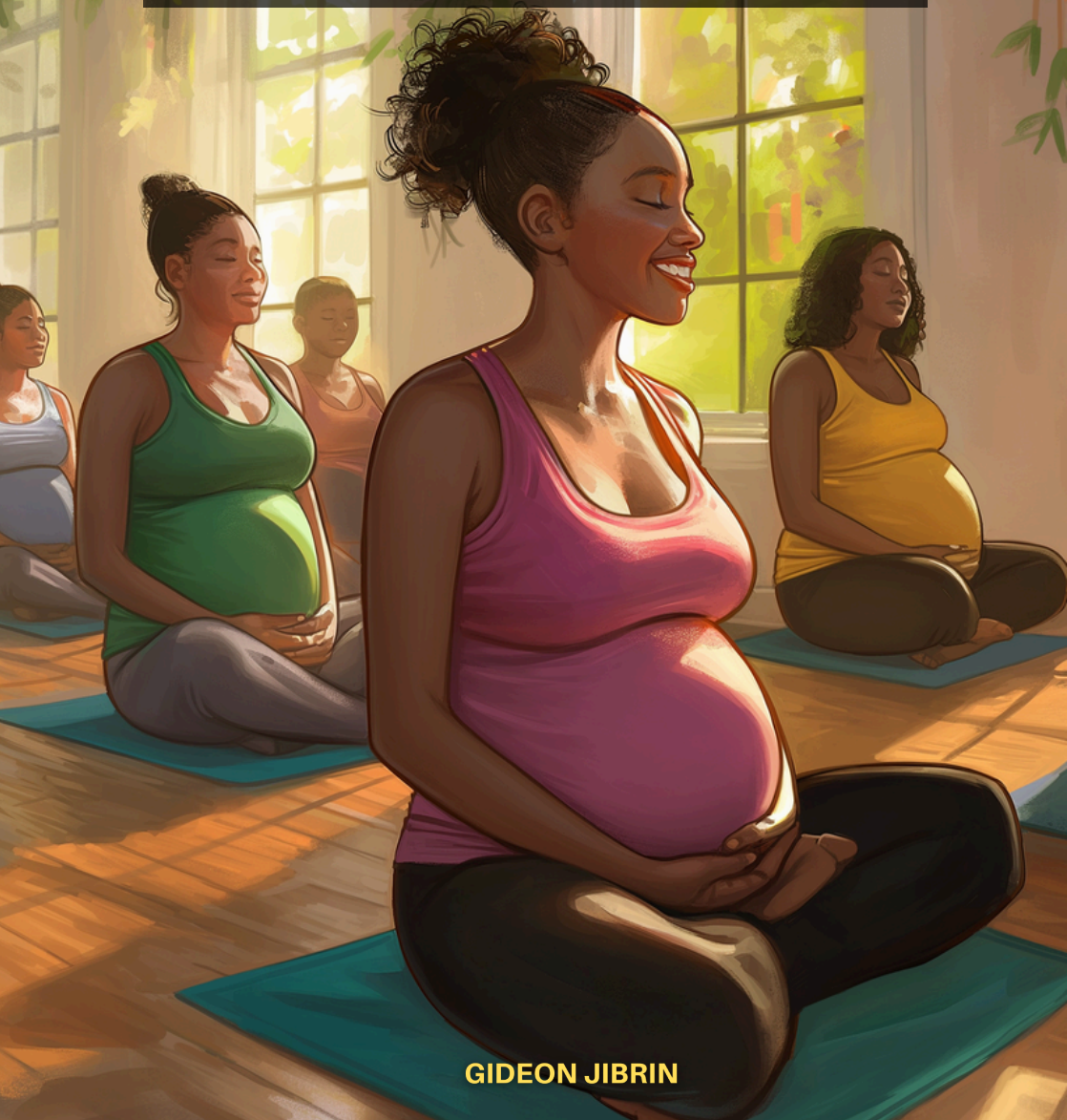


FitMum

A proven guide from pregnancy to post- pregnancy



GIDEON JIBRIN

This publication provides competent and reliable information about the subject matter covered. That said, it should not be a substitute for accurate medical advice in your unique local situation.

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Dedication

This is for all mums and awaiting mums who through information gathering of this sort would lead better lives.



Preface

This work was borne out of the need to have very useful information available within arm's reach. I know that often times than not when one knows better, you do better.

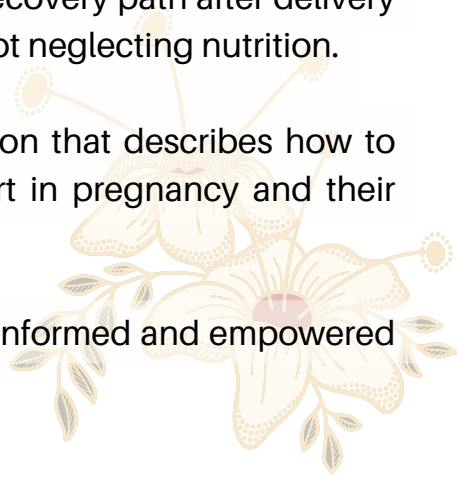
So, armed with this disposition, I swung into action with a goal to get this written as detailed as possible.

The target audience of this book are mums already, yet-to-be mums, dads and yet-to-be dads who seek to increase knowledge base on what to do from a preventive than reactionary perspective.

The book takes one on a journey from definitions and descriptions of fertilization all the way through functional changes that affect the body in pregnancy. It spends time explaining exercises to do while pregnant to not only aid swift and easy delivery but also support health of mother and baby. It also goes on a journey to detail the recovery path after delivery for the musculoskeletal system while not neglecting nutrition.

It has the unique addition of the section that describes how to address common causes of discomfort in pregnancy and their home remedies.

It is my hope as you read that you get informed and empowered to lead a healthier life.



About The Author



Gideon Jibrin is a trained Physical therapist with a little over a decade of experience in practice. In this time, he has held regular antenatal exercise classes as well as postnatal classes. These entail working with women to make their experience in pregnancy and beyond a notch less stressful with pain and general sense of wellbeing.



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Introduction:



What do you know about pregnancy?

Ever wondered how it affects your body and what to do about it?

If yes, you're in the right place. Congratulations!

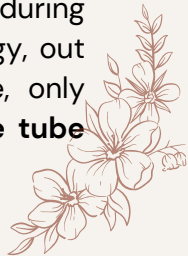
We will now explore this incredible process of your pregnancy and how to stay healthy through it. It is an amazing process, a journey to embrace!

According to the WHO, pregnancy is the period when a fertilized egg develops into a human organism in a woman's uterus. It's usually measured from the **last menstrual period** to delivery. We cannot talk about pregnancy without the **menstrual cycle** as this is the regulator. It decides whether pregnancy results or not. The process starts while the uterus prepares for fertilization and closely following that implantation.

Now, a brief lesson on what happens in the uterus. The uterus forms a thick layer in its inner surface called **endometrium**. The endometrium has three layers arranged from inner to outer – the outer layer being the visible one if you were to look into the uterus through ultrasound:

- i. Stratum basalis
- ii. Stratum spongiosum
- iii. Stratum compactum

While not losing sight of the uterus preparation of its inner surface, do understand that the process of fertilization begins with the release of sperm into the vaginal opening during intercourse. According to information on human physiology, out of over 100 million sperms released during intercourse, only about 100 reach the ovum in the ampulla of the **uterine tube (fallopian tube)**.



The released sperm travels upstream at a speed of 1 to 3mm/minute. Once inside the uterus, aided by powerful contractions, they travel towards the ampulla of the fallopian tube –a journey covering about 15 cm in 30 minutes.

This is where fertilization occurs and forms the **zygote**. This takes another 1 to 2 days to travel to the uterus prepared by thickening of its walls described earlier. The zygote undergoes changes and implants itself within the uterine wall between 4 to 6 days. At this point pregnancy is established.

So on average we can say that the duration between fertilization and implantation is about 6 to 10 days. This starts the process of changes in the body that affects every organ in the body which we would discuss shortly.

Overview of Musculoskeletal Problems in pregnancy

Now with fertilization over and the fetus begins to grow, a huge part of the changes that happen to the body take place in the muscular and skeletal system also known as musculoskeletal system. As such, it is important to understand the changes going on in your body. This helps to give clear appreciation for what to do to ease it. The human body has over 600 muscles. They attach bones end to end through tendons. When they contract, they bring about movement. Hormones, which we would go into detail talking about later, affect the tendons of these muscles and surrounding structures causing various kinds of pain or unease.

Another interesting point to mention is what happens to the uterus in the course of progression of pregnancy. The uterus stays below your umbilicus before pregnancy. As pregnancy progresses, the upper most part of the uterus called the fundus progressively moves upwards into the abdominal cavity. This process continues till the fundus of the uterus gets as high as the Xiphoid process. The Xiphoid process is the lowest part of the breast bone (sternum). This movement displaces upwards a major muscle of respiration called the diaphragm.



One more, as the uterus rises from the pelvis into the abdomen, it tilts the pelvis also called the hip bone, forward by design to create more room for the developing fetus.

As a result, the knees extend beyond normal limits backwards to keep the body erect. The shoulders protract. This means that the shoulder blades move apart and forward towards the sides of the body, as such sometimes causing excessive kyphosis in the upper back region. Kyphosis is the excessive roundedness of the curve in the upper part of the back beneath the neck.

All these factors contribute to the various resultant pain that occur in pregnancy which we seek to address in the course of this book. These musculoskeletal changes lead to the need for exercises to not only ease discomfort but also support general health.

Importance of Exercise during Pregnancy

It would be good to understand from the get-go whether exercising / movement in pregnancy is beneficial to any degree with reducing discomfort and ensuring health of mother and baby. The following are some of the benefits derived through exercise:

1. Supports Placenta growth: This spells out support for mother and baby. The placenta plays a huge role in the life of the forming baby from when it is formed at about three weeks after fertilization as it helps to bring nutrients and oxygen to the developing fetus. Exercise helps this process keeping oxygen and nutrients circulating as much as possible by increasing the number of blood vessels within the placenta.

2. Helps in weight management: No doubt there is weight gain in pregnancy. It comes to about 10 to 15% of mothers' weight or 10 to 12kgs or 22 to 26 lbs. Note that the tendency to gain excessive weight especially from consumption of highly processed foods is there in pregnancy. Exercise helps to take care of this by utilizing consumed food for energy.



A useful nutritional tip here, for instance, is to go for natural carbohydrates as against excessive consumption of added sugar and refined alternatives. Natural carbohydrates are foods existing in the state they are created, not the ones that have been overly processed.

3. Improves mood: In pregnancy there is the interplay of several hormones that affect how you feel. These exercises help release feel-good hormones into systemic circulation to make one feel better.

4. Reduces the chances of complications: Exercises do this as they prepare the muscles through pregnancy to consistently adapt to changes in your body. It regulates blood pressure as well as metabolism- that is how your body uses energy, that way complications are reduced.

5. Glycemic control: These exercises help to use the energy you consume daily and as a result help to leave less of it in the body's circulation. This reduces the risk of having diabetes in pregnancy.

6. Decreases fatigue: The exercises, especially the ones aimed at strengthening, improve the perception of fatigue on an emotional/mental level as well as improving the actual physical energy levels.

7. Reduction in Cesarean section rates: Exercise does this by reducing the risk of complications like hypertension in pregnancy, diabetes in pregnancy amongst others. It also strengthens the muscles of the buttock, abdomen, and pelvic areas, which are primarily engaged in the delivery process.

Key takeaways

1. From fertilization of the egg to implantation in the uterus takes on average 6 to 10 days.
2. Pregnancy affects the muscles and bone system also called musculoskeletal system in different ways.
3. Exercise has a lot of benefits in pregnancy.

Chapter One: Common Causes of Discomfort in Pregnancy and Home Remedies

Hormonal influences and body mechanics

In the introduction, we took a bird's eye view at what musculoskeletal conditions (problems) mean in pregnancy. Here, we would dive into more information to enhance clarity.

There are several hormones that influence the process of pregnancy right up to delivery.

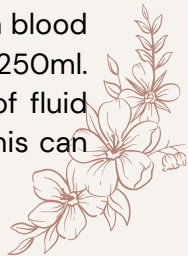
The dominant ones are two:

1. Estrogen and
2. Progesterone

The placenta produces them at about 12 weeks after fertilization. Estrogen works to develop the ducts of the breast and encourage the growth of the uterus. Progesterone plays roles in suppressing other hormones like the follicle-stimulating hormone so your body does not ripen another egg for fertilization. Progesterone discourages uterine contractions so the fetus can grow in peace without very frequent contractions disturbing it.

Looking at these hormonal influences above, we can then begin to understand how progesterone reduces digestion by relaxing the muscles of the digestive tract. This comes with its attendant challenges like constipation. A very helpful tip here would be to eat fibre rich foods like vegetables, drink sufficient amounts of water and ensure to move around regularly.

Other hormones like relaxin, made by the placenta, relax ligaments in the body. This is especially true for ligaments like the ones holding the symphysis pubis- the junction where bones of the pelvis meet in front. During delivery, relaxin contributes to softening and dilating the cervix. There is also an increase in blood volume in the body by 34 weeks of pregnancy by about 1250ml. An increase in blood volume comes with the experience of fluid pooling in various parts of the body resulting in swelling. This can cause discomfort.



If this swelling is in the ankle area, walking around often would be a good idea. Another helpful tool is to elevate your legs when you sit. Place them on a stool in front of you. In extreme cases, especially when your veins are already losing their integrity, you can wear compression socks. If you have to travel by air for long distances, especially during the second and third trimesters, it is helpful to stand at intervals to walk. Also, do the ankle pump exercises. This means flexing your ankle up and down.



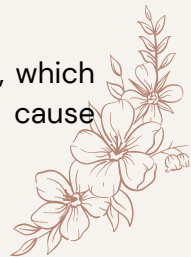
The other common causes of discomfort in pregnancy are as follows:

Low back pain:

This affects about 50–80% of pregnant women, as it is very common. It occurs due to several factors, especially for mums who did not have back pain before pregnancy.

Notable among these factors are the following:

- The effect of the hormones progesterone and relaxin, which we earlier talked about, is very evident as they cause relaxation of ligaments, resulting in pain.



- Another factor here is the change in posture as pregnancy progresses. The pelvis tilts forward; as a result, the knees hyperextend to keep the body erect. The shoulders also protract, causing excessive kyphosis in the upper back region. This forces you to waddle while walking and, over time, pain.
- Also contributing would be the weakness of muscles at the back and abdominal region as the pregnancy progresses with the muscular system playing catch up to the changes in the body at any given time.
- Something that has also been associated with low back pain in pregnancy, is the weakness of muscles that move the hips apart- hip abductors. They progressively become weak and do not play their usual supportive role so this results in low back pain.
- Lifting heavy repeatedly during pregnancy is also a factor causing low back pain.

Home exercises for low back pain:

The Cat and Camel exercise:

The cue for this is the following:

- 1.Begin on your hands and knees with your knees under the hips and your hands under your shoulders.
- 2.Cat: Sink your back down toward the floor, lift your head, and stick your tailbone out to create a curve in your spine.
- 3.Camel: Tuck your head and tailbone in, arch your spine out, and mimic a camel hump.

This causes stretching of the low back region, which is persistently left in one position because of the growing fetus. As such, it relieves built-up tension the back has been under for a while.





Bird dog exercise: This works to strengthen deep muscles in the low back region to support you for daily activities.

The cue for it is thus:

1. Start on all fours with your hands under your shoulders and knees under your hips.
2. Engage your core and keep your spine straight.
3. Now raise your opposite arm and leg until they're level with your spine.
4. Hold for 3–5 seconds, then return to the starting position.
5. Alternate sides and repeat the process above.



Abdominal drawing-in maneuver:

This helps to activate the muscle group that wraps around the abdominal region like a corset.

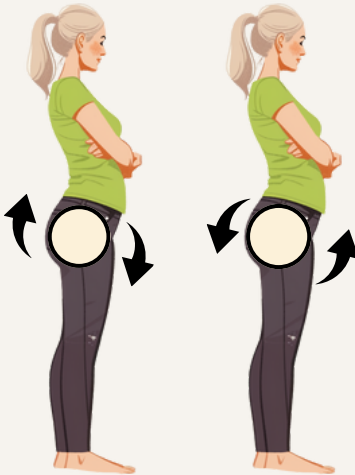


Gap in lower Back

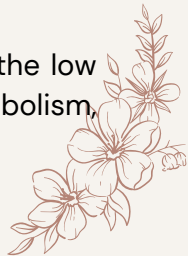


No gap in lower Back

Pelvic tilts: These would come like rocking motion back and forth in the pelvis. It helps to loosen up tight muscles at your back and those in front. This results in much needed relief.



Hot packs: The use of hot packs improves circulation in the low back region. It does this by moving out products of metabolism, which refer to energy use and breakdown, that cause pain.



Pelvic floor muscle weakness:

These muscles are grouped around the urethra or urine opening, vaginal opening and anal opening. They form a hammock around these openings supporting them to prevent urine leakage from the urethral opening. They also support the vaginal opening as well keeping it taut for sexual function.

The pelvic floor exercise would be come in handy here.

The basic forms of it involves contracting in front as though you want to hold urine midstream for a given number of counts and relax. Also, you would contract at the back as though you want to hold 'Poo' from coming out for a given number of counts and relax. These would usually give good results but if they don't, you might need to see a pelvic floor Therapist.

Round ligament pain:

The round ligaments are two broad ligaments on both sides of the uterus or womb. As pregnancy progresses especially during the second trimester, these ligaments stretch and can cause pain especially with sudden movements that you undertake. It usually exists as pain in the pelvis or the sides.

The following guides are useful.

You can gently stretch from side to side. This gradually helps the ligaments adapt.

Hold your tummy when you want to cough or sneeze.

Use a warm/hot pack around the area.



Carpal tunnel syndrome:

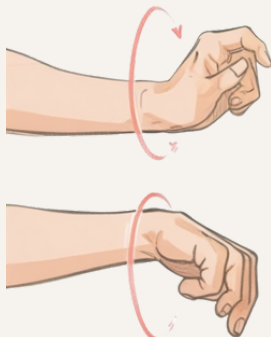
As a result of hormonal influence added to fluid volume increase in the body, there could be compression of a nerve in your wrist region called the median nerve. This begins to cause pain in the palm and around the wrist.

Useful tip here:

Try to move your wrist in circles inward and outward.

Use one hand over the other to massage fluid away from the wrist toward the elbow.

If these interventions do not give relief, you might need the services of a medical professional.

**Diastasis Recti abdominis:**

This, to some degree, is normal as pregnancy progresses because of the hormones that are produced which relax the Linea Alba. The Linea Alba is a fibrous tissue at the center of the abdomen.

We will discuss in more detail in chapter five.

Key takeaways:

1. The most dominant hormones that affect the body in pregnancy are estrogen and progesterone.
2. Relaxin, another hormone, affects the body a great deal.
3. There are various home remedies that can be applied for the different ways pregnancy affects a woman's musculoskeletal system.



Chapter Two: Guidelines for Antenatal Exercises

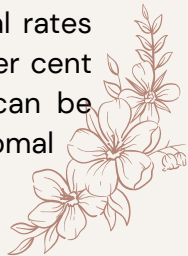
To take part, as with anything, there are certain exceptions to the rule. Some of these exceptions are relative, whilst some are absolute. With pregnant women in the "absolute" category, simple activities like walking and daily tasks such as cooking, bathing, and home chores can still be managed, excluding more strenuous exercises.

The relative exceptions and absolute exceptions should be well discussed with the **obstetrician and gynaecologist** regarding participation in exercise during pregnancy.

Below, we will describe some of these absolute and relative exceptions.

The absolute exceptions would include things like:

- 1. Severe acquired or congenital heart disease with exercise intolerance:** Under consideration here would be severe forms of arrhythmias in which the heart beats abnormally, along with other such factors. Individuals like this should just maintain activities of daily living without seeking more exertion.
- 2. Placental abruption:** This is a condition where the placenta detaches from the uterine wall before the baby's birth. It can lead to vaginal bleeding, painful contractions, among other symptoms.
- 3. Uncontrolled type 1 diabetes:** Type 1 diabetes is an autoimmune disease in the sense that your body fights its own cells in the pancreas (an organ that makes insulin that moves glucose from the blood to the cells). So uncontrolled type 1 diabetes would be a situation where the insulin need is not met, so there is always a sharp drop or rise in glucose in the blood.
- 4. Intrauterine growth restriction (IUGR):** This is a serious condition in which the baby does not grow at the normal rates expected during pregnancy. Its weight is said to be 90 per cent less than that of other babies of the same age. This can be caused by a variety of factors, like preeclampsia, chromosomal



abnormalities, and infection during pregnancy. Research shows that exercising by women in this category can result in reduced blood flow to the fetus and placenta, hence affecting the health of the fetus.

5. Active preterm labour: This refers to when contractions occur before the 37th week of pregnancy, which can lead to premature delivery.

6. Incompetent cervix or cerclage: This is a condition that causes the cervix to open too early, and for this, a cervical stitch, otherwise known as cerclage, is done to keep the cervix closed to prevent premature birth.

7. Vasa previa: Experts describe this as a rare situation that occurs when the blood vessels that connect the baby to the placenta pass very close to the cervix, not under the protection of the umbilical cord or placental tissue. As such, if those blood vessels break, it can lead to heavy bleeding.

8. Severe pre-eclampsia: It is a serious medical condition that usually occurs after 20 weeks of pregnancy. There would usually be the following present for it to qualify as severe.

a. Systolic blood pressure of 160 mmHg or higher or diastolic blood pressure of 110 mmHg or higher on two occasions at least 4 hours apart while the patient is at bed rest.

b. Urine with 5 or more grams of protein in a 24-hour specimen or 3 or more grams of protein in 2 random urine samples collected at least 4 hours apart.

c. Test results suggesting kidney or liver damage—for example, blood tests that reveal low numbers of platelets or high liver enzymes.

d. Severe, unexplained stomach pain that does not respond to medication.

e. Symptoms that include visual disturbances, difficulty breathing, or fluid build-up.



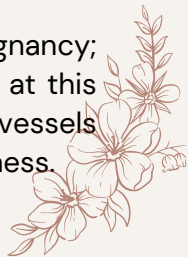
The relative exceptions would include things like:

- 1. Placenta previa beyond 28 weeks:** This situation usually arises when the placenta is low-lying in the uterus and has some part of it covering the cervix. It sometimes resolves after 28 weeks as the placenta may rise higher in the uterus.
- 2. Controlled type 1 diabetes:** As discussed in the previous segment with the uncontrolled variant, controlled type 1 diabetes is characterized by insulin requirements being adequately met, preventing any sudden spike or crash of blood glucose.
- 3. Mild respiratory disorders:** This covers things like the common cold and conditions that do affect the upper airway. This would include the upper parts of the lungs, the pharynx and larynx, and even nasal irritations.
- 4. Mild pre-eclampsia:** This is when pre-eclampsia, as described earlier, exists as high blood pressure and protein in your urine.
- 5. Symptomatic severe eating disorder:** This covers situations such as anorexia nervosa or bulimia nervosa where one either does not eat enough because of a fear of weight gain or overeats and tries to purge afterwards. It also covers the other end of the spectrum, which would be overeating habitually. This can begin to cause many nutrient deficiencies.

Safety Precautions

After identifying who can take part in these exercises, here are the safety measures that must be followed to ensure well-being.

- 1. Warm up before and cool down after exercises:** This prepares the joints and various muscles in the body so exercises done are gentle on it, not abrupt or sudden. They also help the body to be calmly returned to rest.
- 2. Avoid strenuous exercises in hot weather;** this can easily lead to dehydration, which is very undesirable.
- 3. Do not lie on your back, especially after 16 weeks of pregnancy;** this is because the pregnancy becomes more abdominal at this point, and as a result, that weight can rest on some blood vessels in your back. As it compresses them, this can lead to dizziness.



4. Empty your bladder before exercise: This removes an extra layer of things to worry about whilst exercising so that you do not need to focus on controlling urine.

5. Listening to your body: if you feel unduly strained or stressed, it might be a clue to stop or change the exercises. The exercises do not have to be easy, but then they should not take an undue toll on you, like starting to feel dizzy, for instance while at it. For example, say I want to do a deep squat (this means squatting below the level where it seems like I am sitting) and it comes off very challenging to me such that I am almost losing balance, I would want to change that to squatting to about sit level or slightly higher. As it gets easier to do, I then progress.

6. Avoid contact sports: This would include things like kickboxing, football, and others, as they can easily predispose one to injury.

7. Avoid sports that involve falls: This includes things like horse riding and skiing, as they can also easily lead to injuries.

8. Avoid high-intensity exercises: the central idea here is not to exercise to the point of exhaustion. You should be able to hold a conversation while you are exercising.

9. Before pregnancy, exercise state can be a pointer to exercise in pregnancy: essentially, if you were someone used to exercising before pregnancy, it could be easier to continue in pregnancy near that intensity as against if you did not exercise at all before pregnancy. If you did not exercise before pregnancy, it might be helpful to start with low-impact activities, like leisure walking. This can be progressed as tolerance improves.

10. Avoid scuba diving as the baby growing in you has no protection against decompression sickness and gas embolism.

11. Do not exercise at heights over 2,500 metres until your body has acclimatized to the environment. This is because acute mountain sickness could result in you and the baby.



Having gone over the safety precautions, it is important to seek medical advice if you experience any the following:

- a. Bleeding: Vaginal bleeding.
- b. Shortness of breath: Significant shortness of breath or dyspnoea before exertion.
- c. Dizziness: Feeling dizzy or faint.
- d. Heart palpitations: Your heart is beating very fast or in an irregular manner.
- e. Contractions: Regular painful contractions.
- f. Fluid leakage: amniotic fluid leakage.
- g. Unusual change in movement: Your baby is not moving as much as it used to.

Key takeaways:

1. There are exceptions to the antenatal exercises that should be discussed with your gynaecologist.
2. These exceptions are in two broad categories – absolute and relative.
3. Follow the safety precautions while carrying out the exercises.



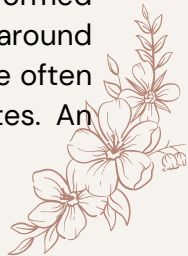
Chapter Three: Antenatal Exercises for Strength and Flexibility

Antenatal exercises, according to the World Health Organization (WHO), are the physical activities that pregnant women engage in to improve psychological well-being, physical strength, and flexibility. This prepares the body for a healthy and easy delivery. Physical inactivity during pregnancy has been identified as a modifiable risk factor for complications so should be avoided or reduced. Antenatal exercises contribute to making the journey of pregnancy easier to a certain degree and have been practiced for centuries.

As has been discussed in passing in the previous chapter, getting into these exercises should follow the exercise level before pregnancy. As such, if the exercise level before pregnancy was high intensity, during pregnancy it should follow suit, relatively. The same would apply if the intensity of exercise before pregnancy was medium or low.

To quickly define some terms that would aid in understanding here:

1. **High-intensity exercises:** A type of exercise that involves short periods of intense activity at a high-impact level. This is typically at 80% to 95% of the highest heart rate. An example is sprinting.
2. **Medium-intensity exercises:** This is physical activity that raises your heart rate, makes you breathe harder, and causes you to sweat, but you can still talk. This is typically at 50% to 70% of the highest heart rate. An example is jogging.
3. **Low-intensity exercises:** A physical activity that is performed at a comfortable pace and a moderate heart rate, usually around 50% of your highest heart rate. Low-intensity exercises are often low-impact and can be sustained for at least 30 minutes. An example is a leisurely walk.



As a general rule of thumb, you should be able to hold a conversation while exercising.

These exercises, which we would go into detail describing, can be categorized into:

- Breathing exercises
- General circulatory exercises
- Stretches
- Strengthening exercises

Breathing exercises:

These help to improve mood and the general sense of relaxation, which is key during pregnancy at certain stages. As the uterus (womb) becomes more abdominal, it displaces upwards the main muscle of respiration called the diaphragm, which impacts respiration to some degree. This upward displacement is about 4 centimeters. The diaphragm is a muscle that separates the whole torso into two halves, with the upper half housing the lungs and heart while the lower half houses everything else beneath. These include the intestines, liver, kidneys, uterus (womb), bladder, etc. It involves deep breathing.

Cue:

So, while you are seated in a relaxed position, take a deep breath in. Allow the abdomen to rise then breathe out slowly through your mouth. This can be repeated several times per individual as tolerable.



General circulatory exercises:

These help to get fluid moving around the body freely, preventing it from pooling. There are times when fluid builds up around the wrists, ankles, and other parts of the body.

Cue:

This would include exercises like circling the wrist in and out. This also includes exercises like circling the ankles and bending up and down. Another dimension to this is the shoulder-circling exercise.



Stretches:

This helps to relieve tightness in various areas of the body. As such, it comes in different ways. Here below are some examples.

Hamstring and adductor stretch with the tailor sit: The tailor sit entails sitting tall on the floor with both knees bent and ankles put together in front of you. Gently lean forward until you feel a stretch around the groin area and hamstrings.

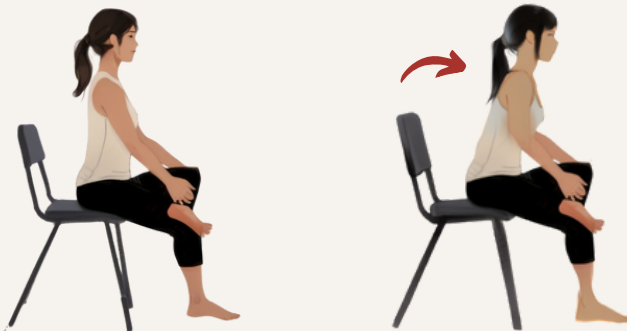




Piriformis stretch: This usually helps with pain in the mid-buttock region. Sometimes this pain can be Sciatica-like. This means that it goes down your leg from the buttock causing tingling. It can be done on one side and then repeated on the other side.

Cue:

1. Sit on the edge of a chair with one foot flat on the floor.
2. Lift the other foot so your ankle sits on top of the opposite knee.
3. Place your hand on the bent knee for stability.
4. While keeping your back straight, slowly lean forward until you feel a stretch in your buttocks.
5. Hold for 15 seconds.
6. Repeat on the other side.



Hip flexor stretches: It can be done following this cue. Stand with the leg you want to stretch behind you, bend your front leg slightly, and push your affected hip forward. Tuck your tailbone under and hold for 20–30 seconds.



Calf stretches: Stand facing a wall, place your hands on the wall, and step your right foot back. Keeping your right knee straight and heel on the floor, bend your left knee until you feel a stretch in your right calf. Hold for 30 seconds, switch legs, and repeat the same process.



Pectoral stretches: Stand facing a wall, place your hands on the wall at shoulder height, and slowly lower your chest until your chin touches the wall. Keep your back straight and work up to 15 repetitions.





Neck stretches or rotation from side to side: As the name entails, it involves turning the neck to one side to achieve the greatest stretch, then repeat the same on the other side.



Upper back stretches: While kneeling on the floor, reach forward and slide your hands in front of you. You can increase the stretch by tapping the bottoms of your feet and walking your fingers further forward.



Strengthening exercises:

These are aimed at improving general muscle strength as the body's orientation changes rapidly. They form the general support base for doing day-to-day activities and keeping muscle tone relatively intact to support the recovery process of the body after delivery. They support the body's metabolism as the muscles are metabolically active, i.e., they are involved in the use of energy.

It includes:

Triceps strengthening:

There are several variants to this, but this is one that you can do. The wall push up; It works on your triceps and pectoral muscles. Stand facing a wall, place your hands on the wall at shoulder level, and slowly lower your chest until your chin touches the wall.



Back-strengthening exercises

Bird dog

This exercise targets the muscles running through the back of your body. It promotes core stability and moves the shoulder and hip joints.





Squatting exercises

1. Adjust your stance: As your belly grows, you might need to widen your stance to make room for the baby.
2. Inhale and exhale: Inhale as you lower into the squat, and exhale as you come up.
3. Sit your butt back: Keep your knees behind or in line with your toes, and avoid letting your knees track forward.
4. Maintain a neutral spine: Do not tuck in your pelvis and keep your spine neutral.
5. Add resistance: You can add weight by holding dumbbells or a barbell, or you can hold your arms straight out in front of you for balance.
6. You can slowly lower yourself into the squat position, then stand.



7. Then repeat the process over and over again.

The squats can be done with a fitness ball behind your back against a wall, then slide down until your knees reach a 90-degree angle and stand up.

Push ups

Modified push-ups: Start on your hands and knees with your knees under your hips and your hands under your shoulders. Lower your torso towards the floor while keeping your back straight. Repeat up to 10 times.



Kegel exercises

Some brief history lesson here, It is a pelvic floor muscle exercise whose description was first published by the American gynaecologist Arnold Kegel in 1948.

1. Find your pelvic floor muscles by imagining you are stopping urine mid-stream. You should feel the anal and vaginal muscles lift.
2. Tighten your pelvic floor muscles for a few seconds, then relax them for a few seconds.
3. Repeat.

Key takeaways:

1. There are three intensities of exercise: low, moderate, and high intensity.
2. The antenatal exercises mostly aim for moderate intensity.
3. The antenatal exercises include breathing exercises, general circulatory exercises, stretching exercises, and strengthening exercises.



Chapter Four: Cardio Fitness during Pregnancy

This speaks to the group of exercises that keep the heart pumping as well as it should. They can be adjusted to low intensity, moderate intensity, and high intensity.

The top picks would include things like:

Walking: Walking is as old as human existence. It is a low-hanging fruit. It forms the basis of how we move around when not in an automated means of transportation. The WHO recommendation of at least 150 minutes of moderate physical activity would come in here. This comes to walking at least 30 minutes a day.

Cycling: This is also a good form of exercise that can be done on a stationary bike especially. Resistance can be adjusted – with or without it. It can be done following similar duration as walking.

Swimming: This is a very good one if you have the ability to as the body displaces its weight in water while moving. This reduces the pressure on various joints of the body and supports them to move around with ease.

Jogging: This would be a pick for someone who is used to higher intensity exercises before pregnancy. It can continue into pregnancy as its intensity is modified (tapered down) from the first trimester to the third trimester.



Chapter Five: Postnatal Recovery and Exercise

The post-natal period is that right after giving birth. It's generally seen as the period from after giving birth to about six to eight weeks later. Several key activities take place during this period, but I would like to highlight the following four:

1. The uterus begins to shrink back in size from its pregnant state. This action could be on for about two weeks after delivery.
2. As in pregnancy, the breasts grow larger. They may feel tight as they prepare to release the first breast milk, called colostrum.
3. Especially if you had a vaginal delivery, the vagina may feel sore and sting when you urinate. But this eases off as it heals.
4. Hormone levels in your body, such as relaxin, which loosens muscles, ligaments, and joints to prepare your body for delivery, gradually decrease. They drop significantly in the first twelve weeks after delivery. Some sources say low levels can linger for up to twelve months.

To help the body return to its state before pregnancy is where the postnatal exercises come in. These are exercises aimed at fitness post-delivery.

There is debate about when exactly it is ideal to start, with some sources recommending six (6) weeks after normal delivery and eight (8) weeks after complicated delivery. But the Royal College of Obstetrics and Gynaecology recommends the following:

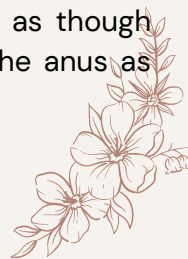


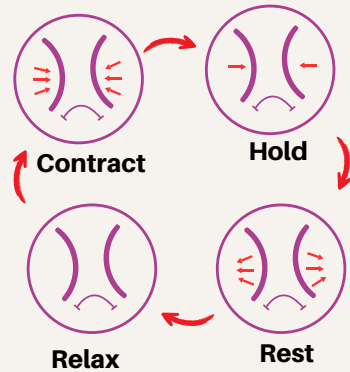
- Following an uncomplicated delivery, some women may be able to resume gentle or low-impact physical activity within days of delivery.
- If the delivery was complicated, such as a long second stage, caesarean section, occiput posterior (OP) presentation, or instrumental delivery, a medical caregiver should be consulted before resuming pre-pregnancy physical activity levels. There is a link between forceps delivery and denervation of the pelvic floor nerves; thus, a longer recovery time should be expected.

So, we can deduce it is safe to start low-impact exercises as soon as convenient, whether after a vaginal delivery or a caesarean section. Low-impact exercises are exercises that put less strain on your muscles and joints than other exercises. This helps to prevent blood clot formation in deep veins in the legs as it starts to improve the circulation of fluid around the body soon enough. It also helps to immediately start improving the function of the lungs. As discussed earlier, pregnancy pushes the diaphragm, a major muscle for breathing, about 4 centimetres upwards. After delivery, low-impact exercises like walking, combined with deep breathing, help to fully inflate the lungs and lower the diaphragm.

The deep breathing exercises here involve taking gusts of air into the lungs by breathing in deeply, hence allowing the abdomen to rise up; this is followed by breathing out, preferably with the mouth open while tucking the abdomen in towards the spine.

The Kegel exercise is a very useful low-impact exercise at this stage. It involves contracting the muscles around the vagina as well as those around the anus. This is done following the cue to either contract the muscles around the vagina and urinary opening (urethra) as though you want to hold "pee" or contract the muscles around the anus as though you want to hold "poo".





It helps to strengthen those muscles in the pelvis, reducing the risk of prolapse, which means a bulge in the organs around the pelvis, such as the urethra or vagina.

It also helps to improve blood circulation around the vagina and, as such, aids in healing during the postnatal phase.

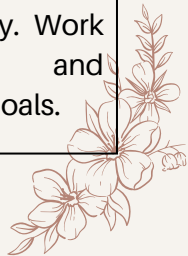
Also worthy of mention here among low-impact exercises is something called the abdominal drawing-in manoeuvre. This entails tightening your lower abdominal muscles, pulling them inside as though you want to flatten your back towards the floor. You can place your fingers inside your hip bones to feel the muscles contracting. Hold for 5 to 10 seconds, then relax. Avoid holding your breath while doing it.

As mentioned prior, these are generally safe whether the birth was vaginal or by caesarean section. For progression to more intense exercises, especially after a caesarean section, it is important to speak with your gynaecologist.



As general guidelines about the progression of exercise, the following can be applied:

Within the first two weeks post-natal.	You can do the low-impact exercises we discussed earlier, including walking, deep breathing, the abdominal draw-in manoeuvre, and Kegel exercises.
Between weeks two and four.	You can increase the intensity of these exercises and introduce new ones, like squats and lunges, to the mix.
Between weeks four and six.	We can introduce bird-dog exercises, planks, and low-impact cross-trainer workouts.
Between weeks six and eight.	You can walk faster and make other low-impact exercises more intense. Now, you can also start deadlifts again, but with light weights (up to 15 kg or the same in pounds). Additionally, you can try other resistance or weightlifting exercises.
Between weeks eight and ten.	Swimming can be resumed once lochia has stopped and wounds are healed. Likewise, strength training can also progress.
Weeks twelve and beyond	Start returning to sports gradually. Work with your physiotherapist and occupational therapist to set safe goals.



A common problem after delivery is diastasis recti. This condition causes the "six-pack" muscles to separate. The separation fits the bill when it is as much as 2 cm around the umbilicus according to many sources. It raises both cosmetic and functional concerns, affecting daily activities like lifting and moving. It gives the characteristic "mummy tummy" look with the accompanying bulging or "tenting". This often happens during pregnancy. The growing fetus stretches a tissue in the tummy called the linea alba. This is normal. Think of the abdomen's centre as a stretched elastic band. It becomes loose. Our goal is to tighten this band again, making it feel firm. This is achieved by increasing the tension under the elastic band.

The correct approach to managing this would be to work on (i.e. exercise) deep muscles in the abdomen called the transversus abdominis, the multifidus, the diaphragm, and the pelvic floor. We have already gone over how to exercise the multifidus through the bird dog, the diaphragm through deep breathing and pelvic floor through Kegels. For the transversus abdominis:

Cue to engage; it would involve the following.

1. Lying on your back with your knees bent and your feet flat on the floor.
2. Placing your fingers on the muscles just below your belly button.
3. Taking a deep breath in and slowly exhaling out of your mouth.
4. As you exhale, draw your lower abs in and engage your pelvic floor muscles.
5. Hold this position for at least 5 to 10 seconds.

You can also try these other cues to activate your transversus abdominis:

- Imagine zipping up a tight pair of jeans.
- Imagine shrinking your internal organs.
- Imagine drawing your uterus back towards your spine.



Key takeaways:

1. Post-natal exercises help the body recover from pregnancy.
2. Post-natal exercises would usually begin with low-impact exercises following delivery.
3. Diastasis recti can be fixed by increasing tension in deep muscles of the abdomen, diaphragm, pelvic floor and multifidus.



Chapter Six: Trimester-Specific Exercise Plan for Pregnant Mothers

Here's a template to follow throughout your pregnancy, supporting your body in achieving the benefits of exercise .

These benefits we discussed include, but are not limited to, the following:

- Regulating weight gain during pregnancy.
- Reducing the risk of developing gestational diabetes.
- Reduce stress
- Reduce the incidence of caesarean sections.
- Reduce the incidence of preterm births among others.

In the antenatal (or before delivery) period, the goals for exercise can be divided into trimesters.

First trimester:

This phase is packed with a flurry of emotions as the fetus begins to grow in the body. The goal here is to maintain general fitness, improve energy levels, and reduce early pregnancy discomfort from morning sickness and fatigue.

Within this stage, as recommended by the World Health Organization guidelines for physical activity in pregnancy, try to meet up to 150 minutes of physical activity in a week. This should go alongside strength training (otherwise called resistance training or weight lifting exercises) for at least two days during the week. The 150 minutes of physical activity would entail doing activities like walking and dancing, for instance, for at least 30 minutes on most days of the week. The note of caution here is that if it is a level of physical activity you are not used to, gradually build up to it.

Other exercises that can be included at this stage for strengthening purposes include things like

Pelvic tilting:

So, assume a lying position with your back flat on the floor and knees bent, with both feet flat on the floor. While in that position:



1. Take a deep breath in and tuck the small of your back into the floor.
 2. While breathing out, arch the small of your back.
- This whole process can be repeated several times. A good starting point is 3 to 4 sets of 5 counts each.

Squats:

This is very important as it prepares your legs to carry the weight of pregnancy as well as helps to reduce the incidence of back pain in pregnancy, as the leg muscles, including quads, glutes, hamstrings, etc., all become quite strong.

To do this:

1. Assume a start position that is preferable, with feet wide apart while holding on to a chair or leaning against a wall with your back.
2. Lower the upper part of your body towards the floor as though you want to sit, then stand up.

As this gets easier to do, you can do away with the support used at the start. A good place to start from is three sets of five squats each. This helps in no small way to make your legs manage the effects of hormones acting on them.

Lying push-ups:

So, while lying with your front facing down, bring your hands out to your sides and plant your palms flat on the floor. Push with both palms into the floor and push your upper body off the floor while your knees provide support for your lower body. This at the start can be done for 3 to 4 sets of 5 repetitions.

Biceps curls:

This starts to prepare your arms in strength to carry your baby yet unborn. It involves the following:

1. While holding some weights in both hands, which at the start could be improvised with bottles of water, flex your forearm towards you with the weights.



2. Extend your forearms away from you while still holding the weights.

A good place to start for someone unaccustomed to exercise is 3 to 4 sets of 5 reps each.



Overhead presses:

This can be done with weights of any type, i.e. improvised or regular. So, the starting position would be to hold the weights with your hands flexed at the elbows to your sides.

Push both hands up above your head at the same time, then return them to the starting position.

These can be done while you're sitting, preferably, or standing. A good place to start is 3-4 sets of 5 reps each.





Brief recap for the first trimester includes the following:

1. *At least 150 minutes of physical activity.*
2. *Pelvic tilting.*
3. *Squats.*
4. *Lying push-ups.*
5. *Biceps curls.*
6. *Overhead presses.*

Here is a sample weekly plan for this trimester:

Monday:

Low-impact cardio: 20 to 30 minutes of walking or stationary cycling.

Strength training: body-weight exercises (e.g. squats, lunges, and modified push-ups).

Tuesday:

Yoga: Focus on gentle stretching and breathing exercises to reduce stress and improve flexibility for 20 to 30 minutes.



Wednesday:

Cardio (low-impact): 20 to 30 minutes of swimming or walking.

Thursday:

Strength training: Body weight exercises (e.g., pelvic tilts, modified squats, overhead presses) – 2 sets of 12 to 15 reps.

Friday:

Rest or light stretching: Gentle stretching, focusing on areas such as the lower back, hamstrings, and calves.

Saturday:

Yoga or Pilates: Focus on posture, breathing, and pelvic floor exercises (20 to 30 minutes).

Sunday:

Active Rest: A walk or gentle movement to keep circulation flowing without overexerting.

Second trimester:

At this stage, pregnancy is already becoming more abdominal, and its realities are clearly setting in. It is said to be the best stage of pregnancy as regards how you are able to tolerate and carry out the activities of daily living. The goal here is to build strength and endurance while continuing to focus on flexibility (stretches) and posture. Most definitely, circulatory exercises like walking, swimming, and dancing can still continue at this stage.

The stretches in this stage would include the following:

Hip flexor stretch: This is very important as, with several women, the abdomen increases in size, the group of muscles in front of the thigh called the hip flexors begins to feel tight and at times painful.

So go about this with the following cues:

1. Assume a lunge position with the knee on the side you want to stretch on the floor and the knee on the opposite side bent with the foot on the floor.



2. Lean forward with the knee on the side you want to stretch until you feel a stretch.
3. Hold that position for a count of five, then come back to the starting position.
4. When you're done with one side, you can alternate with the other side.



Mermaid stretch: This helps address round ligament pain that has been discussed earlier and also takes care of any tightness in the muscles on one side.

1. Sit with your feet bent and swept to the side, with one leg in front of the other.
2. Place your right hand on the floor next to you, and extend your left arm straight up above your head.
3. Use your right elbow for balance as you lift your hips.
4. Inhale as you reach up with your left arm, and exhale as you lower your hips back down.
5. Do three repetitions on each side.



Inclined push-ups: Unlike the ones done in the first trimester from the floor, because the abdomen is increasing in size, the push-ups can be done from the wall, box or chair leaning against a firm support rather than from the floor.



Side leg lifts:

This would be helpful to strengthen the muscles on the sides of your thighs. How is this done?

1. Lie on one side at a time.
2. Your leg on the top side while you're lying, turn the foot of that leg to point outwards, then lift the leg straight up your side for a count of five repetitions to start.
3. This can be repeated on the opposite side as well.



Brief recap of the second trimester includes the following:

1. *Circulatory exercises like walking, etc.*
2. *All the strengthening exercises mentioned in the first trimester.*
3. *Prioritize stretches: hip flexor stretches, mermaid stretch.*
4. *Side leg lifts.*



Here is a sample weekly plan for this trimester:

Monday:

Cardio (low-impact): 30 minutes of walking or swimming.

Strength training: Full body (e.g., squats, lunges, resistance band exercises) – 3 sets of 12 to 15 reps.

Tuesday:

Yoga or Pilates: Focus on core strength, stretches, and relaxation – 30 minutes.

Wednesday:

Cardio: 30 minutes of cycling or brisk walking.

Strength training: Upper body (e.g., modified push-ups, shoulder presses, arm curls with light weights) – 2 to 3 sets of 12 to 15 reps.

Thursday:

Active Rest: Gentle stretching or a short walk to keep your body moving.

Friday:

Strength training: Lower body (e.g., glute bridges, modified squats, side leg lifts) – 3 sets of 12 to 15 reps

Saturday:

Yoga or Pilates: Focus on pelvic floor exercises, flexibility, and relaxation – 30 minutes.

Sunday:

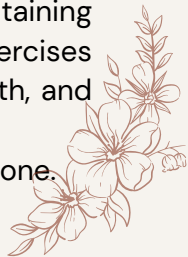
Rest or light activity: walking or gentle stretching.

Third trimester:

You would notice some increasing difficulty in carrying out daily tasks as pregnancy progresses to this phase. It also calls for showing your body love and care. It would be important to prioritize exercises that aid relaxation at this stage.

Hence, the goal at this stage should be to focus on maintaining strength, stability, and preparing the body for labour. Exercises should be less intense but maintain flexibility, core strength, and endurance.

To aid relaxation, things like mindfulness, yoga etc., can be done.





The Kegel exercises are all the more important here, as well as all the other exercises in the various trimesters, but to a lesser intensity than was done in the trimesters before.

A sample weekly plan in this trimester can be as follows:

Monday:

Cardio (low-impact): 20 to 30 minutes of walking or swimming at a moderate pace.

Strength training: Full body (e.g., modified squats, seated leg lifts, resistance band exercises) – 2 to 3 sets of 12 to 15 reps

Tuesday:

Yoga or Pilates: Focus on relaxation, deep breathing, and pelvic floor strengthening, and stretching – 30 minutes.

Wednesday:

Cardio (low-impact): 20 to 30 minutes of walking or water aerobics.

Thursday:

Strength training: Upper body (e.g., arm curls, modified push-ups, triceps strengthening) – 2 to 3 sets of 12 to 15 reps.

Friday:

Rest or active stretching: light walking or gentle stretching to reduce tension.

Saturday:

Yoga or Pilates: Focus on flexibility, breathing techniques, and labour preparation exercises (e.g., squats, pelvic tilts) – 30 minutes.

Sunday:

Active Rest: A gentle walk or stretching session to maintain mobility.



FAQ (Frequently Asked Questions):

- **General Exercise During Pregnancy**

Is it safe to exercise during pregnancy?

Yes, it is, to put it shortly. Once the safety precautions in Chapter Two are adhered to, there should be no problems. Check the segment on relative and absolute exceptions for guidance as well.

What are the benefits of exercising while pregnant?

There are many, and they include, but are not limited to, the following: weight management, support for placental growth, and support for the health of the fetus, mood improvement, reduced complications, improved glycaemic control, decreased fatigue, and reduced rates of caesarean section.

How much exercise should I aim for during pregnancy?

In a very general sense, the WHO recommends at least 150 minutes of moderate physical activity most days of the week and strength training for at least two days a week.

What do high-intensity, medium-intensity, and low-intensity or impact exercises mean?

High-intensity exercises: a type of exercise that involves short periods of intense activity at a high impact level. This is typically at 80% to 95% of the highest heart rate. An example is sprinting.

Medium-intensity exercises: physical activity that raises your heart rate, makes you breathe harder, and causes you to sweat, but you can still talk. This is typically at 50% to 70% of the highest heart rate. An example is jogging.

Low-intensity exercises: physical activity that is performed at a comfortable pace and a moderate heart rate, usually around 50% of your highest heart rate. Low-intensity exercises are often low-impact and can be sustained for at least 30 minutes. An example is a leisurely walk.



- **Safety and Contraindications**

What are the absolute exceptions to exercise during pregnancy? This includes conditions like severe heart disease, placental abruption, uncontrolled type 1 diabetes, and others. They would need medical consultation alongside monitoring.

What are the relative exceptions to exercise during pregnancy? This would include conditions like placenta previa, well-controlled type 1 diabetes, and mild respiratory disorders. So, once cleared by a medical professional, they can allow involvement in exercises.

When should I stop exercising and seek medical advice?

This would cover symptoms that warrant stopping exercise, like dizziness, shortness of breath, unusual pain, and other discomforts.

Are there any activities I should avoid while pregnant? Oh yes, activities such as contact sports, sports with a risk of falling, and scuba diving, as they predispose one to injury.

Is it safe to exercise in hot weather? Not really. It can lead to dehydration and, by extension, dizziness from it. Do try to stay hydrated.

- **Specific Exercises**

What are some safe cardiovascular exercises I can do during pregnancy? This includes walking, cycling, swimming, and jogging. They can be modified to fit what is tolerable at the time.

What are Kegel exercises and how do they help? These exercises strengthen the muscles around the private area. They reduce the risk of prolapse and improve circulation.

What is the cat and camel exercise, and what are its benefits? It is an exercise that improves mobility in the spine. Its benefits rest in relieving lower back pain and tension.



How do I perform the abdominal drawing-in manoeuvre, and what are its benefits?

This entails tightening your lower abdominal muscles, pulling them inside as though you want to flatten your back towards the floor. You can place your fingers just inside your hip bones to feel the muscles contracting. Hold for 5–10 seconds, then relax. Avoid holding your breath while doing it. It helps improve the strength of the abdominal muscles.

What exercises can I do to ease back pain during pregnancy?

This would include exercises like the cat and camel, bird dog exercise, and pelvic tilts. Also important here is the Piriformis stretch.

What does pelvic tilt do? It loosens structures at the back and front of the abdomen.

What stretches are beneficial during pregnancy? There are a couple, and they include stretches like hamstring, hip flexor, and calf stretches.

- **Postnatal Exercise**

When can I start exercising after giving birth?

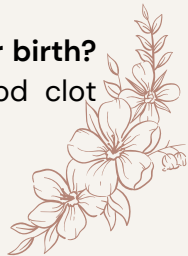
This can start soon after delivery with low-impact exercises like Kegels, deep breathing, amongst others. Some aspects of it can begin later, around six to eight weeks, especially after a caesarean section. This is well explained in Chapter Five.

What are some safe exercises to start with after delivery?

This includes low-impact exercises like walking, deep breathing, abdominal drawing-in manoeuvre, and Kegel exercises.

How can I prevent blood clot formation in the legs after birth?

Low-impact exercises like walking help to prevent blood clot formation as they improve circulation.



- **Other Questions:**

How does pregnancy affect my body, and why do I need to exercise?

It changes the shape of the body, and that comes with changes to how the body carries weight. It relaxes ligaments and muscle tendons and could predispose one to injury. Doing exercises here builds strength and helps the body cope adequately.

Is it normal to experience fatigue during pregnancy, and how can exercise help?

Fatigue is common, and exercise can help to improve energy levels and mood by releasing feel-good hormones.

How can I incorporate exercises into my busy daily routine?

This is quite straightforward because the least requirement of the WHO comes to about 30 minutes of walking, for instance, most days of the week. 20 to 30 minutes of walking is a good place to start; then others can be introduced alongside.

How does exercise help with mood during pregnancy? Exercise helps to release feel-good hormones.

How does nutrition play a part in exercise and well-being during pregnancy?

Nutrition and exercise go hand in glove. This is because the combination of the two gives the best results. On the nutrition side of things, it will be necessary to minimize junk food and eat balanced meals rich in nutrients. When this is combined with exercise, you're set for a healthy mum and baby situation.

What are some signs that I may be overdoing it with exercise?

Some of the signs could include breathlessness and dizziness while at it.



Congratulations on reading this far! If you could see me now, you'd see me grinning from ear to ear with both thumbs up. Having gone through all these information, it is important to note that you don't have to be perfect all the time; you just have to try all the time.

A Zig Ziglar quote has stood out to me ever since I came across it, and it goes thus:

"If you wait for all of the lights to turn green before starting, you will never get started on your journey to the top."

FitMum - F.A.Q.

The "top" in this scenario, as we have discussed, would mean getting your body fit to cope with the many changes of pregnancy—musculoskeletal changes causing pain and discomfort, increased blood volume, etc., and getting it to snap back to fitness after delivery.

You can do this!

Cheers to taking some action.

Now take those baby steps while growing your baby.

