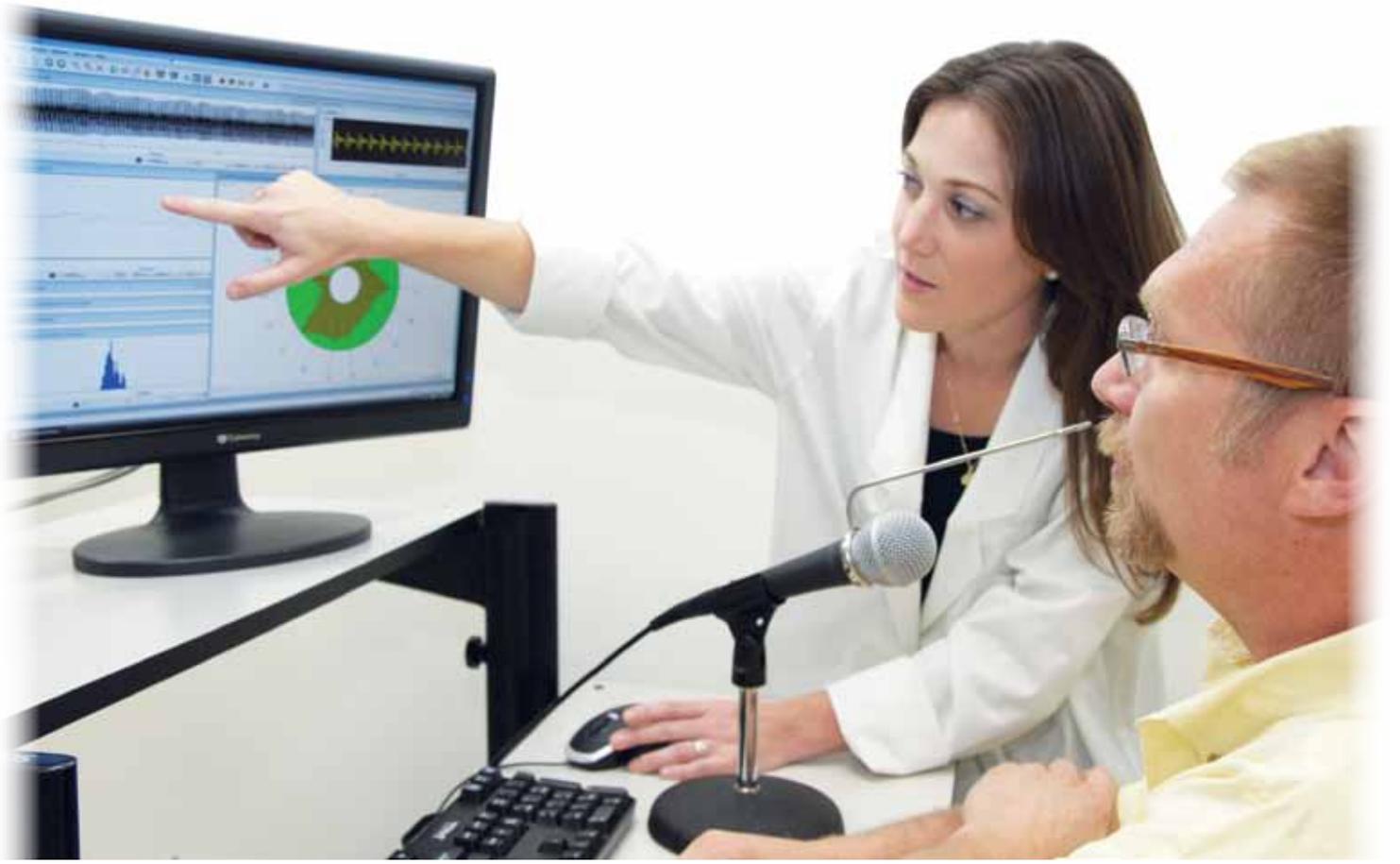


Speech, Voice, and Swallowing Instrumentation

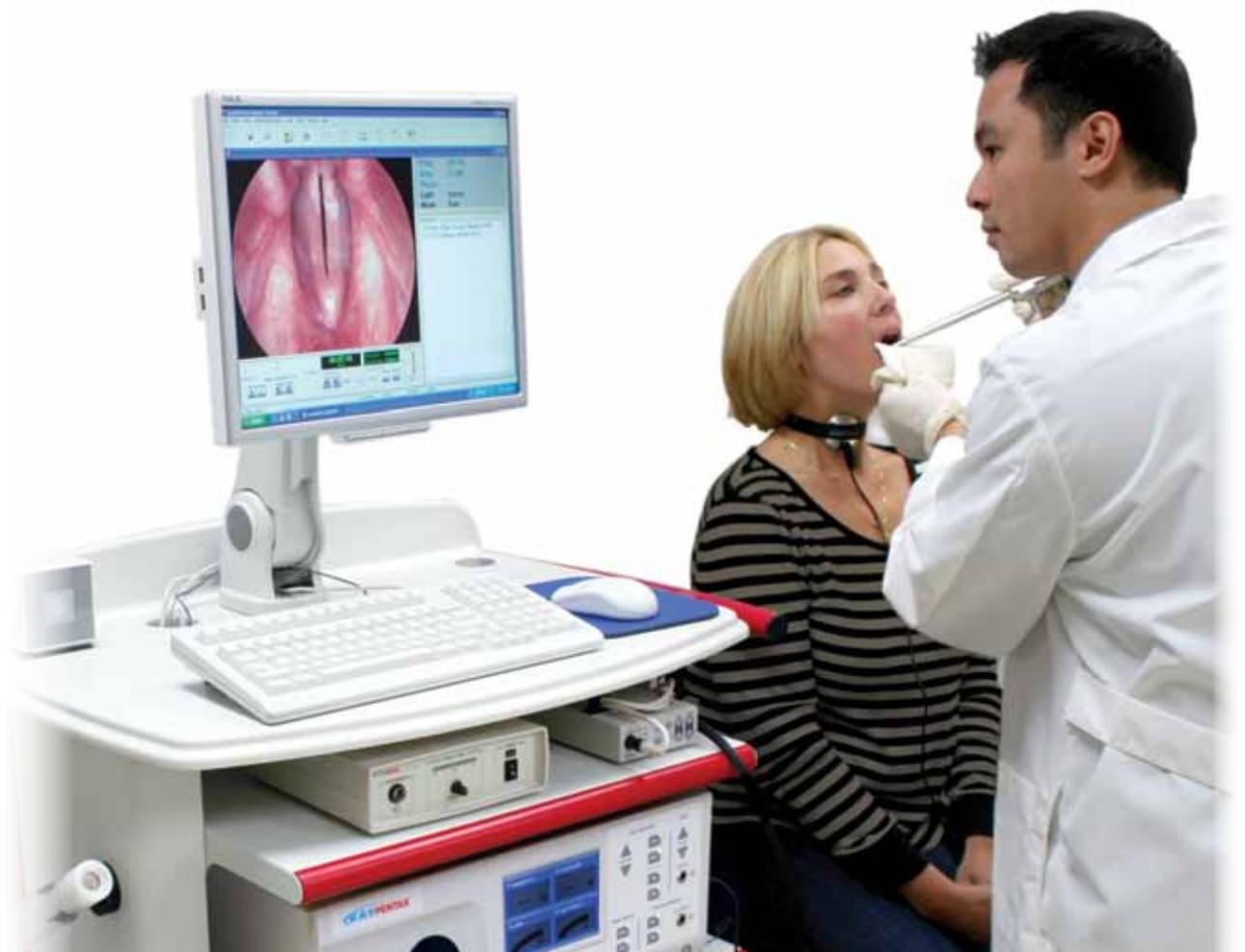


KayPENTAX **instruments** are the most broadly used in their product categories at clinics, hospitals, and universities worldwide.

Speech-language pathologists, otolaryngologists, phoniatricians, and linguists choose KayPENTAX products for clinical and research needs because of their superior quality, unmatched versatility, ease of use, and customer support.

KayPENTAX's product line encompasses the diverse areas of laryngeal imaging, acoustics, swallowing instrumentation, and aerodynamics. These products are referenced in hundreds of peer-reviewed professional journal articles in which the authors cite KayPENTAX instrumentation as their tools of choice. (Visit www.kaypentax.com for recent article abstracts.) The renown of KayPENTAX speech, voice, and swallowing instrumentation in clinics internationally can be attributed to the company's long-standing commitment to offering the best technology available to the professional community it serves.

This brochure provides a brief overview of product offerings. More information may be obtained on the KayPENTAX Web site or by contacting KayPENTAX about individual products.



KayPENTAX's **Digital Stroboscopy System** is internationally acclaimed because of its superior image quality and user-convenience features.

Stroboscopy and Laryngeal Imaging Systems

KayPENTAX offers a comprehensive line of stroboscopy and laryngeal imaging systems which are known for their superior image quality and extensive array of features. Available systems range from a basic configuration for general endoscopy (laryngeal and pharyngeal viewing) to stroboscopy systems for visualization of vocal fold movement, complete with digital recording capability, and an exam storage and management system. In addition, the color high-speed imaging system allows viewing of the complete glottal cycle, for assessing vocal fold dynamics regardless of periodicity.

The Laryngeal Strobe, Model 9400, is KayPENTAX's latest light source. It includes clinically beneficial features such as automatic light attenuation during procedures for consistently bright and razor-sharp images of the entire exam. As with previous models, Laryngeal Strobe relies on a "true" strobe light with an anti-blinking circuit and excellent pitch extraction over a broad range of voices, including pathological voices.

Another addition to the product line is the High-Definition (HD) Digital Stroboscopy System, offering sharp, clear 1080i HD video recording of stroboscopic and other endoscopic exams. HD stroboscopy provides six times the image detail provided by standard video, showing the vocal fold edge, mucosa, and microvasculature with unparalleled clarity.

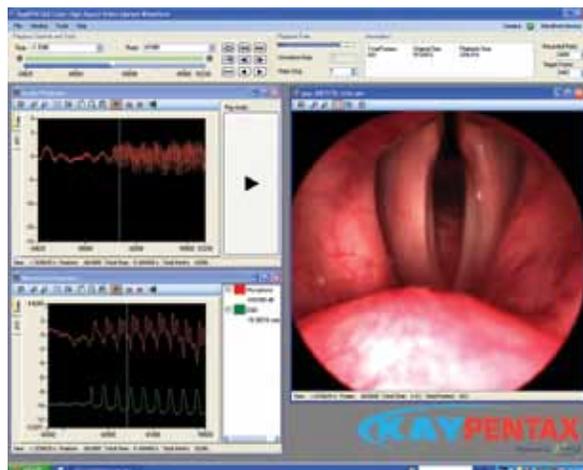
KayPENTAX also offers the latest generation Color High-Speed Video System which is a state-of-the-art recording system providing the ability to view vocal fold physiology regardless of vibratory pattern (e.g., onset of phonation, severe dysphonia, etc.). Though not a replacement for stroboscopy, high-speed video is being used increasingly in leading voice clinics and in the research community to understand vocal fold vibratory patterns even in severely aperiodic voices.



The acclaimed KayPENTAX Digital Stroboscopy System features the **Laryngeal Strobe** light source, the critical component in all stroboscopy systems, providing superior illumination and image quality with both rigid and flexible endoscopes.



The HD Digital Strobe application shows vocal fold structure and motion in sharp, clear 1080i HD format.



The CHSV application, shown here in Playback Mode, with side-by-side viewing of time-aligned audio, video, and waveform data.

KayPENTAX **speech products** are the tools of choice for clinicians and researchers—and they are continually cited in peer-reviewed journals.

Acoustic Analysis Products

KayPENTAX has a long history in the acoustic analysis of speech, developing tools for the speech and voice community for more than 30 years. These include products for therapy (real-time visual feedback), clinical assessment, and research. The diverse range of acoustic analysis products is designed and packaged to accommodate the needs and budgets of clinicians and researchers in hospitals, rehabilitation facilities, and voice clinics.

Among the acoustic product family are professional-level recording and playback hardware/software instrumentation as well as cost-effective, soundcard-based software programs for the budget-minded clinician. Visi-Pitch™, the most widely used speech therapy tool in the field, is now in its sixth generation. At the top of the KayPENTAX line is the widely acclaimed Computerized Speech Lab (CSL™) which provides professional-grade hardware for speech acquisition and playback and is used by voice clinicians and researchers at the leading speech/voice clinics and research labs.

Accompanying the core software for CSL and Multi-Speech™ are more than 20 application-specific software options designed for different clinical populations. For

example, the Multi-Dimensional Voice Program (MDVP™) is used for objective assessment of pathological voice. The Voice Range Profile (phonetograph) is a sensitive indicator of vocal function often used with professional voice users. Motor Speech Profile is another software option designed to assess dysarthric patients. Other application-specific programs are available, such as the new Analysis of Dysphonia in Speech and Voice (ADSV™) program which allows for voice quality analysis of continuous speech samples. The KayPENTAX Electroglottograph (EGG) is an instrument for displaying vocal contact patterns non-invasively. EGG is particularly useful when acquired in combination with other acoustic or vocal fold imaging systems with concurrent EGG acquisition.

KayPENTAX acoustic analysis programs constitute the most comprehensive assortment of robust assessment/therapy products available.



Phonatory Aerodynamic System

The KayPENTAX Phonatory Aerodynamic System (PAS) offers a complete system for measuring key aerodynamic and intraoral pressure parameters during phonation. These measurements include average phonatory flow rate, subglottal pressure (derived), laryngeal resistance, and voice efficiency. Protocol-driven software allows clinicians to administer tasks and make key airflow measurements easily. Available built-in normative data provides a reference point for interpreting patient data. In addition, concurrent capture and display of EGG data (EGG not included) provides information on vocal fold dynamics.



Aerodynamic and intraoral pressure measurements are used in combination with acoustic and stroboscopic assessment in leading voice labs.



The Nasometer is used in cleft palate clinics worldwide.

Nasometer II

The Nasometer™ is designed specifically for the assessment and treatment of nasality problems. The system measures nasalance by means of acoustic analysis using its innovative headset and has broad appeal because of its relative simplicity (compared with more invasive procedures). It provides clinicians with objective, repeatable nasality measurements during running speech. Many articles in professional journals have validated the use of nasometry and have shown its high correlation with other, more invasive instrumental techniques. (An extensive bibliography on nasometry is available on the KayPENTAX Web site.) As a treatment tool, the Nasometer provides real-time visual feedback to help clients accomplish therapy goals more efficiently. Normative data on standardized reading passages is available for client assessment.



APM data is captured by means of a throat sensor (accelerometer) attached to the neck and connected to the hardware module that is worn by the client.

Ambulatory Phonation Monitor

The Ambulatory Phonation Monitor (APM) is a portable device worn by a client in order to extract important parameters of vocal behavior over the course of a full day of normal activity. Data analysis includes both graphic and numeric displays of total phonation time, average fundamental frequency (Hz), and amplitude values (dB SPL). A vibrotactile unit provides real-time feedback, based on amplitude or frequency targets, to assist client self-monitoring and to facilitate learning of new vocal behaviors.

The **Digital Swallowing Workstation** is used in virtually every aspect of patient management from initial assessment through rehabilitation.

Swallowing Instrumentation

Three separate modules are offered by KayPENTAX that, in combination, comprise the Digital Swallowing Workstation. The Digital Video Recording module is used to record fluoroscopic and/or videoendoscopic (FEES) exams. The second module consists of a camera, light source, monitor, cart, and printer that together make up the complete videoendoscopic (FEES) system for the assessment of swallowing at patient bedside. The third module, the Swallowing Signals Lab, can be used for assessment and as a therapy tool with five separate signals related to swallowing physiology (surface EMG, respiratory phase, pharyngeal manometry, lingual pressure, and acoustic). Visual feedback derived from any combination of these signals helps patients attain therapy goals more efficiently. A unique feature of the Digital Swallowing Workstation is its ability to record video and physiologic signals concurrently for the integration and precise correlation of disparate types of data on a single, user-friendly system.

Comprehensive Line of Flexible Endoscopes

KayPENTAX offers a complete line of nasopharyngoscopes, including traditional fiberoptic scopes as well as state-of-the-art, high-resolution distal chip videoscopes. These scopes boast superior image quality, ergonomics, ease of insertion, and durability. All endoscopes work in conjunction with the KayPENTAX stroboscopy and swallowing systems.



The VNL-1190STK provides superior image quality, uniform illumination, and excellent field of view.



The Digital Swallowing Workstation is the most comprehensive system available for dysphagia clinicians.

Network Solutions

KayPENTAX network solutions provide exam database sharing between multiple workstations, and remote viewing via secure network access. *endoServer* is an excellent solution for connecting and sharing video, examination reports, and the database from the Digital Strobe, or Digital Swallowing Workstation, on a local area network. *endoServer* can work in conjunction with KayPENTAX's *endoPortal*, a product which allows remote viewing of exams from any network PC throughout the facility via a secure Web browser interface. Exams can be viewed, even at home, via the Internet and a VPN connection to the network. This capability of viewing exams from another exam room, office, conference room, or home, frees up the examination system for use with subsequent patients, thus enhancing clinical efficiency.



Advantages of KayPENTAX Instrumentation

✓	Long-standing, ongoing commitment to providing the best technology available
✓	More than 50 years of experience serving the professionals in the speech, voice, and swallowing communities
✓	Excellent customer support with a network of trained agents for local assistance in more than 40 countries
✓	Used in top facilities internationally by the leaders in speech pathology, otolaryngology, and phoniatrics
✓	Designed and beta-tested in conjunction with leading clinicians and researchers at top-tier facilities
✓	Cited in hundreds of peer-reviewed journal articles and books

For further information, please contact KayPENTAX or your local representative.



World Leaders in Speech, Voice, and Swallowing Instrumentation

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