

## Taking pulmonary rehab one step beyond...



### Harmonicas for Health



- Larry Vesely is a registered respiratory therapist and has worked at Cardiopulmonary Rehab, Bloomington Hospital for 16 years, working in the field since before 1983 (The Dark Ages).
- My thanks to Mary Jane Gormley for her passion to not only make our harmonica class become a reality but also for being the catalyst in the writing of the Harmonicas for Health book used in our classes. A big thanks for her extraordinary proof-reading skills.
- Thanks also to Williams Bros. for supplying the harmonicas for this event and for our classes.
- And to Vicky Hicks, my collaborator in crime whom helped with her technical and proof-reading skills.

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## Objectives and goals



Objectives:

- 1) To recognize the benefit of harmonica playing in regards to the improvement of respiratory function.
- 2) Apply the use of harmonicas primarily in the COPD or reactive airway populations.

Goals:

- A. Identify the benefit to COPD, reactive airway patient populations.
- B. Demonstrate and return demo the basics of simple harmonica playing.
- C. Apply new skills to your everyday clinical practice.




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## Three hidden goals until now kept secret from the all knowing Eye:



- You will NOT become a virtuoso on harmonica in one lesson.
- You may still not like the harmonica; however, you should have a healthy respect for it.
- And, you should have at least one ounce of fun during this class.

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## What's going on? What do we know?



- COPD has the 4th highest mortality rate in the U.S., not including the other respiratory illnesses; interstitial lung disease, pulmonary fibrosis, lung CA, etc.
  - Estimated 120,000 deaths annually.
  - Most major illness mortality rates are decreasing or in the very least staying even, while COPD is increasing.
  - 1.4 million emergency room visits annually.
  - 3.2 million admissions annually.
  - Annual cost \$32.1 billion in USA.
- Two absolutes in improving COPD mortality is
- If you need oxygen, wear it (ALA states minimum 15 hours daily).
  - If you haven't, quit smoking.
- Respiratory medications will improve your breathing and allow you to improve your activities of daily living.

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COPD can severely limit ADL's, quality of life (QOL), causing increase SOB as on attempts to increase activities.

COPD symptoms may also:

- Decrease psychosocial functioning at home, and community.
- Become worse with stress.
- Limit the immune system's ability to fight exacerbations and infections.
- Bring on negative psychological changes.

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## How can harmonica help?



- Exercise in general will help us keep ourselves in shape to function more efficiently.
- A more efficiently running car (our body) functions better, requiring less fuel (oxygen), and give off less exhaust (carbon dioxide).
- By exercising the muscles that breathe for us, we will breathe better with less effort.

- Diaphragm (primary breathing muscle)
- Intercostal muscles
- Accessory and shoulder muscles



Playing harmonica:

- maintains lung function which help to reduce asthma and/or COPD symptoms, and possible exacerbations.
- facilitates deep breathing and helps us use more of our lung capacity.
- Improves ability to keep our lungs clear.

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# Harmonicas for Health



OTC devices: balloons, pinwheels, soap bubbles, vuvuzelas, etc.

Other techniques: singing or playing a wind instrument functions basically on exhaling; however, does require deep, abdominal breathing.

Self-generated:

- pursed-lip breathing
- abdominal breathing
- cheap, always around, never wears out

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## Da Harmonica:



- Inexpensive
- Small
- Goes everywhere
- Universally accessible
- Simple
- Especially pleasing to most dogs
- Works effectively on inhale and exhale



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## How does the harmonica improve the breathing of someone with COPD?



### 1) COPD causes air trapping

- Loss of elasticity
- Airway collapse
- Inflammation, and irritation of airways causing narrowing

### Common solutions:

- Pursed-lip breathing (PLB)

**Harmonica:** When exhaling through a hole or holes of the harmonica, you create a back pressure that mimics PLB as you are generating sound. Playing a wind instruments (trumpet, saxophone, singing, etc. may also help).

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**How does the harmonica improve the breathing of someone with COPD (continued)?**



**2) COPD causes a loss of proper diaphragmatic ability**

- People when SOB will often breathe from their upper chest and/or shoulders often in a tripod position with elbows on a table.
- Diaphragmatic breathing should do 80% of the work of breathing.
- Incorrect breathing wears people out quicker, causing more SOB, which may cause a downward spiral toward a possible exacerbation.

- Common solutions:**
- incentive spirometry
  - inspiratory muscle trainer
  - Exercise in general
  - singing
  - playing wind instrument
  - swimming
  - yoga



**Harmonica:** Performing breathing exercises by blowing and drawing slowly and repetitively in a harmonica improves diaphragmatic tone and control. This is due to breathing through restricted orifices, increasing breathing resistance.

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**How does the harmonica improve the breathing of someone with COPD (continued)?**



**3) People with COPD have difficulty ridding themselves of CO2 as well as inability to generate effective cough to help clear the lungs.**

- Loss of elasticity in lungs
- Rigidity of lower rib cage
- Ineffective overuse of intercostal and accessory muscles causing fatigue, increase O2 demand, increase calorie consumption.

- Common solutions:**
- Strengthening of abdominal muscles
    - Incentive spirometry
    - Inspiratory muscle trainer
    - Core exercises



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**How does the harmonica improve the breathing of someone with COPD (continued)?**



- #3 (continued)**
- Devices, modalities to help clear lungs:
    - Flutter valve
    - "Accapella"
    - Mechanical vest
    - Chest physical therapy
    - "Lung flute" (see picture at right)



- Harmonica:**
- Promotes efficient diaphragmatic control
  - Strengthens abdominal muscle
  - More effective cough mechanism
  - Less reliance on intercostal and accessory muscle use
  - Vibration caused by sound generated transmits throughout chest and lungs helping facilitate airway clearance.

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**How does the harmonica improve the breathing of someone with COPD (continued)?**



**4) Psychosocial benefits**

People with breathing problems have:

- Loss of well being
- increase frustration
- loss of independence
- possible emotional problems such as depression, anxiety, etc.

**Common solution:** enlisting in an exercise regimen such as OPFR, joining community organizations, involving oneself in a hobby, volunteering, etc.

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**How does the harmonica improve the breathing of someone with COPD (continued)?**



**4) Psychosocial benefits (continued)**

**Harmonica:** knowing that you are doing something that will enhance your health, as well as the accomplishment of learning something new.

- increase of self-esteem, accomplishment, and well being in learning something new
- better control over symptoms
- possibly decrease exacerbations, hospitalizations
- increase mental involvement and focus
- skill development
- increase quality of life
- possible new religious experience




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**So what stops us from learning and teaching harmonica in our OPFR classes?**



What if I stink at playing the harmonica?

- I will have a major loss of self-esteem!
- What will my family, friends, peers say if they learn I play harmonica?
- It may decrease my credit rating.
- Make me grow grey faster.
- I may find myself single, homeless, and/or penniless.




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**Seriously folks...** 

- The benefits are not from how well you sound but on the action of the blowing and drawing through the harmonica on a repetitive schedule that will help your breathing.
- You really can't make a bad sound. The arrangement of the holes and notes are such that you will either play one note at a time or play a musical chord depending on what you're trying to play and/or your technique.
- Your technique will improve with practice.
- It's easy to start.
- Who cares what you look like as long as you are helping others to breathe better!




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**Patients with other health issues have benefitted from learning the harmonica include:** 

- Cardiovascular disease
- Asthma
- Pulmonary fibrosis
- Sleep apnea
- Parkinson's disease
- Muscular dystrophy
- ALS
- Chronic pain and its mgmt
- Depression
- Anxiety
- Stress
- Tobacco use
- Loss of memory
- Learning disabilities




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**Playing harmonica engages:** 

- |            |  |
|------------|--|
| • mouth    | • hands                                    |
| • lips     | • joints                                   |
| • tongue   | • bones                                    |
| • cheeks   | • ribs                                     |
| • jaw      | • throat                                   |
| • teeth    | • lungs                                    |
| • neck     | • heart                                    |
| • eyes     | • diaphragm                                |
| • ears     | • legs and feet<br>(if it makes you dance) |
| • muscles  | • etc.                                     |
| • arms     |  |
| • the mind |  |

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## So let's get started! Do's and Don'ts



### Rule #1: Keep things separate and clean!

- Hand sanitizer, provide napkins for harmonicas when not in use.
- Remember those things are going in our mouths!
- Keep them warm and dry before playing.
- Don't store in plastic containers until completely dry.
- No sharing!
- Don't eat or drink anything except water.
- Don't let the dogs lick harmonicas.
- Lap whap often.



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## Exercises to warm up the player and the harmonica :



- In/out x 4, same volume
- In/out x 4, change volume
- In/out x 4, tremolo effect generated by diaphragm
- Try playing as you change the shape and position of your mouth and tongue.
- Lap whap



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## Positioning the harmonica: Goal is to try to play one note at a time



- Purse lips
- TILTED EMOUCHURE – ideal method
- Hold towards the far side of the harmonica.
  - Put harmonica up to lips.
  - Tilt far side of harmonica upward almost touching tip of nose.
  - When you play with this technique, you play fewer notes due to the bowl of your lower lip.



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# Harmonicas for Health

## More positioning the harmonica "Classic" hand position



- Make "alligator jaw" with left hand.
- Place harmonica in "mouth" of "alligator".
- Touch both heels of hands together.
- Cup right hand over back end of harmonica.
- Open and close right hand over harmonica quickly to make 2nd tremolo effect.

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## 10-hole Diatonic harmonica



- Plays your basic Do-Re-Mi-Fa-Sol-La-Ti-Do scale.
- Harmonica is 3 octaves.
- Octave in the middle is from holes 4-7 and plays most melodies.
- Play middle octave up and down (use hand to signal blow and draw).
- Lower octave (holes 1-3) mostly for chording and accompaniment.
- Upper octave (holes 8-10) for extending the melody higher.
- Neither lower octave nor upper octave is a full octave.




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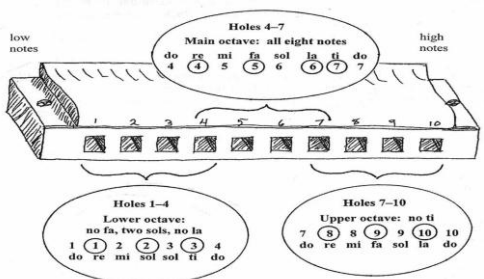
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## 10-HOLE Diatonic harmonica (continued)



The ten-hole diatonic harmonica Circled numbers are draw notes.




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## Variations:



Making the train sound:

- Play 2 holes in/out x 2 slowly.
- Change holes by moving harmonica L>R as you play faster.
- When you are to the far right, playing fast, start to move to the left, playing more slowly as you move.
- Make the train whistle @ beginning and end.

Slides up and down, easy way to find starting note.

Play long notes in & out, making 4 sounds "ta-ta-ta-ta" or "ka-ka-ka-ka" using the tongue and mouth, tremolo #3.

- Creates vibrations in the chest similar to flutter valve with similar results.



Have you lap whapped lately!?!?!?

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## Do-re-mi . . .

Those are the first three notes of the major scale in any key. They are written

4	do	blow into the fourth hole
4	re	draw air out of the fourth hole
5	mi	blow into the fifth hole

We can set that up with the two notes of each hole together, the draw note under the blow; underlining the anchor or tonic notes of the scale can help you keep track of where you are.

4	5	<u>do</u>	mi
4		re	

To find one note, you can cover the other holes with your fingers to hear how it sounds; then play the same note without the finger blocks. Tilting the far side of the harmonica up cuts down on the number of notes at one time. Play 4 5, 4 5, do re mi, a few times up and down.

The first lines of several songs can be played with just do-re-mi.

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4 4 5 4 4 4 5 4  
 Frè-re Jac-ques, Frè-re Jac-ques  
 Are you sleep-ing, are you sleep-ing<sup>6</sup>

4 4 5 4 5 4 5  
 Doe, a deer, a fe-male deer

5 4 4 5 4 4  
 Three blind mice, three blind mice

5 4 4 5 5  
 Ma-ry had a lit-tle lamb (or:  
 Mer-ri-ly we roll a- long)

4 4 4 4 5 5 4 4 5 4  
 Een-cy ween-cy spi-der went up the wat-er-spout

<sup>6</sup>A hyphen between syllables tells you that each syllable gets its own note.

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