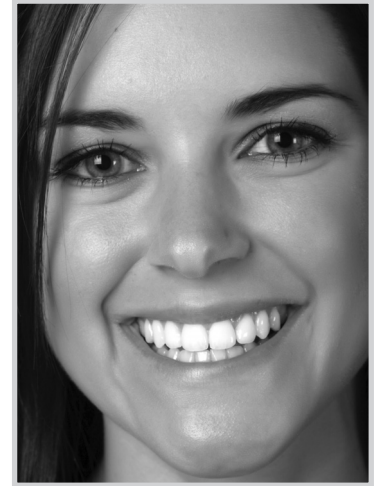


Have you ever got food stuck between your teeth?  
Needed a filling? Had toothache?

People have tried to prevent tooth decay for centuries. Muslims have cleaned their teeth regularly for more than 1500 years, and they continue to gargle and wash their mouths before each of the five daily prayers. In Europe, teeth cleaning became common less than 200 years ago. Most Americans only learnt about teeth cleaning when their soldiers returned from Europe in 1945 after the Second World War.



Tooth disease is infectious. Many bacteria live in your mouth - including *Streptococcus mutans*. This type of bacteria causes tooth decay. It sticks to the surface of teeth as plaque. It digests sugars to make lactic acid. The lactic acid dissolves and weakens tooth enamel. So your teeth get holes in them.

This is a *miswak* twig (left). For many centuries, people have used *miswak* to clean their teeth. In the sixth century, Prophet Mohammad (pbuh) used *miswak* before each prayer. He recommended that others use Miswak regularly, too.

People cut *miswak* twigs from the twigs or roots of the *Salvadora persica* tree. Other trees - for example walnut - also work well. People probably discovered which were best by trial and error.

## Recent research on miswak

### Study A

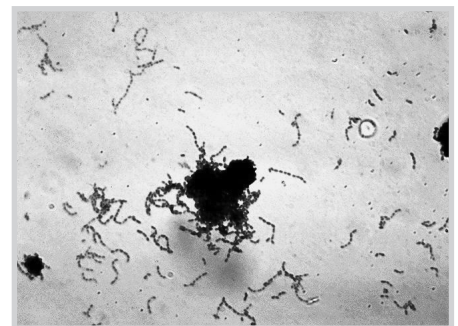
Two scientists - one from Saudi Arabia and one from the USA - studied the effect of miswak on tooth decay bacteria. They recruited 40 male volunteers aged 20 to 45 and put them into four groups:

- Ten men cleaned their teeth with *miswak* twigs
- Ten cleaned their teeth with toothbrushes (without toothpaste)
- Ten rinsed their mouths with salty water
- Ten rinsed their mouths with a solution made from *miswak*

Each person gave a saliva sample before and after cleaning or rinsing.

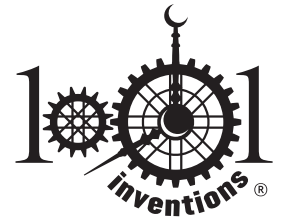
The scientists measured the amount of *Streptococcus mutans* bacteria in each sample. In all four groups, there was less after cleaning or rinsing. The greatest reduction in the amount of *Streptococcus mutans* was for men in the *miswak* twig group.

The scientists want to do more research. They hope to study more people for a longer time. They want to add another group and get them to brush with toothpaste. They will take into account how much sugar the volunteers eat, and how healthy their teeth are to start with.



*Streptococcus mutans* bacteria



**Study B**

Swedish scientists studied the teeth of 15 people. Each person cleaned their teeth with *miswak* for three weeks and with a toothbrush for three weeks. The scientists took photos of their teeth. They found that *miswak* removed more plaque than a toothbrush.

**Study C**

Norwegian scientists wanted to find out which chemicals in *miswak* destroy tooth-disease bacteria. They found several possibilities, including sodium chloride, potassium chloride and compounds of sulfur and nitrogen. Some reports also claim that *miswak* contains fluoride compounds, vitamin C and triclosan.

Muslims – and others – in many parts of the world still clean their teeth with *miswak*. Modern scientific evidence shows that using *miswak* is a good way of preventing tooth decay. *Miswak* has had a huge impact on dental health worldwide.