Triangle Waveform for Peak Performance

What Triangle Waveform Does

• At peak pressure, delivers a brief, intense thump on the chest that helps shear mucus, aiding transport out of the airways
• 20% increase in sputum production with triangle waveform (vs. sine)

How Triangle Waveform is Produced

• A unique air chopping valve creates the sharp, brief peak air pressure pulses/spikes
• Sine wave systems use a diaphragm that squeezes air back and forth within the system; the resulting waveform is not as sharp

Why the inCourage® System Works Well

• Comfort/Active Venting: immediate release of air in response to user’s breath; feels less constricted; allows deeper inhale
• Deeper breath > allows more airflow > more mucus clearing (shearing and out through airways)
• The only Airway Clearance Therapy (ACT) vest with triangle waveform benefits

Pressure Graph

Vest Therapy Triangle & Sine Waveforms @ 6Hz

Fig. Vests applied to stationary mannequins using each system’s own vest, hoses and waveform generator. Pressure oscillations measured inside the vests (a proxy for pressure against the body) with waveform devices set to maximum output and oscillating at 6 beats per second. Plots begin at point of steady-state pressure operation, approximately 16 seconds from startup. 6Hz frequency allows the waveform shape differences to be clearly depicted.

How Triangle Waveform Differs

• Triangle wave: more like CPT "thump"; sine wave: more like a squeeze or compression; easier to breathe with triangle waveform than with sine waveform
• Triangle wave amplitude (measure of wave base point to maximum) and immediate drop-off yield the quick thump
• Triangle wave: highest airflows and largest volumes in the lungs occur over the same frequency range; best frequencies for flow and volume are concordant
• Sine wave: highest airflows occur at one end of the frequency range and largest volumes at the other; best frequencies for flow and volume are discordant

REFERENCES