

## Roll-your-own tobacco, herbal cigarettes, kreteks, bidis, and cannabis

If you smoke any kind of plant you inhale carbon monoxide and tar, which may harm your health.<sup>1-3</sup>

### Roll-your-own tobacco

Roll-your-own cigarettes (RYO) made from loose tobacco appears to be becoming more popular.<sup>4</sup> This may be partly because they are cheaper than factory-made cigarettes.<sup>5,6</sup> In 2013, one in three Australian smokers aged 14 years and over used RYO tobacco; one in five used it daily.<sup>7</sup> In 2015, 37% of Victorian smokers aged 18 years and over used RYO, which is equal to almost 6% of all Victorian adults.<sup>8</sup>

Some roll-your-own smokers believe that RYO tobacco is more 'natural' and does not contain additives like factory-made cigarettes do.<sup>9</sup> Because of this, they believe that RYO tobacco is less harmful.<sup>4,10</sup>

None of these beliefs are true.

- Tobacco companies add similar additives to RYO tobacco as they do to cigarettes, often in higher amounts than in factory-made cigarettes.<sup>9,11</sup>
- Most of the toxic chemicals in tobacco smoke come from burning the tobacco.<sup>12</sup> This includes carbon monoxide, nicotine, tar and many other disease-causing substances.<sup>13</sup> Even smoking tobacco without any additives would be very harmful.
- Research suggests that RYO tobacco is at least as harmful, or possibly more harmful, than smoking factory-made cigarettes.<sup>5,14-16</sup>

RYO smokers may smoke their cigarettes more intensely,<sup>5</sup> and inhale a greater volume of smoke per cigarette.<sup>17</sup> There is limited research on the actual level of exposure to harmful chemicals in RYO smokers. However, a few small studies show that RYO smokers are exposed to similar levels of nicotine, carbon monoxide and certain cancer-causing chemicals as factory-made cigarette smokers.<sup>14,15,18</sup> There is also some evidence that RYO smokers are more vulnerable than factory-made cigarette smokers to developing cancers of the lung, oesophagus, mouth and throat, on top of the other risks of smoking-related diseases.<sup>5,19</sup>

## Herbal cigarettes

Herbal cigarettes are not safe to smoke. The smoke from cigarettes that have no tobacco or nicotine still deliver similar levels of tar and carbon monoxide compared with tobacco cigarettes.<sup>1, 2, 20, 21</sup> Exposure to cigarette smoke from tobacco-free and nicotine-free cigarettes can cause damage to cell DNA, which may lead to cancer.<sup>2</sup> Therefore herbal cigarettes are likely to be harmful to health.<sup>1, 2, 20</sup>

Herbal cigarettes are common in Asia, particularly in China where the tobacco industry is large and smoking rates are high. Other producers of herbal cigarettes are found in Korea, Taiwan and Thailand.<sup>22</sup> Herbal cigarettes from these countries often contain tobacco.<sup>22</sup> The history of using Asian herbs for medicinal purposes may lead to the false perception among Asian smokers that smoking herbal-tobacco can produce health benefits.<sup>22</sup>

A study conducted in China has shown that smokers who switch from regular cigarettes to herbal cigarettes increased their consumption. Tests show that herbal cigarette users and regular cigarette users are exposed to similar levels of cancer-causing chemicals. This has discredited a tobacco industry claim that herbal cigarettes are a healthier option to regular cigarettes.<sup>23</sup>

Herbal cigarettes have sometimes been promoted as a quitting aid.<sup>20, 22</sup> There is little evidence that they have any benefits other than a placebo effect (no physical effect, but may improve some people's confidence at quitting).<sup>20</sup>

Most Australian state and territory governments have banned the sale of herbal cigarettes to persons under the age of 18.<sup>24-27</sup>

## Kretek or clove cigarettes

Kreteks are a type of small cigarette that contains tobacco (about 60%), ground clove buds (about 40%) and cocoa.<sup>28</sup> They are made in Indonesia where they are the most popular type of cigarette.<sup>28, 29</sup> A small number of brands are imported into Australia; common brands are Gudang Garam and Djarum.<sup>30, 31</sup>

Although kreteks are smaller than regular cigarettes, tests show that they can deliver similar levels of nicotine and carbon monoxide to smokers.<sup>32</sup> Compared to regular U.S. cigarettes, clove cigarettes contain up to 60,000 times more eugenol, a natural compound found in high concentrations in clove buds.<sup>33</sup> Animal testing shows that eugenol is far more toxic when inhaled than when eaten.<sup>33, 34</sup> Eugenol is classified as possibly causing lung cancer in humans and it also may harm the lungs. However the long term effects of inhaling the high amounts of eugenol found in kretek smoke are not clear.<sup>33, 35</sup> Eugenol also acts as a numbing agent (local anaesthetic).<sup>33</sup> After taking effect, it may lessen the harshness of the smoke on the throat, but this does not make it safer.<sup>36-38</sup>

The American Medical Association reviewed the medical evidence concerning clove cigarettes in 1988 and reached the following conclusions:<sup>37</sup>

- Clove cigarettes are tobacco products. Therefore they possess all the harms associated with smoking tobacco cigarettes.
- Inhaling clove cigarette smoke has been associated with severe lung injury in a few susceptible persons. People with asthma or with a throat or lung infection in its early stages may have an increased risk of harm from inhaling clove cigarette smoke.

Other research also suggests that clove cigarettes are linked with greatly increased risk of dental disease.<sup>39</sup>

## Bidis

Bidis are popular in India, Bangladesh, Nepal, Sri Lanka, Pakistan and the Maldives.<sup>28, 40</sup> Bidis are made with locally grown coarse tobacco flakes and hand-rolled in temburni leaf, which is tied up with a thread. Their size varies between 4cm and 8cm.<sup>28</sup>

Bidis sold in western countries often have a variety of flavours such as clove, mango, chocolate, vanilla or strawberry.<sup>28, 34</sup> Certain tobacco flavourings contain toxic chemicals.<sup>34, 41</sup> Some evidence supports concerns that flavour-related compounds deemed safe for eating may not necessarily be considered safe when inhaled in cigarette smoke.<sup>34, 42</sup>

Bidis cannot be considered less harmful to health than regular cigarettes.<sup>28</sup> Bidi smoke delivers similar or higher levels of nicotine and cancer-causing chemicals to smokers, compared to regular cigarettes.<sup>28, 43</sup> The amount of cancer-causing chemicals found in bidis can vary because they are hand-rolled, which results in different tobacco amounts per bidi.<sup>44</sup>

Bidi smoking increases the risk of cancers of the lung,<sup>40</sup> mouth, throat,<sup>40, 45</sup> oesophagus and stomach.<sup>28, 40</sup> Rates of cancer are related to how many years a person has smoked and the number of bidis smoked per day.<sup>28, 45</sup> Bidi smokers have an increased risk similar to cigarette smokers for lung diseases, including chronic bronchitis and chronic obstructive pulmonary disease.<sup>46</sup> Bidi smoking also increases the risk for heart disease.<sup>40, 47 46</sup>

## Cannabis (Marijuana, hashish)

Cannabis is the most frequently used illegal drug in Australia, with a survey in 2013 showing that about 10% of Australians had used the drug in the last 12 months.<sup>48</sup> The main forms of cannabis are marijuana, hashish (cannabis resin) and hashish oil.<sup>3</sup> Marijuana is made up of the dried leaves, flowering tops, stems or seeds of the cannabis plant.<sup>3</sup>

Smoke from marijuana contains a similar range of harmful chemicals as tobacco. These include carbon monoxide, irritants, tar and cancer-causing chemicals.<sup>3</sup> Cannabis does not contain nicotine; its main active drugs are cannabinoids. The cannabinoid that causes the user to experience a 'high' is THC (delta-9 tetrahydrocannabinol).<sup>49</sup> Mixing tobacco with cannabis increases the uptake of THC from cannabis by 45%.<sup>50</sup>

A review of the harmful health effects of cannabis smoking concluded that the most probable adverse effects were:

- i. a dependence syndrome,
- ii. increased risk of motor vehicle crashes,
- iii. impaired respiratory function,
- iv. cardiovascular disease, and
- v. adverse effects of regular use on adolescent psychosocial development and mental health.<sup>51</sup>

In an Australian survey, about one in seven recent cannabis users (who used more than five times in the past year) had a cannabis use disorder (dependence or abuse). Among recent and former cannabis users combined, one-third had experienced a cannabis use disorder.<sup>52</sup> Some heavy users develop withdrawal symptoms on stopping use.<sup>53, 54</sup> These include, increased irritability, anxiety, nervousness, restlessness, sleep difficulties and aggression.<sup>40</sup>

Cannabis can produce euphoria, but also unpleasant side effects such as anxiety and panic, especially in high doses or in new users.<sup>55</sup> Cannabis is a depressant drug, which means it slows the activity of the central nervous system and the messages between the brain and the body.<sup>56</sup> As a result, information processing, attention, motor skills, reaction time and skilled activities such as driving, are impaired while the person is intoxicated.<sup>40, 51</sup>

Smoking cannabis raises heart rate and blood pressure, and can be dangerous to those with heart or vascular disease.<sup>54, 57</sup> Regular cannabis smoking can produce chronic inflammation of the lungs in young adults; symptoms include wheeze, cough, phlegm and shortness of breath.<sup>58</sup> Long term users of both tobacco and cannabis have higher rates of these symptoms than those who smoke either only tobacco or only cannabis.<sup>54, 59</sup>

There are few reliable long-term studies on the health effects of regular cannabis use. However, smoking cannabis produces pre-cancerous changes in lung cells, which suggests that it may cause cancer.<sup>40</sup> There is growing evidence that cannabis plays a role in mental illness, including major depression, anxiety and panic disorders,<sup>57</sup> schizophrenia<sup>60</sup> and in some people, psychosis.<sup>51, 61, 62</sup> Long-term heavy users of cannabis are more likely to have problems affecting memory and the processing of complex information. It's not clear if these problems reverse after quitting.<sup>51, 63</sup>

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