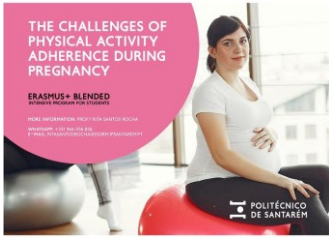




Exercise Adaptations during Pregnancy

Rita Santos Rocha
March 2023



1



Sofia Machado & Noah Cavendish, by Didi Machado

2

Exercise adaptations - intervention



- **Supervision** is recommended to ensure proper technique, provide confidence, and ensure the progression of appropriate levels of intensity and complexity.
- The exercise professional should provide regular **feedback**, positive reinforcement, and behavioral strategies to enhance **adherence**.
- The exercise professional should also provide the **safest** possible training and testing environment, as well as preventing exercise-related **emergencies**, and be familiar with the safety and emergency procedures available at the fitness setting where the exercise program is delivered.



3

Exercise adaptations - intervention

- Each type of exercise or programme requires a specific adaptation (type of exercises, position, technique, cadence, weight, impact, repetitions, environment ...)



4

Exercise adaptations - intervention

- Warm-up (7-10 min)
- Aerobic exercise, e.g., low or high-low impact aerobics, walking or jogging on a treadmill, stationary cycling (15-20 min)
- Resistance exercises (including abdominals exercises), postural and neuromotor (e.g., body balance) exercises (10-15 min)
- Stretching exercises (5-10 min)
- Pelvic floor exercises (5-10 min)
- Cool down and preparation for birth exercises, e.g., birth position and breathing exercises (5-10 min) and also relaxation and visualization of pregnancy and childbirth (5-15 min)

Szumilewicz & Santos-Rocha (2019)

Santos-Rocha R, Fernandes de Carvalho M, Prior de Freitas J, Wegrzyk J, Szumilewicz A. **Active Pregnancy: A Physical Exercise Program Promoting Fitness and Health during Pregnancy-Development and Validation of a Complex Intervention.** Int J Environ Res Public Health. 2022 Apr 18;19(8):4902.



5

Exercise adaptations - intervention

- All exercise sessions should always start with a 5-10 min warm-up period, including slow walk, light stretching, or movements that will be performed during the main part of the session.
- All sessions should end with a cool-down period, which can include breathing exercises, light stretching, pelvic floor training, movements that were performed during the main part of the session (reinforcing the motor task learning), or movements that will be performed in the next sessions.



6

Exercise adaptations – aerobics and step



- A variety of weight-bearing exercises that activate large muscle groups in a rhythmic and continuous fashion
- Warm-up: including some movements of the main part
- Low impact to high impact (jumps or runs)
- 130-150 bpm (aerobic) / 125-140 bpm (step)
- Step bench close to the mirror
- Give enough space – avoid crowded sessions
- Bench height of 10/15 cm
- Proper shoes and (sports/pregnancy) bra
- Cool-down: including some exercises for the next sessions
- It is possible to teach low or high impact options of movements in one choreography
- Choreographies for each trimester
- Avoid imbalances and falls
- Avoid very quick changes in position and plan
- Careful with changes in direction and position
- Ensure proper posture
- Ensure proper technique (step)
- Ensure biomechanical balance (right and left)
- Arm movements = increase intensity and complexity

Santos-Rocha (2013)



7

Exercise adaptations – water exercise / swimming



- A variety of non-weight-bearing exercises that activate large muscle groups in a rhythmic and continuous fashion
- Swimming is the second, most frequently proposed exercise in pregnancy = backstroke, freestyle
- Water exercise = low impact aerobic exercise
- Pelvic floor exercises can be performed by incorporating them in other stretching or strengthening exercises.
- Workout intensity can be increased by doing more repetitions of each move, increasing speed, or using some equipment to increase resistance.
 - Give enough space
 - Smell
 - Be careful: urinary infections
 - Be careful: hot temperatures
 - Best temperature: 28-30°C

Santos-Rocha (2013)



8

Exercise adaptations – outdoor and indoor cycling



- **Indoor** cycling is a non-weight-bearing cardiovascular and lower body resistance exercise
- Intensity depends on the speed, load on the bike, time (duration of the session), and change in position (sit or stand)
- Comfortable saddle, extra pad, upright position, bike fit to lower limbs' height
- Avoid in case of pelvic girdle pain, hemorrhoids, varicose veins in the vulvar area, or vaginal yeast infection
- **Outdoor** cycling is non-weight-bearing cardiovascular, lower body resistance, and neuromotor exercise
- The frame, weight, and dimensions of the bike must be adjusted to participants' size, fitness level, comfort, and training objectives = **different types of bikes**
- Ensure technique and a correct fit = avoid falls and pollution
- Always use a helmet (and other safety issues)

Szumilewicz & Santos-Rocha (2019)



9

Cycling



10

Exercise adaptations – resistance, flexibility, functional, **postural** and neuromotor exercise

- Major muscles groups using machines, free weights, and body weight exercises
- Submaximal repetitions (i.e., 8-10 or 12-15 repetitions) to be performed to the point of moderate fatigue
- Exercises involving motor skill, e.g., balance, agility, coordination, gait, proprioceptive training, and multifaceted activities (eg yoga, Pilates)
- Static and dynamic flexibility exercises for each muscle-tendon unit
- Increased relaxation of ligaments in pregnancy = joints are supported less effectively = ensure proper technique

Santos-Rocha (2013)



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11

Exercise adaptations – pelvic floor muscles training

- Anatomical support structures of the pelvic organs (bottom)
- More pressure during pregnancy
- Related with possible dysfunctions: UI, prolapses
- Should be included in any PA program: Kegel contractions, fast (1'') or slow (5-8'')
- Several positions
- Across life...



Santos-Rocha (2013)

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12

Exercise adaptations during pregnancy



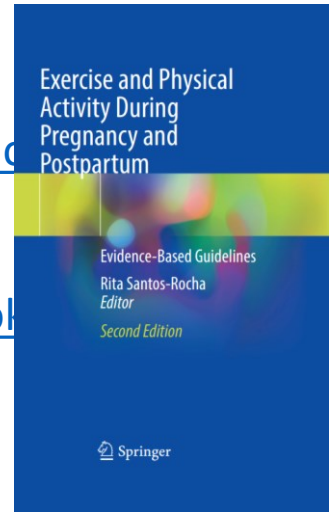
- Textbook (chapter 9)
- YouTube

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<https://www.youtube.com/channel/UC0Vyool5T70imtoNA>



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13

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14

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