



Case #199

Breath Biofeedback System for Asthma, Cystic Fibrosis and other Chronic Lung Diseases

Breathing, relaxation and awareness training significantly ameliorates respiratory symptoms and dysfunctional breathing. In spite of these benefits, consistent, safe and effective delivery of breath training is difficult and costly due to the lack of available expertise at an affordable cost, competing priorities of patients and the lack of cost-effective, engaging tools. This system delivers breath training and awareness using interactive, breath-controlled video games, that bring both diagnostic and therapeutic benefit, while addressing the key weaknesses that have limited the adoption of breath training to date. The system includes a thoracic volume input module measuring thoracic volume data of the subject and a pattern module providing target breathing patterns in communication with a display generator. The displayable image is designed such that when displayed on the display device the displayable image encourages the subject viewing the displayable image to modify respiration.

Applications:

- Breath training for asthma, cystic fibrosis and other chronic lung diseases.
- Augment therapeutic management of migraine, behavioral, sleep and mood disorders.
- Athletic cardiovascular efficiency training.

Advantages:

- Biofeedback provides personal breath training.
- Compelling experience that motivates patients.
- Compatible with consumer-grade mobile computing platforms.
- Data collection for better patient management.

Intellectual Property and Development Status:

US Patents 7,618,378 and 8,696,592

Licensing and collaborations for application development

References:

A breath biofeedback computer game for children with cystic fibrosis. Bingham PM *et al* PM20118101

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