

# BCV (BIPHASIC CUIRASS VENTILATION) SECRETION CLEARANCE

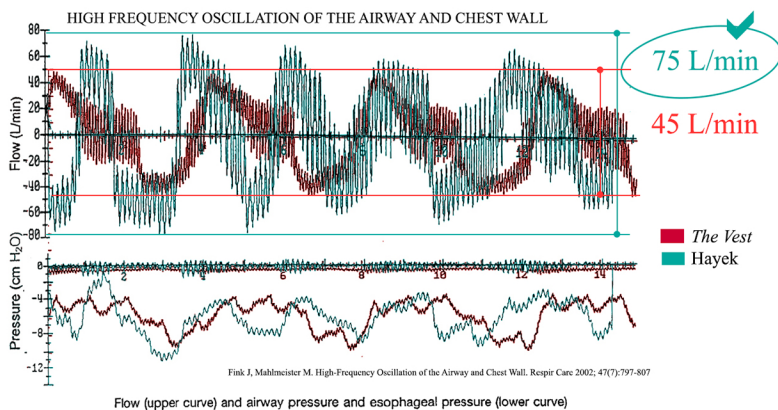
## Compression vs. Oscillation... What is the DIFFERENCE?

All "vest"-type devices utilize a high frequency of chest wall compression (HFCWC) by using only positive pressure on the chest wall. Oscillation requires both a negative and a positive pressure applied to the chest wall, which only Biphase Cuirass Ventilation (BCV) can offer.

(Chatburn, R.L.. High Frequency Assisted Airway Clearance, Respiratory Care Sept. 2007 Vol. 52 No. 9)



## the DIFFERENCE is BIG



"Utilizing the AARC Clinical Practice Guidelines as a framework for developing protocols for use, and defining desirable end points that include (but are not limited to) sputum volume, HFO devices offer a valuable tool in the management of patients who may need assistance with secretion clearance and atelectasis."

Fink J, Mahlmeister M. High-Frequency Oscillation of the Airway and Chest Wall. Respir Care 2002; 47(7):797-807

### True HFCWO

The Secretion Clearance mode in BCV, works in a very unique and different way to all other secretion clearance devices on the market. Using the high frequency chest wall oscillation (HFCWO) technology, developed by Dr Z. Hayek in 1984, it is the only true HFCWO machine on the market. This is because to achieve effective oscillation of the chest the device must have the ability to move between a negative pressure, which expands the lungs by sucking the chest wall out, and a positive pressure, which compresses the lungs. While the cuirass/shell only goes over your chest, secretions in all the areas of your lungs are effectively mobilized.

### Everything in One Device

The other unique feature of Hayek BCV in relation to secretion clearance, is that it incorporates a cough simulation element to the function. This replaces the 'Huff' techniques that you may perform to expel the mobilized secretion up the respiratory tract. Secretion Clearance with Hayek BCV works by switching between these 2 vital elements. The first being vibration mode, which performs the HFCWO. This mode opens and closes the lungs between 2 pressures, set by the physician. The device is capable of swinging between -50cmH2O and +50cmH2O. It does so at very high rates, up to 20 times per second or 1200 per minute. The second element is the cough simulator. This works by giving a long high pressure breathe in followed by a short sharp breath out forcing the secretions up the airways. This enables you to expel them more easily.

BCV not only provides the secretion clearance function for you, it also provides non-invasive ventilation should you require it. The method of ventilation it employs is proven to build up your respiratory muscle strength as it uses them to help you breathe. Ventilation using BCV is the closest method of ventilation we have to physiological respiration. It works by generating a negative pressure inside the cuirass/shell and sucking the diaphragm down and the intercostal muscles out. This in turn causes the pressure in the lungs to decrease and become lower than the surrounding atmosphere. This lower pressure causes the air outside to rush into the chest and expand the lungs. This is how we breathe normally. With this mode of ventilation your own respiratory muscles are being used to help your breathing and are in turn being strengthened.

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