What you will learn

This session will teach you about:
- Pregnancy and exercise
- Obesity and exercise
Pregnancy and exercise

- Although there are some profound anatomical and physiological changes associated with pregnancy, exercise presents minimal risks and many established benefits for most women.

- Consequently, pregnancy should not be seen as a time for confinement and restricted activity.

- Pregnant women with uncomplicated pregnancies should be encouraged to engage in exercise and general physical activity.
Benefits of exercise

- Women should be advised that adverse pregnancy or neonatal outcomes are not increased from exercising
- Improvements in fitness should not be expected but maintained to aid pregnancy and hopefully to get them back to training more easily after the birth

Benefits of exercise

- Probable benefits of exercising during pregnancy:
  - Improved circulation (may decrease the risk of varicose veins)
  - Enhanced muscular balance (relieving backaches and general muscle and joint soreness because of postural changes)
  - Reduced swelling
  - Eased gastrointestinal discomforts, including constipation
  - Reduced leg cramps
  - Strengthened abdominal muscles
Benefits of exercise

• Probable benefits of exercising during pregnancy:
  • Eased post-baby delivery recovery
  • Reduced maternal weight gain and fat accumulation
  • Reduction in perceived pain during labour
  • Women who regularly exercise throughout pregnancy tend to have easier, shorter and less complicated labours
  • Women who regularly exercise through pregnancy also seem to maintain a better self-image and are generally more positive about themselves, their pregnancies and their labour and delivery

Benefits of exercise

• There may also be some specific benefits for the baby itself:
  • Improve the baby’s ability to deal effectively with intermittent decreases in uterine blood flow and oxygen delivery
    • This then provides additional protection in times of unanticipated maternal stress (i.e. any complications during labour)
  • Suggestions that foetuses of exercising women may tolerate labour better than non-exercisers
  • Suggestions that the babies of women who exercise have fewer problems with the transition to life
Pregnancy and exercise prescription

- The golden rule of exercise prescription is that 'mum knows best' when it comes to judging exercise intensity and all women should be encouraged 'to listen to their bodies'.

General principles of exercise prescription

- **Do**
  - Approach the exercise program with an open mind
    - Focus on things other than performance, such as developing an improved sense of well-being, physical capacity and productivity
  - Make the exercise program fun and stimulating
  - Make sure that the total volume of exercise is enough to enhance the sense of well-being
    - Everybody is different, but it appears that 20 minutes at a moderately hard RPE is the minimum for most healthy women of reproductive age
  - If it feels good, it’s probably ok
    - This view is in keeping with the underlying principle that exercising mothers should always use common sense about what their bodies can do
### What stage of pregnancy

- This will affect how the woman feels and the main risks that she faces, for example:
  - Unless she is more than 16 weeks pregnant, the risk of abdominal bumps and bruises harming the pregnancy is slim.

- It will also affect the benefits she can expect to achieve, for example:
  - Early pregnancy exercise improves the growth of the baby and decreases maternal symptoms.

- Late pregnancy exercise maintains fitness, limits weight gain and shortens labour.

- A useful way to look at this is to consider early pregnancy and mid and late pregnancy.

### The complete pregnancy process can be divided into three main periods that are each unique in their presentation and implications

- **Pre-pregnancy**: the time before getting pregnant
  - Up to 1 year before pregnancy

- **Prenatal period**: when the woman is pregnant
  - Approximately 40 weeks

- **Postnatal period**: the time after the woman gives birth to her child
  - Up to 6 months+ after birth
What stage of pregnancy

• The purpose of exercise in the pre-natal period (when the woman is pregnant) is to maintain fitness and promote mother/child health & safety

• The prenatal period can be divided into three main periods consisting of the 1st, 2nd and 3rd trimesters

• The 40 total weeks of pregnancy is divided into three phases (trimesters)

• Each trimester has a new set of changes and challenges for the mother and unborn child
  • It is common for mothers to experience fatigue during the first trimester, increased energy in the 2nd and fatigue again in the 3rd trimester
  • This demonstrates that you should follow proper programming guidelines during each trimester to ensure a safe and effective exercise program and pregnancy

What stage of pregnancy

• 1st trimester: Week 0 to 12

• Changes: not appearing pregnant, weight gain or weight loss

• Challenges: frequent urination, spotting or bleeding, fatigue, nausea and/or vomiting, tenderness in breasts, heartburn, pelvic pain
What stage of pregnancy

• 2nd trimester: Week 13 to 27

• Changes: appearing pregnant, increased energy, foetal movements begin, braxton hicks contractions mild/infrequent

• Challenges: abdominal discomfort, constipation, heartburn, leg cramps, darkening of the skin, itchy skin, back pain

What stage of pregnancy

• 3rd trimester: Week 28 to birth

• Changes: most amount of weight gain, braxton hicks contractions

• Challenges: fatigue returns especially during weight-bearing, shortness of breath, pressure in lower abdomen, stretch marks, varicose veins, vascular pain, vaginal pain, incontinence, sciatica, haemorrhoids
Exercise experience and capabilities

• If the mother has been following a regular exercise program before pregnancy, then she should be able to maintain that program to some degree throughout the pregnancy.

• If the mother is just starting an exercise program as a way of improving health during pregnancy, then she must begin very slowly and keep to a low intensity program.
  • This is not the time to consider great improvements in fitness.

General principles of exercise prescription

• Do
  • Always monitor and review progress
  • Pay attention to the little things
    • Adequate hydration, appropriate rest intervals, nutrition and prompt attention to any discomforts are as important as the exercise itself
  • Give as much attention to the process of pregnancy as you do to the exercise
  • If exercise is going well, but the pregnancy is not running smoothly, you have a problem
General principles of exercise prescription

• Don’t
  • Don’t do anything without thinking it through
  • Don’t continue to exercise if it produces pain
    • Particularly abdominal or pelvic pain
  • Don’t ignore fatigue
    • If a woman starts to exhibit signs of noticeable tiredness, i.e. tired all the time, lacking in motivation or performance, then she is probably doing too much

Resistance training aims

• Previous exerciser
  • To maintain strength and endurance
  • To maintain good posture
  • To maintain good technique

• Non-exerciser
  • To improve strength and endurance
  • To improve body awareness
  • To teach good exercise technique
Exercise guidelines for resistance training

• High, muscular endurance based reps (15-20RM) with low weights

• Work to the first loss of form and not to concentric failure

• Work at own level and listen to the body

• Avoid overusing muscle groups

Exercise guidelines for resistance training

• All work should be performed from a stable base
  • Avoid placing uneven pressure on the pelvis, i.e. standing on one leg (quadricep stretch will need support)

• Allow time to change starting positions

• Correct technique is vital
  • This will be easier with higher repetitions
  • Correct posture should be encouraged throughout
Exercise guidelines for resistance training

• Minimise isometric work
  • Any type of breath-holding should be avoided, particularly during exertion, e.g. the valsalva manoeuvre (holding your breath for the duration of the set) as this can cause dizziness or fainting

• Avoid lifting weights above the head and using weights that strain the lower back muscles

Exercise guidelines for resistance training

• Position for floor work and resistance training must be considered
  • Remember that prone lying is not advisable after the first trimester and lying on the back can cause problems with reduced venous return and dizziness

• Work all muscle groups, especially those associated with the pelvic floor

• Strengthen abdominal, back and buttock muscles
  • Think about improving posture, i.e. promote extension in upper back and shoulders
Exercise guidelines for resistance training

• In the 2nd and 3rd trimesters, the abdominals can be adequately exercised by pelvic tilting

• Exercises that involve curling the trunk forward in any way can be uncomfortable due to the size of the abdomen

• Weights can continue into the third trimester although certain machines may become more difficult as the baby increases in size

Exercise guidelines for resistance training

• Due to possible pubic symphysis instability, avoid inner and outer thigh machines from the second trimester

• Instead, work these muscles in a side-lying position on the floor - squats and lunges should also be avoided (bodyweight squats acceptable in the first trimester)
Obesity

Causes of obesity

• Obesity has become a major health concern

• Obesity can be defined as 'deposition of excessive fat around the body to the point where health is endangered'
  • This will depend on several variables, such as genetics, fat distribution, dieting history, lifestyle and physical activity levels

• The fundamental cause of obesity is consuming more energy than are expended in everyday life
Where to start

- The underlying psychology of obese peoples beliefs about exercise is as important as the physiology of obesity

Where to start

- Obese individuals who are trying to lose weight are usually prescribed an exercise program that increases energy expenditure
- These programs often focus on aerobic activities with little regard to resistance training
- This may be a mistake given people who are obese commonly lack the endurance to perform aerobic activities
Where to start

- Considering the possible embarrassment from performing poorly on even small amounts of aerobic activity, a different approach is in order.

- Resistance training is a vital component to a weight-loss program and should be included to help obese individuals build strength and preserve lean body tissue.

- Obese individuals with high levels of body fat can also experience dramatic changes in body composition with resistance training:
  - Body composition appears to be affected by training the larger muscle groups of the body, as larger muscle areas require an increased energy cost.

Practical considerations

- Obese people are often intimidated going into a gym or fitness facility.

- It can be tough surrounded by a bunch of skinny/fit people when you're just getting started, and this is certainly not helped by the attitude that many who are 'in-shape' take towards them.

- Related to the general intimidation factor, it also seems common for obese folks to have had bad early exercise experiences that certainly don't help with their desire to be there.
Practical considerations

• These things frequently lead to a hesitancy to enter the typical commercial gym, filled with fit, buff (and frequently judgmental) people

• This means that if you are working with this population, you MUST ensure that the person has a positive experience from the onset of the program

Practical considerations

• Obese people often have a very low tolerance for any type of exercise
  • Sure, you’ve watched The Biggest Loser where the trainers push them into hours of activity from the beginning
    • It makes for great TV, but it also causes problems

  • Without the incentive of $250,000, the typical obese person isn’t going to put themselves through massive amounts of exercise, at least not initially

  • If they get wrecked out of the gate, they are unlikely even to try exercising a second time
    • Starting gradually makes more sense than throwing them into the grinder from the start?
Practical considerations

• Finally, there are the simple realities of a larger individual moving their body during activity

• There are joint impact issues to consider, the realities of coordination that a 50kg female trainer may have no clue about, etc.

• This has implications for exercise choice and what can or should be done with an obese person

Preparing for an exercise program

• Before beginning an exercise program, obese people should seek medical clearance from their doctor

• Once they have been medically cleared, an initial assessment should take place
  • This assessment should address any medical concerns that the person may have, such as diabetes and blood pressure, and any orthopedic concerns (joint problems, low back pain, pulled muscles, etc.)

• A complete exercise history should also be noted
  • The exercise history can give you feedback on the person’s likes and dislikes

• Goal setting should also be discussed
  • Helping obese people set appropriate goals can increase their participation in physical activity
What to do

• Obese people possess surprising levels of strength in exercises relating to everyday movements
  • The need to carry around significant body mass in day-to-day life naturally develops a certain degree of strength in the absence of any structured exercise program

• Programs for obese people should focus primarily on strength exercises that mimic everyday movements
  • 'Aim to feel better first'

What to do

• You want people to feel better in their bodies and enjoy a more capable day-to-day movement experience

• Once you provide that, their abilities and their outlook on exercise often improves, and the likelihood of program adherence goes up
What to do

• By using the strength they already possess on exercises like squats, lunges, upper-body pushes and pulls, they experience greater self-efficacy:
  • Avoid putting them on the floor if this is overly difficult for them

• Don’t forget about machine exercises
  • Yes, they may be non-functional in terms of everyday living

• But remember, when you are working with untrained obese beginners with no previous training background, almost anything more complex than the simplest of exercises could overwhelm them

What to do

• Many free-weight movements are technically too complicated for most people without a lot of coaching
  • With an obese person, there is just too much to lose and too little to be gained by starting with technically demanding complicated exercises

• If you give the ‘average’ obese beginner that type of stuff right off the bat, they won’t be able to do it well

• They will feel uncomfortable and embarrassed, and all you’ll have done is verified in their mind is that exercise is a miserable horror that they don’t want any part of
  • That’s not a good thing to do
**What to do**

- By using machines (or even light dumbbells), you can start that person with a tiny percentage of their body mass
  - Compare the push-up which might require the rough equivalent of a 100kg bench to starting someone on a machine that may only have 10kg on it

- The obese beginner might not be able to do a single repetition of the bodyweight exercise, or might only grind out a handful of hard-fought reps

- In contrast, they can do a full set of however many repetitions with the machine, and you can increment that exercise gradually as they grow stronger

**The takeaway**

- Using machines or less complicated movements puts the person in a far more controlled environment
  - Move from simplicity to complexity, not the other way around

- In this population, the goal is to get them working out without making them feel horrible

- Using simpler exercises lets an obese person start light without forcing complex movement patterns accomplishes that and gives the possibility for success and positive reinforcement more so than more complicated movements
The end