

EuropeActive Standards EQF Level 5 Pregnancy and Postnatal Exercise Specialist



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Contents

I. Executive Summary	3
II. Technical Expert Group Members & External Consultation Experts.....	7
III. EuropeActive Skills and Underpinning Knowledge for Pregnancy and Postnatal Exercise Specialist (EQF Level 5) as part of the EuropeActive Learning Outcomes Framework	9
Specific Prerequisites	9
Introductory Information	10
Occupational Title	10
Job Purpose	10
Occupational Description	11
Occupational Roles	11
Core Knowledge Areas and Skills	12
Knowledge and Skill Requirements	13
1 – Role and professional development of the Pregnancy and Postnatal Exercise Specialist	13
2 – Morphological, physiological and biomechanical adaptations during pregnancy and postpartum	13
3 – Psychosocial aspects of exercise during pregnancy and postpartum	14
4 – Basic nutrition rules and other aspects of healthy lifestyle related to pregnancy and postpartum	14
5 – The potential benefits of exercise during pregnancy and postpartum ...	15
6 – Health issues and safety considerations related to pregnancy and postpartum	15
7 – Health and fitness assessment in pregnant and postpartum women.....	16
8 – Prescription, implementation, and adaptation of exercise for pregnant and postpartum women.....	17
9 – Specific exercises related to childbirth and motherhood.....	17
10 – Postpartum exercise and health-related issues	18
IV. EuropeActive Pregnancy and Postnatal Exercise Specialist - EQF L5 - Standards & Competencies Framework	19
References	28

I. Executive Summary

This document supports the EuropeActive B1 Competence Framework and contains the essential Skills and Knowledge written as Learning Outcomes, based on job purposes, required to work as a **Pregnancy and Postnatal Exercise Specialist** in the European Health and Fitness Industry at the EQF-Fitness Level 5.

At the 5th International Standards Meeting, in Amsterdam, October 2014, pre- and postnatal physical activity in the fitness industry was discussed in relation to the development of educational standards for the **Pregnancy and Postnatal Exercise Specialist**.

High quality published articles present sufficient empirical and scientific evidence to support the promotion of moderate-to-vigorous pre- and postnatal physical activity for maternal and baby health benefits. Also, there are several published guidelines about exercising during pregnancy. Recommendations from 2002 stated that pregnant women should accumulate 30 minutes or more of moderate-intensity exercise on most, if not all, days of the week if no medical or obstetric complications are present, i.e., a minimum of 3 exercise sessions of at least 15 minutes each, gradually increasing to 30 minutes per day, preferably on all days of the week (ACOG, 2002). These recommendations have been updated recently (ACOG, 2015). This is the first document stating officially that moderate exercise during pregnancy does not cause miscarriage, poor foetal growth, premature delivery or musculoskeletal injury.

According to the available guidelines for exercising during pregnancy (Evenson et al., 2013), the programme should consist of moderate-intensity exercise (including moderate-intensity aerobic exercise, light-intensity resistance training, Pilates and balance exercises, pelvic-floor training and stretching), performed 3 times per week, under supervision of an exercise specialist. Examples of safe physical activities during pregnancy include walking, swimming, stationary cycling, low-impact aerobics, modified yoga and Pilates (ACOG, 2015). Recent reviews on the potential benefits of different forms of exercise during pregnancy, on health outcomes, are available in the literature, regarding aerobic exercise (Kramer and McDonald, 2006; Lamina et al., 2013), aquatic exercise (Waller et al., 2009), Pilates (Mazzarino et al., 2015), yoga (Gong et al., 2015), and pelvic-floor muscle training (Boyle et al., 2014).

Other physical activities, such as running, jogging, strength training and racquet sports, are considered safe for pregnant women who participated in these activities regularly before pregnancy, upon consultation with an obstetric care provider (ACOG, 2015). Moreover, recreational and competitive athletes may train safely at higher intensities and volumes throughout pregnancy with the understanding that they are undergoing close obstetric supervision. They can continue their exercise programmes or sports, unless prior to pregnancy, the women athletes were engaged in extreme sports (ASC, 2002).

Normal pregnancy, childbirth and the postpartum period are conditioned by the appropriate level of hormones, like progesterone, relaxin and oxytocin. Therefore, both for hormonal balance, as well as for mental and physical preparation of women for childbirth

and motherhood some specific exercises are recommended for prenatal exercise classes and physical activity programmes. They are, *inter alia*, breathing exercises, birth positions, relaxation, pregnancy and birth visualisation (Szumilewicz et al., 2015). There are also official guidelines for postpartum exercise (Evenson et al., 2014).

The prevalence of overweight and obesity is increasing worldwide. In addition excessive weight gain during pregnancy is rising (Ferrari et al., 2014). A healthy lifestyle including healthy eating and physical activity might help in weight management. Prevention of “weight gain” is a motivational factor for being active during pregnancy in obese women.

The pregnancy period is an open window for a lifestyle change, including engagement in an exercise programme. Moreover, if women are active during pregnancy, they will be more likely to be active later in life (Phelan, 2010; Nascimento et al., 2012) and to have active children (Currie & Rossin-Slater, 2015). According to Nascimento et al. (2015) promoting physical activity among women of childbearing age remains a priority in public health policy, and those planning a pregnancy should be encouraged to adopt an exercise routine during pregnancy in order to avoid sedentary- and obesity-associated risks. However, the lack of pre- and postnatal exercise classes and specific personal training programmes offered in fitness clubs may be a reason for female clients' drop off during pregnancy and in early motherhood.

Some psychological barriers still exist regarding exercise during pregnancy amongst both participants and health and fitness professionals. Evenson et al. (2009) reported that the most frequent barriers to exercising during pregnancy were a lack of time or being too busy, followed by reports of lack of energy or tiredness. Other women reported medical conditions, pain, or discomfort. The importance of sleep rated higher than regularly exercising during pregnancy, and fears in relation to maternal physical health were the most common barrier. One-third of the women referred to risks or dangers associated with physical activity, including potential harm to the baby, and fewer women mentioned losing motivation as a reason for a decline in physical activity (Clarke & Gross, 2004). Other reasons commonly cited for not being active included being too tired, unwell or that exercise was uncomfortable (Duncombe et al., 2009). In another study, one-third of surveyed women in their third trimester of pregnancy, reported ‘not knowing what to do’ as a reason for not being active (Rutkowska & Lepecka-Klusek, 2002).

Instructors should consider the multifaceted determinants and outcomes of prenatal physical activity and intervene to promote physical activity before, during, and after pregnancy, helping women to overcome any identified barriers. Exercise professionals must understand why it is not enough for pregnant women just to join general, non-specific classes in fitness clubs and why well-trained staff are required to conduct pre- and postnatal classes.

During pregnancy women need to feel safe and professionally framed while exercising. It is however evident, that there are not a wide range of well-designed pre- and postnatal exercise programmes available. Consequently, an evidence-based package of pre- and postnatal exercise classes or personal training programmes, supervised by well-educated exercise specialists, may well increase participation rates amongst pre- and postnatal clients (especially).

When working with pre- and postnatal clients specialised knowledge is needed in the following areas, amongst others: the official guidelines for exercising during pregnancy; the absolute and relative contraindications to exercise; the symptoms indicating the need for the interruption of exercise; the methods for planning and delivering adapted exercise programmes for this target group. It is therefore, concerning that studies have shown that the majority of exercise instructors have poor knowledge in the field of pre- and postnatal physical activity, although they are aware of the health benefits of exercise for pregnant women and their babies (Worska & Szumilewicz, 2015).

As well as the necessity for well-informed exercise instructors it is also very important to have multidisciplinary professional groups, including doctors, who can influence pregnant women to exercise properly. Indeed, a study by Krans et al. (2005) found that the probability that a woman exercised during pregnancy was increased if her obstetrician encouraged her to exercise.

These are the reasons behind the importance of having European Standards for the **Pregnancy and Postnatal Exercise Specialist**. The purpose of this Exercise Specialist is to build exercise participation for beginners and already active women at all stages of pregnancy and during the postpartum period. This could be achieved through group or individual exercise programmes that meet their needs and objectives. In addition, the Pregnancy and Postnatal Exercise Specialist will be expected to regularly review participants' progress and be able to report on adherence and outcomes to relevant stakeholders.

These new Standards are purpose and outcome driven, and are aligned with the fitness industry's main goal to get: **'More People, More Active, More Often'**.

This booklet containing the new EuropeActive Standards is organised in the following chapters, and offers a comprehensive approach to the required knowledge, skills and competencies for the health and fitness sector:

- Chapters I and II: Introductory information.
- Chapter III: The essential skills and knowledge written as learning outcomes (based on job purposes), required to work as an Exercise Specialist in the European health and fitness industry at EQF-Fitness Level 5. EQF Level 4 Personal Trainer skills and knowledge are recommended as a prerequisite if the Pregnancy and Postnatal Exercise Specialist wants to deliver personal training sessions. EQF Level 3 Group Fitness Instructor qualification is also recommended if this Exercise Specialist wants to deliver group exercise.
- Chapter IV: The EuropeActive Competence Framework and the essential competencies, associated with skills and knowledge written as learning outcomes (based on occupational purposes), required to work as a Pregnancy and Postnatal Exercise Specialist in the European health and fitness industry at the EQF-Fitness Level 5.

A highly qualified group of technical experts from across Europe and representing key stakeholders from the health and fitness sector volunteered to assist with the development of these EuropeActive Standards, and relevant experts from around the world have been involved in the external consultation process.

Finally, it should be noted that the development of these standards has revealed a need for further research in the area of pre-and postnatal exercise. The technical expert group responsible for the development of the standards would recommend that this research might include establishing:

- how many clients in health and fitness clubs are women?
- how many of these women would want to maintain an exercise programme during pregnancy?
- how many of these women would consider returning to exercise immediately after delivery or six months after delivery?

II. Technical Expert Group Members & External Consultation Experts

TEG Members for the European Standards Pregnancy and Postnatal Exercise Specialist (EQF level 5):

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These standards were fully adopted within the process of external consultation and afterwards approved by the Professional Standards Committee.

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Julian Berriman MA
Director
EuropeActive's Professional Standards Committee
Brussels, 30th December 2015

III. EuropeActive Skills and Underpinning Knowledge for Pregnancy and Postnatal Exercise Specialists (EQF Level 5) as part of the EuropeActive Learning Outcomes Framework

Specific Prerequisites

This chapter supports the EuropeActive B1 Competence Framework and contains the essential skills and knowledge written as learning outcomes, based on job purposes, required to work as a **Pregnancy and Postnatal Exercise Specialist** in the European health and fitness industry at the EQF-Fitness Level 5.

All exercise professionals will require both basic core knowledge and specific knowledge related to the context in which they work and there are specific prerequisites before starting the EQF 5 qualification:

1. EQF Level 4 Personal Trainer skills and knowledge or equivalent accredited certification is recommended as a prerequisite if the Pregnancy and Postnatal Exercise Specialist wants to deliver personal training sessions.
2. EQF Level 3 Group Fitness Instructor or equivalent accredited certification is recommended if the Pregnancy and Postnatal Exercise Specialist wants to deliver group exercise.
3. If aquatic activities are planned, the adequate qualifications for conducting exercise in water are required.
4. Working experience as an exercise professional is recommended as a prerequisite for the Pregnancy and Postnatal Exercise Specialist.

The Pregnancy and Postnatal Exercise Specialist as a certified Exercise Professional ideally should be a member of a multidisciplinary task force, created according to the women's needs and consisting of: a General Practitioner or Gynaecologist, Midwife, Nutritionist, Physiotherapist, Exercise Psychologist, other Exercise Specialists and Exercise Scientists. The Pregnancy and Postnatal Exercise Specialist should work with pregnant and postpartum women after she receives medical clearance for exercise from her Gynaecologist or General Practitioner.

Pregnancy and Postnatal Exercise Specialists are **not** endorsed to:

- Prescribe rehabilitation programmes;
- Provide exercise testing and prescription for at risk pregnant women;
- Prescribe any kind of medication or supplements;
- Prescribe nutritional programmes;
- Diagnose any psychological disorders or mental health conditions;
- Provide any kind of psychological counselling;
- Diagnose diseases, disabilities or other clinical conditions;
- Conduct the preparation for birth courses which is the midwives' or other obstetric care providers' task.

Introductory Information

What does Level 5 mean at EQF?

Level of the EQF	Knowledge is described as theoretical and/or factual.	Skills are described as cognitive (involving the use of logical, intuitive and creative thinking) and practical (involving manual dexterity and the use of methods, materials, tools and instruments).	Competence is described in terms of responsibility and autonomy.
The learning outcomes relevant to Level 5 are	Comprehensive, specialised, factual and theoretical knowledge within a field of work or study and an awareness of the boundaries of that knowledge.	A comprehensive range of cognitive and practical skills required to develop creative solutions to abstract problems.	<ul style="list-style-type: none"> - Exercise management and supervision in contexts of work or study activities where there is unpredictable change; - Review and develop the performance of self and others.

What does Level 5 mean at Fitness QF?

EQF Level	Occupation	EuropeActive Standards	Target Audience
Level 5	Pregnancy and Postnatal Exercise Specialist	EuropeActive Level 5	Healthy pregnant and postpartum women with medical clearance for exercise

Occupational Title

Pregnancy and Postnatal Exercise Specialist.

Job Purpose

The purpose of the Pregnancy and Postnatal Exercise Specialist is to build exercise participation for beginners and already active women at all stages of pregnancy and during the postpartum period. This could be done through group or individual exercise programmes that meet their needs and objectives. In addition, the Pregnancy and Postnatal Exercise Specialist will be expected to assess overall physical fitness, to develop proper exercise programmes, to review participants' progress and to be able to report on adherence and outcomes to relevant stakeholders.

Occupational Description

Pregnancy and Postnatal Exercise Specialists have the ability to communicate with pregnant and postpartum women, and promote their engagement in specific exercise and health programmes. They also have the ability to communicate with medical and healthcare professionals about the pregnant participant's conditions and with an understanding of the standard medical conditions or contraindications in relation to exercise. They can programme and supervise group or individual exercise, adapting the different forms of exercise to each stage of pregnancy and the postpartum period, according to available exercise guidelines and physical fitness assessments. Additionally, they have the ability to develop a prenatal exercise programme for previously inactive or for active women, including athletes.

Pregnancy and Postnatal Exercise Specialists will take a holistic approach to the wellness of their pregnant and postpartum women. This includes advising on lifestyle, healthy eating and stress management in addition to the benefits of exercise relevant to the condition, but always with respect to professional boundaries.

Occupational Roles

The Pregnancy and Postnatal Exercise Specialist should be able to:

- Communicate with pregnant and postpartum women in tasks related to the implementation of an exercise programme;
- Communicate with medical and healthcare professionals about their pregnant or postpartum clients' conditions;
- Perform health and fitness assessments related to pregnant and postpartum women's exercise participation;
- Program and supervise group or individual exercise, according to women's condition, each trimester of pregnancy and/or postpartum period, following evidence-based guidelines and physicians' recommendations;
- Adapt different types and forms of exercise to each stage of pregnancy and postpartum period, which are safe and effective for this special population;
- Recognise and respond to emergency situations and to warning signs to terminate exercise;
- Educate women on pre- and postnatal physical activity and exercise;
- Advise pregnant and postpartum women on lifestyle, including healthy eating and stress management, emphasising the benefits of exercise for expectant mothers and their babies;
- Promote pregnant and postpartum women's engagement in specific exercise and health programmes;
- Respect own professional limitations to implementing exercise programmes in pregnancy and the postpartum period, and receive referrals from and refer women to other professionals as appropriate.

Core Knowledge Areas and Skills

The educational standards for the Pregnancy and Postnatal Exercise Specialist EQF Level 5 include the following core knowledge areas and skills:

1. Role and professional development of the Pregnancy and Postnatal Exercise Specialist;
2. Morphological, physiological and biomechanical adaptations during pregnancy and postpartum;
3. Psychosocial aspects of exercising during pregnancy and postpartum;
4. Basic nutrition rules and other aspects of healthy lifestyle related to pregnancy and postpartum;
5. The potential benefits of exercise during pregnancy and postpartum;
6. Health issues and safety considerations related to pregnancy and postpartum exercise;
7. Health and fitness assessment in pregnant and postpartum women;
8. Prescription, implementation and adaptation of exercise for pregnant and postpartum women;
9. Specific exercises related to childbirth and motherhood;
10. Postpartum exercise and health-related issues.

Knowledge and Skill Requirements

The core knowledge and skill requirements are divided into the following sections:

1 – Role and professional development of the Pregnancy and Postnatal Exercise Specialist

Learners will demonstrate knowledge and understanding of:

- 1.1. The medical and social need for Pregnancy and Postnatal Exercise Specialists in Europe;
- 1.2. The place of the Pregnancy and Postnatal Exercise Specialists in the healthcare system and the cooperation of a multidisciplinary task force of health care professionals (Gynaecologist, Midwife, Nutritionist, Exercise Specialist, Exercise Psychologist, Physiotherapist);
- 1.3. Specific evidence-based sources related to the benefits of exercise for pregnant and postpartum women;
- 1.4. Potential national legislation, quality assurance frameworks or other policies and guidance relating to the provision of exercise services to pregnant and postpartum women;
- 1.5. Ethical issues regarding working with pregnant and postpartum women;
- 1.6. The international initiatives to raise awareness of the importance of exercise during pregnancy and the postpartum period.

2 – Morphological, physiological and biomechanical adaptations during pregnancy and postpartum

Learners will demonstrate knowledge and understanding of:

- 2.1. Basic terms related to pregnancy and postpartum necessary to implement pre and postnatal exercise programme;
- 2.2. Interactive effects of morphological, physiological and hormonal adaptations to pregnancy phases, postpartum and to exercise (e.g., adaptation of cardiovascular and thermoregulation systems, metabolic changes);
- 2.3. Musculoskeletal changes and biomechanical adaptations of posture and gait in pregnancy and postpartum;
- 2.4. The dose-response relationship between physical activity and health for the pre- and postnatal period.

3 – Psychosocial aspects of exercise during pregnancy and postpartum

Learners will demonstrate knowledge and understanding of/ or ability to apply:

- 3.1. Psychosocial adaptations to pregnancy and postpartum;
- 3.2. The main barriers to participation in pre- and postnatal exercise;
- 3.3. Signs of depression and anxiety in pregnant and postpartum women;
- 3.4. Stress management techniques (e.g., relaxation exercises, breathing exercise, meditation, visualisation, etc.);
- 3.5. Motivational techniques for starting exercise or keeping adherence to exercise (e.g., diary of behaviour, active listening and communication, motivational interviewing, giving feedback on fitness tests, etc.);
- 3.6. Motivational techniques to be used during exercise sessions (cuing, voice modulation, stressing the goals of exercises, feedback on exercise performance)
- 3.7. Behaviour change strategies, leading to increasing physical activity among pregnant and postpartum women.

4 – Basic nutrition rules and other aspects of healthy lifestyle related to pregnancy and postpartum

Learners will demonstrate knowledge and understanding of:

- 4.1. Basic rules of healthy lifestyle in pregnancy and postpartum;
- 4.2. The guidelines for healthy nutrition for the pregnant and postpartum women;
- 4.3. The dietary role and common dietary sources for macro- and micro-nutrients (carbohydrate, fat, protein, vitamins, minerals, water) for the course of pregnancy and to support foetus development;
- 4.4. The importance of hydration and fiber consumption during pregnancy and postpartum;
- 4.5. The influence of energy expenditure (particularly associated with resting metabolic rate and physical activity) on energy balance and related outcomes;
- 4.6. The general purpose of a nutrition programme (instructed by a Nutritionist) for pregnant and postpartum participants and the energy needs for different activities/sports/fitness plans;
- 4.7. How to provide general advice on food intake for a healthy, balanced way of eating and weight management during pregnancy and postpartum;
- 4.8. How to provide lifestyle advice, including the use of tobacco, alcohol and caffeine, sleep and rest patterns, avoiding stress.

5 – The potential benefits of exercise during pregnancy and postpartum

Learners will demonstrate knowledge and understanding of:

- 5.1. The improved sense of well-being and enhanced quality of life as an effect of regular exercise during pregnancy and postpartum;
- 5.2. The acute and long-term effects of exercise in pregnant women and babies, related to all fitness and well-being parameters (e.g., cardiovascular, muscular strength and endurance, flexibility, neuromotor, posture, body composition, mental health);
- 5.3. The effect of exercise on increased energy expenditure (e.g., excess post-exercise oxygen consumption, increased fat loss, preservation of lean body mass, increased metabolic rate, prevention of overweight and obesity in mother and child);
- 5.4. The association of exercise with fertility, foetus development, birth outcomes and baby health;
- 5.5. The preventative role of exercise in relation to any potential future cardiac health risk related to chronic disease;
- 5.6. The preventative role of exercise in relation to gestational diabetes and diabetes mellitus type 2 (e.g., lower blood glucose concentration during and after exercise, improved insulin sensitivity and decreased insulin requirement, lower HbA1c levels);
- 5.7. The preventative role of exercise in relation to dyslipidaemia (e.g., decreased triglycerides, slightly decreased low-density lipoprotein, increased high-density lipoprotein);
- 5.8. The preventative role of exercise in relation to hypertension and pre-eclampsia (e.g., improvement in mild to moderate blood pressure);
- 5.9. The preventative role of exercise in relation to the most prevalent musculoskeletal disorders (e.g., low or upper back pain, pelvic-floor disorders, osteoporosis and poor posture);
- 5.10. The potentially preventative role of exercise in relation to other specific conditions of pregnancy and postpartum (e.g., macrosomia, diastasis recti, pelvic girdle pain, postpartum weight retention, coronary heart disease prevention postpartum, etc.).

6 – Health issues and safety considerations related to pregnancy and postpartum

Learners will demonstrate knowledge and understanding of/ or ability to apply:

- 6.1. The risk factors and prevalence of discomforts and health conditions associated with pregnancy and postpartum (e.g., gestational diabetes, overweight, obesity, oedema, low back pain, hypertension, pre-eclampsia, musculoskeletal disorders, diastasis recti abdominis, stress urinary and faecal incontinence and other pelvic-floor disorders, stress and anxiety, oral health, sleep disorders, headache, digestive dis-

- orders, etc.);
- 6.2. Internal and environmental risk factors for complications of pregnancy and postpartum;
 - 6.3. Absolute and relative contraindications for exercising during pregnancy and postpartum;
 - 6.4. Reasons to stop exercising in pregnant and postpartum women;
 - 6.5. Sports and physical activities to avoid for pregnant and postpartum women;
 - 6.6. Safety and emergency procedures during a training session for pregnant and postpartum participants;
 - 6.7. The official statements and evidence-based guidelines for exercising during pregnancy and postpartum.

7 – Health and fitness assessment in pregnant and postpartum women

Learners will demonstrate knowledge and understanding of/ or ability to apply:

- 7.1. Interviewing of pregnant and postpartum women and building rapport, taking into consideration the medical clearance for exercise;
- 7.2. Preliminary screening tools, such as: the PAR-Q & You - Physical Activity Readiness Questionnaire (ACSM, 2013); the PARMED-X for pregnancy - Physical Activity Readiness Medical Examination for Pregnancy (CSEP, 2013); and the ACSM Health Status & Health History Questionnaire (ACSM, 2013), to assess safety or possible contraindications to exercise;
- 7.3. Safety considerations in exercise testing for pregnant women;
- 7.4. Assessment of the pregnant women's body composition (e.g., body circumferences, body fat distribution markers and other body indexes), heart rate and blood pressure, during rest and exercise;
- 7.5. Cardiorespiratory tests (e.g., Astrand, Rockport, 6 minutes walking test, Balke and Bruce tests using a treadmill or cycle ergometer);
- 7.6. Static and dynamic tests to assess posture, functionality and overall autonomy in pregnant women;
- 7.7. Physical activity and lifestyle assessment (e.g., pedometers, accelerometers, and/or questionnaires such as: the 7-day PAR - 7-day Physical Activity Recall interview (Sallis et al., 1985; Craig et al., 2003); the PPAQ - Pregnancy Physical Activity Questionnaire (Chasan-Taber et al., 2004); the SF-36 - Medical Outcomes Study (MOS) 36-item Short Form Health Survey (Ware & Sherbourne, 1992; McHorney et al., 1993;1994); or others).

8 – Prescription, implementation, and adaptation of exercise for pregnant and postpartum women

Learners will demonstrate knowledge and understanding of/or ability to apply:

- 8.1. Prescription of an exercise programme (type of exercise, intensity of exercise, duration of the sessions, weekly frequency of sessions) relevant to pregnant and postpartum women, their goals, medical history and exercise environment;
- 8.2. Selection of exercises and their techniques with regards to women's well-being, functional readiness and the course of pregnancy and postpartum, in particular the appearance of pregnancy and postpartum discomforts (e.g., back pain, stress urinary incontinence);
- 8.3. The most recommended forms of exercise (e.g., walking, low-impact aerobics/step exercise, water exercise, swimming, indoor cycling, strength training, pelvic-floor training, stretching);
- 8.4. Adaptation of the so-called risky sports (e.g., skiing, skating, cycling, running, etc.);
- 8.5. The structure of the exercise session for the pre and postpartum period;
- 8.6. Exercise equipment for pre- and postnatal classes (e.g., fitballs, step, barbells, bands);
- 8.7. Monitoring, control and evaluation of all parameters of the exercise programme (type, intensity, frequency and duration), and their adaptation to women's condition, stage of pregnancy and postpartum period;
- 8.8. Portable equipment controlling the parameters of the exercise session (e.g., heart rate monitor, glucose meter, blood pressure meter);
- 8.9. Management of potential risk to the women during the sessions and long-term exercise programme;
- 8.10. Recording potential problems and modifications during the sessions and long-term exercise plans;
- 8.11. Reports on the outcomes of an exercise programme (including charts, notes and diagrams) to enhance their readability to the client and other health professionals.
- 8.12. Self-evaluation of professional skills in order to improve quality, safety and self-confidence in prescribing and implementation of exercise programmes for pregnant and postpartum women.

9 – Specific exercises related to childbirth and motherhood

Learners will demonstrate knowledge and understanding of/ or ability to apply:

- 9.1. Physiological and psychosocial aspects of birth;
- 9.2. Physical activity during labour and delivery;
- 9.3. Birth positions;
- 9.4. Breathing exercises;
- 9.5. Visualisation of pregnancy and childbirth;

- 9.6. Strategies for pain relief;
- 9.7. Preparation of the perineum through exercise;
- 9.8. Incorporating the preparation for birth into exercise programmes.

10 – Postpartum exercise and health-related issues

Learners will demonstrate knowledge and understanding of/ or ability to apply:

- 10.1. Essential exercises to perform in the immediate and late postpartum period, regarding the mode of delivery (physiological birth vs Caesarean section or operative vaginal delivery, perineum condition, and mother well-being);
- 10.2. Typical postpartum discomforts and barriers influencing the young mothers' participation in physical activity programmes;
- 10.3. Adaptations of exercise while breastfeeding;
- 10.4. Exercising with the baby (indoor and outdoor, including aquatic activities) and exercise programme adaptation to the baby's rhythm;
- 10.5. Lifetime physical activity for the whole family.

IV - EuropeActive Pregnancy and Postnatal Exercise Specialist - EQF L5 - Standards & Competencies Framework

This document describes the EuropeActive Competence Framework and contains the essential competences, associated with skills and knowledge written as learning outcomes, based on occupational purposes, required to work as a Pregnancy and Postnatal Exercise Specialist in the European Health and Fitness Industry at the EQF-Fitness Level 5. These Competence Framework and Standards are purpose and outcome driven, aligned with the industry main goal to get 'more people, more active, more often'.

WORKPLACE COMPETENCY Learners should be able to demonstrate the following competencies:	SKILLS Learners should be able to:	UNDERPINNING KNOWLEDGE Learners should demonstrate knowledge and understanding of:	Reference to number of the core knowledge area or section:
Communicate with pregnant and postpartum women (and their families and friends) in tasks related to the implementation of an exercise programme;	Use of terminology related to pregnancy and postpartum and explain those terms to women (and others) in accessible language; Use of terminology related to physical activity, sport and exercise in pregnancy and postpartum and explain those terms to women (and others) in accessible language;	1. Specialised terms related to: <ul style="list-style-type: none"> Reproductive anatomy: urogenital system, reproductive tract, pelvis, pelvic-floor muscles, pregnancy hormones, etc.; Fertilisation and pregnancy development: trimesters of pregnancy, foetus and placenta development; Labour and delivery: stages of labour and delivery, modes of delivery, pain relief strategies, common medical intervention during labour and delivery; Postpartum, lactation and breastfeeding. 2. Specialised terms related to: <ul style="list-style-type: none"> Morphological, physiological and biomechanical adaptations during pregnancy and postpartum; Psychosocial aspects of exercise during pregnancy and postpartum; 	2.-10.
Communicate with medical and healthcare professionals about their participant's conditions;	Use of terminology related to pregnancy and postpartum and the ability to explain women's		

	<p>conditions to medical and healthcare professionals;</p> <p>Interpret information given by medical and healthcare professionals and follow their recommendations regarding women's health;</p>	<ul style="list-style-type: none"> • Basic nutrition rules in relation to exercising during pregnancy and postpartum; • The benefits of exercise during pregnancy and postpartum; • Health issues and safety considerations related to pregnancy and postpartum; • Prescription, implementation, and adaptation of exercise for pregnant and postpartum women; • Specific exercises related to childbirth and motherhood; • Postpartum exercise and health-related issues. 	
Perform health and fitness assessment related to pregnant and postpartum women's exercise participation;	<p>Interview pregnant and postpartum women and building rapport, taking into consideration the medical clearance for exercise;</p>	<ul style="list-style-type: none"> • The questions included in a first approach to the women (e.g., characteristics of the pregnancy, motivations, experience with exercise, etc.); • The first approach in postpartum exercise (e.g., type of delivery, breastfeeding, experience with exercise, etc.). 	7.1. 9. 10.
	<p>Use of preliminary screening tools for pregnant and postpartum women, taking into consideration her exercise history;</p>	<p>Selected preliminary screening tools, such as:</p> <ul style="list-style-type: none"> • Physical Activity Readiness Questionnaire (PAR-Q & You); • Physical Activity Readiness Medical Examination for Pregnancy (PARMED-X for pregnancy); • ACSM Health Status & Health History Questionnaire; • Quality of life questionnaire (e.g., MOS SF-36, etc.); • Physical Activity Questionnaire (e.g., PPAQ, etc.). 	7.2.
	<p>Use of exercise tests and other health and fitness assessment tools for pregnant and postpartum women;</p>	<ul style="list-style-type: none"> • Safety considerations in exercise testing for pregnant women; • Assessment of the pregnant women's body composition (e.g., body circumferences, body fat distribution markers and other body indexes), heart rate and blood pressure, during rest and exercise; • Cardiorespiratory tests (e.g., Astrand, Rockport, 6 minutes walking test, Balke and Bruce tests using treadmill or cycle ergometer); • Static and dynamic tests to assess posture, functionality and overall autonomy in pregnant women; 	7.3.-7.7.

		<ul style="list-style-type: none"> Physical activity and lifestyle assessment (e.g., pedometers, accelerometers, and/or questionnaires such as the 7-day Physical Activity Recall or others). 	
	Make reports with relevant information for participants and healthcare providers;	<ul style="list-style-type: none"> Several types of reports including charts, notes and diagrams. 	7.1. 8.11.
Program and supervise group or individual exercise, according to women's condition, each stage of pregnancy and/or postpartum period, following available guidelines and physicians' recommendations;	Prescribe an exercise programme, relevant to pregnant and postpartum women, their goals, medical history and exercise environment;	<ol style="list-style-type: none"> Recommendations for prescribing for pregnant or postpartum women: <ul style="list-style-type: none"> Type of exercise; Intensity of exercise; Duration of the sessions; Weekly frequency of sessions; Progression of exercise. Medical history as an important factor influencing the prescription of an exercise programme. 	6.7. 8.1. 9.2.-9.8. 10.1. 10.3. 10.5.
	Plan the structure of the exercise session according to the pregnant and postpartum women's needs;	<ul style="list-style-type: none"> Most recommended sports and exercises (e.g., walking, low-impact aerobics/step exercise, water exercise, swimming, indoor cycling, strength training, pelvic-floor muscle training, stretching); Adaptation of risky sports (e.g., skiing, skating, scuba diving, basketball, off-road cycling, etc.); The structure of the session (e.g., warm up, aerobic part, strength training, pelvic-floor muscle training, stretching, relaxation, preparation to birth exercises). 	6.7. 8.3.-8.5.
	Conduct or supervise group or individual exercise for pregnancy and postpartum;	<ul style="list-style-type: none"> Selection of exercises in group or individual sessions; Basic rules for the use of aquatic exercises; Selection of proper exercise equipment; Basic rules for the use of music (rhythm and cadence). 	8.2.-8.4. 9.2.-9.8. 10.1. 10.3. 10.5.
	Monitor, control and evaluate all parameters of the exercise pro-	<ol style="list-style-type: none"> Recommendations for monitoring, controlling and evaluating: <ul style="list-style-type: none"> Type of exercise; 	8.7.-8.10. 9.

	gramme;	<ul style="list-style-type: none"> Intensity of exercise (e.g.: RPE scale, talk test, etc.); Duration of the sessions; Weekly frequency of sessions; Progression of exercise; Avoiding overtraining; Exercise technique. <p>2. Basic rules for the use of portable equipment to monitor and control the exercise programme.</p>	10.
	Recognise and respond to emergency situations and to warning signs to terminate exercise;	<ul style="list-style-type: none"> Emergency situations and potential risk and problems (e.g., bleeding, dizziness, headaches, etc.); First aid; Warning signs to terminate exercise. 	6.4. 6.6. 8.9. 8.10.
	Apply official (national or international) guidelines for exercise during pregnancy and postpartum;	<p>Most popular guidelines for exercise during pregnancy and postpartum:</p> <ul style="list-style-type: none"> WHO guidelines for physical activity; ACOG Committee Opinion: <i>Exercise during pregnancy and postpartum period</i>; RCOG: <i>Exercise in pregnancy</i>; CSEP: <i>Exercise during pregnancy and the postpartum period</i>; SMA Statement. <i>The benefits and risks of exercise during pregnancy</i>; Other guidelines. 	6.7.
	Motivate women to exercise during pregnancy and postpartum;	<ul style="list-style-type: none"> Motivational techniques for starting exercise or keeping adherence to exercise (e.g., diary of behaviour, active listening and communication, motivational interviewing, giving feedback on fitness tests and exercise programme progression, etc.); Motivational techniques to be used during exercise sessions (cuing, voice modulation, stressing the goals of exercises, feedback on exercise performance). 	3.5 3.6.
	Incorporate other professionals' recommendations for the exer-	1. Professional tasks and responsibilities in developing exercise programmes of:	1.2. 2.-6.

	cise programme;	<ul style="list-style-type: none"> • Obstetrician; • General Practitioner; • Midwife; • Nutritionist; • Psychologist; • Physiotherapist; • Other professionals; • Internal and environmental risk factors. 	9. 10.
	Incorporate evidence-based knowledge into the development of a pre and postnatal exercise programme;	<p>Main sources of evidence-based knowledge on pre- and postnatal exercise:</p> <ul style="list-style-type: none"> • Main publications; • Major databases; • Systematic reviews; • Control trials; • Comparative studies; • Qualitative studies. 	1.3. 5. 8.1.-8.4.
Adapt different types and forms of exercise to each stage of pregnancy and postpartum period, which are safe and effective for this special population;	Identify the changes in women's body during pregnancy and postpartum;	<p>Main changes in pregnant and postpartum women:</p> <ul style="list-style-type: none"> • Morphological; • Physiological; • Biomechanical; • Psychosocial. 	2.
	Apply the modifications of modes of exercises and use of equipment regarding the women's conditions;	<p>Recommendations for:</p> <ul style="list-style-type: none"> • Adjustment of modes of exercise (e.g., walking, aerobics/step, cycling, aquatic exercise, strength training, pelvic-floor muscle training, stretching, etc.); • Adjustment of equipment (e.g., step, deck, barbells, rubber, machines, free weights, etc.); • Other adjustments (e.g., room, swimming pool, music, etc.). 	8.2.-8.7.
Educate women on pre- and postnatal physical activity and exercise;	Provide information on the benefits of exercise during pregnancy and postpartum;	<ul style="list-style-type: none"> • The improved sense of well-being and enhanced quality of life as an effect of regular exercise during pregnancy and postpartum; 	5.

		<ul style="list-style-type: none"> • The acute and long-term effects of exercise in pregnant women and babies, related to all fitness and well-being parameters (e.g., cardiovascular, muscular strength and endurance, flexibility, neuromotor – balance, coordination, gait, agility and proprioception, body composition, posture, mental health); • The effect of exercise on increased energy expenditure (e.g., excess post-exercise oxygen consumption, increased fat loss, preservation of lean body mass, increased metabolic rate, prevention of overweight and obesity in mother and child); • The association of exercise with fertility, foetus development, birth outcomes and baby’s health; • The preventative role of exercise in relation to any potential future cardiac health risk related to chronic disease; • The preventative role of exercise in relation to gestational diabetes and diabetes mellitus type 2 (e.g., lower blood glucose concentration during and after exercise, improved insulin sensitivity and decreased insulin requirement, lower HbA1c levels); • The preventative role of exercise in relation to dyslipidaemia (e.g., decreased triglycerides, slightly decrease low-density lipoprotein, increased high-density lipoprotein); • The preventative role of exercise in relation to hypertension and pre-eclampsia (e.g., improvement in mild to moderate blood pressure); • The preventative role of exercise in relation to the most prevalent musculoskeletal disorders (e.g., low back pain, pelvic-floor disorders, osteoporosis and poor posture); • The potentially preventative role of exercise in other specific conditions of pregnancy and postpartum (e.g., macrosomia, diastasis recti, pelvic girdle pain, etc.). 	
	Provide information on the physiological, morphological and biomechanical adaptations to	<ul style="list-style-type: none"> • Interactive effects of morphological, physiological and hormonal adaptations to pregnancy phases, postpartum and to exercise (e.g., adaptation of cardiovascular and thermoregulation sys- 	2.2.-2.4. 3.1. 4.2.-4.7.

	pregnancy or postpartum and to exercise;	<p>tems, metabolic changes);</p> <ul style="list-style-type: none"> • Musculoskeletal changes and biomechanical adaptations of posture and gait in pregnancy and postpartum; • The dose-response relationship between physical activity and health for the pre- and postnatal period. 	
	Provide information on the psychosocial adaptations during pregnancy or postpartum;	<ul style="list-style-type: none"> • Psychosocial adaptations to pregnancy and postpartum; • The main barriers to participation in pre- and postnatal exercise; • Signs of depression and anxiety in pregnant and postpartum women; • Motivational techniques to be used during exercise sessions (e.g., cuing, voice modulation, stressing the goals of exercises, feedback on exercise performance, etc.); • The importance of social support from family, friends and colleagues; • Behaviour change strategies, leading to increasing physical activity among pregnant and postpartum women. 	3.1.-3.3. 3.7.
	Provide information on the most common pregnancy and postpartum's symptoms and discomforts and their relation to exercise;	<ul style="list-style-type: none"> • The risk factors and prevalence of discomforts and health conditions associated with pregnancy and postpartum (e.g., gestational diabetes, overweight, obesity, oedema, low back pain, hypertension, pre-eclampsia, musculoskeletal disorders, diastasis recti abdominis, stress urinary and faecal incontinence and other pelvic floor disorders, stress and anxiety, oral health, sleep disorders, headache, digestive disorders, etc.); • Avoiding polluted, very hot and humid, and very loud environments. 	6.1.
	Provide information on the exercise adaptations to each phase of pregnancy;	<p>Recommendation for adjustment of:</p> <ul style="list-style-type: none"> • Exercise technique and positions; • Exercise intensity, frequency and duration; • Objectives of particular exercises and exercise programmes ; • Potential risks of exercising in pregnancy and postpartum. 	8.

	Provide information on the safety of exercise during pregnancy and postpartum;	<ul style="list-style-type: none"> Warning signs; Guidelines for safe exercise in pregnancy and postpartum; Emergency procedures in exercise classes for pregnant women; Technical requirements for the equipment. 	6.
	Provide information on the evidence-based knowledge on exercise during pregnancy and postpartum;	<p>Main sources of evidence-based knowledge on pre- and postnatal exercise:</p> <ul style="list-style-type: none"> Main publications; Systematic reviews; Control trials; Comparative studies; Qualitative studies. 	1.3. 5.
Advice pregnant and postpartum women on lifestyle, including healthy eating and stress management, emphasising the benefits of exercise for expectant mothers and their babies;	Provide information on general rules of healthy lifestyle during pregnancy and postpartum;	<ul style="list-style-type: none"> Components of a healthy lifestyle programme; Pregnancy and baby development. 	3.1. 4.1. 4.7.
	Provide information on the benefits of a healthy eating programme during pregnancy and postpartum;	<ul style="list-style-type: none"> Energy expenditure and energy balance; Common dietary sources for micro- and macro-nutrients (carbohydrate, fat, protein, vitamins, minerals, water); Supplements. 	4.
	Provide information on stress management techniques during pregnancy and postpartum;	<ul style="list-style-type: none"> Stress management techniques (e.g., relaxation exercises, breathing exercise, meditation, etc.). 	3.4.
Promote pregnant and postpartum women's engagement in specific exercise and health programmes;	Provide information on the benefits and safety of exercise during pregnancy and postpartum among women, families, healthcare providers and policy makers;	<p>Main sources of evidence-based knowledge on pre- and postnatal exercise:</p> <ul style="list-style-type: none"> Main publications; Systematic reviews; Control trials; Comparative studies; Qualitative studies. 	1.3. 5. 6.7.
	Develop cooperation with other professionals in promoting pre- and postnatal physical activity;	<p>Recommendations and rules for:</p> <ul style="list-style-type: none"> Cooperation with other exercise and health professionals; Promotion of physical activity. 	1.1. 1.2. 1.4.-1.6.

Implement exercise programmes for pregnant and postpartum women in respect of own professional limitations and in cooperation with health care professionals;	Define his/her professional roles and responsibilities;	<ul style="list-style-type: none"> • Professionals roles and responsibilities of Pregnancy and Postnatal Exercise Specialists, Gynaecologist, Nutritionist, Exercise Specialist, Exercise Psychologist, Physiotherapist, Midwife, Exercise Scientists; • Self-evaluation of professional skills. 	1. 8.12.
	Define absolute and relative contraindications to exercise during pregnancy and postpartum;	<ul style="list-style-type: none"> • Absolute and relative contraindications to exercise; • Signs for stopping exercising; • Potential risks; • Sports and physical activities to avoid. 	6.3.-6.5. 8.9.
	Identify any condition that requires the referral to a proper medical or healthcare professionals;	<ul style="list-style-type: none"> • Risk factors and prevalence of discomforts and health conditions associated with pregnancy and postpartum (e.g., gestational diabetes, overweight, obesity, oedema, low back pain, hypertension, pre-eclampsia, musculoskeletal disorders, diastasis recti abdominis, stress urinary and faecal incontinence and other pelvic-floor disorders, stress and anxiety, oral health, sleep disorders, headache, digestive disorders, etc.); • Internal and environmental risk factors for complications of pregnancy and postpartum. 	6.1. 6.2. 8.10. 8.11.
	Incorporate the recommendations of healthcare professionals regarding women's condition and exercise adaptation.	<p>Recommendations for exercise adaptation in different women's conditions:</p> <ul style="list-style-type: none"> • During each stage of pregnancy; • During postpartum; • While breastfeeding. 	7.-10.

References

- American College of Obstetricians and Gynecologists (ACOG). ACOG Committee Obstetric Practice. ACOG Committee opinion. Number 267, January 2002: Exercise During Pregnancy and The Postpartum Period. *Obstetrics and Gynecology*, 2002; 99:171-3.
- American College of Obstetricians and Gynecologists (ACOG). Committee Opinion No. 650: Physical Activity and Exercise During Pregnancy and the Postpartum Period. *Obstetrics and Gynecology*, 2015 Dec;126(6):e135-42.
- American College of Sports Medicine (ACSM). ACSM's Guidelines for Exercise Testing and Prescription (9th ed.). Baltimore: Williams & Wilkins, 2013.
- Australian Sports Commission (ACS). Pregnancy and Sport: Guidelines for the Australian sporting industry, 2002.
- Boyle R, Hay-Smith EJ, Cody JD, Mørkved S. Pelvic floor muscle training for prevention and treatment of urinary and faecal incontinence in antenatal and postnatal women: a short version Cochrane review. *Neurourology and Urodynamics*, 2014;33(3):269-76.
- Canadian Society for Exercise Physiology (CSEP). PARmed-X for PREGNANCY (Physical Activity Readiness Medical Examination for Pregnancy). 2013. Available from: <http://www.csep.ca/cmfiles/publications/parq/parmed-xpreg.pdf>.
- Chasan-Taber L, Schmidt MD, Roberts DE, Hosmer D, Markenson G, Freedson PS. Development and validation of a Pregnancy Physical Activity Questionnaire. *Medicine and Science in Sports and Exercise*, 2004; 36(10):1750-60.
- Clarke P, Gross H. Women's behaviour, beliefs, and information sources about physical exercise in pregnancy. *Midwifery*, 2004; 20:133-41.
- Craig CL, Marshall AL, Sjostrom M, Bauman AE, Booth ML, Ainsworth BE. International physical activity questionnaire: 12-country reliability and validity. *Medicine and Science in Sports and Exercise*, 2003, 35: 1381-95.
- Currie J, Rossin-Slater M. Early-life origins of life-cycle well-being: research and policy implications. *Journal of Policy Analysis and Management*, 2015 Winter; 34(1):208-42.
- Duncombe D, Wertheim E, Skouteris H, et al. Factors related to exercise over the course of pregnancy including women's beliefs about the safety of exercise during pregnancy. *Midwifery*, 2009; 25:430-8.
- Evenson K, Moos M, Carrier K, Siega-Riz A. Perceived barriers to physical activity among pregnant women. *Maternal and Child Health Journal*, 2009; 13:364-75.
- Evenson KR, Mottola MF, Owe KM, Rousham EK, Brown WJ, P. Summary of International Guidelines for Physical Activity Following Pregnancy. *Obstetrical and Gynecological Survey*, 2014 Jul; 69(7):407-14.
- Evenson KR, Barakat R, Brown WJ et al.. Guidelines for Physical Activity During Pregnancy: Comparisons From Around the World. *American Journal of Lifestyle Medicine*, 2013; vol. XX, no X, 1-20.
- Ferrari N, Mallmann P, Brockmeier K, Strüder HK, Graf C. Secular trends in pregnancy weight gain in German women and their influences on foetal outcome: a hospital-based study. *BMC Pregnancy Childbirth*, 2014; 14:228.
- Gong H, Ni C, Shen X, Wu T, Jiang C. Yoga for prenatal depression: a systematic review and meta-analysis. *BMC Psychiatry*. 2015 Feb 5;15:14. doi: 10.1186/s12888-015-0393-1.
- Kramer MS, McDonald SW. Aerobic exercise for women during pregnancy. *The Cochrane Database of Systematic Reviews*. 2006 Jul 19;(3):CD000180.
- Krans EE, Gearhart JG, Dubbert PM, Klar PM, Miller AL, Replogle WH. Pregnant women's beliefs and influences regarding exercise during pregnancy. *Journal of the Mississippi State Medical Association*, 2005; 46(3):67-73.

- Lamina S, Agbanusi E. Effect of aerobic exercise training on maternal weight gain in pregnancy: a meta-analysis of randomized controlled trials. *Ethiopian Journal of Health Sciences*, 2013;23(1):59-64.
- Mazzarino M, Kerr D, Wajswelner H, Morris ME. Pilates Method for Women's Health: Systematic Review of Randomized Controlled Trials. *Archives of Physical Medicine and Rehabilitation*, 2015;96(12):2231-42.
- McHorney CA, Ware JE Jr, Lu JF, Sherbourne CD. The MOS 36-item Short-Form Health Survey (SF-36): III. Tests of data quality, scaling assumptions, and reliability across diverse patient groups. *Medical Care*, 1994; 32(1):40-66.
- McHorney CA, Ware JE Jr, Raczek AE. The MOS 36-Item Short-Form Health Survey (SF-36): II. Psychometric and clinical tests of validity in measuring physical and mental health constructs. *Medical Care*, 1993; 31(3):247-63.
- Nascimento SL, Surita FG, Cecatti JG. Physical exercise during pregnancy: a systematic review. *Current Opinion on Obstetrics & Gynecology*. 2012 Dec;24(6):387-94.
- Nascimento SL, Surita FG, Godoy AC, Kasawara KT, Morais SS. Physical Activity Patterns and Factors Related to Exercise during Pregnancy: A Cross Sectional Study. *PLoS ONE*, 2015; 10(6): e0128953.
- Phelan S. Pregnancy: a "teachable moment" for weight control and obesity prevention. *American Journal of Obstetrics and Gynecology*, 2010; 202(2):135 e1-8.
- Rutkowska E, Lepecka-Klusek C. The role of physical activity in preparing women for pregnancy and delivery in Poland. *Health Care for Women International*, 2002; 23:919–23.
- Sallis JF, Haskell WL, Wood PD, Fortmann SP, Rogers T, Blair SN. Physical activity assessment methodology in the Five-City Project. *American Journal of Epidemiology*, 1985; 121:91–106.
- Szumilewicz A, Worska A, Rajkowska N, Santos-Rocha R. Summary of Guidelines for Exercise in Pregnancy – Are They Comprehensive Enough for Designing the Contents of a Prenatal Exercise Program? *Current Women's Health Reviews*, 2015; 11(1).
- Waller B, Lambeck J, Daly D. Therapeutic aquatic exercise in the treatment of low back pain: a systematic review. *Clinical Rehabilitation*, 2009;23(1):3-14.
- Ware JE, Sherbourne CD. The MOS 36-item ShortForm Health Survey (SF-36). I. Conceptual framework and item selection. *Medical Care*, 1992; 30:473-83.
- Worska A, Szumilewicz A. Aktywność fizyczna kobiet w ciąży w świadomości przyszłych instruktorów rekreacji ruchowej. [Physical activity of expecting mothers in the awareness of future exercise professionals]. *Journal of Education, Health and Sport formerly Journal of Health Sciences*, 2015; 5(8):91-102.