CBCT, smart bands and airway analysis

_It is that time of the year again: everyone is getting ready to close out 2014 and usher in the new year. It is always informative to review the events of the past year and to speculate on what the future will bring. The march of high technology continues with the various gadgets that appear just in time for holiday gifts. The more high-tech, the more desirable and sought after, and it appears that nothing is safe from the incorporation of digital data in some form._

While not entirely new, the concept of wearable technology has blossomed into a multibillion-dollar industry during the past few years. In fact, there is an upcoming Wearable Tech Expo in New York on 2–4 June 2015. Dr Shawn DuBravac, Chief Economist and Senior Director of Research for the Consumer Electronics Association, has stated that we need to harness wearable data because “the union of wearable technology and health care has the potential to address the trifecta of issues burdening the US health care system: rising costs, lack of coordination in providing care, and the increase in chronic diseases tied to lifestyle.” We now have digital smart bands and watches, like the soon-to-be-released Apple Watch and the Samsung Gear S, which can not only tell time, but also monitor your heart rate, count your steps, tell you how many floors you have climbed, and detect changes in elevation when linked to your smartphone—all in the name of keeping us physically fit.

One area that is relevant to readers of cone beam international magazine of cone beam dentistry is the ability of smart bands to measure sleep patterns. Gadgets like Sony’s SmartBand, Microsoft Band and Jawbone’s UP3 are selling worldwide, and some claim to be capable of distinguishing between REM, light and deep sleep. Chris Haslam of Wearable (www.wearable.com) states that “virtually every fitness tracker has the ability to map your shut-eye. They work by continuously monitoring your movements during sleep—known in professional sleep circles as Actigraphy—and assessing sleep-wake cycles to see whether you’re in deep or light sleep.” These devices also show you a graph of your sleep patterns on an application on your smartphone. There are even trackers that can use your phone’s microphone to record sleep noises, like snoring, to explain why you may wake up several times each night. He states that “while not as accurate as professional sleep monitoring equipment, or lab tests, fitness bands can help paint a clearer picture of your own sleep cycles.”

Within the dentist’s scope of care is the potential to diagnose and treat patients who exhibit sleep problems and specifically sleep apnoea in its various forms. CBCT data as interpreted through sophisticated software applications may be our digital link to accurate diagnosis and treatment of these sleep disorders. Airway analysis has become a hot topic at CBCT-related symposia—which prompted the composite artwork for this issue’s cover. In a recent article, Alsufyani et al. conducted a systematic review of the use of CBCT to assess upper airway changes and treatment outcomes of obstructive sleep apnoea. The article concluded that “the available published studies show evidence of CBCT measured anatomic airway changes with surgery and dental appliance treatment for OSA. There is insufficient literature pertaining to the use of CBCT to assess treatment outcomes to reach a conclusion. High-quality evidence level studies, with statistically appropriate sample sizes and cross validated clinically, are needed to determine if CBCT airway dimensional changes are suitable for assessment of treatment outcome.” More study is needed, of course, but clearly evidence is mounting that CBCT will play a vital role in the assessment and treatment of sleep disorders.

Perhaps we will soon be linking the digital data from wearable tech-savvy smart bands provided to our patients as we monitor the airway space with our CBCT data. Just another amazing link between the incredible data afforded to us through our CBCT devices and another potential means to help our patients. Continue to witness our digital evolution that will affect our lives in 2015 and beyond by following the many informative articles contained within the covers of the latest issue of cone beam international magazine of cone beam dentistry.

Respectfully,

Dr Scott D. Ganz, Editor-in-Chief

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