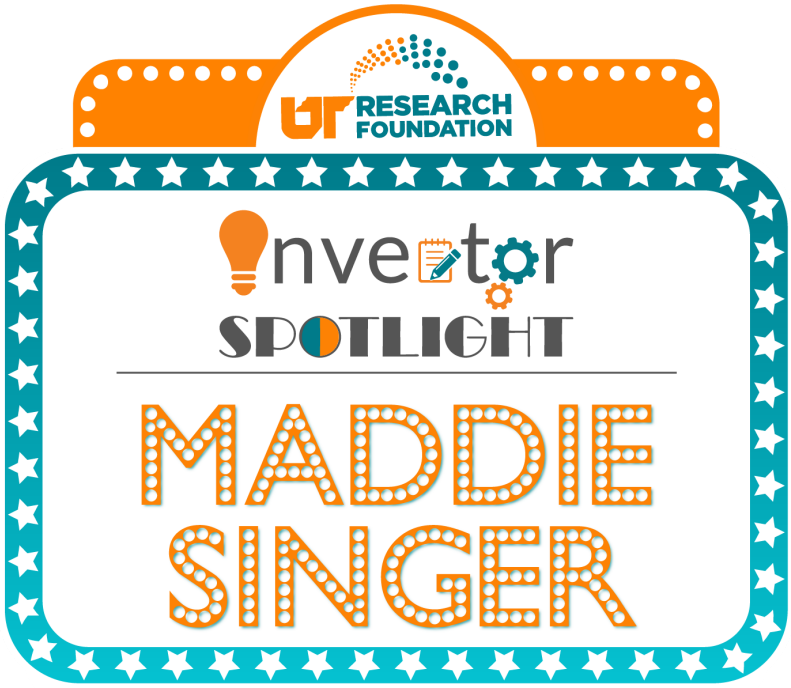
UTRF Inventor Spotlight: Maddie Singer



Maddie Singer is the Director of Anaplastology and an instructor at the University of Tennessee Health Science Center (UTHSC) College of Dentistry's Department of Prosthodontics. She has served as a clinical anaplastologist for the last fifteen years, creating custom, realistic prosthetics for patients who have malformed, disfigured, or missing parts of the face or body. Singer honed her craft in Hollywood, where she spent 12 years creating prosthetics for film and television. A natural inventor, she has developed a pioneering silicone modeling compound, called Third Degree, for use in the film industry and the first topical dermal

Customized CPAP device in use

Singer's reputation as an inventor led to her latest venture: creating a customized CPAP (Continuous Positive Airway Pressure) device. CPAP therapy is a common treatment for sleep apnea. Traditional CPAP systems employ a face mask that patients wear at night while they sleep. The system delivers a constant and steady air pressure to keep airways open. Despite being a known solution for sleep apnea, use of the machines by patients is low, with a 30% compliance rate. A number of reasons contribute to this low compliance rate, from CPAP system-related factors (e.g., loss of pressure and mask blow out) to patient complaints, including the development of acne and pressure sores, an inability to sleep in a natural position, and general discomfort.

Since the goal of CPAP therapy is 100% compliance, Singer wanted to develop a device that not only worked but would be used by patients. Her solution was a maskless and strapless CPAP system that merged the traditional CPAP device with an oral appliance. The resulting device delivers a better flow of air directly to the patient, and each one is custom designed to provide the most comfortable fit possible.

Singer's invention has already garnered attention. In December 2016, she was one of eight faculty inventors awarded a University of Tennessee Research Foundation (UTRF) Maturating Funding grant, receiving $15,000 to further develop her technology in preparation for commercialization. Since then she has received FDA approval to move forward with a clinical trial for her CPAP device.

> *therapy, making it more accessible, comfortable, and easier to use for people who might otherwise elect not to use the therapy due to its side effects."*

Singer is quick to point to the support she has received from UTRF and her university colleagues for making her inventions possible. Beyond initial funding for her work, she was able to access resources and experts to answer her questions, as well as connect with people outside of the university who could be potential licensees or additional sources of funding.

> *"Receiving the maturation grant funding was invaluable for advancing my CPAP research, however, it is the people at UTRF who make your job as an inventor easier. They take care of you every step of the way," relates Singer. "When it comes to research and discoveries that can impact the quality of life for everyday people, they step up to the plate every time, helping inventors like me bring our technologies to market."*

The clinical trial for Singer's CPAP device is set to begin this August.

Blend Art and Science

- Maddie Singer, Director of Anaplastology at UTHSC, Helps Make People Whole With Her Remarkably Lifelike Prosthetics

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