

Science on the Cutting Edge Swallowing the Science of the Sword

by T. Anderson/D. Meyer

The medical community is abuzz - there's been a breakthrough.

You flip on the TV. Sure, you've seen them before, but there's something about press conferences you find irresistible. The throng of eager reporters, the normally reclusive scientists clad in impeccably pressed, pure white lab coats, exhibiting an air of exuberance befitting their first public sighting in five years. You're not sure what's up, but you can tell it's going to be big.



Sword Swallower Dan Meyer – Inside and Out

Pan left.

An intruder. A middle-aged man sporting a growth of whiskers smiles mischievously. He steps into the light, tosses back a cape, revealing a red and navy pirate outfit. Though flashy, the swashbuckler's colorful costume stands out in stark contrast to the sterile scientific environment of black and white. He draws a 3-foot sword from his scabbard, tilts back his head, and plunges the length of the blade down his throat.

The scientists erupt in wild applause.

Science and swords may seem an odd pair. But, without the contribution of sword swallowers, we may not have some of today's most critical diagnostic tools. Sword swallowers rigorously train themselves to ignore the body's natural gag reflex, making them the perfect test subjects.

February 28, 2009 is International Sword Swallower's Awareness Day. In their honor, and to gain insight into their medical contributions, let's take a closer look at the development of the endoscope.

Today's flexible endoscopes are widely used by physicians to visually inspect various internal aspects of the body, including the esophagus, the nasal passage, the colon, and the respiratory tract. Man's interest in getting a look inside the human body dates back centuries, and a prototype of an endoscope was discovered in the ruins of Pompeii.

But it was not until 1868 that a physician first peered through an endoscope directly into a human stomach. Eureka! Dr. Adolph Kussmaul, a renowned German physician, developed several innovative diagnostic procedures. But, when it came to fashioning a functioning endoscope, the challenge seemed beyond his reach.

He'd read of the development, by Antoine Jean Desormeaux in France, of a small tube to examine the urinary tract and bladder. He began work on a similar design for studying the stomach, but his progress soon faltered. Then, the hand of fate swept in. His assistant, while enjoying a pint at a local inn after a hard day's work, was captivated by the evening's performer – a sword swallower.

He gulped down his pint and raced back to tell Dr. Kussmaul what he'd witnessed.

Kussmaul quickly set about designing a prototype based on the sword swallower's act. He meticulously sketched out the specifications - a rigid 18-inch stainless steel tube, one-half inch in diameter. He'd illuminate it with an external alcohol-turpentine lamp, like Desormeaux. He took the drawings to an instrument maker, a skilled craftsman, and the resulting endoscope was perfect.

Kussmaul's device was revolutionary. Interest in peering into the very core of the human body spread quickly, and he was asked to demonstrate the endoscope in Freiburg at a meeting of the Society of Naturalists. But, how could he possibly do so? Where would he find someone capable of serving as a test subject? Yes, of course – he would take the sword swallower!

This rudimentary beginning laid the foundation for the modern, flexible endoscope. Dr. Kussmaul and his sword-swallowing associate toured extensively, giving demonstrations at leading hospitals, and soon even Desormeaux was using an endoscope to examine esophageal disorders.

Men of steel. In 1894, sword swallower Chevalier Cliquot swallowed 14 swords at one time, stunning the physicians at New York's Metropolitan Throat Hospital so much, that one doctor impulsively rushed in and removed the swords at once, causing lacerations that left the performer incapacitated for months. In the 1930s Delno Fritz made the ultimate sacrifice for science. He died of complications from testing a bronchialscope. During the testing a screw came loose and lodged in his lung, resulting in pneumonia and his untimely demise.

Today there are less than a few dozen surviving sword swallows left actively performing around the world. Gone are the days of the traveling sideshows where they plied their dangerous craft. Gone are the acts of daring that tantalize all, traumatize the young, and terrify the fainthearted. Gone are the magical days of covering one's face, not daring to look, but being unable to turn away.

Or, are they?

February 28, 2009 is International Sword Swallower's Awareness Day. Dan Meyer, Executive Director of the Sword Swallower's Association International (SSAI), said the day is being held in conjunction with February's National Swallowing Awareness Month.

"We sword swallows have been risking our lives to perform the ancient art of sword swallowing for over 4000 years, but many people don't believe it's real, or they think that the art has died out," Meyer explained. "We have chosen this day to honor veteran sword swallows, to raise awareness of the medical contributions that sword swallows have made to the fields of medicine and science, and to correct misconceptions about the art by performing for medical facilities and the media around the world."

Meyer and his co-author Dr. Brian Witcombe are the recipients of the 2007 Ig Nobel Prize in Medicine. The Ig Nobel Prizes are presented each year at Harvard for discoveries that "first make people laugh, and then make them think." They won the award for their article, "Sword Swallowing and its side effects," published in the British Medical Journal in 2006. The pair will make presentations in March at scientific events in the UK during the 2009 British Ig Nobel Tour, bringing a bit of swashbuckler's magic to the otherwise scholarly gatherings.

And if you listen carefully, you might hear the "schwing" of a sword being pulled from its scabbard... And if you look closely, you might just recognize a mischievous smile behind a protruding hilt among the white labcoats...

Science and swords... perhaps not such an odd pair after all...

To learn more about the art and science of sword swallowing or to inquire about a demonstration for February 28th, visit the Sword Swallower's Association International website at www.swordswallow.org

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