



A discrete and effective wearable breast pump for nursing mothers

A quiet and concealed wearable breast pump that mimics infant suckling using mechanical compression and heat; increasing milk expression as well as convenience and comfort.

IP Status: Issued US Patent; **Application #:** 15/956,498

The problem? Ask almost any nursing mom: "Pumping is the worst"

Due to its health benefits, the American Academy of Pediatrics recommends breastfeeding infants for a minimum of one year, a goal that only 35% of babies in the US reach. A barrier to breastfeeding for many mothers is the difficulty in pumping milk, a practice commonly cited as inefficient, time-consuming and both physically and socially uncomfortable. This is in large part due to the currently commercially available breast pumps that stimulate milk production using suction. These pumps are noisy, require a user to partially disrobe and necessitates access to a power outlet; physically isolating women from carrying out tasks and fully participating in the work-place. Compounding the problem, these pumps poorly mimic infant's stimulation of milk and many women report increased discomfort and decreased milk output, which adds to the challenges.

A better pump to support mom and baby

A group of researchers at the University of Minnesota's Medical Devices Center have come up with a solution to take the "suck" out of pumping, literally. They have developed a concealed, wearable breast pump that uses mechanical compression (instead of vacuum suction) and warmth to mimic infant stimulation for milk expression. The mechanical stimulation (which uses data-determined pressure and pattern specifications), is capable of increasing milk output and also allows the pump to operate quietly compared to vacuum driven pumps. The pump is also designed as a wearable device that can be concealed under clothing, facilitating a woman to pump discreetly while continuing to carry out tasks in the workplace or the home. This technology empowers mothers to more fully engage in their careers and daily lives while still prioritizing their baby by lessening the physical and opportunity costs associated with pumping milk.

Phase of Development

- An early stage prototype for the mechanical compression has been developed. The mechanisms and specifications for nipple stimulation, heat, and the collection system are conceptual.

Features & Benefits

Technology ID

20170195

Category

Engineering & Physical Sciences/Design Specifications
Engineering & Physical Sciences/Instrumentation, Sensors & Controls
Life Sciences/Human Health
Life Sciences/Medical Devices

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- **Allows women to stay present at home/work while pumping:** Quiet, vacuumless operation combined with the ability to wear it under clothes allows mothers to discreetly pump in public.
- **Increases expression:** As the first pump to use research-based mechanical compression and heat that mimics an infant's mouth, this pump has the potential to increase milk production.
- **Operates hands-free:** Integration of the pump into a wearable system frees up a mother's hands for other tasks.

Applications

- Breast pump system
- Lactation induction device (i.e. in the absence of pregnancy/birth)

Researchers

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