

STRAIGHT TALK ON TEETH

By Elizabeth Green
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Melanie Treanor's crooked teeth have bothered her all her life, but it was not until this year that she considered seeing an orthodontist. A cheerleader for the Washington Redskins, Ms. Treanor says her smile is an asset she wasn't willing to cover up in wire.

Now new technologies are giving orthodontic patients options outside the traditional regimen - including more than one way to straighten their teeth without sacrificing their smiles.

That's good news for the growing number of adults receiving orthodontic treatment. The American Association of Orthodontists (AAO) recommends that children see an orthodontist for the first time by the age of 7. Yet out of the 4.5 million people in the United States who receive treatment, almost 1 million are, like Ms. Treanor, 18 or older, says Pam Paladin, communications coordinator at AAO.

That number has risen by about 14 percent since 1989, Mrs. Paladin says.

Ms. Treanor's braces sit behind her teeth, on what orthodontists call the tongue side, out of view of cameras and fans.

Even better, unlike tongue-side braces of the past, these cause little discomfort and rarely distort speech, says Lea Nesbit, chief executive officer of Lingualcare, the company that makes Ms. Treanor's braces.

"The wave of orthodontics is toward patient-specific appliances," Ms. Nesbit says. "If I can choose something that takes less time, requires fewer visits to the doctor and makes less of an impact on my lifestyle, then that's a good option for me."

Orthodontists in one Ellicott City, Md., office offer patients as many as seven treatment plans, from braces that are nearly invisible to braces that work in half the time to braces that aren't braces at all.

All of the options focus on perfecting appliances - which may turn out to be an outdated mode of orthodontia if recent research trends pan out.

Researchers around the world are investigating ways to abandon appliances, focusing instead on bone surgery, genetics and metabolism to try to affect tooth movement from the inside, says Dr. William Davidson, professor of orthodontics at the University of Maryland.

"So far what we've done is modified the appliance," Dr. Davidson says. "What we're doing now is, as we look forward, saying, that's great, there are lots of ways to modify the appliance, but we may find ways to modify the patients."

It will be a long time before research translates into clinical treatments, Dr. Davidson says.

In the meantime, appliances are getting more diverse, thanks to companies such as Ms. Nesbit's

Lingualcare, which hope to ride the wave of consumer interest in designer braces that was set off when a company called Invisalign introduced its "invisible braces" to the broad market in 2000.

The clear plastic trays, which straighten teeth without wires or brackets, were well-received by consumers, whose strong interest continues to be a boon for the now publicly traded Align Technologies.

The appliances received poor grades from many orthodontists, however. They complained that the company had put too much money into advertising and not enough into research and development.

"I have heard that criticism," says Jason Shelton, vice president for marketing at Align. "That's part and parcel of coming out with a new product, and I'm not going to say we never made a few mistakes. We're committed to making our product better."

Today's companies say they have taken a hint from Invisalign's criticized debut, channeling most of their investment into research and proceeding slowly with clinical trials before bringing their appliances to the broader market.

Nevertheless, some orthodontists still caution against jumping onto the new-technology bandwagon too quickly.

"Like anything, you have to question it a little bit," says Jeremy Orchin, a Washington orthodontist. "If you're out there on the leading edge, you have to be willing to eat your mistakes. But it also might be the next big thing."

Some new appliances do outlast early skepticism. An early critic of Invisalign, Dr. Orchin now offers the product to qualified patients. Though he has doubts about the benefits of some designer appliances, he says he admires the technology behind them.

The technology that helped suit Ms. Treanor in her Lingualcare braces was developed by OraMetrix, another company that has developed in the wake of Invisalign.

OraMetrix has a product called SureSmile that helps orthodontists replace calculations once made with molds and hand-drawn models with the precision of digital imaging. Though Ms. Treanor's orthodontist used OraMetrix technology, he didn't use SureSmile.

With SureSmile technology, a technician paints the patient's teeth with a white paste that helps a tiny camera capture the contours of the mouth in a digital image.

The orthodontist can then use that image to prepare the patient's treatment plan, deciding to within one-tenth of a millimeter exactly where and how much wires should be bent.

Rather than bend the wire herself, the orthodontist sends the digital plan over SureSmile's cross-country network until it reaches Dallas, Texas, where a robot makes the tiny bends and tweaks. Then the wires are shipped back to the orthodontist's office.

Drs. Sandra E. Selnick and Wayne Hickory use SureSmile technology in their Ellicott City office. A separate room with two computers and no operating chairs connects them to SureSmile's Dallas headquarters.

Dr. Selnick says the technology has cut her patients' treatment time in half. In orthodontists' offices across the country, the technology has decreased treatment time by 40 percent and reduced patient discomfort, says Dan DeSilva, vice president of marketing at OraMetrix.

Treatment times usually are about the same for children and adults, says Mrs. Paladin of the AAO.

SureSmile's final products look like traditional braces with slightly higher price tags.

Lynn McNeil, 38, of Ellicott City says it's a price she is willing to pay for her daughter Meghan's SureSmile braces.

"The cost difference - it wasn't that great versus the amount of time [saved]," she says, standing beside Meghan, 10, whose cheeks are tugged apart to help a technician scan her teeth into the computer. "And for her own comfort, it's worth it."

Dr. Selnick's practice is the only one in the area that offers SureSmile. Other local orthodontists question the product's usefulness.

The precision wire-tweaking, while impressive, has been made obsolete by another method that focuses on strategic bracket placement rather than bent wires, they say.

A majority of orthodontists use this "straight-wire" technique, which itself has decreased treatment time, says Ms. Nesbit, who worked at OraMetrix before founding Lingualcare with two other OraMetrix exiles.

"We felt the value of SureSmile was on the lingual [tongue] side," she says. "Bracket placement becomes less important since the bracket covers the whole tooth."

Brackets still have to be designed to suit individual teeth.

Each of Ms. Treanor's braces was specially created by robots who tweaked metal wires and brackets to fit her teeth exactly. All of this is impossible to see without pulling her mouth open and peering in.

Lingualcare sees this newly comfortable tongue-side method as a good alternative to Invisalign.

Invisalign's series of clear removable shelves that push teeth into alignment only work for straightforward cases, according to several orthodontists.

Ms. Treanor, for example, who needed correction for her underbite as well as her crooked teeth, is not an Invisalign candidate, says her orthodontist, Dr. Lawrence Singer.

Lingualcare - currently offered by two Washington practices, Dr. Singer's and Dr. Selnick's - costs anywhere from 25 percent to 50 percent more than regular braces, with prices varying by doctor, patient and location, Ms. Nesbit says.

Orthodontic care in metropolitan areas costs on average \$4,556, according to a 2003 study by the Journal of Clinical Orthodontics that only had an 8 percent response rate. No interviewed orthodontists would comment on their prices.

Ms. Treanor says she could only afford the Lingualcare braces thanks to a generous discount Dr. Singer offers Redskins cheerleaders.

"I figured it'd be way expensive, and it is, but the discount has helped," she says.

While the product is now classified as "premium" by Lingualcare, Ms. Nesbit says the company is working to make its cutting-edge technology accessible to a wider market.