OF THE CALIFORNIA DENTAL ASSOCIATION

Journal

FEBRUARY 2008

Ischemic Heart Disease

Addiction

Musculoskeletal Health

WOMEN'S HEALTH

KERRY K. CARNEY, DDS

OF THE CALIFORNIA DENTAL ASSOCIATION
Journal
CDA Journal
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Theresa E. Madden, DDS, MS, PhD

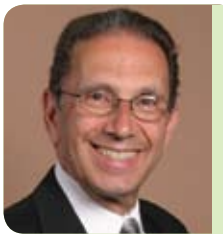
CDA JOURNAL, VOL 36, Nº2

Save the Children

ALAN L. FELSENFELD, DDS

In her hit, "The Greatest Love of All," pop singer Whitney Houston warbled "I believe the children are our future. Teach them well and let them lead the way."

From a rational perspective this is prosaic and tells us something that is obvious. From an artistic and more philosophical perspective, her melodious delivery and style makes one pause to think. Certainly our children are our future. That is a biological constant. But the more intuitive meaning has implications for our dental organizations and continued leadership within the California Dental Association and its components, as well as for the American Dental Association.



As senior leaders complete their obligations, young individuals need to be groomed for service to our profession, our organizations, and dentistry.

Last year we experienced, unfortunately, for the first and hopefully last time, a diminished and inadequate number of individuals who volunteered to serve on the multitude of committees, task forces, councils and work groups that allow our members to chart the course of our organization. There are hundreds of positions available to work within CDA; each of them having diverse areas of interest, skill set requirements, and time commitments.

Introspective analysis of why this problem occurred is conceptual at best. Some argue that a significant lack of communication or marketing to the members in recruiting individuals to do the work for the organizations is responsible. Others noted that generational values and realities of life in present times do not allow for global participation of members. Other theories exist but, in reality, none of them are significant. What is important is that the problem occurred.

Not our children but most assuredly our future, the young individuals entering our profession will become the leaders for today and tomorrow. As senior leaders complete their obligations, young individuals need to be groomed for service to our profession, our organizations, and dentistry. It is a real problem but maybe a temporary one.

One solution has been the structural division of what was the Leadership Development Committee into two separate entities. The new Leadership Development Committee will be charged to pursue methods of "teaching our children" by continuing to provide educational offerings that show the value of leadership and assist in developing requisite skills and attitudes. The Committee on Volunteer Placement will be aggressive in evaluating and recruiting individuals for the multitude of positions within our organization.

It is unclear at the present time if this will be a more effective means for continuing the strong tradition of bringing excellent volunteers through leadership positions within organized dentistry at the state and other levels. It should be; that will mean problem solved.

In recent months I have been fortunate to attend two component dental society installation ceremonies for new officers and committee chairs. Both occasions were beautifully done with the requisite honoring of outgoing individuals who have served. There was a genuine appreciation for the efforts made to continue the local component service to its members.

What is most telling about these meetings was the installation itself. It was refreshing to see individuals placed in positions at the committee or board level in the local component who are young and ambitious. These are the people who will take on the responsibilities of directing local matters for the next year. These are the people who will continue to serve the organization in other capacities. These are the people who can be developed and recruited for the future of CDA and ADA.

It is not all bleak. As one looks at the history of the Committee on the New Dentist, the contemporary iteration of a committee developed many years ago to assure that younger members are involved, it is reassuring to see that this group has been successful in having young members participating at all levels within our organization. There are few committees within CDA that do not have young individuals participating. This is yet another sign that we will continue to foster the introduction of youth into organized dentistry. This committee, as well as the student delegations to the House of Delegates, has had impressive impact on our structure and goals.

As singer Houston continues later in the song to suggest, "Everybody searching for a hero, people need someone to look up to," those of us who are more senior need to remember that.

We are the individuals who will mentor younger and newer dental individuals to participate at all levels. Perhaps last year

was an aberration. We have talent and interest among our members. The encouragement and development of leadership desires, skills and positions for younger and interested members is our legacy.

It is encouraging to see young people serving the local components. I am encouraged by the ability that we see in our "children" at the state and national levels. These people are our future. We can increase the ability and desire of newer members to serve in positions at all levels. It is critical we mentor them continually and get them involved at their own comfort level and within their parameters for participation. As this happens I am comfortable that organized dentistry will have a bright future.

There is no option. ■■■■

Address comments, letters, and questions to the editor at alan.felsenfeld@cda.org.

Dan Hubig

Fossil Find May Be Linked to New Ancient Ape Species

BY PATTY REYES, CDE

The back bone is connected to the shoulder bone.

The shoulder bone is connected to the neck bone.

The neck bone is connected to the head bone.

Dem bones are gonna rise!

Is it possible that a new species of ape that roamed the earth the same time as the last common ancestor of humans and gorillas is connected to a 10-million-year-old jawbone and 11 teeth, unearthed in Kenya? You bet your bananas.

Discovered in deposits of volcanic mud flow in the Nakali region of Kenya in 2005 and later christened *Nakalipithecus nakayamai*, the new species substantiates the notion that the ancestors of great apes and humans evolved exclusively in Africa, researchers said. The name is a hybrid from the genus assigned after the area it was found in; the species is named after Japanese geologist Katsuhiro Nakayama

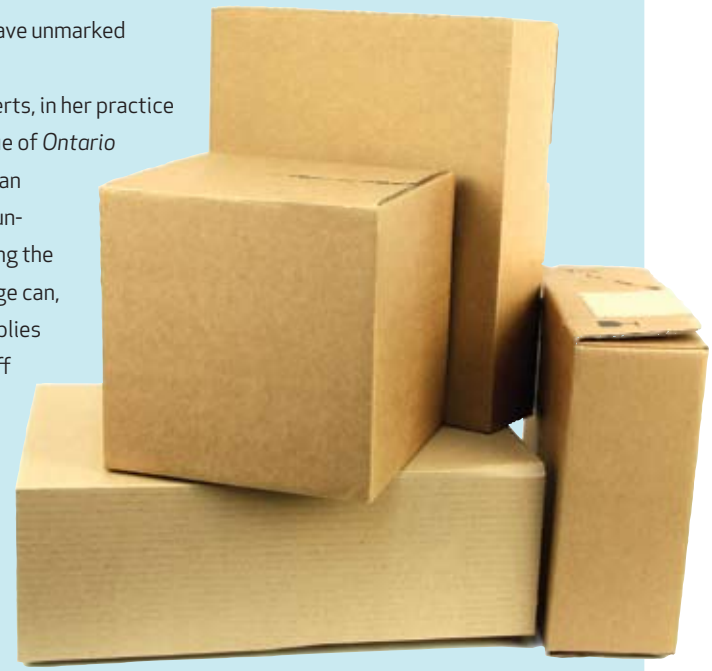
CONTINUES ON 95

A Pricey Faux Pas

One dentist has 1,200 reasons to never, ever, leave unmarked boxes near an exit door.

Recounted by an insurance expert, Susan Roberts, in her practice management column published in the October issue of *Ontario Dentist*, Roberts told of numerous ways disaster can strike a practice. Workers in one dental office left unmarked cardboard boxes near an exit door. Believing the boxes contained trash, staff put them in the garbage can, which was then emptied that night. The dental supplies (worth $1,200) the boxes contained were written off as a loss.

"Ensure that all of your practice supplies are always kept secure in a storage area," Roberts advised. Further, it is never a good idea to keep valuable items in unmarked boxes. "When appropriate, clearly indicate on all boxes that they are not to be thrown out."



Honors

Nader Nadershahi, DDS, MBA, San Anselmo, Calif., associate professor and chair of the department of dental practice at University of the Pacific, Arthur A. Dugoni School of Dentistry, has been named a fellow of the Academy of Dentistry International and the American College of Dentists.

Nava Fathi, DDS, Los Gatos, Calif., assistant professor at University of the Pacific, Arthur A. Dugoni School of Dentistry, has been named a fellow of the Academy of Dentistry International.

Nader Nadershahi, DDS, MBA

Nava Fathi, DDS

UPCOMING MEETINGS

2008	
May 1-4	CDA Spring Scientific Session, Anaheim, 800-CDA-SMILE (232-7645), cda.org.
May 2-3	Evidence-based Dentistry Champion Conference, ADA headquarters, Chicago, ada.org/goto/ebdconf.
May 4	International Conference on Evidence-based Dentistry, ADA headquarters, Chicago, ada.org/goto/ebdconf.
May 6–9	Conference for Oral Health in the Americas, Lima, Peru, http://www.fdiworldental.org/public_health/3_1conferences.html.
Sept. 12-14	CDA Fall Scientific Session, San Francisco, 800-CDA-SMILE (232-7645), cda.org.
Oct. 16-19	American Dental Association 149th Annual Session, San Antonio, Texas, ada.org.
Oct. 25-29	American Public Health Association Oral Health Section's annual meeting and exposition, San Diego, www.apha.org/meetings.
2009	
May 14-17	CDA Spring Scientific Session, Anaheim, 800-CDA-SMILE (232-7645), cda.org.
Sept. 11-13	CDA Fall Scientific Session, San Francisco, 800-CDA-SMILE (232-7645), cda.org.
Oct. 1-4	American Dental Association 150th Annual Session, Honolulu, Hawaii, ada.org.

To have an event included on this list of nonprofit association continuing education meetings, please send the information to Upcoming Meetings, CDA Journal, 1201 K St., 16th Floor, Sacramento, CA 95814 or fax the information to 916-554-5962.

Inflammatory Diseases May Be Treated With New Molecule

Resolvins, recently discovered compounds, may hold relief for people suffering recurrent inflammation from periodontal disease, heart disease, and arthritis.

According to research at Boston University Goldman School of Dental Medicine, data suggests the key to controlling inflammation isn't eliminating infection-causing bacteria, as long thought, but resolvins.

What's more, if developed into a remedy, resolvins can offer a safer option over other drugs since these compounds are produced naturally by the body.

Resolvins set off a drastic reduction in inflammation and regeneration of bone and tissue destroyed by periodontitis in rabbits with the disease, researchers discovered.

Hatice Hasturk, Alpdogan Kantarci, Emilie Goguet-Surmenian, Amanda Blackwood, Chris Andry, Charles N. Serhan, and Thomas E. Van Dyke authored the study, "Resolvin E1 Regulates Inflammation at the Cellular and Tissue Level and Restores Tissue Homeostasis In Vivo." It appeared online in the November issue of the *Journal of Immunology*.

Preparing for a Crisis

Free CD copies of a new emergency dental action plan, courtesy of The Dental Record, is now available. Prepared by the Wisconsin Dental Association, the CD was created to assist dental offices in handling crisis situations.

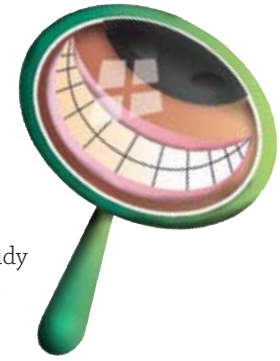
"We all hope there never comes a day when an emergency action plan has to be put into place; however, most offices want a level of preparedness," said Lee Johnston, The Dental Record president. "Because WDA was responsible for its development, you know it was prepared with the needs of dental offices in mind."

The multifaceted plan, available only on CD, provides examples of various forms used to detail needed supplier and employee contact information. It assists dentists and staff prepare for, through information-gathering and sharing, handling community and office emergencies. Being prepared for a crisis can reduce or even eliminate the negative outcomes affecting a dental office, staff and patients, and the community, according to a press release.

For more information or to obtain a free CD, call (800) 243-4675.

"We all hope there never comes a day when an emergency action plan has to be put into place; however, most offices want a level of preparedness."

LEE JOHNSTON



GORILLAS, CONTINUED FROM 93

who died while working on the project.

It is believed *N. nakayamai* existed around 9.9 million to 9.8 million years ago, its dental features resembling those of *Ouranopithecus macedoniensis*, an ape that lived in what is present-day Greece between 9.6 million and 8.7 million years ago, a stretch of time in which some scientists consider the last known common ancestor to African great apes and humans.

In comparisons of teeth size, it appears *N. nakayamai* was similar to a modern female orangutan and a female gorilla. While it bears a resemblance to *O. macedoniensis*, several characteristics of the dentition point to a less specialized diet than *Ouranopithecus*, putting the *Nakalipithecus* in a genus of its own, according to a November 2007 article in Primatology.net.

Since *O. macedoniensis* and *N. nakayamai* are only known from teeth and jawbone fragments, scientists are not able to say more about their behaviors or the way they looked other than they potentially only consumed hard foods.

"Imagine that you are given some human teeth and asked to tell what the person with those teeth looked like," said study team member Yutaka Kunimatsu of Kyoto University in Japan in a previously published article. "Is the skin of the person black or white or intermediate in color? Is the person tall or short? Fat or slim? Did they have blue eyes or black eyes?"

A competing hypothesis, however, opines that the last common ancestor of both *O. macedoniensis* and *N. nakayamai* came from a repatriated hominid that departed Africa around 16.5 million years ago for Asia or Europe, and subsequently returned approximately 9.5 million years ago.

A New York University anthropologist who was not involved in the recent discovery, called the new fossil a "great find," but said it is too inconclusive from which to draw major conclusions. "It could well be a Eurasian immigrant," said Todd Disotell in an interview with LiveScience. The new fossil is detailed in the November 2007 issue of *Proceedings of the National Academy of Sciences*.

Another anthropologist who was not involved in the study said that while the *N. nakayamai* a is a "very interesting and important discovery," it doesn't budge his position that the ancestors of African great apes and humans spent some of their time evolving outside of Africa.

"Both these researchers and I agree that the last common ancestor of African great apes and humans came from Africa," said David Begun, an anthropologist at the University of Toronto.

The early ancestors of African apes and humans initially left Africa for Europe in search of more seasonal fruits, but some 7 million years later their descendants returned, according to Begun's hypothesis. Back in Africa, the hominids continued their evolution, where they eventually gave rise to gorillas, chimpanzees, and humans.

"But the events that led to the divergence of Asian and African ape lineages happened in Europe at least 2 million years before the (*N. nakayamai*) came into existence," said Begun.

Finding Your Footing in Financial Matters

Successful financial planning needn't be viewed as insurmountable, but adapting a mountain climbing mentality may help.

In a recent issue of the *Dental Tribune*, Robert Graham, CFP, commented that "Experienced and successful climbers plan to live another day," adding, "Mountain climbing has similarities to retirement, tax and estate planning."

According to Graham, the financial planning strategies in step with mountain climbing are:

- Write down your vision. Where do you think you should be devoting your time and resources? Write these thoughts on paper and work from there.
- Write down your goals. Establishing milestone goals — determining where you should be at a certain time — are important in mountain climbing, and are just as necessary in financial planning.
- Work with a top-level adviser. An expert can help you devise the strategies needed to meet your milestone goals.
- Outline the right tactics. In mountaineering, it is important to know the tactics and procedures necessary to proceed. Similarly, financial tactics are necessary to fulfill your strategic needs.
- Choose the proper tools. You wouldn't climb a mountain in flip-flops (comfortably), and you shouldn't set out to meet your financial vision without knowing the right investment tools to use.
- Create a timeline for the execution of your plan. A great plan is worthless if you haven't determined the best timeline for execution.

Experienced mountaineers are well aware of the perils of climbing in the "death zone," an elevation where tragedy can occur. Adhering the rules outlined, Graham said, will help one avoid the financial "death zone."

'Bad Guy' Gene Discovered

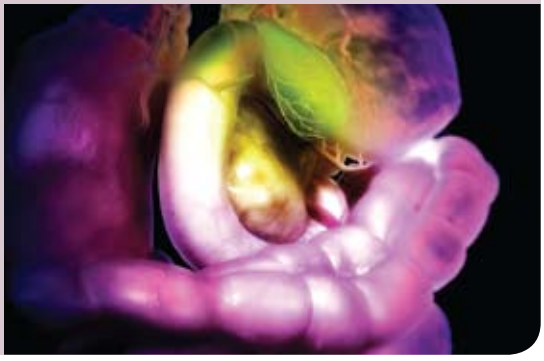
Researchers at Boston University Goldman School of Dental Medicine have named CTRC a susceptibility gene for three common forms of chronic pancreatitis, including alcoholic pancreatitis, which accounts for the majority of all cases in the United States and Europe; tropical pancreatitis, a common form found in India; and idiopathic pancreatitis, in which the cause is unknown.

"Up to this point, researchers only studied trypsin as the bad guy of chronic pancreatitis," said Miklos Sahin-Toth, MD, an associate professor. "Now we can look at chymotrypsin C activity to help us treat the disease."

CTRC is the first susceptibility gene for chronic pancreatitis discovered since 2000 and only the fourth overall. Sahin-Toth's team was the first to suggest in early 2007 that the product of the CTRC gene, the digestive enzyme chymotrypsin C, plays an important role in the cause of chronic pancreatitis.

Doctors will now be able to screen patients to learn if alterations in the CTRC gene cause their patients' cases of pancreatitis.

Sahin-Toth and researchers from the University of Leipzig and Charité University Hospital in Germany found mutations in the CTRC gene prevent the proper regulation of trypsin levels, leaving more trypsin in the pancreas. High levels of trypsin are known to lead to pancreatitis.



APHA Calls for Abstracts

The American Public Health Association Oral Health Section is seeking abstracts for its annual meeting and exposition set for Oct. 25-29 in San Diego. The theme of the meeting is "Public Health Without Borders."

All abstracts must be submitted online. The link to the abstract submission form is on the APHA Web site www.apha.org/meetings or http://apha.confex.com/apha/136am/oasys.epl. The deadline is Feb. 8.

The APHA's annual event addresses emerging health science, practice issues and policy as a way to promote health and prevent disease.

Abstracts from all areas of public oral health and abstracts that focus on the annual meeting theme are welcomed. Some suggested abstracts include:

- Effective preventive programs and oral health promotion
- Innovative delivery and financing mechanisms
- Epidemiology of oral diseases
- Oral health disparities
- Oral health literacy
- Oral health policy and programs
- Special needs populations
- Workforce issues
- Migrant/border oral health

Authors must provide complete and accurate contact information. Abstracts will be selected through a rated review process according to significance, timeliness, and overall quality. Presenters of accepted abstracts must become individual members of APHA and register for the annual meeting.

For more information, go to ww.apha-oh.org or contact Woosung Sohn, DDS, PhD, DrPH, chair, Program Planning Committee, at woosung@umich.edu.

Dental Waste Handling Recommendations Updated

The best management practices for the disposal of dental amalgam waste has been updated by the American Dental Association.

These practices include the use of separators, collection devices installed in dental office plumbing to capture and remove at least 95 percent of solid waste particles before they enter the sewer system. The use of separators will allow greater recycling and reduce the amount of amalgam entering wastewater treatment plants.

"Dentists across the country have enthusiastically embraced ADA best management practices since we introduced them in 2003, which clearly demonstrates that voluntary programs work," said ADA President Mark J. Feldman, DMD. "Since then, we have gained a lot of experience with separator technology, and even assisted the ISO in developing standards for the devices. We have learned that the systems work well, and we now feel comfortable including them in our best management practice recommendations."

Now surpassed in popularity by tooth-colored composites, amalgam was once the most commonly used filling material. Amalgam, nevertheless, remains a safe and valued treatment option for some patients, particularly those who have special needs or large fillings in back teeth.

Dental offices using ADA best management practices already capture about 80 percent of waste amalgam. Adding separators to that procedure would increase the amount of captured amalgam to at least 95 percent. The additional amalgam captured by the separator would otherwise have been captured downstream by the municipal wastewater treatment plant. However, treatment plant waste is often incinerated; amalgam captured by separators can be recycled.

"Like most people, dentists are committed to protecting the environment," said Jim Bramson, DDS, ADA executive director.

"By adding separators to their best management practices, dentists have much greater control in their efforts to ensure a healthier environment for everyone."

JIM BRAMSON, DDS

UCLA Researcher Awarded Prestigious Grant

The Oral Cancer Foundation announced recently that David Wong, DMD, DMSc, a researcher in the area of early cancer detection, is one of three of the foundation's first grant recipients.

"We are supporting research that moves our early discovery agenda forward," said Brian Hill, the foundation's executive director. "Early detection is our first front in reducing the death rate from oral cancer, and we believe these research programs all will have a huge impact on how and when people are diagnosed with the disease. Early detection and staging is directly correlated to better long-term outcomes for patients."

The grants were made as an ongoing commitment to each researcher.

Wong, director of the University of California, Los Angeles, Dental Research Institute, is a nationally recognized expert in the emerging field of salivary diagnostics. Wong's work will yield an accurate, noninvasive test for very early detection of oral cancer, and likely other high-impact systemic diseases within a few years, according to the foundation. It is the first viable option for conducting mass public screenings for oral cancer using only a small amount of saliva and a computer chip which looks for specific biomarkers. Given the shift in etiology of oral cancer cases away from the obvious potential patient identifiers, like smoking to the less easily detectable virus, Wong's research will be instrumental in identifying those most at-risk for the disease.

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Documentation and Proper Office Protocol: Avoiding Allegations of Pregnancy Discrimination

BY TDIC RISK MANAGEMENT DEPARTMENT

Once a quarter, the *Journal* features a TDIC risk management case study, which provides analysis and practical advice on a variety of issues related to liability risks.

Authored by TDIC risk management analysts, each article presents a case overview and real-life outcome, and reviews learning points and tips that everyone can apply to their practice.

A chairside assistant sues her former employer for wrongful termination and gender discrimination.

Susan Felt and two other female candidates interviewed for a chairside assistant position in Dr. Michael Stanley's office. The interviews consisted of a series of technical questions from Dr. Stanley and general questions from the office manager, Ms. Claire Wiggins. During the interview, Ms. Wiggins asked each candidate whether she had any plans of getting pregnant in the near future. She informed each candidate that the office only had three employees and therefore, it could not operate with anyone out for a long period of time, such as pregnancy leave. The first two candidates stated that each was contemplating starting a family in the near future. Ms. Felt answered "no" to the question. Dr. Stanley hired Ms. Felt based on her skills and the fact that she did not desire to add to her family. Ms. Felt began her employment as a chairside assistant in 2000 with a 90-day introductory period.

During Ms. Felt's first two years of employment with Dr. Stanley, he often disciplined her for being late for work. Additionally, she received poor performance reviews for neglecting her assigned duties. Dr. Stanley had Ms. Felt sign every performance evaluation and all corrective actions, gave her copies of the documents, and kept the originals in her personnel file.

In April 2002, Ms. Felt informed Dr. Stanley that she was pregnant. Dr. Stanley told her that he required a letter from her physician listing any special accommodations she may require during her pregnancy and her due date. Ms. Felt had her obstetrician fax a letter to Dr. Stanley's office. Dr. Stanley placed the letter, which did not indicate any special accommodations, and gave a due date of Dec. 26, in Ms. Felt's personnel file.

In the first week of December, Ms. Felt went on pregnancy leave. Ms. Wiggins informed her she had used all of her vacation and sick time but explained the Family Medical Leave Act. Even though Dr. Stanley's office had fewer than 50 employees, he chose to offer FMLA as an employee benefit. Ms. Felt said she would

return to work on March 15, within her 12 weeks allotted under FMLA. As March 15 approached, Ms. Wiggins tried calling Ms. Felt several times to confirm the date of her return and to ensure that her physician agreed that she was ready to return. Ms. Felt failed to answer the phone calls or return any messages. Ms. Wiggins sent a letter to Ms. Felt extending her date of return to May 1. In the letter, Ms. Wiggins explained that if Ms. Felt did not return to work on May 1, Dr. Stanley would assume she was resigning her position.

Ms. Felt did not present for work on May 1, nor did she call to offer any explanation. Dr. Stanley sent Ms. Felt a letter accepting her resignation since she did not return to work. Dr. Stanley included information on how to obtain COBRA medical coverage and copies of excerpts from the employee manual pertaining to pregnancy leave and medical insurance. Ms. Felt's 2000 signature on the forms indicated she understood and agreed to the office policies.

Several weeks later, Dr. Stanley received a letter from Ms. Felt's attorney stating she was suing him for wrongful termination and gender discrimination. Additionally, the letter included accusations of sexual harassment but did not include any evidence to support this allegation. Ms. Felt demanded an apology from Dr. Stanley, reinstatement to her job, and back pay. The letter instructed Dr. Stanley to send a summary of the reasons Ms. Felt was terminated along with any supporting documentation.

During Discovery

Dr. Stanley contacted TDIC to inform them of the situation. The claims representative instructed Dr. Stanley to forward all information pertaining to Mrs. Felt's employment to TDIC and to the employee's attorney as requested in the letter. Dr. Stanley sent copies of the office's pregnancy leave policy from the employee manual as well as copies of Ms. Felt's performance reviews, her timesheets, which revealed that she was repeatedly 15-20 minutes late for work, and copies of all written corrective actions documented during her two years of employment. After reviewing the information provided by Dr. Stanley, Ms. Felt's attorney declined pursuing any legal recourse, as there was no merit to Ms. Felt's allegations.

> Once everyone begins to view the process as a means for feedback, the negativity associated with evaluations will lessen.

What Lessons Can We Learn From Reviewing This Case?

INTERVIEWS

For the sake of consistency and to avoid the appearance of discrimination during the hiring process, ask each candidate the same questions. If multiple people will be conducting interviews, it is important to review the questions with one another. This will ensure that the questions are appropriate. No employer should inquire, either on the application or during the interview, about an applicant's age, ethnic background, national origin, martial status, family planning, and disabilities. Questions about sexual, religious or political preferences are strictly taboo as well.

Dr. Stanley and Ms. Wiggins interviewed Ms. Felt to assess her clinical knowledge and her compatibility with the office staff. Unfortunately, Dr. Stanley and Ms. Wiggins did not discuss with each other the questions they were going to ask prior to the interview. Even though Dr. Stanley was not aware that Ms. Wiggins was going to ask the candidates questions regarding pregnancy, Ms. Felt's attorney may have used that question to support the allegation of discrimination against Dr. Stanley.

PERFORMANCE EVALUATIONS

Employees are usually nervous about receiving their review and often see it as a negative experience. Consider these guidelines to help you develop successful performance evaluations.

- Perform evaluations regularly (at least yearly).
- Discuss promotions or raises well before the performance evaluation, not during it.
- Establish a date on which you will conduct the performance evaluation.
- Set goals that are realistic and have the employee prepare the same information, and then compare the two with the employee.
- Be sure the employee agrees with the established goals.
- Keep communication open.
- Nothing should come as a surprise to you or the employee. Address difficult topics as they arise and do not save them for the performance evaluation.
- View everything as positive feedback and not as a form of criticism.
- Document all discussions and the employee's reaction.
- Sign the performance evaluation and have the employee sign it. File the original in the employee's personnel file, and give the employee a copy.
- Have a follow-up meeting if there are areas of concern.

Because most people link promotions and raises to their performance evaluation, separate the process. Settle the money and promotion issues first, and then use the evaluation as a development tool. Once everyone begins to view

the process as a means for feedback, the negativity associated with evaluations will lessen. A properly done evaluation will not only tell employees where they need improvement but also offer tools to assist them in meeting the expectations.

It is absolutely incumbent upon employers to make certain that they are being honest and forthright and point out any and all work-related deficiencies. Use specific examples. Do not water down the performance evaluation. Time and again in discrimination cases when employees are terminated for performance reasons, the performance evaluations do not reflect any problems because supervisors did not want to hurt the employees' feelings.

Dr. Stanley had thoroughly documented Ms. Felt's performance evaluations and was able to supply copies when requested by the attorney. These evaluations included Ms. Felt's signature and provided the necessary evidence to defend Dr. Stanley against Ms. Felt's allegations.

CORRECTIVE ACTION

It is important to follow similar advice for corrective actions. Documented corrective actions demonstrate and record the performance and/or behavioral issues with an employee and can be very helpful when defending allegations such as Ms. Felt's. Many times, performance and/or behavioral issues — sometimes very serious issues — occur in between performance evaluations and it is imperative these issues be addressed and documented at the time they occur rather than waiting until a performance evaluation, which may be months away. Consider these guidelines to help you develop successful corrective action processes. And, include them in your employee manual.

1. Conduct a confidential corrective action meeting with the employee shortly after the inappropriate issue starts and/or occurs.

2. Explain the issue and discuss the situation with the employee.

3. Set forth, in writing, the expected corrective action, which may be actions by the employee, you, or both.

4. Document all discussions and the employee's reactions.

5. Sign the corrective action notice and have the employee sign it. File the original in the employee's personnel file and give a copy to the employee.

6. Have a follow-up meeting if there are continuing areas of concern of if the corrective actions are not being taken.

Spelling out what you expect the employee to accomplish provides the employee a clear understanding of the job itself. Remember to be factual and objective. Dr. Stanley's thorough documentation helped defend him against Ms. Felt's allegations.

Do not have a separate pregnancy leave policy that is different from the short-term disability policy applicable to all employees.

PREGNANCY PROTOCOL

It is important to establish a protocol for pregnant employees to follow. When an employee discovers she is pregnant, she should inform you as soon as possible as the most vulnerable period for the employee or her developing fetus is during the early stages of pregnancy. Your employee manual and policies should include a statement of the employee's responsibility to notify you of a pregnancy as soon as possible. At a minimum, document you advised your staff of their obligations to inform you and document in the employee's personnel file when an employee informs she is pregnant. Obtain a letter from the employee's physician stating her estimated delivery date and any special accommodations she will require during her pregnancy. Keep a copy in her personnel file.

Dental offices must treat pregnant women or those with pregnancy-related conditions in the same manner as other applicants or employees with similar abilities or limitations. Do not have a separate pregnancy leave policy that is different from the short-term disability policy applicable to all employees.

Once Ms. Felt notified Dr. Stanley of her pregnancy, he followed the proper protocol by obtaining a letter from her obstetrician that included any accommodations necessary during her pregnancy. Additionally, Dr. Stanley placed the letter in her personnel file.

Since some states grant additional leave that you may be required to provide to pregnant women, visit thedentists.com for state-specific laws related to pregnancy leave and accommodations.

SAFETY MEASURES

Once an employer is notified of a pregnancy, the first obligation is to assess the risk for the pregnant employee within the workplace. We recommend:

- Assessing the risks to which pregnant women, women who have recently given birth, or women who are breastfeeding, are exposed and the extent of the exposure.
- Informing the employees concerned of any identified risk(s) and control/protective measures that will be put in place.
- Determining the practical measures to be implemented in the workplace to protect against the risk.

A great deal of concern surrounds the use of mercury, ionizing and nonionizing radiation, and certain chemicals, including nitrous oxide, for those women or men who are trying to conceive as well as

pregnant women. Research reported by the *New England Journal of Medicine* links birth defects to nitrous oxide use. However, this theory is controversial and not entirely supported by data. To be cautious, it is best to have pregnant staff members or those trying to conceive refrain from being in the same operatory when nitrous oxide is being administered, unless their treating physician states otherwise.

Be aware of legal and practical considerations affecting pregnant employees and those who are trying to conceive. Prepare in advance so that your office will run smoothly when one of your staff members announces she is expecting.

To ensure that you deal fairly with pregnant employees or those trying to conceive, remember to:

- Obtain a letter from the employee's physician stating his/her condition.
- Have the employee provide you with restrictions and the length of time those restrictions can be expected to continue as indicated in writing by his/her physician.
- Assess the risks to which the employee is exposed.
- Implement measures to protect him/her from those identified risks.
- Hold a staff meeting to inform other staff members of any changes that may be expected.
- Prohibit employees who are pregnant or trying to conceive from working in the operatory when nitrous oxide is being administered.
- Keep lines of communication open regarding the employee's condition and special needs.
- Consider placing the employee in a different position temporarily.
- Treat the employee as you would any employee with a disability.
- Accommodate employees who breastfeed.

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AND NOW FOR SOMETHING

Completely Different...

KERRY K. CARNEY, DDS

GUEST EDITOR

Kerry K. Carney, DDS, is a general dentist practicing in Benicia, Calif.

My first idea for a women's health issue concerned the obvious big subjects: breast health and perinatal health. These turned out to be rich enough to have a volume dedicated to each. So to find topics of a broader range, I started thinking about what subjects don't usually get covered. What areas are gender-specific that also impact our personal and professional lives daily? I contacted my friend, Linda Keating, at the American Dental Association, and was impressed once again with how much she knew and how many contacts she has.

This issue has four articles dealing with aspects of women's health: gender-specific expressions of cardiovascular disease; two pieces on substance abuse in women, one focusing on adolescents and young adults, and the second on identification and intervention for older women; and, finally, gender-specific ergonomics in the dental office.

At first glance, the target audience for this issue might appear to be women dentists; however, few of our offices are limited to only one gender or age group. Our ability to sensitively relate to all our patients requires that we stay informed on health issues that affect the whole population — young and old, male and female.

It was an honor serving as guest editor for the first issue of the *Journal* dedicated to women's health. The authors have increased my understanding of the topics and the experience has taught me humility. It is a daunting task putting together just one issue of the *Journal of the California Dental Association*. Thanks to the authors for their interesting and informative communications; to Patty Reyes, assistant editor, for her calm reassurance and for making it all work; and to Dr. Alan Felsenfeld for taking a chance on a theme that expands the *Journal's* horizons. ■■■■

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Addiction in Older Women: American Health Care's Best-kept Secret

PENELOPE. P. ZIEGLER, MD

ABSTRACT Older women are not immune from alcohol and drug dependence. In fact, substance use disorders are becoming more common in women over 60 and will become a larger public health issue as the baby boomers reach retirement age. Addicted women in their senior years present special challenges in identification and intervention, and have special needs in treatment. Incidence of co-occurring medical and psychiatric problems is increased. They respond best to a compassionate, nonjudgmental counseling approach.

AUTHOR

Penelope. P. Ziegler, MD, is a fellow of the American Society of Addiction Medicine, medical director emeritus of Williamsburg Place and The William J. Farley Center, Williamsburg, Va., and associate clinical professor of psychiatry at Virginia Commonwealth University in Richmond, Va.

As American women age, we are now seeing only the beginning as the baby boomer generation reaches their 60s. Not surprisingly, recent studies have shown that, as the number of people over age 60 increase, issues of alcohol and other drug addiction in this age group are becoming a greater public health issue. It has been estimated that of the nation's approximately 25.6 million women age 60 years and older, 1.8 million have alcohol-related problems. Even more have issues with other drugs, both legal and illegal. Yet, at any time, only about 11,000 of these women are receiving any form of substance abuse treatment.[1]

As women age, their patterns of alcohol and other drug use change, and, therefore, the development, progression, and presentation of their substance use disorders change as well. Social expectations and mores for alcohol use are quite different for women over age 60 as compared to young adult women in college, professional, and other working women in the early and midcareer age groups, or stay-at-home mothers. For example, college women are less likely to drink daily, but much more likely to use alcohol in a binge pattern, drinking to the point of intoxication at social affairs such as dances or football postgame parties.[2]

Professional women, on the other hand, are expected to drink moderately at social affairs, business dinners, or conferences. Women who are stay-at-home mothers and homemakers likewise are expected to drink moderately in social situations. Intoxication is not condoned for women in this age group. After retirement, women are much more likely to drink alone, and to use alcohol for its "medicinal" properties, such as calming anxiety and promoting sleep.[3]

Older women are much less likely than those in the younger age groups to use illicit drugs such as cocaine, marijuana,

and methamphetamine. However, as female baby boomers age, this observation is also beginning to shift, especially with regard to marijuana.[4] Today's 60-year olds were teens during the 1960s, and many of them came of age when smoking pot was more or less socially acceptable. So it is not too surprising to find younger grandmothers are still getting high well into their retirement years. Some new studies are showing that senior citizens are using other illicit drugs in growing numbers, including cocaine, methamphetamine, heroin, and even club drugs such as Ecstasy and ketamine. In these studies, elderly women were significantly outnumbered by their male cohorts, but were still well-represented.[5]

The major drug issues for women over age 60, however, remain prescription pharmaceuticals, primarily opioids and sedatives that they obtain from their physicians as treatment for various chronic pain conditions and psychiatric symptoms, including insomnia, anxiety, panic attacks, etc.[6] These addicted women may, in some cases, have had no prior history of any problems with drugs or alcohol before beginning to take the pain medication or tranquilizer prescribed by their health care provider for their legitimate or imaginary medical condition. More frequently, there was an undisclosed, indeed unacknowledged, history of problem drinking or other drug use, either in the past or currently. In other cases there may be a strong family history of addiction, or some other serious warning sign that was not detected. And, of course, some of these women are already addicted to prescription drugs and are "doctor shopping" to obtain sufficient quantities to satisfy their tolerance, lying to the new health care provider, fabricating symptoms, and doing a masterful job of it.

Some psychiatric conditions do increase a woman's risk of developing chemical dependency. These illnesses include bipolar and other mood disorders, childhood sexual abuse with post-traumatic stress disorder, and possibly certain eating disorders including bulimia and compulsive overeating.[7] Since these are chronic conditions with symptoms usually emerging in adolescence or early adulthood, one might expect that these at-risk women would be aware of their vulnerabilities. However, because of the stigma associated with mental illness, as well as secrecy and shame, especially where sexual abuse is involved, some women reach their senior years without ever having been diagnosed or treated for these illnesses. In addition, many health care practitioners are not aware of the increased risk of addiction in these patients.

IT IS NOT TOO surprising to find younger grandmothers are still getting high well into their retirement years.

Women in this stage of life may not be psychiatrically ill but may still be severely impacted by the many changes that come with aging. Most of these changes involve loss and accompanying grief: loss of closeness with her children as they move out of the home and start lives and families of their own; loss of her own parents; loss of her role as an active, physically healthy participant in her professional and recreational life; loss of a spouse or partner; all of the identity issues and other losses associated with retirement; and for many, loss of the standard of living and financial security enjoyed earlier in life.

All of these losses can create emotional distress with feelings of fear, anger, sadness, and despair. If a physical injury or illness associated with significant pain, not unusual in this age group, occurs and she is prescribed an opioid pain medication, she may discover that, in addition to relief of the physical pain, the pills take away the uncomfortable emotions with which she has been struggling. This discovery, not always fully conscious, is a setup for problems with the drug because she may continue to take it after the physical injury has healed; she may seek out more of it, developing tolerance so that she needs more and more pills to get the effect she needs. For her, the cycle of addiction has begun.

Another route into trouble can come via the woman's primary care or mental health provider, resulting from an effort to help with her symptoms of anxiety, difficulty sleeping, tension headaches, or other frequent manifestations of grief. Many of the medications commonly prescribed for such symptoms, such as benzodiazepine tranquilizers (lorazepam, alprazolam, clonazepam); sedative sleep aids (zolpidem, eszopiclone); and combination headache remedies containing short-acting barbiturates (butalbital plus acetaminophen), while unlikely to cause problems for the average person, can lead to addiction in persons with genetic and/or acquired predispositions to chemical dependency.[8]

Addictive disease in women of all ages has long been noted to progress more rapidly as compared to the progression of addictive disease in men. Typically women begin using alcohol or other drugs heavily at a later age than men but progress to the later stages of the disease at an earlier age, a phenomenon that has been called "telescoping." This is especially true

when the onset of heavy use is after age 50. The best explanation for this rapid progression involves a combination of physiological differences in the absorption and metabolism of alcohol and possibly other drugs, as well as psychosocial differences in terms of women's chemical use occurring in isolation, not so much for the euphoric effects but for relief.

Whether it involves prescription drugs, alcohol, illicit substances or various combinations, addiction in older women presents special challenges in both diagnosis and treatment. Even more than younger patients, these women are ashamed and afraid to admit their problem or to ask for help. And because they do not fit into most peoples' image of alcoholics or drug addicts, doctors, dentists, pharmacists, and even family members do not think about addiction when interacting with them. A woman's physician, normally on guard against drug-seeking patients, is more likely to believe a tearful, elderly woman who reports having continuing pain beyond the usual healing time. Her dentist readily refills her pain prescription whereas the same dentist might question a younger patient. These professionals can't imagine that such a kind, concerned woman, well-mannered and neatly dressed, who brings Christmas cookies for the office staff, could be a drug addict. Her family members know something is wrong but often don't think of drugs or alcohol as the root of the problem. They view her as depressed, lonely, or maybe getting a bit confused.[1,9]

Thus, older women are less likely to be diagnosed correctly with substance use disorders. In addition, even when they are diagnosed, they are much less likely to receive the treatment they need. For example, it has been estimated that less than 1 percent of the approximately 2 million women over age 59 who might benefit from treatment for alcoholism receive it.[1]

Similar estimates have been made for women addicted to other drugs, whether prescription or illicit. The one exception is tobacco addiction. Most women who smoke and who are seen by a health care provider will be counseled about the need to stop and offered alternatives to help them with smoking cessation. The older the woman smoker, the more emphasis her physician, dentist, or other health professional is likely to place on the importance of quitting.[10] Why the difference? Most likely the reason is because although it is now recognized that smoking is an addiction to nicotine, it does not carry the same moral stigma as other forms of chemical dependency, and is therefore less uncomfortable to bring up, even with a mature woman.

HER DENTIST READILY refills her pain prescription whereas the same dentist might question a younger patient.

Once the need for help with chemical dependence is identified, older women have special needs in addiction treatment, starting with detoxification. Because they are more likely to have medical conditions that can complicate withdrawal from drugs, and may be taking medications for other health conditions that can interact with the drugs used for detoxification, careful medical assessment and supervision is required. This can be managed most safely in a residential or in-patient setting. However, such a placement may not be possible, given the lack of financial resources. Medicare does not provide a benefit for residential substance abuse treatment and inpatient hospital care is restricted to those with severe co-occurring medical or psychiatric disorders.

Some addiction specialists have developed home detoxification programs designed specifically for the older patient who has a supportive family. These programs require that a family member stay with the patient to hold and administer all of the medications; that a home care nurse visit daily to assess the patient's medical condition and progress, as well as to detect any complications, which immediately are reported to the physician; and that the doctor be available for a home visit if indicated. Once the patient has completed a safe withdrawal from the substance(s) to which she has become dependent, and is medically stable, she can begin an intensive outpatient addiction treatment program, IOP.[11]

In the addiction treatment program, whether residential or IOP, older women can be expected to struggle with feeling different than the other patients in the program. They will need special attention and support from the program staff to deal with the drug-related street language and lifestyle issues of the younger patients. Their common resistances will come in the form of minimization, "I didn't drink that much"; rationalization, "My doctors gave me those pills. I needed them for my pain"; and externalization, "It's my daughter's fault. If she hadn't married that guy in California, I wouldn't be so lonely and depressed and need those sleeping pills" — not really that different from the other patients. But they will not respond well to direct confrontation. "Handle with care" is the watch word in working with all older alcoholics and addicts, regardless of gender. It helps if the counselor has had experience work-

ing with seniors and can address the woman's specific defense mechanisms with sensitivity to her shame and fear.[12]

Another area of special need arises in introducing the older woman to 12-step programs, which will be crucial to her ongoing recovery. In Alcoholics Anonymous, many of the longtime women members are in the older age group, and can nurture the newcomer and help her to overcome her fears about attending meetings, relating to other members and finding a home group, — that is, the weekly group of which she will become a member and will begin to take on responsibilities such as setting up the chairs, putting out the literature, making the coffee, etc., where she will feel a sense of belonging.

This works beautifully for the alcoholic woman, but what of the prescription drug addict? Some members of AA, especially older members, have fairly rigid ideas about drugs other than alcohol, and do not think that persons dependent on pills belong in AA. But older women have a very difficult time identifying with members of Narcotics Anonymous, a program where membership tends to be much younger and where most members' drugs of choice were illicit substances such as heroin, cocaine, and/or methamphetamine. At an NA meeting, all that the older woman pill addict will notice is how many members were wearing leather jackets and boots, how many had tattoos, nose piercings, and micro-mini skirts.

In large cities, women may be able to find a few meetings of Pills Anonymous or Prescriptions Anonymous, but usually these are not available and, even if there is such a meeting, it would not provide enough of a program for the older woman in early recovery. What many clinicians have come to rely on is providing individual contacts for their female patients over the age of 60: volunteer women members of AA who are willing to be in contact with the woman referred by a doctor or therapist, talk with her, arrange to take her to a receptive meeting, and act as her temporary sponsor to guide her through the early stages of her recovery. In many areas, the local AA community has a committee of volunteers willing to help a wide variety of newcomers with special needs; the health care professional only needs to know whom to call to bring the system into action to help his or her patient.[13]

There are some residential programs and outpatient intensive programs that have been designed specifically for patients over the age of 60, and most include special programming and groups for women only, along with the mixed gender groups.[14] For many of the female patients who have been treated in these programs, it was the first time that they felt safe enough to disclose long-held shame-based secrets such as childhood sexual abuse, rape, domestic violence, and/or symptoms of other psychiatric disorders such as bulimia, binge eating, compulsive gambling or shopping, suicidal behavior, and sexually promiscuous behavior. Since many older women with addiction do have co-occurring psychiatric illness, any treatment program to which they are admitted needs to look closely and with great sensitivity to uncover unrecognized problems, including depression and anxiety disorders. When such problems are identified, a plan for their treatment and follow-up is essential in preventing relapse to the chemical addiction.

The good news for older women entering recovery from addiction is that there is a solid support and mentoring system waiting for them in AA. There are many women in their age group who have years of sobriety and stability, and who are willing and eager to embrace the newcomer. If she is open to the warm, nonjudgmental acceptance and the promise of spiritual growth extended to her by the women of AA, she has a lifesaving and rewarding voyage ahead of her. ■■■■

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Coming From All Directions: Protecting Girls and Women From the Impact of Substance Use

THERESA E. MADDEN, DDS, MS, PHD

ABSTRACT Dentists may assist in protecting their female (and male) patients from unhealthy substance use conditions. Prevalence is so high that daily, nearly every U.S. health care provider sees patients either at risk themselves or experiencing negative effects of substance use by a friend, family member, or co-worker. Health care practice-based interventions employ simple universal standardized screening, brief advice, and occasional referrals to specialists and/or community resources. Youth prevention strategies reduce risk and build protective factors.

AUTHORS

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The broad range of substance use conditions include illegal and prescription drug abuse, tobacco and inhalant use, underage and unhealthy drinking, club drugs, and pharmaceutical modulation of illicit drug effects.[1-4] In women and girls, unhealthy substance use increases risk for breast and other cancers, heart and lung diseases, HIV, hepatitis, osteoporosis, fractures, accidents, gastrointestinal disorders, familial stress and violence, depression, being sexually victimized, criminal activity, early dementia, and death.[5-10] Women of child-bearing age have greater risks of poor birth outcomes and may bear infants with fetal alcohol/drug effects including clefts, asthma, sudden infant death, neuropsychiatric problems, and lifelong learning deficits.[11]

Substance use significantly affects health, interpersonal relationships, and personal safety, and is both familial and behavioral in origin. Many female dental patients have experienced varying degrees of harm caused by other substance-abusing individuals. Exposure to someone else's activities resulting from untreated active substance abuse increases risk for anxiety, depression, post-traumatic stress disorder, psychosomatic disorders, being victimized, financial stress, and the diminishing health of family interactions.[12-15]

Prevention and early intervention of unhealthy substance have tremendous potential for reducing health care expenditures and disease burden, as well as improving quality of life for women and men. In a strategic plan to reduce American substance abuse, it is recommended

that all health care settings be adapted to provide patient education and basic screening services.[16] Furthermore, practitioners are encouraged to give supportive, nonconfrontational, brief education when positive responses are elicited and when the patient is perceived to be receptive.

This approach has been shown to be more cost effective than other health screenings that Americans have come to expect, such as mammograms, prostate and colon cancer tests, blood lipids, or prenatal screening for Tay-Sach's disease, or Down syndrome. At this time, federal funds have become available through Medicaid to provide modest reimbursement for brief intervention services, thereby removing an historical barrier for private dental practices.

Teens and Environmental Exposure

One-third of American girls have been offered methamphetamine and/or methylenedioxymethamphetamine, MDMA or Ecstasy.[18] Pharmaceuticals are fairly available as well. For example, one-quarter of Eastern Canadian students prescribed methylphenidate for ADHD, were found to either sell or give their medication to fellow students for nonmedical (recreational) use.[19] Unsolicited spam e-mails offering Vicodin, benzodiazepines, and other addictive pharmaceuticals arrive daily. Internet drug libraries are full of erroneous and dangerous suggestions for experimenting with previously unheard of drug combinations.[1]

The number of emergency room visits related to prescription drug abuse now exceed those for illegal drug abuse.[20-21] More than 1 million U.S. youth age 12 to 17 needing specialty treatment for substance use do not receive it, according to the Substance Abuse and Mental Health Services Administration: U.S. Department of Health and Human Services, although treatment success rates can exceed those achieved in diabetes, asthma, and hypertension.[22] Teenage girls who use substances are particularly endangered both immediately and over the long term. Those who do not use substances, however, may still be endangered by someone else's use. More than 40 percent of Americans of all socioeconomic groups are affected by the substance problems of their friends or family members, but most do not receive counseling services.

Substance use conditions result from complex genetic-environmental interactions and usually begin to manifest during adolescence.[23] Research literature is rich with high-quality evidence outlining known determinants of the choice to use substances, type of substances used, at what age use is initiated, and both the risk and protective factors influencing substance use problems.[24] Behavioral and environmental risk indicators are primarily the early initiation of alcohol and tobacco use, as well as adverse childhood experiences.

THE NUMBER OF emergency room visits related to prescription drug abuse now exceed those for illegal drug abuse.

A Brain Disease

It has been almost a decade since Allan Leshner's landmark article, "Addiction is a Brain Disease, and It Matters." Like Alzheimer's, Parkinson's, depression, schizophrenia, Tourette's syndrome, epilepsy, and autism, substance use disorders originate in the brain. The main location is the midbrain and the primary neurotransmitter system involves dopamine. The midbrain is the motivational and reward center and has evolved to provide a pleasurable sense of satisfaction for achievements related to survival, such as success, happy relationships, and the acquisition of food and shelter.

Substances with the potential to induce craving, compulsive use, and dependence are defined as those which increase dopaminergic neurotransmission in the midbrain. The cell bodies of dopamine-producing neurons are located in the nucleus accumbens with axonal projections to the ventral tegmental area. Increased dopamine in the ventral tegmental area results in a cascade of events associated with pleasurable emotional states. As repeated substance use increases in susceptible patients, behaviors may begin to turn away from some of life's normal activities and toward drug-seeking activities. Irreversible changes have been characterized in midbrain neurons with late-stage substance dependence. More than a decade ago, researchers, using PET scans of the male and female living brain, discovered significant sex differences, shedding light on gender-specific susceptibility to various mental health conditions.[25] This, and additional lines of evidence, are explaining why the female brain and reproductive organs incur greater damage at lower doses of alcohol and other drugs.[26]

At puberty, 110 new brain chemicals emerge and brain development continues until age 25. Research is rapidly advancing the understanding of adolescent brain activity as related to the risks for substance abuse. Results using a variety of brain function tests, such as EEG, imaging techniques such as positron emission tomography, PET, scans and functional MRI (magnetic resonance

imaging, have been successful at pinpointing key locations in understanding risk and protective activities.[28,29] Retrospective research has clearly established that teens with early onset drinking are more likely to have subtle or overt deficits in cognitive brain function.[28,30-33]

TABLE 1

Brain-region and Behavioral Outcomes of Adverse Childhood Experiences

Susceptible Brain Region	Age of ACE*	Behavioral Outcome
Corpus callosum	9-10	Poor mathematical ability Susceptible to PTSD Language delay Poor coordination
Hippocampus	3-5 and 11-13	Emotional reactivity Poor verbal and spatial memory Impaired language development
Frontal cortex	15-16	Poor judgment

Susceptibility

Alcohol and drug use disorders run in families with 40 percent to 60 percent of the variance of risk explained by genetic influences alone.[28] People with positive family history of substance use conditions tend to marry into like families, thereby concentrating genetic risk in subsequent generations. Among teens with one or both parents engaging in unhealthy drinking and/or drug abuse, boys are more likely to develop substance problems and girls are more likely to have depressive symptoms and manifest suicidality.[15,34]

At this time, intensive animal and human research effort is directed at identification of the major and minor genetic loci that place certain families at greater risk. It is known that multiple genes are involved, which explains the broad variety of manifestations of substance use disorders. This is in contrast to single gene disorders such as Huntington's disease or Alpha-1-anti-trypsin deficiency, that manifest very little phenotypic variability. Other multiple gene disorders include diseases like periodontitis and some cancers. Although it is the purpose of this article to provide a comprehensive discussion of genetic research, a few illustrative examples follow.

Some genes are protective. For example, in the Han Chinese population, individuals homozygous for both the ADH1B*2/*2 (alcohol dehydrogenase) allele and the ALDH2*2 (aldehyde dehydrogenase) alleles have very low rates of alcohol problems.[35] Other genes increase risk. For example, the muscarinic acetylcholine M2 receptor gene (CHRM2) was identified in at least two separate affected ancestral lines. Using a case control, structured association study design including healthy control subjects (86 percent European-Americans; 14 percent African-Americans), the CHMR2 gene was identified as a predisposing loci to alcohol-dependence, drug dependence, and major depressive syndrome.[36]

In the "Collaborative Study on the Genetics of Alcoholism" cohort, CHRM2 was found to predict co-morbid drug dependence among a large group of alcohol-dependent research subjects.[37] In simple terms, the researchers found no association to the CHRM2 gene among the 433 subjects dependent solely on alcohol and no other drugs, but a high association among the 477 alcohol-dependent subjects with a co-occurring drug dependency.

Although the genetic loci have not yet been mapped for the "low physiologic response" to alcohol, this phenotype has been shown to be a major risk factor

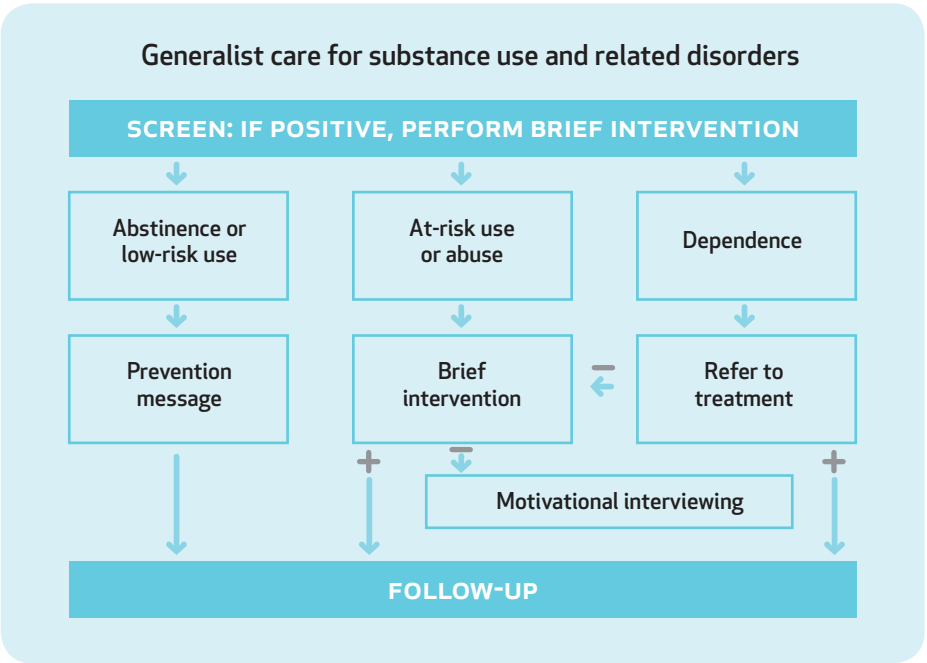

FIGURE 1. Decision tree for SBIRT (screening, brief intervention, referral to treatment). *(From "Substance Abuse Screening, Assessment, Intervention, and Referral: A Recipe for Success" by Richard L. Brown, MD, Department of Family Medicine, University of Wisconsin at Madison.)*

TABLE 2

Validated, Standardized Substance Use Screening Instruments

Short Title	Full Title of Screening Instrument	# of Questions	Written vs. Interview	Substances and Target Patients
AUDIT	Alcohol Use Disorder	10	Written	Alcohol only
CAGE	Cut-back, Angry, Guilty Eye-opener	4	Interview	Alcohol only
CAGE- AID	CAGE- Adapted to Include Drugs	4	Interview	Alcohol + other drugs
CRAFFT	Car, Relax, Alone, Forget, Friends, Family Trouble	6	Interview	Alcohol + other drugs (validated for adolescents)
S-MAST-G	Short- Michigan Alcoholism Screening Test- Geriatric	10	Written	Alcohol only (validated for ages 55 to 81)
DAST	Drug Abuse Screening Test	28	Written	Drugs only
TWEAK	Tolerance, Worry, Eye-opener, Amnesia, (K)Cut-down	5	Interview	Alcohol only (validated for pregnant women)
SRE	Self-Rating for the Effects of Alcohol	12	Self-administered	Alcohol (validated in men)
Fagerstrom	Fagerstrom Nicotine Tolerance Test	10	Self-administered	Tobacco
CAST	Child of an Alcoholic Screening Test	30	Written	Family members affected
Quantity and Frequency Questions	1) How many **days a week** do you drink some alcohol? 2) **How much** do you typically drink when you do? 3) What is the **most** you've had to drink at one time in the past 3 months? *(Definition of one standard drink = 12 oz. 4.2% beer; 5 oz. 12% wine; 1.5 oz. 80- proof spirits.)*			Prescription and illicit drugs could be assessed in this manner.

for substance abuse.[38] A patient with an inborn ability to tolerate higher doses of alcohol than others of similar weight, age and gender, is at four-fold greater risk for developing alcohol dependence. These patients should exercise extreme caution if they choose to use alcoholic beverages, and should avoid all other addictive substances. Practitioners should exercise special precautions when narcotic pain medications are necessary in such patients.

Adverse Childhood Experiences

Adverse childhood experiences increase the risk for plenty of physical, mental, and behavioral problems such as depression, obesity, early initiation of smoking and drinking, heart, liver or lung disease, suicidality, intimate partner violence, fractures, fetal death, substance use problems, marriage to an alcohol-dependent spouse, and premature death.[39,40] While Americans have on average one adverse childhood experience, those experiencing four or more are at significantly greater risk.[41] Adverse childhood experiences include witnessing domestic violence against one's mother, losing a parent (death, abandonment, divorce), being abused or neglected, severe repeated corporal punishment, verbal humiliation, having an active substance-dependent family member, and living with a suicidal, depressed, or otherwise mentally ill person.[42]

Regardless of genetic makeup, adverse childhood experiences affect brain development, decrease the volume of gray matter, and increase risk for substance use conditions. The frontal cortex, hippocampus and corpus callosum are particularly susceptible during childhood and adolescence, to repeated adverse experiences (TABLE 1). For example, a child experiencing adverse childhood experiences may manifest what is known as "limbic irritability," being quick to anger and slow to recover.

School and Community-based Prevention

Drug abuse curricula and prevention initiatives targeting American youth have been undertaken since the late 19th century. Not until the past few decades have outcomes been measured systematically in order to identify beneficial programs. When outcomes are measured, clear trends are seen in the exemplary programs. Therefore, dentists should shy away from participating in community-based prevention programs that either do not measure outcomes or have shown to make no difference. Programs are rated as either research-validated, model, exemplary or blueprint and are summarized at www.cde.ca.gov/re/lr/wr/scibased0705.asp.

Project Northland is a good example of an effective program with demonstrable results at preventing adolescent drug use and delaying initiation of alcohol use.[43] Designed as a randomized community trial, students in the intervention communities received multicomponent prevention efforts from early adolescence through high school. The comparison control communities had higher rates of alcohol and drug use during the measurement period but received the intervention thereafter.

A recent synthesis review identifies 10 key elements in successful programs[44,45]:

1. Aimed at modifying psychosocial risk factors known to initiate or maintain youth substance use,
2. Included prevention of tobacco use and underage drinking,
3. Targeted multiple influences and settings,
4. Spanned multiple grades and developmental periods,
5. Developmentally and socioculturally sensitive,
6. Adequate funding,
7. Focused on social skills,
8. Parental component focused on discipline and support,
9. Broad-based involvement in decision making related to the structure of the organization, and
10. Sustainable and organized:
    a. needs assessment,
    b. realistic implementation,
    c. fidelity checks,
    d. evaluations,
    e. refinements,
    f. communication, and
    g. dissemination of results.

How are social skills and risk factors identified to be targeted in such prevention programs? A recent Los Angeles study is illustrative.[46] In a well-designed longitudinal study of 2,081 high school students, older teens scoring low on social self-control were more likely to go on to smoke cigarettes and marijuana, drink alcohol, and use drugs. Therefore, these authors advocate providing skills training to teens to increase social self-control as the basis for future school-based drug prevention interventions.

Although research on gender-specific school-based programs is scant, it is thought to be necessary. Experts hypothesize that teenage girls may benefit most from assertiveness skills, self-esteem building, and education regarding sexuality and health and the avoidance of victimization.[45]

Practice-based Approaches

In addition to asking frequency and amount of alcohol, tobacco, prescription medications, and, perhaps, illegal drugs, dentists may select from several well-validated screening questionnaires that have been found effective in recognizing individuals at risk. With minimal training, cost and technical support, most dental practices can implement a feasible screening process over a several month period. TABLE 2 summarizes the standardized instruments from which a dental practice may choose. The selection should be based upon patient demographics and staff preferences. The best screening procedure is the one that the dentist and staff will routinely and comfortably use. Self-administered and Web-based screening tools are also valuable.[38]

TABLE 3

Suggested Customized Screening Questions for Adult Dental Patients

Category/Section of the Health History Questionnaire	Item
Following dietary/sugar intake questions:	Do you smoke or chew tobacco?
	How much and for how long?
	Would you like to quit?
	How much* alcohol have you had in the last 24 hours?
	How many drinks do you have per occasion?
Under dental anxiety	Do you need to take a tranquilizer to relax or sleep?
Under hospitalizations	Alcohol/drug treatment?
Under family health history	Anyone in your family have an alcohol/drug problem?

**One standard drink = 12 oz. 4.2% beer; 5 oz. 12% wine; 1.5 oz. 80-proof spirits.*

TABLE 4

Low-risk Drinking Limits

Population	Drinks* per Week	Drinks* per Day
Women	< 7	< 3 or 4
Men	< 12-14	< 5
Elderly	7 of less	1 or less
Children	none	none
Pregnant, nursing or attempting to conceive	none	none

**One standard drink = 12 oz. 4.2% beer; 5 oz. 12% wine; 1.5 oz. 80-proof spirits. Source: NIAAA/NIH and WHO.*

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TABLE 5

Educational and Community Resources

http://ncadi.samhsa.gov	National Clearinghouse for Alcohol and Drug Information
www.asam.org	American Society of Addiction Medicine
http://dasis3.samhsa.gov/	Substance Abuse Treatment Facility Locator
http://naadac.org	National Association for Alcohol and Drug Abuse Counselors
www.aacap.org/cs/root/facts_for_families/children_of_alcoholics	American Academy of Child & Adolescent Psychiatry
www.drugabuse.gov www.nida.nih.gov	National Institute of Drug Abuse
www.cde.ca.gov/ls/yd/re/chksdatacollection.asp	California Healthy Kids Survey Data
www.cde.ca.gov/ls/he/at/sap.asp	California Student Assistance Programs
www.samhsa.gov	Substance Abuse and Mental Health Administration
www.jointogether.org	Join Together (Advancing Effective Alcohol and Drug Policy, Prevention, and Treatment
www.niaaa.nih.gov/Publications/EducationTrainingMaterials	National Institute on Alcoholism and Alcohol Abuse
www.hazelden.org	Hazelden treatment centers
www.ada.org (type "substance abuse" in search engine)	American Dental Association
www.perio.org (type "substance abuse" in search engine)	American Academy of Periodontology
www.al-anon.alateen.org	Al-Anon Family Groups
www.alcoholics-anonymous.org	Alcoholics Anonymous
www.na.org	Narcotics Anonymous
www.nicotine-anonymous.org	Nicotine Anonymous
www.nacoa.org	National Association for Children of Alcoholics
www.usdoj.gov/dea/concern/concern.htm	U.S. Drug Enforcement Administration
www.ampainsoc.org	American Pain Society
www.whitehousedrugpolicy.gov	White House Office of National Drug Control Policy
www.attud.org	Association for the Treatment of Tobacco Use and Dependence

(Links accessed Dec. 11, 2007.)

During seven years in private periodontal practice, the author has used a series of simple written questions (**TABLE 3**) to successfully screen all of her periodontal patients. The questions were imbedded among other standard health history questions. This approach streamlines the verbal follow-up interview. The entire health history document is available by request (**TABLE 4**).

A plethora of patient educational and treatment resource materials are available, many of which are free of charge. **TABLE 5** provides Web links to evidence-based prevention and treatment information.

Conclusions

Substance abuse in the family and within the society as a whole impacts women and girls significantly.[47] Tremendous advances have been made in understanding the genetic and environmental influences on risk and protective factors in substance abuse. In addition, specialty treatment offers a broad range of behavioral and pharmacological aids in recovery for substance-dependent patients.[48] However, comprehensive prevention and early intervention requires involvement of major sectors of communities and a broad variety of health care workers.[49] Dentists are ideally situated to assist in national efforts to help affected American families access available resources. ■■■■

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Musculoskeletal Health of the Woman Dentist: Distinctive Interventions for a Growing Population

BETHANY VALACHI, MS, PT, CEAS

ABSTRACT Female dentists face unique musculoskeletal demands and inherent gender differences that may place them at higher risk for occupational pain and injury than their male counterparts. By familiarizing themselves with unique muscle imbalances, specific pain syndromes, and positioning challenges to which they are predisposed, female dentists may take pre-emptive action and initiate ergonomic intervention in the operatory and specific exercise at home to reduce the risk of developing musculoskeletal disorders.

AUTHORS

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In an occupation that has historically been dominated by men, we must acknowledge that a majority of today's dental team members are now women. While it is obvious the assistant and hygienist roles in the dental team have always been primarily filled with females, recent trends indicate an increasing percentage of dentists are now women compared to days past when it was nearly exclusively a man's position. For example, in 1982, only 2.6 percent of practicing dentists in the United States were female. In 1994, the percentage grew to 10.2 percent; and by 2004, 18.35 percent of practicing dentists were female.[1]

There exists a plethora of research suggesting a causal link between the ergonomics of dental care delivery and numerous musculoskeletal problems.[2-15] The nature of clinical dentistry promotes working for extended periods in awkward, prolonged postures. The literature reveals that prolonged, static postures can lead to muscle imbalances, tissues ischemia, and formation of painful muscular trigger points.[16-20] These changes can result in a chronic pain-filled professional career that could end with a serious musculoskeletal disorder. Studies show that an average of 2 out of 3 dentists experience pain in a 12-month period and that 30 percent of dentists who retire early are forced to, due to a career-ending disability.[2-15,21] While the above problems should concern all dentists, physiological gender differences may cause women dentists to experience slightly different pain syndromes and may require different intervention and wellness strategies than their male counterparts.

Dentists, as a group, tend to be more prone to occupational pain than the general public. For instance, only 10 percent to

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17 percent of the U.S. general public experiences low back pain in a given year, while 37 percent to 60 percent of U.S. dentists report low back pain.[8,12,15,22] The author found it particularly interesting that there are few, if any, U.S. dental studies on general prevalence of pain that compare men and women, while nearly every foreign study on the topic includes these parameters. This indicates a need for more research to assess frequency, severity, location, and etiology of occupational pain among women dentists in the United States.

Although a recent Dutch study indicates that gender differences such as hormonal and reproductive factors and estrogen level are associated with chronic musculoskeletal pain, women dentists still tend to have a higher incidence of occupational pain than other female workers.[2,3,23] Female dentists also experience higher overall pain frequency and severity than their male counterparts, with hand/wrist and hip pain being particularly problematic for female dentists.[2-4,6,8,10,11,13]

There are numerous problems that are unique to the female gender among dentists that can significantly impact their musculoskeletal health.

Muscle Imbalances

In order to operate with optimal posture for prolonged periods of time, dentists must have excellent endurance of the trunk and shoulder girdle stabilizing muscles. For example, the middle and lower trapezius muscles (**FIGURE 1**) tend to fatigue quickly with forward head, rounded upper back, and elevated arm postures as often observed in the operatory.[24] This is particularly problematic among women in dentistry. On the average, women's muscles can exert only two-thirds the force men's can so when female dentists intermittently assume nonneutral postures there is generally less muscle to stabilize the body.[25] Combine this risk factor with the need for the substantial muscle endurance required to balance the body in an optimal working posture against the additional weight of breasts, and the stage is set for a muscle imbalance. Without excellent endurance of the shoulder stabilizing muscles, these risk factors can cause the female dentist to easily slouch into poor posture during the course of the workday.

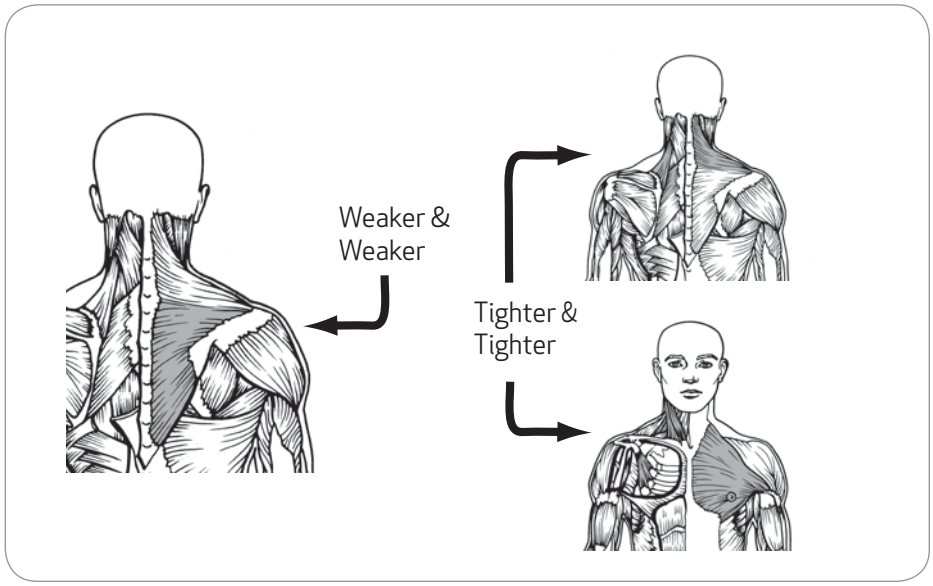

FIGURE 1. Shoulder girdle stabilizers tend to weaken quickly with forward head and rounded shoulder postures. When this occurs, other muscles must compensate and become ischemic and painful. *(Valachi, "Practice Dentistry Pain-Free," Posturedontics Press, 2007. Reproduced with permission.)*

When the stabilizer muscles fatigue, resulting in slouching, other muscles (upper trapezius, levator scapula, and upper rhomboids) must compensate and perform a job for which they are not designed.[24] These muscles become overworked, tight, and ischemic (**FIGURE 1**). Over time, the stabilizing muscles become weaker, while the compensating muscles become stronger, and a muscle imbalance is born. This muscle imbalance can cause improper movement of the shoulder blade, or ischemia of the compensating muscles, resulting in neck or shoulder pain.

(Before embarking on any new strengthening or stretching exercises, always consult a health care professional. All exercise is not suitable for everyone.)

INTERVENTION

Endurance strengthening of specific trunk muscles (transverse and oblique abdominals, quadratus lumborum, erector spinae and multifidus), shoulder girdle stabilizing muscles (middle and lower trapezius muscles, serratus anterior), and specific rotator cuff muscles is imperative for women dentists' health. This type of strengthening utilizes high repetitions with little recovery time between sets and low resistance or weight.[26] There are numerous ways to target the shoulder stabilizing muscles. One method is using an elastic exercise band, which is usually latex and available in flat bands or round tubing. Wrap the band around both hands (to avoid prolonged gripping on handles, which increases compression in the carpal tunnel) by pulling it diagonally down while squeezing the shoulder blades downward and together (**FIGURE 2**). Make sure one's ears are over the shoulders throughout the exercise. Always use very light resistance when strengthening postural stabilizing muscles, and repeat the exercise 10 to 15 times. With all exercise, it is a good idea to seek guidance from a health care professional. Strengthening

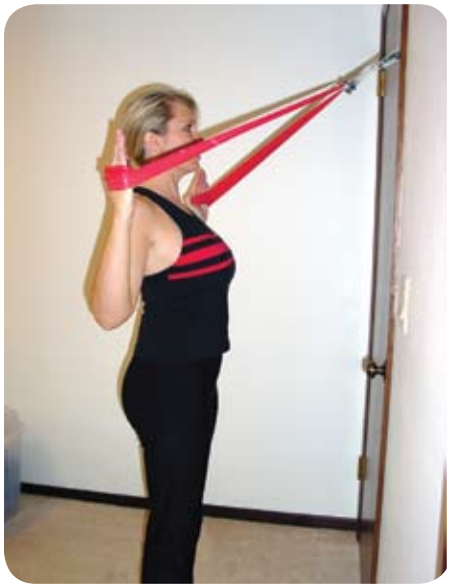

FIGURE 2. The Downward Pull is an example of an exercise to build endurance of the scapular stabilizers, primarily the lower trapezius. *(Valachi,* "Smart Moves for Dental Professionals on the Ball," *Posturedontics, LLC, 2004. Reproduced with permission.)*

exercises should only be performed when there is no musculoskeletal pain and when the full range of motion of the neck and shoulder is present.[20] Overstrengthening the wrong muscles can lead to worsening of pain syndromes and imbalances.

In addition to strengthening, female dentists should also incorporate postural awareness exercises into their daily routine. Implementation of a microscope or procedure scope will also greatly aid in preventing this muscle imbalance. Loupes users should ensure their units have an optimal declination angle (angle at which the scope is inclined downward), properly measured working distance (measured with forearms about parallel with the floor), and large frame size (so the scope can be mounted low in relation to the pupil). It should be noted that some loupe manufacturers offer significantly better declination angles than others.

Proximity Problems

A large chest can create modesty issues, causing the dentist to position herself further from the patient. The increased reaching distance and weight of the extended arm is a risk factor for shoulder muscle fatigue and cannot be maintained for long periods of time.[27] The farther the dentist positions herself from the oral cavity, the shorter the endurance time of the shoulder muscles.[27] Pregnant dentists also experience this positioning problem due to the increased size of the abdomen. In pregnant women, a work area positioned further from the body is also a risk factor for low back strain.[28]

INTERVENTION

Most importantly, the woman dentist must realize that close proximity is inherent to the profession. A strategically placed ceiling-mounted TV monitor may help distract from this issue for both dentist and patient. For dentists desiring further proximity from the patient, armrests can help remove unsafe workloads from the neck and shoulder muscles due to the weight of the extended arm.[27,29,30] Dentists should be careful not to place armrests too far forward as it will encourage rounded shoulder posture, thereby defeating the ergonomic benefit.

Upper Trapezius Pain

One EMG study of the neck, shoulders and arms showed that the highest activity during dental work occurred in the trapezius muscles.[31] As has been seen, these muscles are highly prone to muscle imbalance, ischemia, and trigger points. It is also the muscle most susceptible to emotional stress.[32] During such times, the operator may unknowingly hold the shoulders in an elevated posture, causing a sustained contraction in these muscles. Positioning patients too high can also cause the dentist to operate with elevated shoulders. Add to this milieu women's bra straps that can dig into the upper trapezius muscle-compressing nerves, creating painful trigger points and headaches due to the weight of large breasts.[19,33] And finally, purses that are consistently slung over one shoulder, can cause unilateral strain in one trapezius muscle.[19]

INTERVENTION

The upper trapezius muscle is an especially painful and problematic area among women dentists, so numerous interventions are helpful. Learn to sense tension that develops in this muscle and release it throughout the day using the progressive relaxation technique; by alternate contraction and relaxation of muscles, the individual learns to detect where muscular tension is occurring in the body, and effectively relax the muscle. Developing good practice management skills can also go a long way in reducing emotional stress.[34,35] Shoulder circles are also helpful in reducing accumulated upper trapezius tension. Roll the shoulders forward, back, up and down, each time return the shoulders to a relaxed, neutral position. Positioning patients lower can be achieved by utilizing loupes with a proper working distance.

Compression on the upper trapezius due to bra straps can be resolved with a sports-type (racer-back) style bra with wide straps that connect in the middle of the upper back.[33] The weight is translated to a wide support band around the ribs and may help reduce pain when worn during work. Single-shoulder purses, especially heavy ones, should be avoided. A backpack-style purse distributes the weight more evenly, and should be considered by female dentists.

Shorter Stature

Another gender-specific issue for women is that they tend to be shorter in stature than their male counterparts.[25] This is an important difference because many manufacturers have historically designed equipment, such as the operator stool, to fit the average male operator. This trend is slowly reversing and more manufacturers offer multiple cylinder heights to accommodate both tall and short operators.

FIGURE 3. A saddle stool may enable closer proximity to the patient by opening the hip angle and may also solve seating problems for shorter operators.

FIGURE 4. An example of a hip stretch that targets the piriformis muscle. Cross right leg over left knee and gently pull the left leg toward you until a gentle stretch is felt. Hold for 20 to 30 seconds. Repeat on the other leg. *(Valachi, "Practice Dentistry Pain-Free," Posturedontics Press, 2007. Reproduced with permission.)*

INTERVENTION

Women of slighter stature must ensure that the chair they sit on is retrofitted with a short size hydraulic cylinder to prevent perching on the edge of the seat pan. The same holds true regarding depth of the seat pan. Dental stool seat pan depths range from 14 inches to 18 inches, which accommodates a wide range of sizes. Shorter dentists should consider trying a shorter seat pan (14 inches to 15 inches deep), since this will enable them to sit all the way back on the seat pan and utilize the lumbar support.[36] A saddle-style stool may also be helpful for shorter dentists in gaining proper seating support as well as closer proximity (**FIGURE 3**).

Hip Pain

Occupations that involve prolonged sitting, such as dentistry, may predispose individuals to hip pain, which can have numerous etiologies including: osteoarthritis, trochanteric bursitis, piriformis syndrome, and referred pain from trigger points.[20,37] Prolonged sitting may lead to adaptive muscle shortening causing tightness in the hip and low back muscles, affecting flexibility and joint mobility.[20] Hip tightness can also create painful trigger points in select back and hip muscles.[38] Especially problematic among women is piriformis syndrome. In about 15 percent to 20 percent of the population, the sciatic nerve runs through the piriformis muscle so tightness in the muscle can cause sciatic pain — shooting pain into the hip, buttock, and down the back of the leg.[20]

INTERVENTION

In a seated profession, it is a good idea to move the hip regularly out of a flexed position. Dentists should intermittently stand for exams, extractions, injections and impression making as well as perform specific hip stretches, (**FIGURE 4**) especially extension and rotation, on a regular basis, to avoid hip dysfunction caused by prolonged sitting. Functional strengthening of the gluteus medius is also important in seated occupations.

Hand/Wrist Pain

Carpal tunnel syndrome is three times more prevalent in women than men and most common between the ages of 30 and 60. It is thought to be caused by compression of the median nerve at the wrist and can lead to pain, numbness, or tingling in the thumb, index, middle, and half of the ring finger.[22] Sustained wrist flexion, strong gripping on a small diameter instrument, dull instruments, heavy instruments or pulling against short tubing are just some of the numerous causes. It should also be mentioned there are several pain syndromes that mimic carpal tunnel, but actually have a different etiology (**FIGURE 5**). Since surgery is often times only partially successful, dentists should first educate themselves on the mimicking pain syndromes.[39]

INTERVENTION

Try to keep one's wrist neutral. Rather than twisting the wrist to access hard-to-reach areas, try moving the instrument or handpiece in one's hand or consider selecting an instrument with multiple accentuated angles and longer terminal shank, which can reduce twisting the wrist to access these areas.

Larger instrument handle diameters reduce hand muscle load and pinch force. However, handle diameters greater than 10 mm (about 3/8 inch) have been shown to have no additional advantage.[40] Although instrument weight is not as significant a risk factor as handle diameter, lightweight

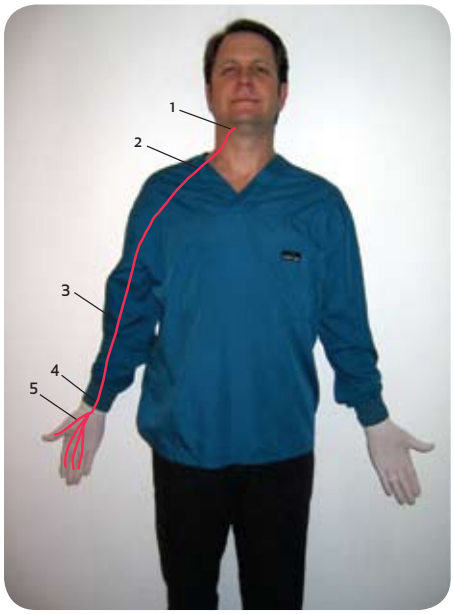

FIGURE 5. CTS symptoms can result from impingement, compression, or stretch at numerous points along the median nerve: 1) cervical radiculopathy, 2) thoracic outlet syndrome, 3) trigger points, or 4) carpal tunnel syndrome. Poorly fitted gloves (5) may also cause CTS-type symptoms. *(Valachi, "Practice Dentistry Pain-Free," Posturedontics Press, 2007. Reproduced with permission.)*

instruments (15 grams or less) help reduce the muscle workload and pinch force.[41] Forceful pinch grip has been shown to increase pressure in the carpal tunnel; this pressure is even higher when combined with wrist ulnar deviation.[42] Use 360-degree swivel instruments to maintain optimal neutral wrist and finger position.

Dentists with pain in their dominant hand should consider using the nondominant hand intermittently for extractions. Begin by supporting the extracting hand with your dominant hand. As you become more comfortable and transition to using the nondominant hand alone for extractions, you may find that positioning on the opposite side of the patient for extractions is easier and provides yet another opportunity to move, shifting the workload from one group of muscles to another.

Frequent stretch breaks were the most helpful intervention for hand/wrist pain in one dental study[43] (**FIGURE 6**). Stretching helps to increase blood flow and reduce formation of trigger points.

Pregnancy

Women experience physiological changes during pregnancy. The center of gravity is shifted forward, resulting in altered posture and a susceptibility to low back pain. Spinal joints and ligaments that normally provide stability become weak and lax, and the body increasingly relies on the muscles to maintain upright standing and seated postures.[44]

Two of the most common musculoskeletal side effects of pregnancy are low back pain and carpal tunnel syndrome.[28] The extra fluid in the body can compress the median nerve, causing carpal tunnel syndrome symptoms in 28 percent of pregnant women.[28] Most pregnant women have some degree of musculoskeletal discomfort and 25 percent have temporarily disabling symptoms.[45] The pregnant worker is most susceptible to injury during the third trimester when the abdomen is largest.

Much ergonomic equipment is designed to accommodate the smallest to the largest workers. However during pregnancy, these adjustments may not be sufficient. Existing guidelines for work height positioning in other occupations are not suitable for pregnant workers as it is difficult to position the work surface at certain recommended proximities and heights.[46] This may be applicable in the dental operatory as well.

If preventive ergonomic actions are not taken early in pregnancy, these risk factors may worsen as the pregnancy progresses.

INTERVENTION

Due to weakening of joints and ligaments, good, neutral operating posture during pregnancy is of paramount importance due to the high degree of strain placed on the back and neck when leaning forward. This means careful attention to positioning patients appropriately for mandibular versus maxillary procedures, and utilizing patient chairs

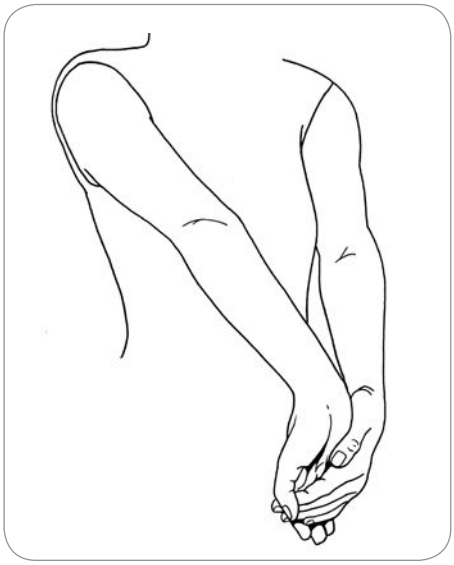

FIGURE 6. Carpal tunnel stretch: Turn the palm upward and hold the palm as you slowly extend the elbow until straight. Hold 2-4 breath cycles. *(Valachi, "Smart Moves in the Operatory: Chairside Stretching," Posturedontics, LLC, 2004. Reproduced with permission.)*

with narrow upper backrests and small, thin headrests to gain close proximity.

Stability exercises are important for women dentists but become even more imperative for injury prevention during pregnancy. Core stability training is an important intervention to prevent and treat back/pelvic pain during and after pregnancy.[47] Exercises and precautions for pregnant women differ from nonpregnant individuals. A physical therapist who specializes in gynecology will be able to offer numerous exercises and specific precautions that should be adhered to by pregnant women.

Although regularly changing positions is good throughout pregnancy, pregnant dentists should avoid standing for prolonged periods of time, especially late in the pregnancy when the low back curve increases. Standing for more than four to six hours/day or working more than 36 hours/week may lead to preterm deliveries.[28] Prolonged sitting is also a risk factor during pregnancy, so frequent, short breaks are advised for the pregnant dentist, during which walking or simple movement may be performed. In addition, a reduction in work

hours and scheduling longer breaks between patients may help reduce discomfort.

During pregnancy, it is important that the low back be supported while sitting. A dental stool with a good lumbar support (the most convex portion of the backrest) is essential. This will require a short seat pan that enables the dentist to sit all the way back on the stool, maintaining contact with the lumbar support. When properly adjusted, the lumbar support should nestle in the natural low back curve. This will require a backrest that tilts forward. At home and while driving, support the low back with a small pillow or rolled-up towel.

Conclusion

Research clearly shows that both male and female dentists face challenges to their musculoskeletal health due to the nature of their work. Prolonged, static postures in the operatory are nearly unavoidable and can predispose dentists to pain and injury. Women dentists are possibly at higher risk for significant musculoskeletal problems because of several gender-specific issues reviewed in this article. Pregnancy for these dentists poses additional challenges to their musculoskeletal health due to the hormonal and physical changes that occur during the term. Several strategies have been proposed in this article to help ameliorate some of these challenges. With heightened awareness of the risk factors unique to their gender, women dentists can take pre-emptive action and implement specific prevention strategies both in and outside the operatory to avoid pain, injury or early retirement. ■■■■

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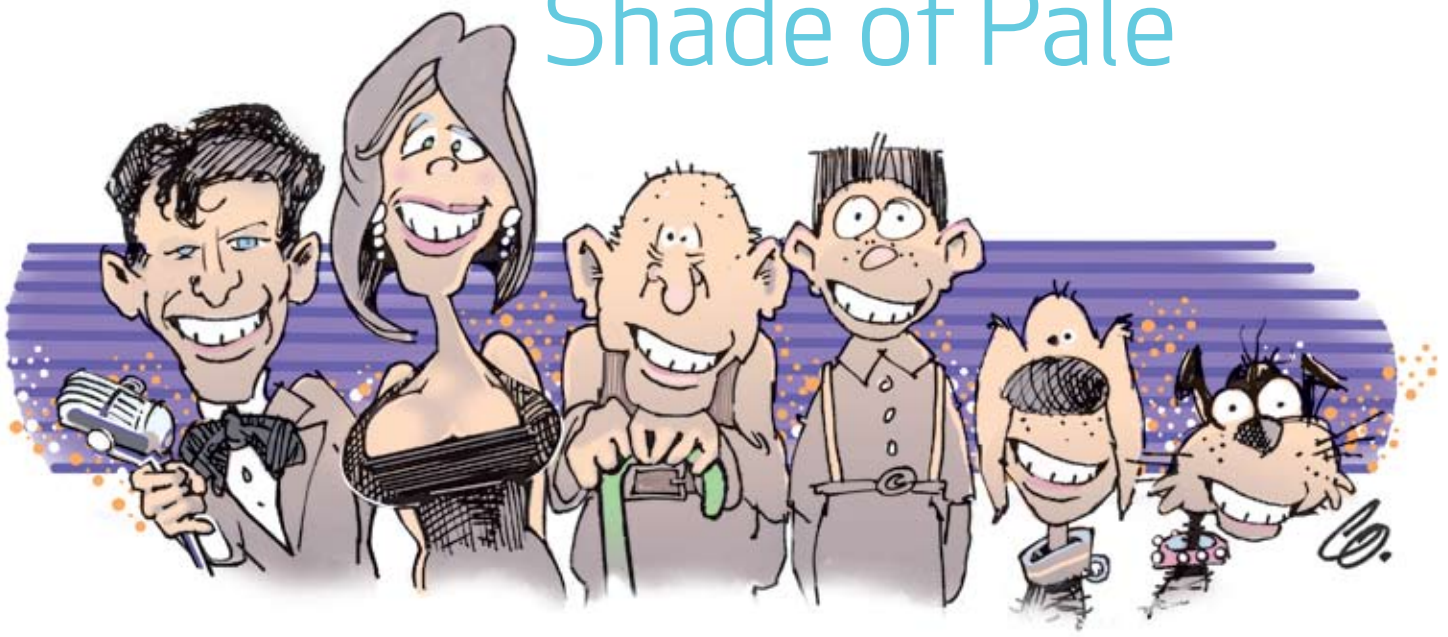
A Whiter Shade of Pale



Fashions are the only induced epidemics, proving that epidemics can be induced by tradesmen.
— BERNARD SHAW

The result was the frightening exposure on a large CinemaScope screen of an ancient face 15-feet high, flashing teeth that have been compared unflatteringly to Chiclets.

Robert E. Horseman, DDS

ILLUSTRATION BY CHARLIE O. HAYWARD

In 1919 when Vladimir Cornwhistle first stumbled upon the curious result of mixing grape juice, coffee and tea together with the combustible products of unfiltered Camels, he had no idea the impact of his discovery would have upon the mores of the nation. Actually, the grape juice, having reached a degree of fermentation rendering it toxic to small woodland creatures, had a similar effect on Cornwhistle, leaving it to others to capitalize on his research.

Women of a certain age (55) were already comfortable with blue rinses and facial powders featuring a shade of white that would become the signature look of Lily Munster years later. Young women of the time (flappers) fancied precollagen lips the color of Midwestern Bull Durham barns. Color was in the spirit of the times.

But fashion is a fickle mistress, enslaving women without taste just as etiquette is for people without breeding, otherwise the present depressing black-on-black haute couture would have never gotten off the boards.

It was the perfect moment to introduce gray teeth. As a new trendy fashion statement that contrasted fair complexions and fire engine lips against teeth the color of gravestones in 18th century cemeteries, Vladimir's serendipitous concoction was an instant success. But, alas, a short one. Marketed as Cornwhistle's Devilishly Dismal Dentifrice, it was a top seller until Jan. 16, 1920, when the 18th Amendment, unpopularly known as the Volstead Act among other things, was passed. The supply of legal red wine dried up and the illegal variety, dubbed "rotgut" by connoisseurs, not only turned teeth gray, but dissolved the enamel as well, proving the most attractive thing about fashion is that it doesn't last.

CONTINUES ON 149

DR. BOB, CONTINUED FROM 150

Fashionistas gradually allowed their teeth to resume their default color (somewhere between A3 and C4) as Prohibition ended in 1933. The Depression, the advent of talking pictures, and the introduction of World War II in 1939 combined to place tooth coloring on the back burner, simmering until … *1945*.

Aging movie stars, having exhausted the antiaging properties of plastic surgery and American Express, discovered their teeth had attained an unattractive shade of brownish yellow. Lon Chaney, Sir Aubrey Smith, and Dame May Whitty, all of whom were well over 100 years old, continued to appear in public with teeth commensurate with their age, for which we can be eternally grateful. Younger actors such as Frank Sinatra were quick to recognize the advantage of capping all their upper anterior teeth with porcelain the shade of an upright Kelvinator, giving them the appearance of a youth just getting used to wearing long pants.

This unfortunate trend was soon adopted by 75-year-old actors of both genders as well as anyone else with the money and diminished self-esteem to afford it. The result was the frightening exposure on a large CinemaScope screen of an ancient face 15-feet high, flashing teeth that have been compared unflatteringly to Chiclets. Cadbury Adams, the makers of Chiclets, tried unsuccessfully to serve "cease and desist" orders on certain stars to prohibit them from opening their mouths in public, declaring sales declined each time they did.

Just as it appeared the fashion for enormous pure white teeth might be reaching its peak, a new and less expensive alternative burst on the scene, for which the profession of dentistry can be held partially to blame.

The porcelain veneer arrived hand-in-hand with an avalanche of media hype offering the Perfect Smile as the answer to a life buffeted by rejection, failure, an inability to laugh at Howie Mandel. The age bracket for the Perfect Smile dramatically lowered to include youths barely out of puberty as portrayed in a dozen magazines featuring entertainment celebrities with identical smiles, dazzling and uniformly vapid. The only way to differentiate them was to tag them visibly with the name of their current boyfriend/girlfriend, necessitating the publishing of magazines on a weekly basis.

Many things, such as women's Gucci handbags and some Italian guy's shoes consisting of two narrow straps and a sliver of leather are expensive because they are fashionable and fashionable because they are expensive. Ladies buy these things because they want to look different or because they want to look the same. But *teeth*? Absolutely! Function isn't fashionable, but maybe there is another Vladimir Cornwhistle out there someplace with some whacky idea that could reverse all this whitening madness. Let's all have another look at Dustin Hoffman in *Papillon* or his memorable "Ratso" Rizzo in *Midnight Cowboy*.

He tried, anyway. ■■■■