

Tongue Sucker

One size fits all airway management

The Tongue Sucker is an oropharyngeal airway device specifically developed to be used by untrained persons on unconscious casualties. Located in first aid boxes, it is designed to prevent the obstruction of the oropharynx, or throat, by the tongue and may also assist in compression only cardiopulmonary resuscitation (CPR).

The Tongue Sucker is presently a functional prototype. We are currently looking for both medical and commercial partners to assist with clinical evaluation.



The Problem

There are two key problems in the area of first aid which the Tongue Sucker seeks to address:

Blocked airway

Without an adequate airway, an unconscious patient will die within minutes, irrespective of their injury.

An unconscious casualty loses muscle tone, and as a result, their tongue can fall to the back of their throat, blocking their airway. Properly opening and maintaining the airway of an unconscious casualty is the first critical and potentially lifesaving step in their treatment.

Reluctance or inability to perform CPR

Studies show that only 1 victim in 3 will receive bystander CPR because of rescuer fear and hesitation

Conventional cardiopulmonary resuscitation or CPR involves a combination of chest compressions with rescue breathing (mouth-to-mouth ventilation), which could, in some cases, double a patient's chances of survival. It is well documented however, that many would-be rescuers do not perform mouth-to-mouth ventilation because they are:

- Untrained
- Trained but have forgotten
- Afraid of intimate contact with the casualty

The Solution

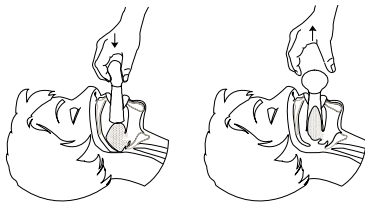
Through the application of a Tongue Sucker, the tongue is prevented from blocking the *oropharynx*, or throat, of an unconscious patient.

It is also possible that using a combination of the Tongue Sucker and a simplified version of CPR known as 'compression only CPR' the need for intermittent rescue breaths and intimate patient contact could be entirely eliminated whilst still allowing air exchange. This would therefore provide a safe and effective alternative for unskilled bystanders at the scene of an accident who are unwilling or unable to perform mouth-to-mouth resuscitation.

How the Tongue Sucker works

The Tongue Sucker's approach to the problem is simple and logical and may be performed by anyone.

The bulb is squeezed, the tube placed over the tongue, and released. This action creates a vacuum, which sucks onto the tip of the tongue pulling the rear off the throat and into the carefully designed self-sealing chamber.



- 1) Squeeze the bulb and locate over tongue
- 2) Release bulb and begin chest compressions

Once the *oropharynx* is opened the rescuer is free to perform compression only CPR. This is a simplified version of CPR involving administering compressions without intermittent ventilation.

The benefit of the Tongue Sucker is that as the airway is now open during compressions, passive chest recoil (the movement of the chest in reaction to compressions) may be adequate to provide sufficient air exchange.

Features and benefits

Prevents obstruction by the tongue

The suction of the bulb draws the tongue off the back of the oropharynx or throat.

Simplifies process

During CPR, the untrained rescuer would now not need to manually open the airway with a head tilt/chin lift or jaw-thrust manoeuvre between compression sets. This would allow them to focus clearly on delivering quality chest compressions during CPR without interruption. Simplification of the process is key as CPR skills diminish quickly after initial training.

Removes contact

By removing the need for intimate contact with the victim, fear and reluctance of performing resuscitation is reduced.

One size fits all

Traditional professional airway devices come in seven different sizes and it is critical to choose the correct size of airway for the size of patient being treated. The Tongue Sucker proposes to be a 'one size fits all' device that will accommodate a broad range of unconscious casualties regardless of size and gender.

Intuitive Design

Traditional airways require a sophisticated level of training to insert correctly and safely. Application of a Tongue Sucker is as simple as squeezing the bulb and inserting over the tongue.

None invasive

Traditional airways can be fatal to the casualty if incorrectly sized or incorrectly inserted. The Tongue Sucker is designed to be non-invasive, avoiding the delicate areas at the rear of the throat.

Versatile

Existing oropharyngeal airway devices can only be applied to those who are in deep unconsciousness. Insertion otherwise, will induce vomiting, further exasperating the airway problem and/or cause trauma to the glossopharyngeal region (area at the back of the throat).

N.B. The Tongue Sucker is still at the prototype stage and subsequently, the features outlined here are the views of the Tongue Sucker designers and are yet to be clinically tested.

Background

The Tongue Sucker has been developed by Graeme Davies, Phillip Greer, Christopher Huntley and Lisa Stroux, four Industrial Design Engineers from Imperial College and the Royal College of Art.

The project was initiated in reaction to the July 7th 2005 London bombings in consultation with the emergency services involved. The aim of the designers was to put professional equipment into the hands of untrained bystanders; those who are best placed to apply immediate aid in the first few vital minutes after an accident.

Early on in the research phase it was identified that creating and maintaining a patent airway was the first critical step in the treatment of unconscious casualties. By further analysing and evaluating the airway management tools used by paramedics and taking a lateral design approach, they were able to address the limitations that prevented their use by the general public.

Subsequent prototyping and testing phases allowed the Tongue Sucker to evolve into its current unique format.

Contact

If you require further information about the Tongue Sucker and would like to contact the designers, please mail

info@tonguesucker.com

The Tongue Sucker is currently at the prototype phase and we would welcome any input from medical experts, in particular emergency physicians and anaesthesiologists to help the further development of the project.

We are currently seeking partners to assist in a clinical product evaluation and are concurrently looking for potential licensing partners in conjunction with Innovation RCA. Please contact us at the above email address if you are interested in finding out more.



FAQs

Can I buy one?

Not yet. The Tongue Sucker is currently still a prototype. The principle of the design has been demonstrated and we are now looking for verification through clinical evaluation.

Where did the idea originate?

The team used the 7 July 2005 London bombings as starting point to consider problems associated with mass casualty incidents. Discussions with London Ambulance Service and St. John Ambulance highlighted the need to bridge the gap between accidents and the arrival of professional medical help. In order to do so, the team decided to give bystanders, first on scene, a tool to contribute.

Why is it called the Tongue Sucker?

In emergency first aid situations, clarity of instruction is paramount. The name is reflective of both how to apply the device and the general principle behind the concept. In addition it is also memorable which is vital in the education of basic life support.

How does a Tongue Sucker stop people from swallowing their tongue?

It is a common misconception that people 'swallow' their tongue. The small fold beneath the tongue, called the Frenulum Linguae prevents the anterior section of the tongue from falling backwards. However, when someone becomes unconscious, they lose muscle tone and the rear portion of their tongue may fall to the back of their oropharynx, blocking their airway. The Tongue Sucker prevents this by creating a gap at the back of the throat through which air can pass

Where would a Tongue Sucker be kept?

Tongue Suckers would be kept anywhere close at hand. These include first aid boxes in cars, homes, offices, schools etc.

Can a Tongue Sucker be used more than once?

No. For reasons of hygiene, the Tongue Sucker should be thrown away after use or after removal from its protective packaging. Although it does not have to be sterile the Tongue Sucker should be kept clean

In what situations would you use a Tongue Sucker?

In any event where someone falls unconscious. This may be due to head injury, cardiac arrest, electric shock etc.

Disclaimer

The Tongue Sucker is currently at the prototype stage. The application of a Tongue Sucker and airway management methods as outlined are solely the viewpoint of the designers and are yet to be clinically proven. It is in no way intended to be a substitute for current resuscitation guidelines until it has undergone clinical trials.

The designers of the Tongue Sucker would welcome any consultation with both paramedics and anaesthetists. If you would be interested in assisting with the further development of the device, or would simply like to comment on the product, please contact us at info@tonguesucker.com.