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Discusses the Bone  
Anchored Hearing Aid**



## Weill Cornell Welcomes Specialists in Cochlear Implants and Skull Base Surgery

*The Department of Otolaryngology – Head and Neck Surgery at New York-Presbyterian/Weill Cornell Medical Center has welcomed new faculty members – **George Alexiades, MD**, and **Abtin Tabae, MD** – further expanding its expertise in cochlear implant technology and services and skull base surgery, respectively.*

### **Dr. George Alexiades**

Dr. George Alexiades, an otologist/neurotologist and newly appointed Director of the Cochlear Implant Center, brings nearly two decades of experience and expertise in hearing loss, tinnitus, cholesteatoma, otosclerosis, and chronic ear infections, as well as treatment of acoustic neuromas, meningiomas, and glomus tumors. Dr. Alexiades has published extensively in the field of otology and neurotology in peer-reviewed journals, as well as authoring numerous chapters in otolaryngology textbooks.

Dr. Alexiades comes to the Department of Otolaryngology – Head and Neck Surgery from the New York Eye and Ear Infirmary of Mount Sinai, where he helped develop and build its cochlear

implant center. In his new position at Weill Cornell, Dr. Alexiades plans to increase the volume of cochlear implants performed, offering them to patients who may be unaware of the options available to them today.

“There are a huge number of patients who don’t know that a cochlear implant is a possibility for them,” says Dr. Alexiades. “They’re miserable with their hearing aids and complain about them year after year. Then they withdraw from society. There has also been some recent data that correlates significant hearing loss with dementia and whether hearing loss accelerates or contributes to it. These individuals often do not get the stimulation that you receive from participating in conversation after conversation.”

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## Comprehensive Center Focuses on Patients with Chronic Balance Disorders

Good balance is often taken for granted – walking straight ahead, getting out of bed at night without stumbling, or moving with ease up and down stairs. However, impaired balance can be extremely uncomfortable and at times dangerous. According to the National Institute on Deafness and Other Communication Disorders, 8 million American adults report a chronic problem with balance, while an additional 2.4 million suffer from dizziness alone. Symptoms of chronic vertigo, disequilibrium, and presyncope can have a significant impact on the ability to perform activities of daily living, such as bathing, dressing, or simply moving around the home.

Getting to the root of these common and disabling conditions is both time-consuming and challenging, and a key reason why New York-Presbyterian/Columbia University Medical Center has recently launched the Comprehensive Balance Center to address the full range of balance disorders. “Balance is a complex sense,” says **Lawrence R. Lustig, MD**,

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*Dr. Lawrence R. Lustig*

## Weill Cornell Welcomes Specialists in Cochlear Implants and Skull Base Surgery *(continued from page 1)*

### Evolution of Cochlear Implantation Criteria

Many patients who would not have qualified for a cochlear implant years ago do now. “When cochlear implants first came out they were designed specifically for people with profound hearing loss who had almost no measurable hearing,” says Dr. Alexiades. “Current guidelines include people with bilateral hearing loss, but those indications are also becoming more flexible. We have now implanted patients with unilateral hearing loss as well and hope to expand to other types of hearing loss.”

Dr. Alexiades notes that the envelope for transitioning patients who are performing well with hearing aids to performing better with a cochlear implant is constantly being pushed to the edge. “We are now implanting more and more people with residual hearing. Our studies are specifically looking at patients with significant residual hearing who receive a cochlear implant with the goal of preserving their residual hearing in the ear that we implant.”

Recently, the eligibility criteria for cochlear implantation has been expanded to include persons who have some useful residual hearing who receive inputs from both electric and acoustic stimulation. “We present all of the low frequency information, which is with the patient’s own hearing and a hearing aid, and then we capture the middle to high frequencies with the cochlear implant,” says Dr. Alexiades. “Most people with severe hearing loss have the greatest problem in the higher frequencies. So all of that information is provided by the cochlear implant.”



*Dr. George Alexiades*

Dr. Alexiades is also expanding ancillary services, recently recruiting a speech pathologist specifically for patients with cochlear implants and for children with hearing impairments. “We want parents to know that the Cochlear Implant Center offers access to all of the services needed for their child,” he says. “Sometimes that means providing social services to help children with proper placement in schools and coordinating all of the adjunctive therapies to help them perform at their best. We are also reaching out to school systems that have children with hearing impairment. We meet with their staff, answer their questions, and become more familiar with the people who are on the front lines with these children.”



*Dr. Abtin Tabae*

### Dr. Abtin Tabae

Dr. Abtin Tabae, an otolaryngologist with a specialty focus in rhinology, provides expert medical and surgical care for diseases of the nose and paranasal sinuses, including chronic sinusitis, nasal obstruction, and lesions of the nasal, skull base, and intracranial cavities. Prior to joining Weill Cornell, Dr. Tabae served as Director of Rhinology and Endoscopic Sinus Surgery at Mount Sinai Beth Israel in New York from 2006 to 2015.

Dr. Tabae points to several factors that informed his decision to join the Department of Otolaryngology – Head and Neck Surgery at NewYork-Presbyterian/Weill Cornell in March 2015. “The field of endoscopic skull base surgery has been in existence for approximately 15 years. There has been a handful of centers of excellence at the forefront, among them Weill Cornell,” says Dr. Tabae. He also describes his fellowship in rhinology and endoscopic sinus surgery at NewYork-Presbyterian/Weill Cornell under the expert tutelage of otolaryngologist **Vijay K. Anand, MD**, and neurological surgeon **Theodore H. Schwartz, MD**, as pivotal to his career development. “Building on the seminal research, innovation, and leadership that has come out of Weill Cornell over the past decade is a great honor.

“We are at an exciting time in the field of endoscopic skull base surgery,” says Dr. Tabae. “We have definitively shown that this approach is not only feasible, but has significant advantages over historic methods that include open, microscopic techniques. To date, the collective specialty has a robust experience with a number of important pathologies, including pituitary adenomas and benign and malignant tumors of the nose and of the skull base.”

### The Next Frontier

Today the long-term outcomes of patients as defined by tumor control, complications, sinus function, and quality of life issues after several years of follow-up bear particular scrutiny, says Dr. Tabae. “While that data continues to emerge, it is incredibly positive overall. For appropriately selected lesions, we are getting either equal or superior control rates of the tumors from an endoscopic approach.”

The most recent literature has also looked at the functional outcomes of patients who have had endoscopic skull base surgery. “Historically, the nose was viewed as just a pathway in getting to

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## Comprehensive Center Focuses on Patients with Chronic Balance Disorders *(continued from page 1)*

Chief, Otolaryngology – Head and Neck Surgery, NewYork-Presbyterian/Columbia. “The public has a nebulous definition of what ‘dizzy’ entails. You’ll often hear people use the words vertigo, dizzy, or lightheaded synonymously. And yet, each person could be talking about some very different things. In many cases, if someone is dizzy it is naturally assumed it is an ear problem. The first thing that happens is they are given a prescription for meclizine and told to go home because nobody really wants to deal with dizzy patients.”

**“A lot of patients with benign positional vertigo will be treated by their local physicians – either primary care doctors or an ENT – and they’ll get better and everything is fine. The patients that don’t benefit from those initial therapies are the ones that we really need to see.”**

**— Dr. Lawrence R. Lustig**

Dr. Lustig recalls during his residency training that patients with dizziness were virtually ignored because there was so little that could be done for them. “These patients were suffering and quite debilitated,” he says. “When I began my fellowship I started to understand that we really can take care of these patients and make them better in many cases. The key is figuring out the right diagnosis and coming up with a rational treatment plan. The problem with dizziness is that it is not just coming from the ears. Less than a quarter of patients that I see in my clinic with dizziness have an ear problem.”

Dr. Lustig describes a typical scenario when patients present to their primary care physician with issues of dizziness and balance problems. “The general practitioner will put them on meclizine for a while. When that doesn’t work they are sent to an ENT doctor. The ear doctor will say that their ears are fine and then they are sent to a neurologist. The neurologist says their brain is fine. Meanwhile, there are six or eight weeks – even months – that pass between each of these subspecialties. In fact, a research study showed that on average a patient will have seen three or four subspecialists before getting a correct diagnosis.

“The concept of the Comprehensive Balance Center is to shortcut the process of getting to the right subspecialist and appropriate care,” says Dr. Lustig. “We’re going to provide high quality, state-of-the-art diagnosis for patients with complex balance problems that to date have not been adequately treated.”

To that end the Center brings together specialists in otolaryngology, audiology, neurology, and physical and rehabilitation medicine. “We can also draw on orthopedic surgery, ophthalmology, and cardiology, which would be a little bit more peripheral in the process, but definitely important because issues arise in those systems that impact balance as well,” says Dr. Lustig. “Our goal is for the patient to have the neurology and the otolaryngology evaluation on the same day. Ultimately, having each of the specialists confer with one another is much more efficient for patients. They don’t have to waste months of trying out therapies that may not work before being sent on to someone else.”

### Pinpointing the Cause

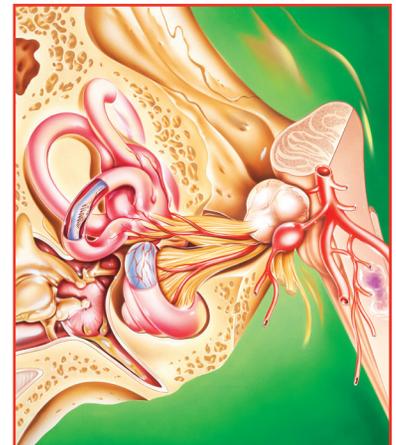
Vestibular disorders include paroxysmal positional vertigo, which is more likely to occur in adults 60 or older, labyrinthitis, Ménière’s disease, vestibular neuritis, and perilymph fistula. “One of the most common is vestibular migraine,” says Dr. Lustig. “Patients are often shocked when I give them that diagnosis. They tell me they don’t have any headaches. I then explain why migraines don’t always equal headaches. Headache is probably the most common way that migraines present, but certainly not the only way. There are patients who get ocular migraines and lose vision for 30 minutes. There are also patients who get vestibular migraines and have vertigo for 30 minutes, an hour, or even days at a time.

“Inner ear problems are obviously a big part of the equation, but not the only part,” he adds. “You also have the eyes, which have very direct, neural connections to the ear. In fact, head motion drives eye motion through the vestibular organs with some direct neural connections. Then there is the contribution of the proprioceptive system, which involves all of the sensors in the muscles. Even with your eyes closed you can flex your arm and know that your arm is flexed because the receptors in your muscles are telling your brain that your muscles are in a particular configuration. If those are not working and you don’t know where your joints and your limbs are at any given time, you’re going to have a hard time getting around.”

Sensory issues impact balance as well, he says. “For example, if the bottom of your foot is numb and you can’t feel when your foot touches the ground, that’s going to lead to stumbling and people saying that they are dizzy. And when the heart is not pumping enough blood to the brain, you can get lightheaded and dizzy. Lastly, there is the brain sitting on top of all of these systems coordinating everything from moment to moment.”

Dr. Lustig points out that the elderly are particularly prone to multisystem balance problems. “They are often on medications that can cause dizziness, and many have vision loss and deteriorating hearing,” he says. “Their brain just isn’t functioning as well as it did when they were 20. They are the ones who really can benefit from balance therapy.”

**J. Kirk Roberts, MD**, Director of the General Neurology Program at NewYork-Presbyterian/Columbia and a member of the Comprehensive Balance Center, became interested in vertigo imbalance some 15 years ago. “About three-quarters of my practice is focused on vertigo, dizziness, and balance, in addition to a variety of other neurological conditions,” says Dr. Roberts.



*Illustration of the inner ear showing several causes of vertigo, including labyrinthitis, compression of the vestibulocochlear nerve, either by an acoustic neuroma, a benign growth or an enlarged blood vessel, pressure within the inner ear, diseases of the brain-stem, or an ear infection.*



Dr. J. Kirk Roberts

The Comprehensive Balance Center is a valuable resource for referring physicians, notes Dr. Roberts. “Most doctors dread when a patient comes in complaining of dizziness because it can be medical, neurological, or ENT related,” he says. “The benefit of having different specialties involved here is the ability to draw on opinions from physicians who have interests and knowledge in a range of conditions that affect balance. These specialists offer various viewpoints, and by combining their expertise we are better able to make a diagnosis and to offer treatment.”

“There are a lot of patients with dizziness, vertigo, and balance problems that are very difficult for the internist, neurologist, or ENT specialist to sort out,” continues Dr. Roberts. “At the Comprehensive Balance Center, this is our sole focus. We are comfortable talking to patients, evaluating them, and giving them access to more advanced testing needed to adequately provide a diagnosis.”

**“At the Comprehensive Balance Center, this is our sole focus. We are knowledgeable in balance conditions and are comfortable talking to patients, evaluating them, and giving them access to more advanced testing needed to adequately provide a diagnosis.”**

— Dr. J. Kirk Roberts

“Just by sitting down, asking some very directed questions, and listening to the patient you can almost always figure out where the problem resides – even before the testing,” says Dr. Lustig. “Our Center will measure, monitor, and assess balance problems through a variety of diagnostics.”

As part of the workup, a thorough evaluation of the inner ear may require several different tests. “Electronystagmography [ENG] has been used for a number of years,” says **Jaclyn B. Spitzer, PhD**, Director, Audiology Division, Otolaryngology – Head and Neck Surgery. “It examines eye movements that are related to balance disorders and provides a good deal of insight into a part of balance periphery, in addition to some of the central connections.”

The Comprehensive Balance Center is also equipped with a rotary chair, sophisticated testing technology that helps to

determine whether or not dizziness may be due to a disorder of the inner ear or brain, and particularly establishes if both inner ears are impaired at the same time. “The patient is moved in a rotational computerized chair in order to monitor the responses of the balance system,” says Dr. Spitzer. The test takes approximately 30 minutes and includes different subtests to determine if dizziness or imbalance is a result of a vestibular system or central nervous system problem.

**“We are able to test other planes and aspects of the balance system, rather than just the semicircular canals. That is a big step forward.”**

— Dr. Jaclyn B. Spitzer

“We now have the ability to look at other parts of the periphery than we have in the past, which is important for diagnosis,” says Dr. Spitzer. “We are able to test other planes and aspects of the balance system, rather than just the semicircular canals. That is a big step forward. And we will also test head acceleration, which is a relatively rare test.”



Dr. Jaclyn B. Spitzer

Drs. Lustig and Roberts are eager for physicians in the community to learn about the new Center. “A lot of patients with benign positional vertigo will be treated by their local physicians – either primary care or an ENT – and they’ll get better and everything is fine,” adds Dr. Lustig. “The patients that don’t benefit from those initial therapies are the ones that we need to see. We want their doctors to know that we can provide these patients with a comprehensive evaluation and recommendations that can really make them a lot more comfortable and safer.”

#### Reference Article

Lustig LR, Alemi S, Sun Y, Grabowski G, Akil O. Role of saposin C and D in auditory and vestibular function. *The Laryngoscope*. 2015 Jul 21. [Epub ahead of print]

#### For More Information

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## A Sound Advancement in Hearing Aid Technology

Complete hearing loss for infants and young children can create obvious and debilitating delays in language acquisition and psychosocial development, daunting long-term difficulties in school, and intense worry for their parents and families. For adults experiencing sudden or gradual hearing diminishment or complete deafness, careers can falter, independence fades, and personal relationships suffer.

“Profound hearing loss or deafness has a tremendous impact on the quality of life for an ever-growing number of people in every demographic and in all age groups,” says **Samuel H. Selesnick, MD**, Vice Chairman of the Department of Otolaryngology – Head and Neck Surgery at NewYork-Presbyterian/Weill Cornell Medical Center. “The accessibility of an advance in hearing aid technology – the bone anchored hearing aid – is effective for many for whom traditional hearing aids are not. This technology can be used to address a variety of the causes of hearing loss or deafness, whether conductive or sensorineural, whether bilateral or single-sided.”

Traditional hearing aids, even those that are the most digitally advanced, depend on the aid’s transmission of sound vibrations, thereby amplifying all sound, including room noise and ambient sound, but often not enhancing clarity, orientation, or focus for the listener. The bone anchored hearing aid (BAHA) makes use of the

efficiency of the bones of the skull to serve as an excellent transmitter of sound vibrations. With patient training, sound can often be sensed more effectively and, at times, with greater clarity. Further problems of conventional hearing aids, such as feedback noise, can be avoided.



“The advantage of BAHA is its osteointegrated aspect,” explains Dr. Selesnick. “Through a relatively simple surgery, a small titanium screw is attached directly to the bone of the skull behind the ear. These types of implants have been devised to prevent rejection and to firmly bond to bone. Through the small implantation, the BAHA focuses sound vibrations to directly stimulate the cochlea so a person can hear the specific sounds of speech. In this way, speech can become distinct from other sounds coming from an entire room.”

Dr. Selesnick notes that those who developed the BAHA surgery required for implantation “have made it user friendly.” During the less than one-hour surgery, a four-millimeter titanium screw – the same kind of screw used in dental implants – is placed just behind the ear. A sound gathering device then either snaps onto the implantation or is held in place by an external magnet. “This type of rehabilitation is very good for conductive hearing



*Dr. Samuel H. Selesnick*

loss, but it is also appropriate for certain types of nerve deafness, which is wonderful,” says Dr. Selesnick.

The BAHA is programmable in several ways, which makes the device flexible, allowing for adjustments to each patient’s needs. For people experiencing unilateral sensorineural hearing loss or unilateral deafness, the device is positioned behind the ear that is not functioning, so that when it captures sound it vibrates the contralateral functioning inner ear. This works because the transmission of vibrations through bone is so efficient.

“If someone has completely lost hearing on one side, he or she could still use the device,” says Dr. Selesnick. “The vibration is so efficient through the bone that sound would actually present strongly to the other ear. When sound vibrations are then transmitted, they are sensed by the functioning inner ear, thereby creating a

clearer and more pristine sensation of sound for the individual. And they can also hear 360 degrees around them.”

A BAHA technology (BAHA Softband™) also has been designed for infants and children under five years who have moderate to profound hearing loss and for whom a trial period might be indicated. This allows for important language development.

**“BAHA is right for a lot of people, and for many who had difficulty being treated before its development. This technology can significantly improve the quality of life of well-selected children and adults.”**

**— Dr. Samuel H. Selesnick**

The number of people seeking treatment for hearing loss is rising. Nearly 48 million people in the U.S. experience and seek help for profound hearing loss or deafness, and one in three people over 65 reports serious hearing loss. For minor hearing loss on one side, a conventional hearing aid is fine, but Dr. Selesnick emphasizes the importance of making the bone anchored hearing aid available to more patients.

“The BAHA technology was pioneered in Scandinavia with years of success before being introduced in the U.S. and becoming FDA-approved,” notes Dr. Selesnick. “It’s now well-established in this country. BAHA is right for a lot of people, and for many who had difficulty being treated before its development. This technology can significantly improve the quality of life of well-selected children and adults.”

### For More Information

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### Weill Cornell Welcomes Specialists in Cochlear Implants and Skull Base Surgery (continued from page 2)

the surgical site,” says Dr. Tabae. “It is now viewed as a fundamental element of defining how these patients do postoperatively. If they have nasal dysfunction, it is viewed as a less than ideal outcome. More and more we are defining these outcomes with quality of life measures and have demonstrated that the majority of patients ultimately recover normal nasal function following surgery.”

Another interest relevant to the field, says Dr. Tabae, is how far into the horizons of skull base pathologies surgeons can go. “It is becoming more clear when open surgery is the appropriate surgical approach and what is appropriate endoscopically, although this distinction is continuously evolving,” he says.

Dr. Tabae stresses the collaboration required for managing patients with complex tumors. “Our primary surgical team includes both otolaryngologists and neurosurgeons,” he says. “We approach the tumor through the nose and paranasal sinuses; neurosurgeons perform most of the resection when the tumor is intracranial; and both teams collaborate to repair the skull base at the end of the procedure. Each surgeon has a different perspective in regard to the patient’s anatomy, the surgery itself, and the patient’s outcome. Both teams are also involved in the aftercare. Ultimately, multiple

different specialties are involved as a team in the care of these complex patients.”

Dr. Tabae has presented nationally and internationally on the techniques and outcomes of surgical approaches for nasal and sinus disorders and has authored over 50 peer-reviewed scientific articles and over 20 book chapters. He is the Rhinology Volume Co-Editor of the recently published *Sataloff’s Comprehensive Textbook of Otolaryngology: Head & Neck Surgery*.

#### Reference Articles

Alexiades G, Dhanasingh A, Jolly C. Method to estimate the complete and two-turn cochlear duct length. *Otology & Neurotology*. 2015 Jun; 36(5):904-7.

MP Fried, A Tabae. Rhinology Volume Co-Editor. The Nose and Paranasal Sinus Volume of *Sataloff’s Comprehensive Textbook of Otolaryngology: Head & Neck Surgery*. Jaypee Brothers Medical Publishers. 2015.

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