

From: Machining For Air

The owner of this shop saw his sister stand and walk again. Now the shop makes the oral devices that he hopes will change other lives just as profoundly. Unattended machining is the key to making this therapy more accessible.

By [Peter Zelinski](#)

It would be difficult to imagine a job shop owner who has a more personal relationship with machined parts than Peter Boucher. At night, parts machined at his shop go into his mouth.

The same is true of programmer Eric Reitan.

Ditto for Mr. Boucher's son Joshua!



Programmer Eric Reitan considers the programs for several different orthotic device components.

All of them have been fitted with custom oral orthotic devices, and all of them work for 3V Precision Machining of Lakewood, Washington—the shop where the titanium components of these devices are machined.

In each case, the device fits around the teeth and exerts pressure on the jaw to slightly shift the position of the tongue. The aim is to get the tongue out of the way of breathing to improve airflow. The device is part of a therapeutic system developed by Dr. Farrand Robson called "Oral Systemic Balance," or OSB.

The premise of the treatment is this: When the body is slightly short on air because of the tongue, it makes unconscious accommodations. Snoring is one possible consequence, but more serious consequences may result if the body strains to hold the neck and back in unnatural positions. The exertion can lead to a variety of ailments over time.



The titanium components of this assembled orthotic device are visible in this photo. The smaller photos show two of the individual machined parts from this assembly.



Mr. Boucher says his own OSB device cured not only his snoring but also a recurring neck pain. He says it also lifted his emotional state. "I thought I had depression. It turns out I was just exhausted from trying so hard to breathe," he says.

His sister realized even greater benefits. After she underwent the therapy and began wearing the orthotic device, she was able to lay her cane aside. Eleven years earlier, she was diagnosed with multiple sclerosis. Along with the cane, she relied on a leg brace and suffered a variety of other symptoms. Now the symptoms have been relieved, and Mr. Boucher says the improvement began just as soon as her breathing improved. "It still amazes the family to watch her get up and walk around the room," he says.

The joy of this, along with other treatment successes he has heard about from Dr. Robson, explains how he can now say quite earnestly that his shop's role in OSB therapy is the most exciting thing he has ever been involved with in his career.

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Two Goals

His career has been eventful. Before opening his own shop, Mr. Boucher crossed the country learning the machining business, working in 38 shops from New England to California. Now, he provides the manufacturing knowledge to complement Dr. Robson's medical knowledge. 3V makes not only the machined parts but also other components of the orthotic devices, as well as various tools in the treatment kit used by licensed OSB practitioners. Mr. Boucher has helped to develop these parts, and he says he and the doctor share two objectives for how the components are manufactured. They are:

1. Manufacturing has to be inexpensive so the therapy can be affordable.
2. Manufacturing has to be performed in the United States.

The goals are not incompatible, Mr. Boucher says. Unattended machining is the key. If labor can be applied strategically, then the cost advantage of cheaper labor in other countries disappears. His shop has developed a process for machining the titanium components in which 150 or more pieces can be produced in a single unattended cycle that runs for more than 24 hours.

Long and predictable tool life is necessary to run so long without an operator, he observes. One way the shop meets this requirement is with software that keeps the tool protected.

Breathing New Life

The oral orthotic device is one component of Oral Systemic Balance therapy. Here is a description of that therapy from literature on OSB:

Breathing and swallowing are essential to life, so our bodies do what is necessary to help the mouth and throat to perform these functions efficiently. For some people, these instinctive efforts cause pain and other symptoms.

The culprit is the tongue. This can prevent the mouth and throat from functioning properly. The tongue can fall back from the mouth to narrow the throat, decreasing air intake and impeding swallowing. Few are conscious of this, but the body automatically adjusts to keep the throat open. It does this so we can survive. The price can include poor posture, headaches, aches and pains in the back and neck, sleep problems, and even stress-like feelings as the body produces adrenaline to help the muscles work better.

OSB therapy addresses these symptoms with a patent-pending system that includes assessment and diagnostic testing along with a custom-designed oral device that helps keep the throat open. This device lets the throat muscles relax, permitting deeper breathing and easier swallowing. The therapy also helps balance the autonomic nervous system, which regulates body functions such as heart rate, body temperature and digestion. As a result of OSB, hidden illnesses can be detected and prescription drugs dependence may be reduced.

In fact, when the therapy is applied by a licensed OSB practitioner, not only can breathing and swallowing improve, but also posture can correct itself naturally, often increasing a person's height. Chronic pain can be reduced as well, and sleep can become more restful and refreshing.



3V Precision makes not just the machined components but the complete orthotic device. Peter Boucher (shown) has an idea for how to achieve unattended production of another component—the custom-fitted shells that fit around the wearer's teeth. He recently purchased this stereolithography apparatus from [3D Systems](#). With a resin appropriate for the oral application, the shop can use the rapid prototyping device to make functional, wearable parts.