Mechanical ventilation: my journey from Iron Lung to CPAP mask

Hi, I'm Adolf Ratzka. I have been studying, working, and raising a family - with the help of mechanical ventilation aids. For over half a century I have used various machines that help me breathe. Today, my breathing aid is the nasal mask that you see on my face.

When I caught polio in 1961, I immediately needed mechanical ventilation: First I had an Iron Lung. That's a big tube where only the head sticks out. I spent three months in there. After the Iron Lung I had a Rocking Bed for 5 years. Here's the rocking bed in action

Imagine flying in an airplane with that kind of hardware or traveling by car, going to the movies or hanging out with friends. I couldn't do any of those. Isn't it incredible that today my nose mask does the same job as these dinosaur contraptions some 50 years ago!

Later on, I got a Cuirass or Chest Shell which I used for almost 20 years.
By the way, the gentleman in the pictures is not me. I never had such a nice mustache.

In the first decades after polio, I needed mechanical ventilation only during the night, for sleeping, as my diaphragm is too weak and doesn't kick in automatically when I'm asleep. During the day, I managed on my own, breathing mainly with the auxiliary muscles around the neck. But in the 1980s, I started needing mechanical breathing support also during the day, in such situations as eating, when I talked a lot or was very tired.

I started using a thin air tube that I hold with my teeth. The tube is connected to a volume ventilator that is mounted under the seat of my powerchair.

The tube gave me enough air during the day for over 10 years. But a few years ago, it became obvious to my family, to others and finally to me that I was often short of breath. I'd be exhausted despite the air tube, particularly at dinner where I'd concentrate on my food without saying a word or at meetings where I'd make my points with as few words as possible. Brushing my teeth would get my heart pounding as if I'd run the 100 m dash. Public speaking had become a nightmare. After a few minutes my heart would be racing, any spontaneity was gone with my mind blank. All I could think of was to get it over with as fast as I could.

I was running out of air when eating, brushing my teeth and talking, because I can't get air through the tube at the same time as I open my mouth. My lips need to close around the tube to get air into my lungs. That's when I started looking for nasal masks for daytime use, masks that would let me breathe through the nose. So no matter whether I had my mouth shut or open, no matter whether I'd be talking or eating, I'd get air through the nose.

By that time I had been using nasal masks for sleeping with good results. My early masks were designed in the 1980s by my friend Ernst Hörmann, Germany together with me. They were improved by dental technician Lennart Remmer, Sweden.

Here's one of these masks. It is custom-made, molded to my nose and anchored to a dental plate on my upper teeth row.

For the last few years I had been experimenting with ready-made CPAP masks. These masks are made for snorers and are designed for laying and sleeping. But I need something for the day, for eating, brushing my teeth, for public speaking and for yelling at my friends who are my age and have become hard of hearing just like me. I've tried these masks that you see here but they didn't work for me. With some of them I can't eat, others obstruct my eyes

Since January 2016 I have been using the mask that you see on my face now. It is also a CPAP mask and is designed for people who snore in their sleep. That’s why I had to adapt it before I could use It for my purposes. I also had to adjust my ventilator and find the optimal settings for speaking with the nose mask.

I can show you what I did. Just follow me to my next YouTube video with the title

Breathing and talking with CPAP mask and ventilator