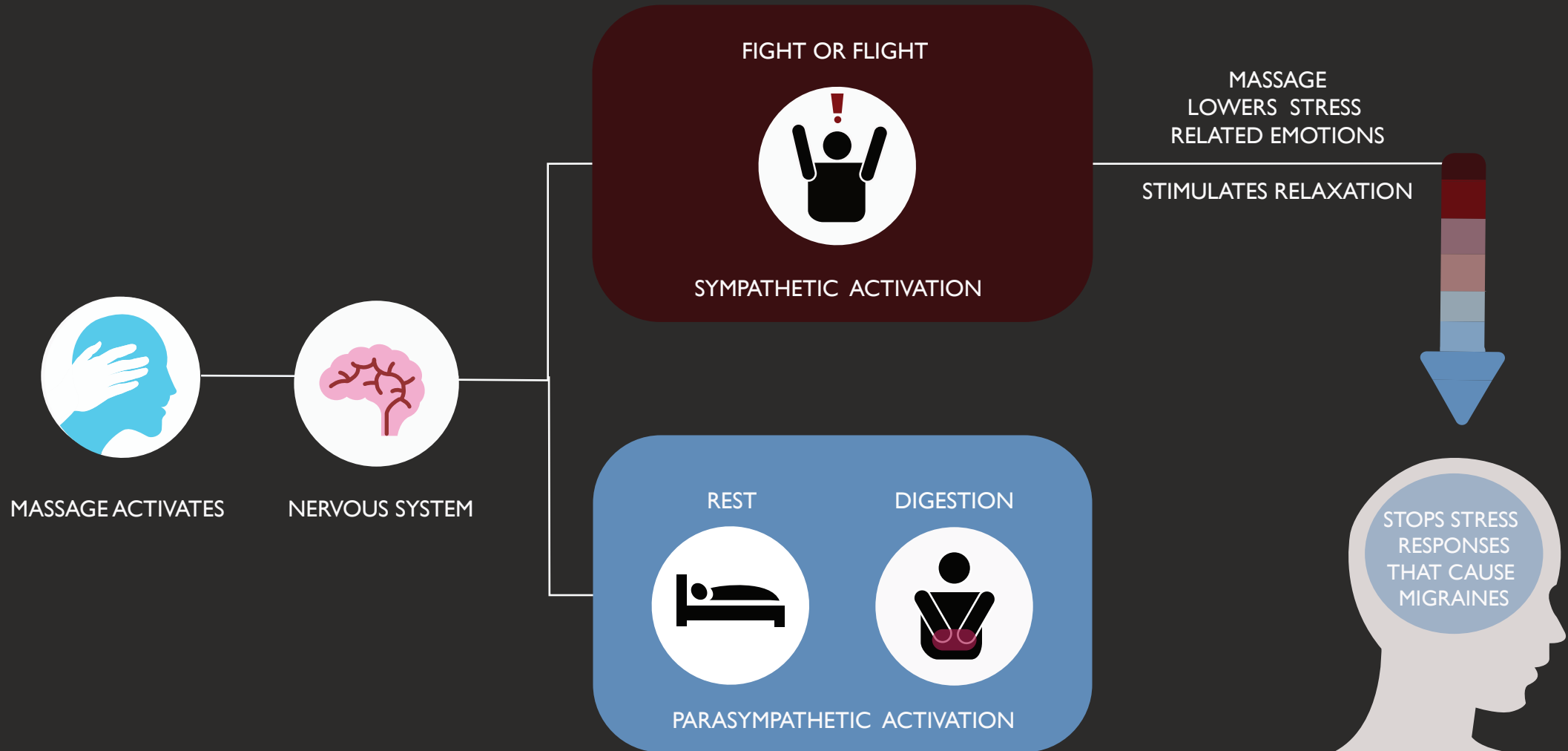
- MASSAGE THERAPY HELPFUL IN REDUCING THE FREQUENCY OF MIGRAINES
- RELAXING
- CIRCULATION OF BLOOD
- HELPS WITH SLEEP CYCLE
- CAN APPLY TREATMENT AT HOME

CONS

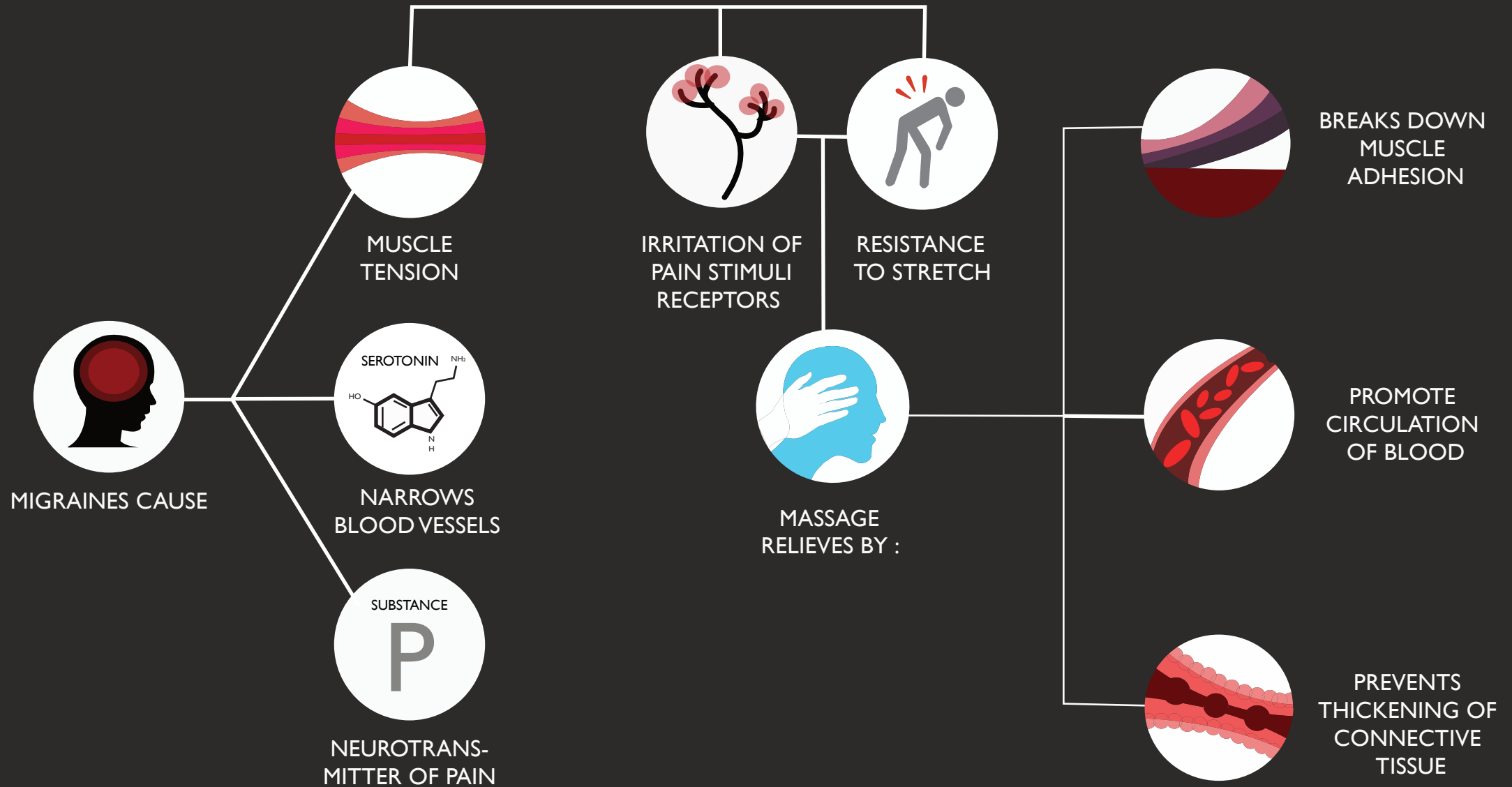
- CAN BE PAINFUL
- FREQUENCY OF VISITS

MASSAGE CAN HELP CHANGE THE WAY YOUR BODY RESPONDS TO STRESS

*"... there is growing evidence of its health benefits."
American Psychologist & Psychological Bulletin*



MASSAGE CAN HELP ALTER MIGRAINE PAIN

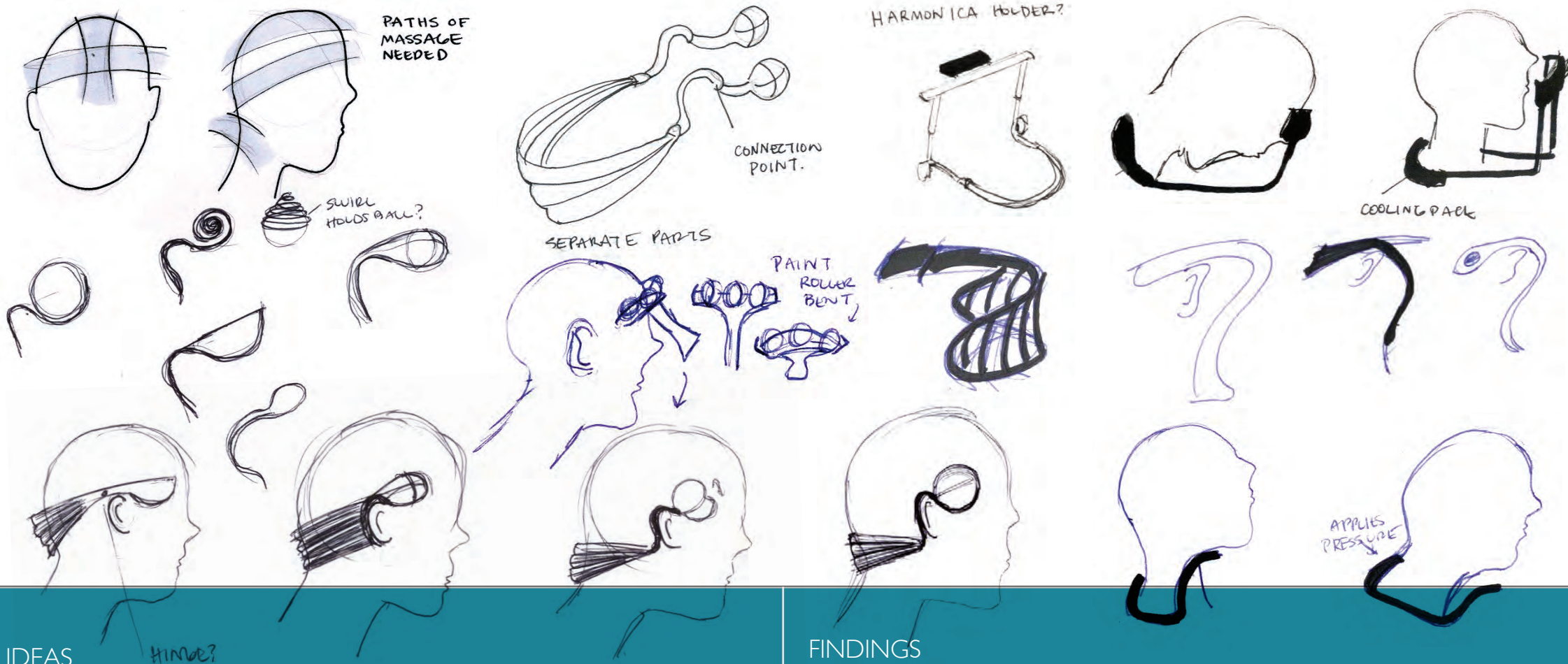


MASSAGE MIND MAP

IDEATION



CONCEPT EXPLORATION



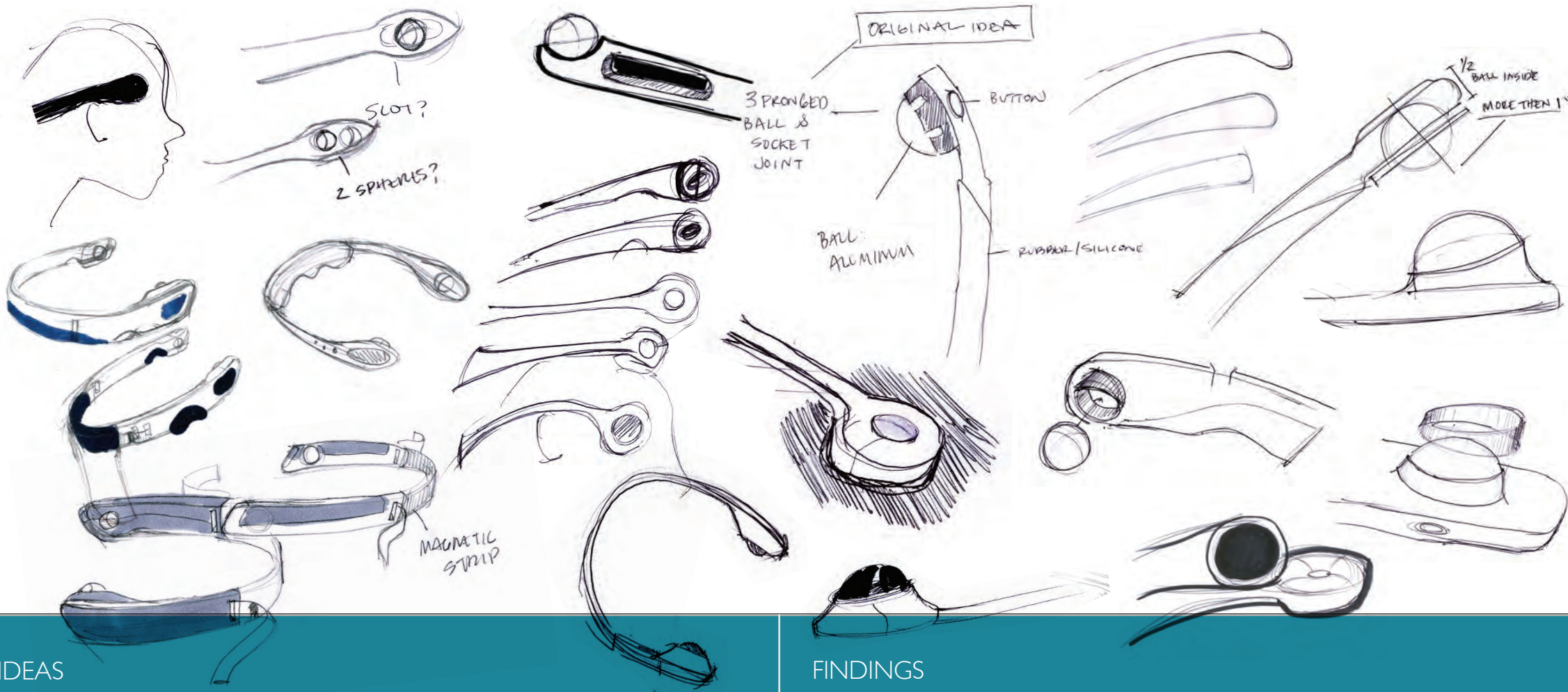
IDEAS

- Isolated areas migraine sufferers **applied pressure** to **relieve pain**
- Explored **forms** to hold **massage spheres** for **temple** area
- Discovered a device that could be **activated** by **head motion**

FINDINGS

- Head motion with a migraine would cause more **pain** then **relief**
- Form for **temple spheres** needed **further development**
- How can I make a device to **target all the areas**? Give the user more **choices**.

DEVELOPMENT OF TEMPLE MASSAGER



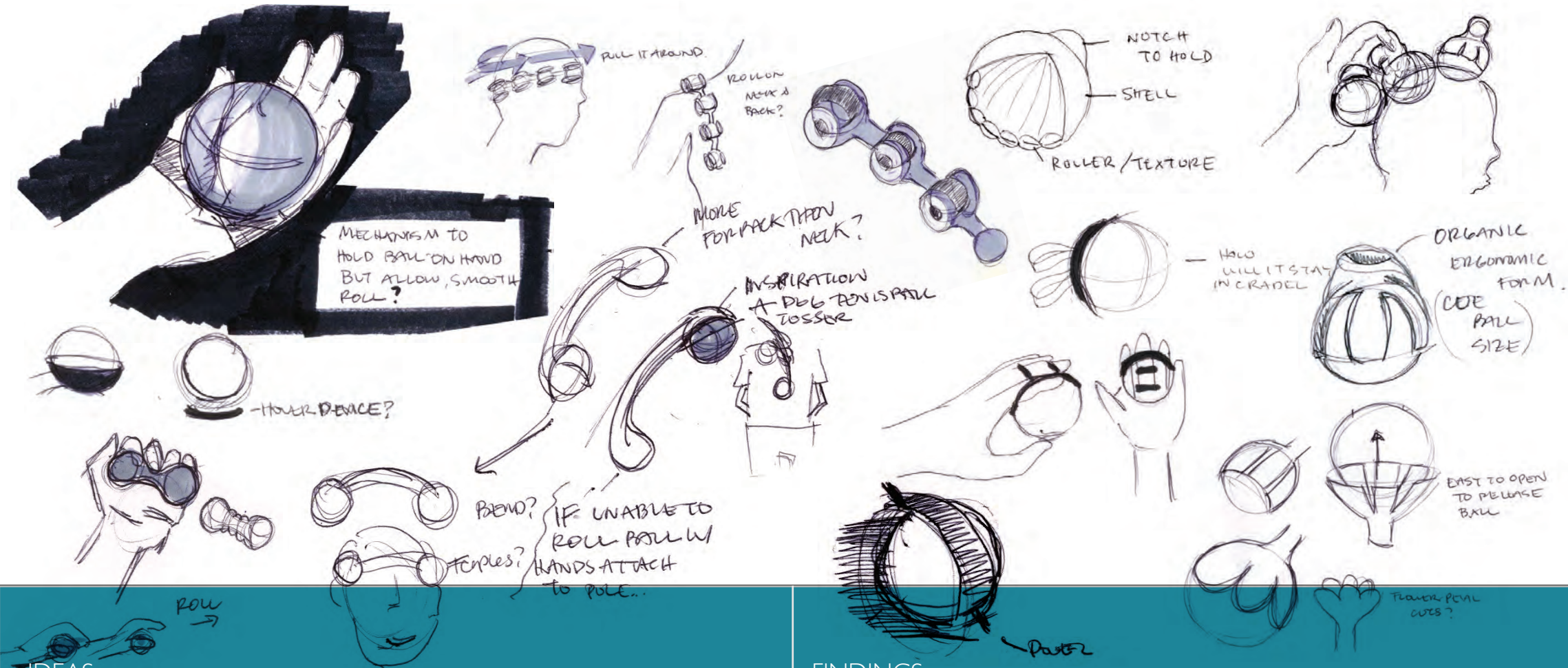
IDEAS

- Further developed **hands free** temple massager
- Elimination ice pack on neck & **spheres** became **cooling/heating** element
- Sketched square and circular profiles (temple massager)
- Discovered **ball and socket** designs for sphere to **freely rotate** in device

FINDINGS

- Pondered another product to work together with this device.
- Decided on a **circular profile** for temple massager.
- Curve in profile of temple device to accomodate users' ears.
- Finalized a ball and socket design involving a **magnetic ring**.

DEVELOPMENT OF SPHERE MASSAGER



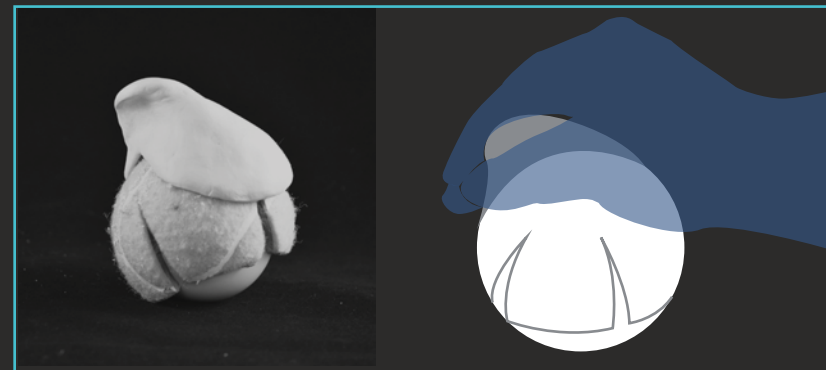
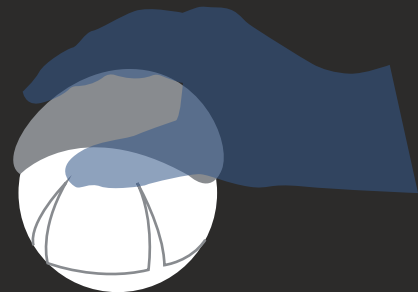
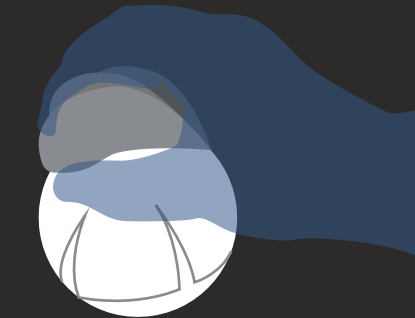
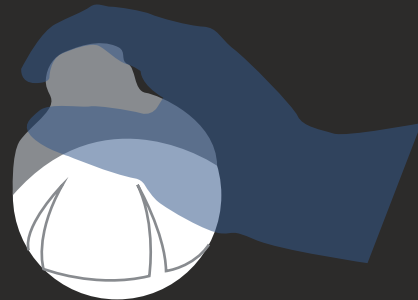
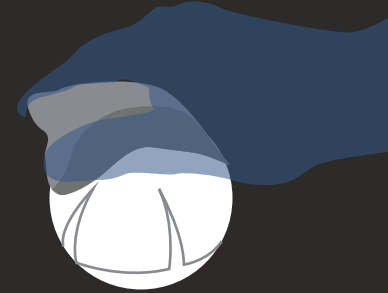
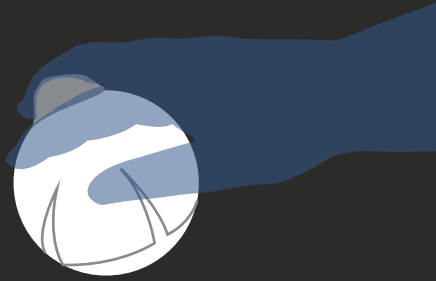
IDEAS

- Explored **forms** around a **rotating sphere**
- Further explored **handles** for **sphere** & how it's held by the user
- Searched for a way to **hold** a **sphere**

FINDINGS

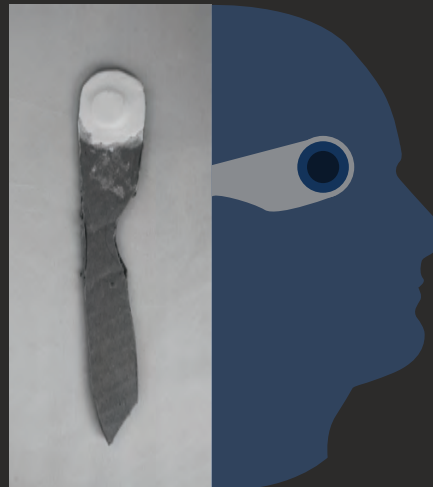
- Decided to continue with a **hand-held** design
- Choose a **ball and socket** joint that had **slits** for **360 degree** rotation
- Decided on an **ergonomic handle** for a comfortable grip for users

STUDY MODELS FINDING THE PERFECT GRIP



- ERGONOMIC HANDLE
- CREATED FOR RIGHT AND LEFT HANDED USERS
- FIT BEST WHEN MOVING SPHERE ON FACE & BODY

STUDY MODELS FINDING THE PROFILE



- ORGANIC SHAPE TO REST ON EARS IS LIGHT AND COMFORTABLE
- CONCAVE CIRCLE ON SIDE INDICATES USER TO PUSH TO MASSAGE
- CIRCULAR SHAPE COMPLIMENTS BRAND AESTHETIC

FEATURES

WIRELESS CHARGING WITHIN EACH SPHERE

MAGNETIC RINGS

ALUMINUM EXTENSION TABS

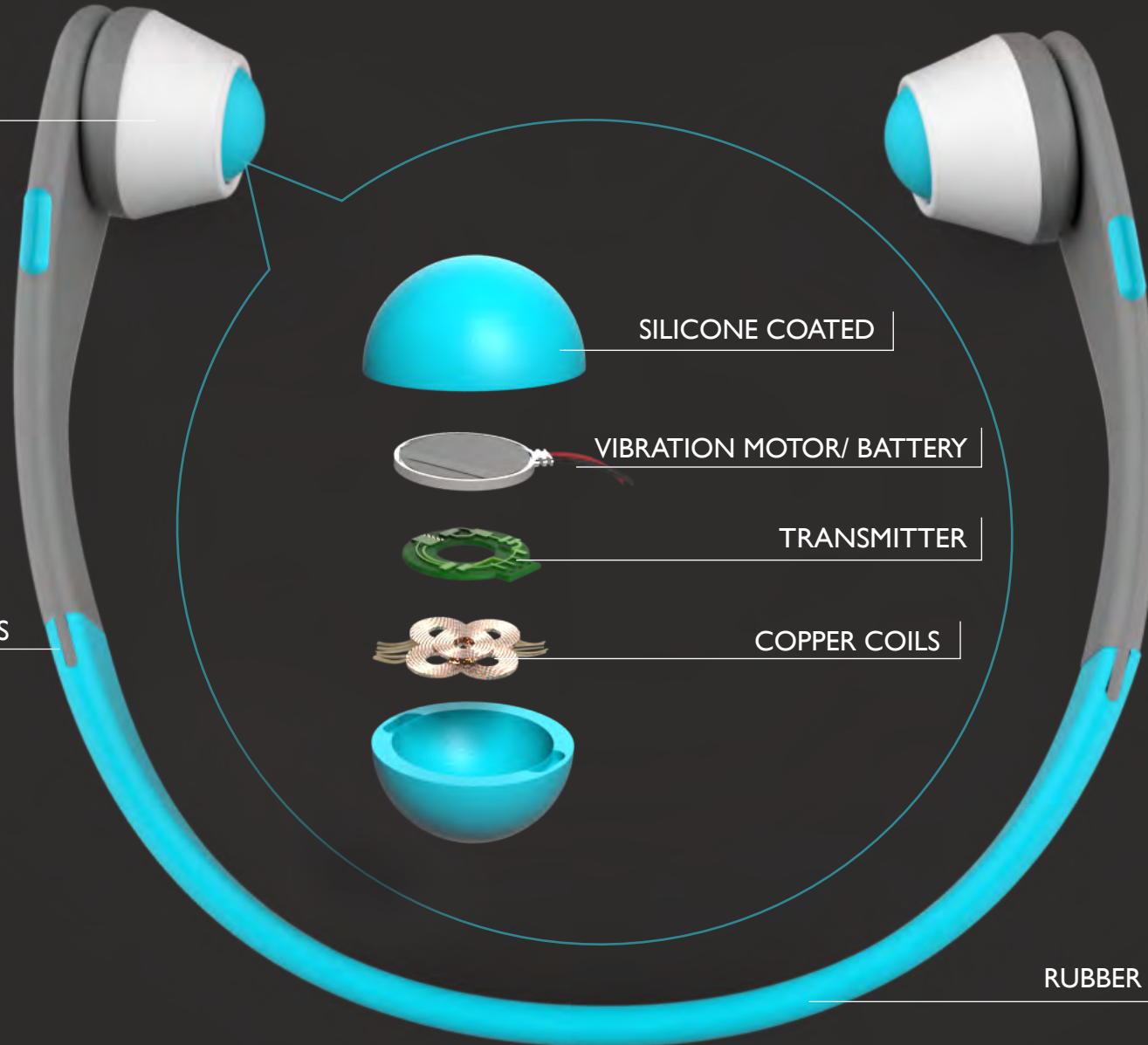
SILICONE COATED

VIBRATION MOTOR/ BATTERY

TRANSMITTER

COPPER COILS

RUBBER COATED NECK & EAR RESTS



FEATURES

REFRIGERANT GEL

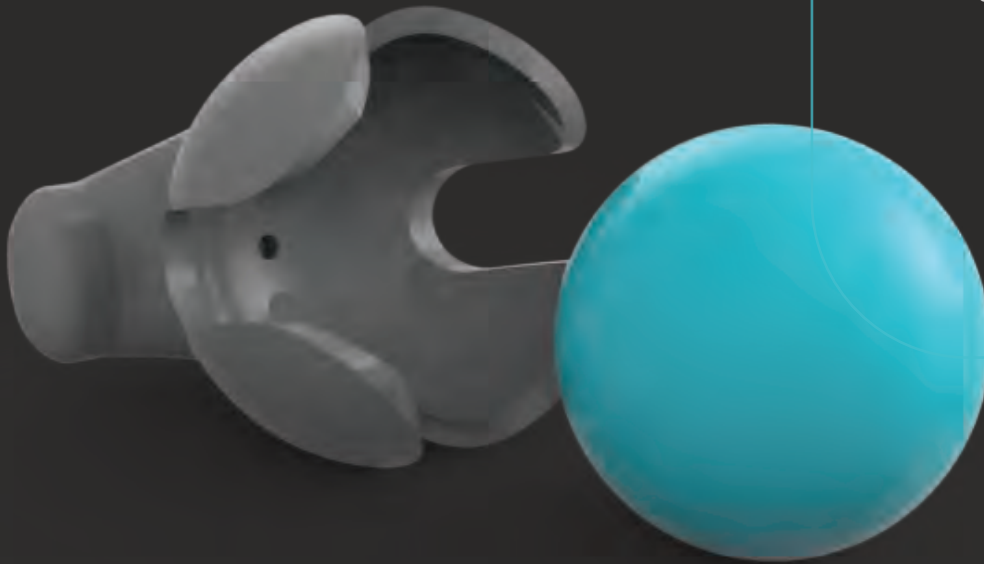
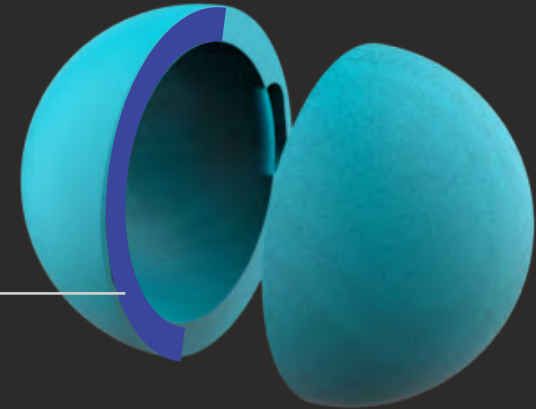
GIVING THE USER OPTIONS:

 COOL BY FREEZING

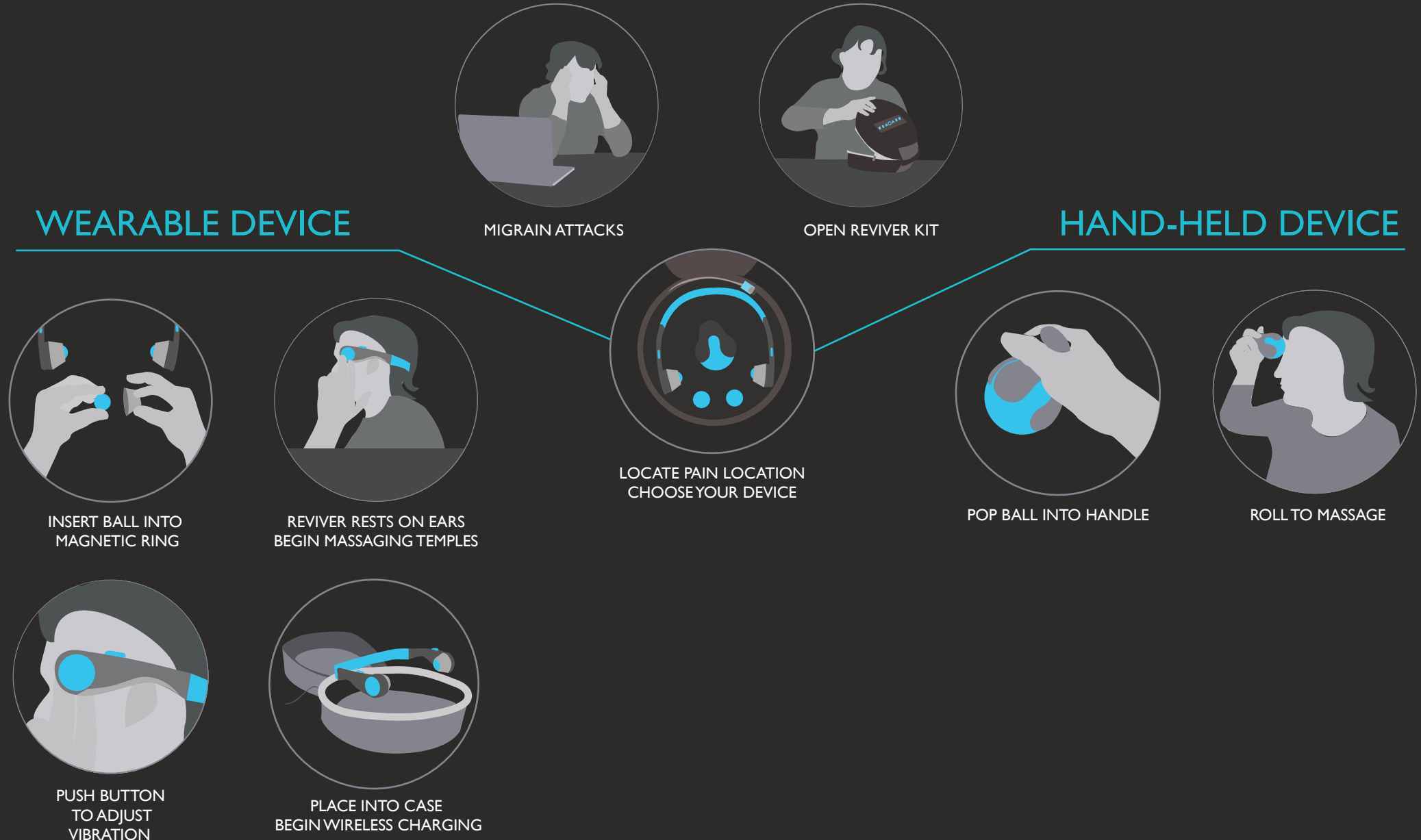
 HEAT BY VIBRATION

INSIDE EACH SPHERE

- REFRIGERANT GEL KEEPS SPHERES ICE COLD TO AID USERS IN RELIEF



HOW REVIVER PROVIDES RELIEF



EVIDENCE

- (1) <https://www.drugs.com/health-guide/migraine.html>
- (2) Lipton RB, Stewart WF, Diamond S, Diamond MI, Reed M: Prevalence and burden of migraine in the United States: Data from the American migraine study II. *Headache*. 2001
- (3) <https://migraineresearchfoundation.org/about-migraine/migraine-facts/>
- (4) <http://www.mayoclinic.org/diseases-conditions/migraine-headache/diagnosis-treatment/treatment/txc-20202474>
- (5) Westland G: Massage as a therapeutic tool, Part I. *British Journal of Occupational Therapy*. 1993, 56: 129-134
- (6) Field T: Massage therapy effects. *American Psychologist*. 1998, 53:1270-1281.
- (7) Moyer CA, Rounds J, Hannum JW: A meta-analysis of massage therapy research. *Psychological Bulletin*. 2004, 130, 3-18.
- (8) Lowe WW: *Orthopedic massage. Theory and technique*. London: Mosby, 2003
- (9) Travell JS: *Myofascial Pain and Dysfunction: The Trigger Point Manual* (1st ed., Vol 1) Baltimore: Williams & Wilkins, 1983