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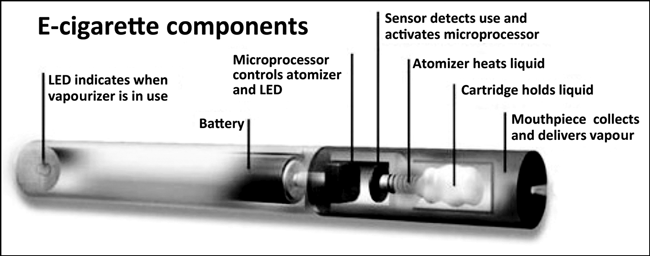
Section OL10

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Smoking Cessation

Tobacco use is known to have an abundance of adverse effects on the human body. It contains harmful substances, one being carbon monoxide, which replaces oxygen in the blood leading to the absence of oxygen in organs causing them to function improperly. In the United States alone, cigarette use is responsible for more than 435,000 deaths each year (Nield-Gehrig, 2010). It is a hard habit to break because tobacco also contains an addictive chemical called nicotine. It may come to a surprise for most people, but nicotine on a milligram per milligram basis. This chemical can be 10 times more addictive than both heroin and cocaine while also being 6 times more addictive than alcohol (Nield-Gehrig, 2010). With this knowledge about tobacco, companies *still* continue to change and introduce new tobacco products to attract adolescents and young adults. One of these many products being manufactured are electronic cigarettes. They were first advertised as a method to help smokers gradually quit because it claimed to be “safer” than the traditional cigarettes. However, the product attracted many young people due to its unique designs and diverse flavor palette. Education on smoking should be provided at a young age because it is concerning that many young adolescents are starting to smoke without *fully* knowing the detrimental effects it has on the body.

There are different kinds of electronic cigarettes, some varying in appearance and size, but most of them being physically similar with a LED that indicates when the vaporizer is in use, a battery, a microprocessor that controls the atomizer and LED, a sensor that detects use and activates the microprocessor, an atomizer that heats the liquid, a cartridge that holds the liquid, and a mouthpiece that collects and delivers the vapor. Some are disposable while others are rechargeable. The electronic cigarette is breath-activated. Therefore, once the person presses their lips on the mouthpiece and inhales, the pressure-sensitive circuit heats the atomizer and burns the liquid into a vapor. The vapor is then drawn and delivered via a mouthpiece. (Foulds, Veldheer, & Berg, 2011)



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Researchers found that the liquid in the cartridge and aerosols mainly consists of nicotine, propylene glycol, glycerol, and flavoring agents. Trace levels of toxic compounds like tobacco-specific nitrosamines (TSNAs), carbonyl compounds, and polycyclic aromatic hydrocarbons (PAHs) have also been identified. It should be kept in mind that not all brands of electronic cigarettes contain identical chemicals and concentrations of the chemicals. With the countless amount of toxic substances that can be found within the electronic cigarette, undoubtedly, there are also countless negative effects on one’s systemic health. It impacts many of the major organ systems: cardiovascular system, nervous system, respiratory system, reproductive system, and immune system. As the vapor is inhaled in the mouth and arrives at the lungs, it causes respiratory irritation while damaging the smallest airways in the lungs. The vapor is then absorbed into the bloodstream from the lungs affecting the immune system. Aerosols from the electronic cigarette ‘induce hypoxic conditions and oxidative stress’ causing the person to be more susceptible to infection and having elevated inflammatory responses (Sapry, Vardhan, & Li, 2020). Furthermore, according to research, smoking electronic cigarettes daily doubles the risk of heart attack, disrupts brain development, interferes with cognitive functioning, and leads to various physical and mental health issues. There are also potential reproductive risks such as a reduction in sperm count for male users and potential harm for fetal brain development for pregnant female users. The list of health hazards go on for systemic health, but smoking electronic cigarettes also pose major risks for one’s oral health. Clinical studies show it promotes periodontal disease based on the smoker’s “full-mouth plaque index and probing depths of >4mm,” while healthy gums have a depth of 1-3mm. There is also an increased potential for caries due to the chemicals and sugars from aerosols adhering to exposed surfaces in the oral cavity. For instance, aerosols increase the adhesion of a specific bacteria, *Streptococcus mutans*, to the enamel which is associated with enamel demineralization. Furthermore, electronic cigarette users also reported noticing blood when brushing their teeth, formation of sores and ulcers, tooth sensitivity, throat/mouth irritation, dry mouth, etc. All of these occurrences contribute to poor oral health while also having an overall negative impact on one’s body, lifespan, and quality of life. (Rouabhia, 2020)

To reduce unnecessary damage to one’s oral health and body, it is important for dental hygienists to discuss smoking cessation and offer smoking counseling. Education on the topic is essential because there are certain things that many believe to be true, but is in fact a myth. For example, a third of smokers believe that taking vitamins and exercising can make-up or undo the detrimental effects of smoking. It is a misperception that may prevent smokers from trying to quit. Effective education is providing motivation and encouragement for a person to quit, rather than warnings about the possible dangers. The “Five A’s Model” is recommended as main components of comprehensive tobacco cessation counseling – **Ask** (every patient about tobacco use), **Advise** (every tobacco user to quit), **Assess** (determine willingness to quit and provide information on quitlines), **Assist** (refer to quitlines), **Arrange** (refer to quitlines). Many smokers are aware of the health risks, like cancers, but underestimate the risk of getting the disease. Everyone has a different perception on smoking and smoking cessation based on their age, experience, etc. For example, a teenager that just started smoking 2 months ago and a 30 year old adult who has been smoking for 12 years will have different thoughts on smoking cessation. Therefore, different ways to discuss this topic is necessary. As a future hygienist, I would discuss this with a teenager who has been smoking for just 2 months about the consequences that will occur down the road if he/she continues to smoke. The earlier a person is attempting to stop, the “easier” and better it will be on the body. On the contrary, I would bring this topic up to the 30 year old that has been smoking for 12 years by saying that it is never too late or too old to quit. The person might think that there is no point in quitting because they have already been smoking for so long or that they are “too old” to quit, but what most people do not know is that the body starts to gradually repair itself almost immediately. After 24 hours of smoking cessation, your risk of heart attack begins to drop. After 3 months, you will begin to feel less fatigue, your lungs will begin to repair, and your cough begins to subside. After 1 year, your risk of coronary heart disease is half that of a smoker and your risk of stroke, lung disease, and lung cancer continue to lower. After 5 years, your risk of stroke is similar to a person who has never smoked. After 10 years, your heart and circulatory system is greatly repaired. After 15 years, your risk of coronary heart disease and lung cancer is almost the same as a person who has never smoked. These benefits are the same for every smoker, from “healthy” smokers to smokers that are already suffering from a smoking-related disease. Although smoking is not easy to stop, as it is an addiction, it is definitely not impossible with strong willpower. (Nield-Gehrig, 2010)

The use of electronic cigarettes is a product that is becoming more widely used, especially amongst the young adults. I know and see many people, including friends, that are currently using this device as if it became the new ‘norm.’ Smoking does not only affect the oral cavity, but impacts the body as a whole because every part of our body is intercorrelated. While doing research and reading about smoking cessation, an interesting fact I learned is that a smoker’s body will gradually heal itself, once cessation begins, to the extent that it can be compared or similar to the body of a non-smoker. I believe that statement alone can bring the smoker a great amount of realization that it is not too late and give the motivation to quit. Every piece of information learned about electronic cigarettes and smoking cessation is not only beneficial for future use, but also makes me more confident and comfortable to have conversations with future patients about it as I am currently more knowledgeable on the topic. With such knowledge in hand, it is very understandable why smoking cessation is such an important discussion as it can improve not just one’s quality of life, but one’s overall lifespan as well.

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