

# Clinical Trial Overview

## High-Frequency Chest Compression: Basic Research/Physiological Effects

This laboratory investigation with human subjects suggests that HFCC may potentially provide clinically beneficial non-invasive ventilatory support to spontaneously breathing patients.

<b>Title</b>	Calverley PMA, Chang HK, Vartian V, Zidulka A. High-frequency chest wall oscillation: assistance to ventilation in spontaneously breathing subjects. <i>Chest</i> 1986; 89:218-223.
<b>Objective</b>	To determine whether HFCC enhances gas exchange, and therefore ventilation, in spontaneously breathing non-intubated human subjects.
<b>Method</b>	<p>Five normal spontaneously breathing volunteers were recruited for this in-laboratory study:</p> <ul style="list-style-type: none"> <li>• 3 males/2 females aged 33 – 43</li> <li>• Supine position</li> <li>• High-frequency chest wall compression (HFCC) administered in randomized order for fifteen minute sessions at both maximal and half-maximal peak tolerable cuff pressures (maximal cuff pressure = 90-102 cm H<sub>2</sub>O) at each of three frequencies: 3 Hz, 5 Hz and 8 Hz</li> <li>• Each session was separated by 15 minutes of control spontaneous ventilation</li> </ul>
<b>Results</b>	<ul style="list-style-type: none"> <li>• Spontaneous minute ventilation decreased significantly with HFCC, corresponding to improved gas exchange/ventilation <ul style="list-style-type: none"> <li>○ At 3 Hz, by 35 % at maximal pressures and by 40% at half-maximal pressures</li> <li>○ At 5 Hz, by 26% at half pressures and by 35% at maximal pressures</li> <li>○ At 8 Hz, no significant change between spontaneous breathing and HFCC at maximal and half pressures</li> </ul> </li> <li>• No serious side effects observed</li> </ul>

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