



# **Clarinet Playing During Pregnancy and Beyond: Air Support and Other Challenges in the Postpartum Period**

By Rachel Yoder

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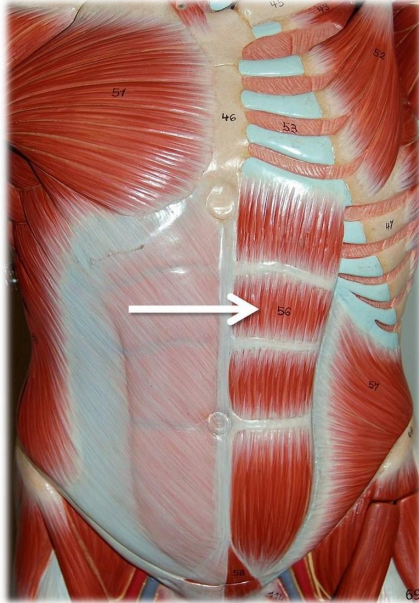


- **Review of research** on how pregnancy may affect the physiology of air support
- **Results of a survey** of 57 clarinetists about their experiences playing clarinet during pregnancy and postpartum
- **Recommendations for players and teachers** on a safe and healthy return to clarinet playing in the postpartum period

# Air Support and the Abdominal Muscles

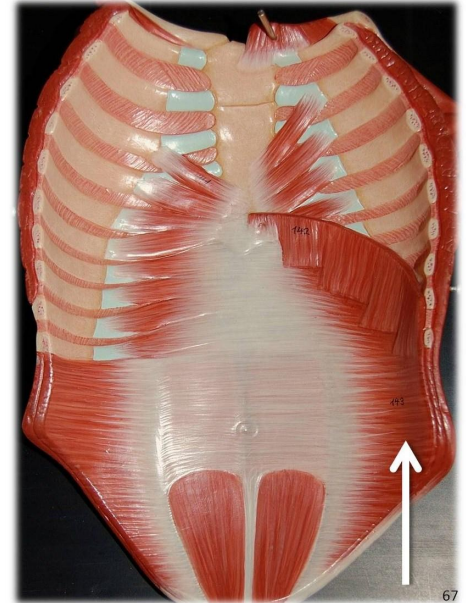
See Alyssa Powell, "Clarinet Breathing: Anatomy, Physiology, and Pedagogy." Virtual ClarinetFest® July 24, 2021. [slides]

## Rectus abdominis



**Compresses abdominal cavity  
and flexes vertebral column**

## Transversus abdominis



**Constricts abdomen and  
supports abdominal viscera**

Credits: All photography, text, and labels by Rob Swatski, Assistant Professor of Biology, Harrisburg Area Community College - York Campus, York, PA. Email: [rswatsk@hacc.edu](mailto:rswatsk@hacc.edu) [[Rectus Abdominis](#)] [[Transversus Abdominis](#)]

# Physical Effects of Pregnancy

## *General*

- Fatigue
- Blood volume increases by 50%
- Nausea and/or vomiting (morning sickness)
- Lower back pain or pelvic girdle pain during pregnancy
- Urinary incontinence

# Physical Effects of Pregnancy

## *Abdominals*

- Weight gain of about 25-35 pounds; 65% of this is in abdominal area
- Intra-abdominal pressure increases
- Diaphragm shifts up by 1.5 to 4 cm
- Abdominal muscles thin and lengthen; action reduced
- Action of rib cage muscles is reduced

LoMauro A, Aliverti A, Frykholm P, et al. "Adaptation of lung, chest wall, and respiratory muscles during pregnancy: preparing for birth." *Journal of Applied Physiology* (Bethesda, Md.: 1985). 2019 Dec;127(6):1640-1650.

Gilleard, W L, and J M Brown. "Structure and function of the abdominal muscles in primigravid subjects during pregnancy and the immediate postbirth period." *Physical therapy* vol. 76,7 (1996): 750-62.

Staelens, Anneleen S. E., Van Cauwelaert Stefan, Kathleen Tomsin, Tinne Mesens, Manu L. N. Malbrain, and Wilfried Gyselaers. "Intra-Abdominal Pressure Measurements in Term Pregnancy and Postpartum: An Observational Study." *PLoS One* 9, no. 8 (08, 2014).

# Physical Effects of Pregnancy

## *Respiratory System*

- Rib cage moves gradually up and expands outward over 3 trimesters
- Rib cage changes in shape **but lung volume does not change**
- The body adapts, increasing the amount of air inhaled/exhaled per minute at rest by up to 50%
- The body is less able to increase this volume during stress or heavy exercise
- The ability to do strenuous exercise is impaired, and less oxygen is available for it

LoMauro A, Aliverti A, Frykholm P, et al. "Adaptation of lung, chest wall, and respiratory muscles during pregnancy: preparing for birth." *Journal of Applied Physiology* (Bethesda, Md.: 1985). 2019 Dec;127(6):1640-1650.

ACOG Committee Opinion No. 804. "Physical Activity and Exercise During Pregnancy and the Postpartum Period." *Obstetrics and Gynecology* Vol. 135, No. 4, April 2020.

Bø, Kari, et al. "Exercise and Pregnancy in Recreational and Elite Athletes: 2016 Evidence Summary from the IOC Expert Group Meeting, Lausanne. Part 1-Exercise in Women Planning Pregnancy and those Who are Pregnant." *British journal of sports medicine* 50.10 (2016): 571. ProQuest. Web. 8 July 2021.

# Survey: Clarinet Playing and Pregnancy

## *Physical Challenges of Pregnancy that Affected Clarinet Playing*

**86%** shortness of breath / difficulty taking full breaths

**67%** fatigue

**59%** lack of air support

**47%** body changes affecting posture or playing position

**40%** dizziness or low blood pressure

**39%** nausea or morning sickness

**33%** back pain

**28%** heartburn or acid reflux

**23%** swelling

**12%** carpal tunnel

**12%** high blood pressure

“As baby grew in size, it was increasingly challenging to take deep enough breaths and to sustain them adequately. It was also necessary to modify my playing position due to increasingly large belly.”

“I could barely take a deep enough breath to sustain any length of phrasing. Also the swelling made it really hard to sit for long periods of time.”

# Survey: Clarinet Playing and Pregnancy

By the 5<sup>th</sup> month of pregnancy, 38% of women felt that the pregnancy affected their clarinet playing.

By the 7<sup>th</sup> month, it was 74%.

By the 9<sup>th</sup> month, 86%.

## Auxiliary Clarinet Issues

- 1 person mentioned hand and wrist pain on E ♭
- 9 mentioned the bass clarinet having specific challenges with air support, angle of instrument
- 2 people mentioned difficulty carrying the bass clarinet

“In my 8th month with my first I was asked to play bass clarinet for an orchestra; I wasn’t able to reach around my belly to play.”

“Bass clarinet was nearly impossible to play during my pregnancy. The increased air and support caused abdominal pain.”



# Survey: Clarinet Playing and Pregnancy

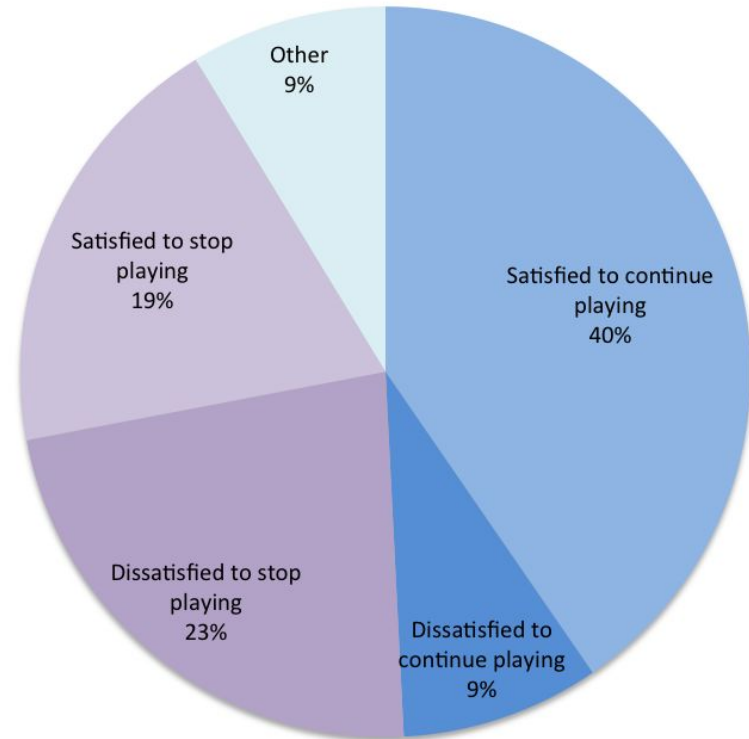
54.4% of women continued to perform and practice throughout their pregnancy.

In month 5 some women began stopping performance and practice activity.

By month 9, 45.6% of women had stopped practicing and performing.

“I was in a terminal degree program. I gave a full length recital at 37 weeks pregnant and gave concerts up until the week I gave birth. My playing had become so manufactured by that point that I was in terrible fundamental clarinet shape after having the baby. I had developed so many bad habits during the pregnancy, in order to cope with the responsibilities I had to fulfill. ... [it] took a tremendous emotional and mental toll.”

Q: How did you feel about the choice to continue or discontinue playing during your pregnancy?



# Physical Effects of the Postpartum Period

## *General*

- Fatigue
- Breastfeeding or pumping 8-12 times per day (newborn)
- Postpartum depression and anxiety
- Respiratory system recovers within 6-12 weeks postpartum
- Pelvic floor weakness, incontinence and pelvic organ prolapse are common
- C-section may require 4-6 weeks until exercising

# Physical Effects of the Postpartum Period

## *Abdominals*

- Usually takes at least 8 weeks after birth for the abdominal muscles to be able to stabilize the pelvis against resistance
- Rectus abdominis likely recovers first, followed by transverse abdominis and obliques
- Internal and external obliques may be overused to compensate for the weaker transverse abdominis
- Diastasis recti (abdominal separation)

Mako Fugano et. al. "Recovery of Abdominal Muscle Thickness and Contractile Function in Women After Childbirth." *International Journal of Environmental Research and Public Health* 18, no. 4 (2021): 2130.

Gilleard, W L, and J M Brown. "Structure and function of the abdominal muscles in primigravid subjects during pregnancy and the immediate postbirth period." *Physical therapy* vol. 76,7 (1996): 750-62.

Bø, Kari, et al. "Exercise and Pregnancy in Recreational and Elite Athletes: 2016/17 Evidence Summary from the IOC Expert Group Meeting, Lausanne. Part 3-Exercise in the Postpartum Period." *British journal of sports medicine* 51.21 (2017): 1516. ProQuest. Web. 8 July 2021.

# Survey: Clarinet in the Postpartum Period

## *Physical Challenges of the Postpartum Period that Affected Clarinet Playing*

**19%** of women had no physical issues that affected their clarinet playing

**46%** fatigue

**44%** lack of embouchure endurance

**33%** lack of air support

**14%** incontinence

**9%** diastasis recti (abdominal separation)

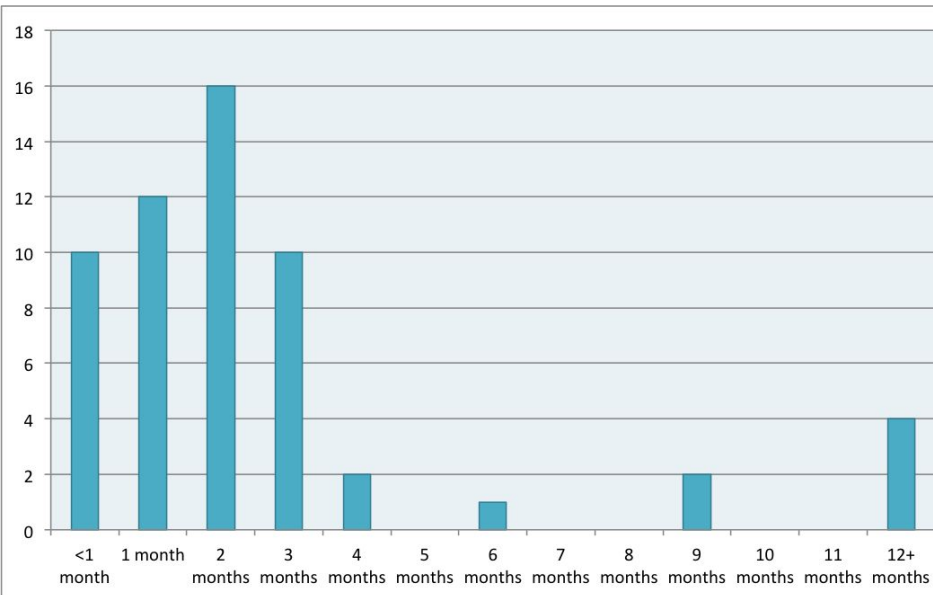
**7%** pelvic floor issues

“I started playing again too soon (in my opinion) after having a C-section. A lot of extra pressure on my abdomen, but I felt if I didn’t do the gig I was at risk of losing it...”

# Survey: Clarinet in the Postpartum Period

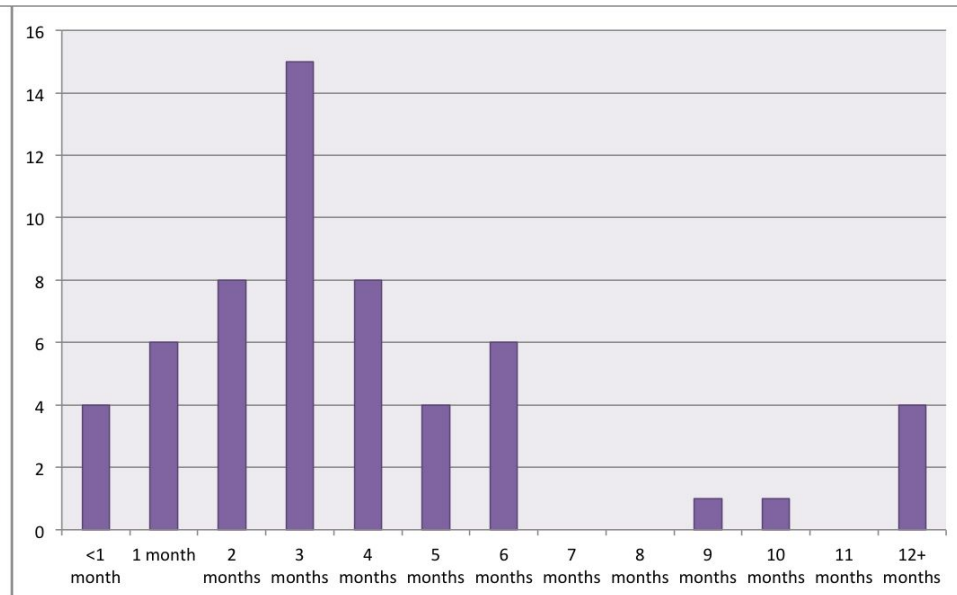
## Returning to practice:

# women who returned at each month postpartum



## Returning to performance:

# women who returned at each month postpartum



# Recovery in the Postpartum Period

- Low-impact activities such as walking and aerobics put less pressure on the pelvic floor and can resume soon after birth
- Strengthening postpartum should start with “pelvic floor muscle first” focus
  - contract pelvic floor (Kegel exercise) during exercises that increase intra-abdominal pressure (heavy lifting, abdominal training)
- During pelvic floor contractions, transverse abdominis and internal obliques co-contract
- The transverse abdominis “is the key to overall spinal stability and abdominal strength”
- Abdominal exercises are most effective when done several times/day

Bø, Kari, et al. "Exercise and Pregnancy in Recreational and Elite Athletes: 2016/2017 Evidence Summary from the IOC Expert Group Meeting, Lausanne. Part 5. Recommendations for Health Professionals and Active Women." *British journal of sports medicine* 52.17 (2018): 1080. ProQuest. Web. 8 July 2021.

Swanson, Shel. "Abdominal Muscles in Pregnancy and the Postpartum Period." *International Journal of Childbirth Education* 16, no. 4 (12, 2001): 12.

Neumann, P, and V Gill. "Pelvic floor and abdominal muscle interaction: EMG activity and intra-abdominal pressure." *International urogynecology journal and pelvic floor dysfunction* vol. 13,2 (2002): 125-32.

# Survey: Recovery in the Postpartum Period

Only 17.5% did postpartum physical therapy; half of those said the PT was helpful to their clarinet playing; all said it was helpful to their postpartum recovery

Other personal fitness activities that aided in physical recovery postpartum:

- 75% did cardio exercises (walking, running, biking, swimming)
- 53% Kegel exercises
- 26% Yoga

“Once my core recovered and I was able to do light cardio, playing became easier. I don’t think I fully returned to my breath control until after I finished breastfeeding at 13 months and could exercise at a higher intensity (exercise diminished my supply).”

# Recommendations for Clarinetists

- Have backup plans; it is impossible to control or predict what will happen and how you will feel during and after pregnancy
- When returning to play, use softer reeds to reduce pressure
- Gradually strengthen the core with a focus on “pelvic floor first” and then transverse abdominis (yoga terms: mula bandha and uddiyana bandha)
- Postpartum physical therapy is *highly* recommended
- Aim for *quality* of practice; you will not have the quantity you did before
- Prioritize your physical and mental health



# Recommendations for Teachers, Administrators, Ensemble Directors

- **be aware of physical challenges** of pregnancy and the postpartum period
- **be prepared to make appropriate accommodations** in scheduling, degree plan, repertoire, logistics (e.g. playing seated rather than standing), breastfeeding or pumping (both space and time allowed)
- **respect each individual's requests and decisions** regarding necessary accommodations, playing during pregnancy, and returning to playing after childbirth
- **be familiar with family leave provisions** ([national](#) and [state](#))
- **be an advocate** for [family-friendly policies](#) at the national, state and local levels and within your own institution or organization



## **Thank You:**

International Clarinet Association

Meghan Taylor

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## **Questions, Comments?**

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