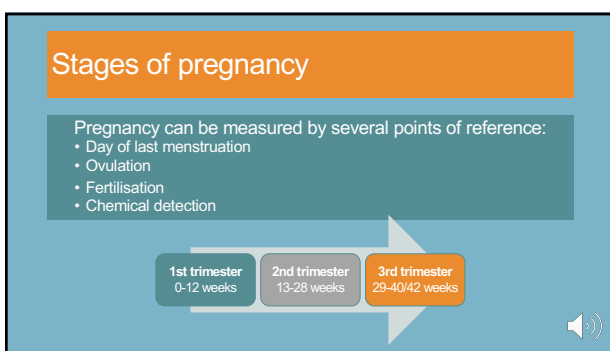




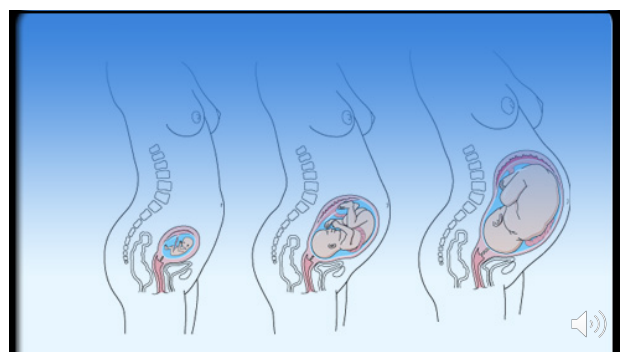
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## Post Natal Periods

Post partum – birth to 6 weeks

Post natal – 7 weeks to 12 months

12 months+ the body should be back to “normal”

5

## Trimester 1

Embryo develops:


- Brain and major organs
- Muscles start to develop
- Ears form
- Fetus moves
- Heart functions from 6 weeks
- Toes and fingers form
- Placenta hormones take over



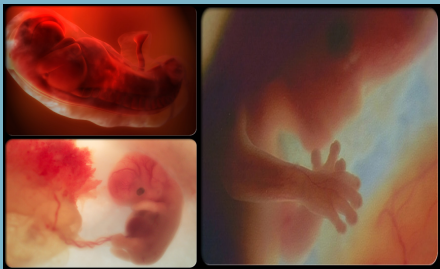
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## Trimester 1

- Uterus grows but remains in pelvic cavity
- Pressure on bladder increases
- Common symptoms include:
  - Tiredness
  - Nausea and vomiting
- Exercise considerations:
  - Exercise normally
  - Keep hydrated
  - Avoid overheating
  - Avoid exhaustion



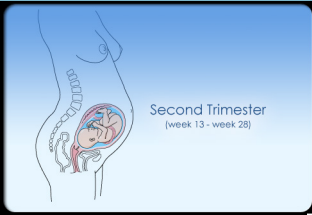
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## Trimester 2

- Embryo development:
  - Hair forming (Lanugo)
  - Sex identifiable
  - Mother feels movement
  - Scalp hair forming
  - Vernix forming
  - At 24 weeks the foetus is viable



Second Trimester  
(week 13 - week 28)

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## Trimester 2

- Uterus moves out of the pelvic cavity, the mother "shows"
- Hormones rise steeply – relaxin and progesterone
- Urinary tract infections common around 20 weeks
- Supine Hypotensive syndrome possible
- Exercise Implications more significant

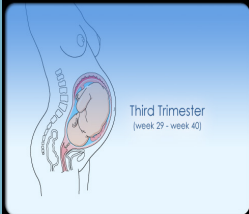
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## Trimester 3

- Embryo development:
  - Fat layers form
  - Organs mature
  - Head engages in pelvis – 37/38 weeks
- Mobility harder
- Sleep difficult
- Braxton Hicks contractions
- Pelvic discomfort
- Hormones peak



Third Trimester  
(week 29 - week 40)

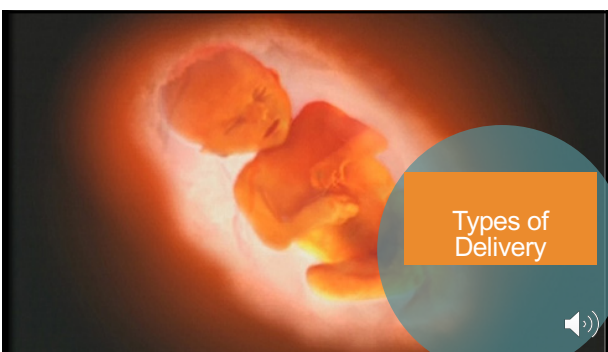
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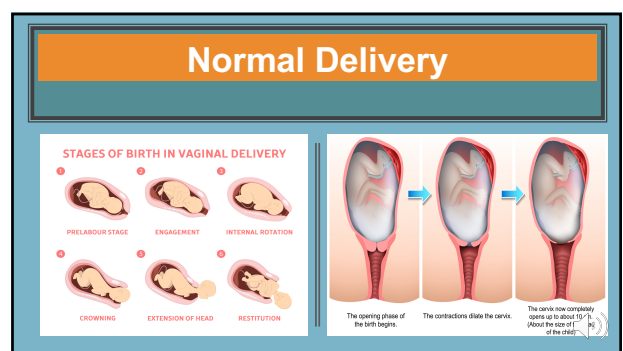
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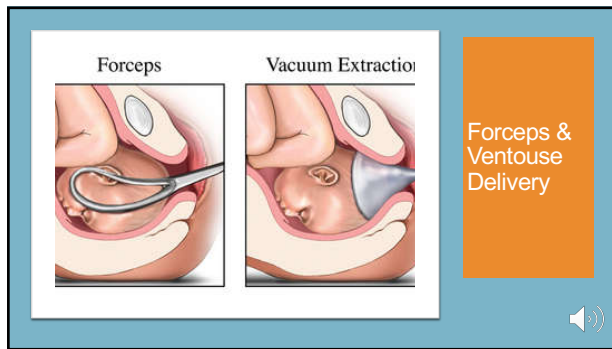


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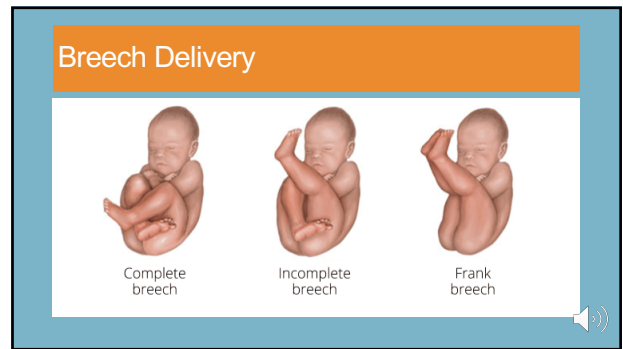


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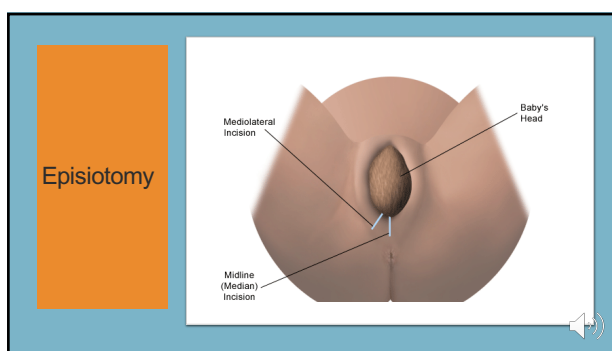




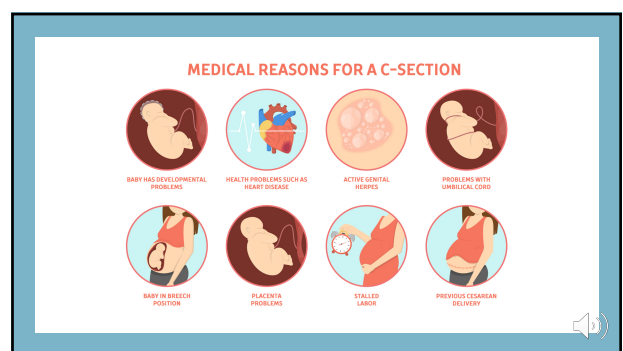
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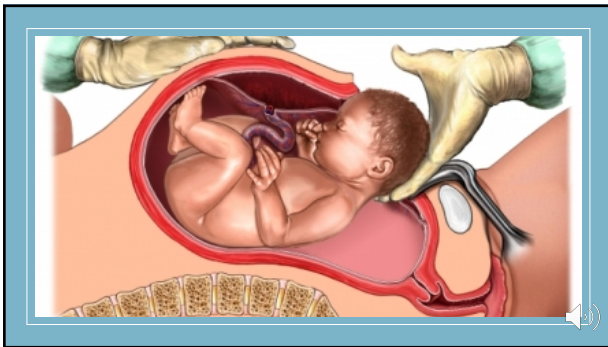
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Supporting Pre and Post Natal Clients with Exercise & Nutrition

Module 7 – Contraindications, Screening & Referral

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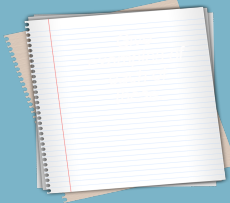
**Legal and ethical responsibilities**

- Generally, fitness professionals should only record information based on disclosure by the client themselves, or from direct observation
- If it is necessary to record an opinion, the entry should be clear that it is an opinion and whose opinion it is
- It is essential that all fitness professionals are bound by confidentiality


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**Identifying information to be collected ParQ**

- Lifestyle
- Medical history
- Previous pregnancy history
- Previous birth history
- Activity history
- Attitudes
- Motivating factors
- Exercise preferences
- Barriers
- Fitness assessment



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### Contraindications to exercise

- There are four main contraindications that need evaluation prior to beginning or resuming exercise during pregnancy.

  1. Significant physical injury
  2. An acute bout of illness or chronic underlying disease
  3. The onset of persistent or recurrent localised pain
  4. Abnormal or heavy vaginal bleeding

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### Warning signs

- ACOG guidelines (2003) have also identified a number of warning signs to stop exercising:
  - Vaginal bleeding
  - Dyspnoea before exertion
  - Headache
  - Chest pain
  - Muscle weakness
  - Calf pain or swelling (need to rule out thrombophlebitis)
  - Preterm labour
  - Decreased foetal movement
  - Amniotic fluid leakage



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ABSOLUTE CONTRAINDICATIONS	COMMENTS	RELATIVE CONTRAINDICATIONS	COMMENTS
Sports with high risk of falling or trauma	Ice hockey, soccer, basketball, football, etc. that carry a risk of falling, twisting, or trauma to the abdomen	Uncontrolled cardiac arrhythmias	Risk of cardiac crisis
Short cervix (<0.5cm) or current cerclage	Risk of preterm birth	Poorly controlled asthma	Risk of low maternal O <sub>2</sub> saturation
Fetal growth restriction (FGR <10th)	Risk of acute intrauterine death	Anemia (hemoglobin <10g/L)	Low maternal O <sub>2</sub> carrying capacity
Multiple gestations, i.e. triplets or more	Risk of preterm birth	Twin gestation after 24 weeks	Risk of preterm birth
Preeclampsia	Risk of acute intrauterine death	Obstetric with HbA1c > 6.5%	Risk of acute intrauterine death
History of 1st preterm birth or preterm labor in current pregnancy	Risk of preterm birth	Poorly controlled seizure disorder	Seizures
Placenta previa after 24 weeks of gestation	Risk of abortion or bleeding	Tobacco abuse (>4 cigarettes per day)	Risk of acute intrauterine death
Premature rupture of membranes	Risk of preterm birth	DM1 > 24 kg/m <sup>2</sup>	Undiagnosed diabetes or chronic hypoglycemia
Vaginal bleeding after 24 weeks	Risk of abortion or bleeding	History of anterior cruciate ligament injury	Joint laxity from relaxin, recurrent injury
Hemoglobinopathy	Risk of sickle cell crisis	Black, Asian, or hip surgery	Joint laxity from relaxin, recurrent injury, bleeding in a good alternative
Cyanotic heart disease	Risk of cardiac crisis		
Cardiomyopathy	Risk of congestive heart failure		
Marfan or Ehler Danlos disease (type IV)	Risk of cardiac crisis		

Abbreviations: DM1, Type 1 Diabetes Mellitus; FGR, fetal growth restriction; FGR, fetal growth restriction

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### When to Stop!


- Pain
- Vaginal bleeding
- Dizziness/feeling faint
- Rapid heart beat
- Difficulty breathing
- Chest pain
- Uterine contractions
- Sudden swelling
- Severe persistent headaches
- Leaking/gushing from vagina
- Severe pain in pubic area or hips



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### Specific Considerations for a Warm-up

- **RELAXIN** – Avoid excessive changes in position, ensuring stability of joints is controlled
- **POSTURE** – Re-enforce correct posture, before and during the warm up
- **WEIGHT DISTRIBUTION** – be aware of changes in gravity of clients. Avoid repetitive and single joint exercises, sudden changes in position
- **EQUIPMENT/MOVEMENTS** – Adapt according to Trimester and relaxin



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### Structure of the Warm-up

- Screening – know Trimesters of participants, medical history, e.g. miscarriages
- Include mobility and warming exercises
- Using large muscle groups
- Gradually increase intensity – e.g. longer lever, deeper wider steps, speed, impact, arm raises
- Avoid hot humid conditions
- Duration – 10-15mins depending on activity to follow, level of client, stage of pregnancy and environment
- Consider the comfort of the equipment to be used

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### The CV Component

**FITT applies**

**FREQUENCY:-**

- 3-5 X week

**INTENSITY:-**

- 70-75% HR max – guideline only. Consider age/fitness level/stage of pregnancy. Mother should feel comfortable during and after CV exercise.

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### The CV Component

**TIME:-**

Generally 20-30mins subject to pre pregnancy fitness/trimester.  
De-conditioned participants may only start with a few minutes and build up gradually

**TYPE:-**

Whole body, rhythmical and continuous. Reduce impact from 2nd Trimester, avoid complex moves and quick changes of direction.



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## The CV Component

✓ **ADHERENCE:** Regular participation

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## The CV Component

**Transitions and combinations** Keep it simple!

**FORM AND PACE:-** Posture! May need to change the pace as the pregnancy progresses.

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## Teaching Guidelines

- Educate – benefits/risks/purpose
- Communicate and feedback – does baby move after exercise? Check health and well being each week it may alter suddenly.
- Observe – including hydration/fatigue
- Vocabulary – empathy, teaching points specific to pregnancy.

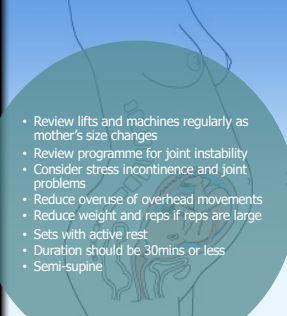
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## 1<sup>st</sup> Trimester:-

- Screen
- Defer if nec
- Normal training can be maintained
- Maintain fitness NOT improve!
- Avoid hot humid conditions
- Ensure adequate calorie intake
- Avoid heavy lifting- Lactic acid
- Balance, Form and Posture

**First Trimester (week 1 - week 12)**

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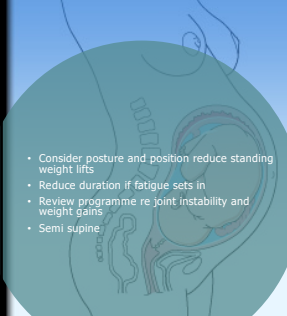
- Review lifts and machines regularly as mother's size changes
- Review programme for joint instability
- Consider stress incontinence and joint problems
- Reduce overuse of overhead movements
- Reduce weight and reps if reps are large
- Sets with active rest
- Duration should be 30mins or less
- Semi-supine

## 2<sup>nd</sup> Trimester:-

### Second Trimester

(week 13 - week 28)

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- Consider posture and position reduce standing weight lifts
- Reduce duration if fatigue sets in
- Review programme re joint instability and weight gains
- Semi supine


## 3<sup>rd</sup> Trimester:-

### Third Trimester


(week 29 - week 40)

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### Planning MSE Component



FITT Applies as for any programme:-




**FREQUENCY**

24-48 hours recovery  
2-3 x week;  
whole body approach

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### Planning MSE Component


- **INTENSITY**
  - Variable for each client, adapt as pregnancy progresses, vary resistance, reps, sets for each exercise
  - Focus on maintenance
  - Only use mild overload, NO DOMS!
  - Endurance not strength – 1-3 sets, 10-20 reps, 70% of previous level, 3 x 10 rep max (delorme method)
  - De conditioned clients – 1-2 sets to mild fatigue.
  - Clients who abstained from exercising in first trimester – start as a beginner – 50% of pre pregnancy resistance, increase gradually.



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### Planning MSE Component

- **TIME**
  - a. Subject to reps and sets of each muscle group.
  - b. Avoid long periods of time in 1 position or on 1 muscle group
- **DURATION**
  - a. 20-30mins
  - b. Avoid long periods of standing
  - c. Avoid overuse of single joint exercises



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### Muscle Conditioning

- **TYPE**
  - Whole body approach
  - Activities that encourage correct lifting techniques for everyday life
  - Activities that promote good posture
  - Core stability, multifidus, rhomboids, pelvic floor muscles
  - Machines more stable, free weights more functional
  - Bands may encourage over gripping, replace with light free weights later on in pregnancy
  - Machines may need to be adapted as uterus grows.




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### Planning MSE Component



**FORM AND PACE**

Thorough coaching, good form, effective paces.  
Communicate and feedback regularly  
Transitions important especially as pregnancy progresses  
Adapt ROM on machines where necessary



**BREATHING**

Do not hold breath, encourage correct, regular breathing throughout.

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### MSE Guidelines – Experienced Pre-natal Participant

<b>MODE</b>	Machine/free weights/body weight/ - Low Impact, non jarring
<b>FREQ</b>	2-3 x wk
<b>REPS</b>	10-20 (NORM = 10-12)
<b>SETS</b>	1-3
<b>RESISTANCE</b>	70% of previous Delorme method (3 x 10 reps)
<b>PACE/SPEED</b>	Slow to mod – pain free – full ROM
<b>DURATION</b>	20 – 30 MINS
<b>Special Consids</b>	Prone/supine after 12 weeks Avoid long periods of standing, overhead repetitive movements, breathlessness, comfort, nausea.

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### Changes that may Affect Flexibility Component

- **Posture and changes in centre of gravity** – Maintain correct posture with any stretch, some stretches may become uncomfortable. Watch balance and stability
- **Relaxin** – Avoid developmental stretches. NB 2<sup>nd</sup> pregnancies more pronounced. Avoid ballistic stretches throughout.

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### Changes that may Affect Flexibility Component

- **Carpal Tunnel Syndrome** – Modify stretches as necessary
- **Heartburn** – Modify positions if necessary
- **Abdominals** – If diastasis recti occurs avoid stretches that strain the abdominal area
- **SHS** – Avoid after 2<sup>nd</sup> Trimester

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### Flexibility Component

  
**FREQUENCY:-**  
Every day if healthy

  
**INTENSITY:-**  
Comfortable – avoid developmental stretches

  
**TIME:-**  
8-10 Secs

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### Flexibility Component

- **TYPE:-**  
➢ To maintain mobility and flexibility
- **ADHERENCE:-**  
➢ Regular
- **DURATION:-**  
➢ As above
- **TRANSITIONS/COMBINATIONS:-**  
➢ Avoid complex stretches and quick changes of movement. Comfort!

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### Changes that Influence Performance in Relaxation

- SHS – use pillows props
- Posture and changes in gravity
- Heartburn
- Abdominals – getting up and down

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### Guidelines for Teaching

- Voice
- Equipment – pillows, props
- Appropriate music
- Non Visualisation
- Empathy with Mum
- Choice of vocabulary used
- Refer to baby
- Educate – purpose and benefits
- Communication and feedback
- Methods of relaxation

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### Post Natal

- Screen participants prior to start
- Are they breast feeding?
- Refer to pre delivery level of fitness
- Is the participant in the early or extended post natal period?
- Type of delivery is very important
- Apply many of the prenatal considerations to warm up
- Posture/centre of gravity
- Teach new post pregnancy posture

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### Considerations for exercise

- The first question usually asked at this point is "when can I resume exercising?"
  - dependent upon the events of labour and the 6 week 'all clear' by the client's GP
- However it is normal that transversus abdominis (TA) and pelvic floor (PF) exercises can be performed immediately post labour
- Current guidelines (ACOG, 2003; RCOG, 2006) recommend that women should avoid all physical stress for two weeks (i.e. 'don't carry anything heavier than the baby') and not resume full daily activities for a minimum of six weeks after delivery



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## Benefits of post natal exercise

- Improved posture
- Increased local muscular endurance
- Increased stamina
- Increased energy
- Increased metabolic rate
- Increased weight loss, improved body image
- Increased self-confidence
- Reduced anxiety

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## Considerations of Post Natal

- **Post Natal:**
  - Relaxin still an issue
  - Breast feeding
  - C – Section
  - Diastasis recti and abdominal training
  - Post Pregnancy posture
  - Core stability/pelvic floor exercises
  - 50% of previous Delorme method
  - Symphysis pubis dysfunction/carpal tunnel syndrome
  - Fatigue!

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## Post Natal

- Include mobility moves to release tension in shoulders, neck and lumbar spine
- **Teach correct lifting technique**
- Concentrate on posture and form (post natal sessions often attract mothers who have never exercised in a class or gym!)
- Breast feeding may inhibit lying prone and the level of activity which feels comfortable
- Encourage correct support garments and footwear

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## Post Natal Exercise – Overview CV Component

- ♥ Gradual, shallow curve, educate regarding trainers and extra bra support if breast feeding.
- 💎 Implications on pelvic floor and joint instability. Mainly low impact and low intensity, this can increase gradually as the client progresses.
- ⊘ Avoid over use of one joint, consider speed of movement changes.
- ✓ Repeat moves say 8 to 16 reps rather than in 2's and 4's.
- 👉 Arm lines should be basic, milk supply will not 'dry up' but can increase stimulation.
- 🕒 Time of component depends on individual in a one to one situation, it is difficult to give general figure for class situation.

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### Considerations of CV

- **Post Natal:-**
  - Relaxin
  - Breast feeding
  - Type of delivery
  - Post pregnancy posture
  - Symphysis pubic dysfunction/Carpal tunnel syndrome
  - Walking encouraged
  - Swimming encouraged after bleed has stopped

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### Considerations of CV

- **Post Natal:-**
  - CV training can commence 6 weeks post delivery, 50% of normal CV done in 3<sup>rd</sup> Trimester
  - If new participant – guidelines are as for de-conditioned participant. Extra care re pelvic floor, breast feeding and type of delivery
  - Low or non impact at first
  - Freq/Intensity/Duration progress gradually
  - All progressions re complexity/machines should be gradual
  - Mother's comfort!

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### CV Practical

- In pairs, put together a CV component for a 2<sup>nd</sup> trimester/3<sup>rd</sup> trimester or post natal participant based in the gym or studio.
- Design the session and teach each other
- Provide your partner with feedback

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### Post Natal Exercise – Overview MSE Component

- Posture check, lifting technique and transitions from standing to floor etc.
- Rec. check can be taught in group and backed up with one to one check if needed.
- Low reps, low resistance at start, can be increased as client progresses.
- Attention to pelvic floor (both slow and fast), transversus, postural muscles and some bone loading through upper body.

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## Post Natal Exercise – Overview MSE Component



Only move onto pelvic tilts once abdominal separation is less than 2 fingers, establish correct technique before moving onto all ups, this should precede any type of sit ups. Primarily, basic abdominal work in early and mid postnatal work is important.



Review comfort and pain free range with adduction and abduction work.



Clients may still have some subluxation (pelvic separation), which needs care.



Carpal tunnel syndrome may still be a problem, along with back / knee pain.



Show alternatives throughout!

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## Weak abdominals



- It may take six weeks for muscles to fully recover or even longer if they were weak before pregnancy.
- Gentle abdominal exercises in the early post-natal period will be vital in encouraging this process (e.g. tummy tightening, pelvic tilting)
  - however, guidance and advice should be sought if there is abdominal separation

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## Post Natal Abdominal Training

- Abdominals have been stretched - lengthened, weaker - back problems, through lack of proper contraction. Stretch weakness. NB other muscles - hip flexors/hamstrings etc.. Anterior pelvic tilt.
- Diastasis Recti - check or ask client to visit midwife to check. If not evident begin with TVA/Core work and when sufficient muscle tone strength achieved, normal abdominal activity can begin.
- Caesarean section - return to exercise minimum 8 weeks, possibly 12 weeks if emergency caesarean or slow recovery. GP clearance required.

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## Reintroduction into Main Stream Classes.



After 6 weeks for normal deliveries




After post natal bleeding has stopped.



Keep activity low impact at first - pelvic floor/breastfeeding



Clients may have a knee/hip/back injury or weakness after pregnancy.




Regular, normal exercise has no impact on breast milk.

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MSE Guidelines De-Conditioned Participant and Post Natal	
<b>MODE</b>	Machine/free weights/body weight/floor work - Low Impact, non jarring, modify for breastfeeding, joint instability, c-sections
<b>FREQ</b>	2-3 x wk
<b>REPS</b>	10-16 (NORM = 10-12)
<b>SETS</b>	1-2 build up to 3
<b>RES</b>	50% of previous Delorme method (3 x 10 reps)
<b>PACE/SPEED</b>	Slow to mod – pain free – full ROM
<b>DURATION</b>	20mins build up to 30mins
<b>Special Consids</b>	Prone/supine after 12 weeks Avoid long periods of standing, overhead repetitive movements, breathlessness, comfort, nausea, breastfeeding.

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Supporting Pre and Post Natal Clients with Exercise & Nutrition

Module 18 - Teaching Flexibility Post Natal

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### Reduced joint stability

- Rising levels of relaxin produced during pregnancy increase the elasticity of ligaments and cartilage leading to instability of joints, particularly the sacroiliac joint and the pubis symphysis.
- Exactly how long relaxin stays in the body is still subject to debate
- The mother is the best judge and will know when she no longer 'feels loose'

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### Post Natal Exercise – Overview Flexibility/Relaxation

- Static, maintenance stretches, move on to developmental stretches as client progresses.
- Stretch muscles used, attention to tight muscles, hamstrings, adductors, hip flexors and pectorals.
- The lifestyle of a post natal woman involves lots of forward flexion movements and sitting, feeding involves contraction of pecs and stretching/weakness through the trapezius, this can be addressed in muscular strength and endurance but also in end stretches.
- Plan stretch positions that will facilitate breast feeding mums!
- Some seated positions may be uncomfortable.
- Include appropriate relaxation, position, time etc, music, warmth, lighting.
- General 'wake up' reinforce posture and static abdominal homework.

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## Post Natal Flexibility

-  Consider the type of delivery
-  Some positions may feel uncomfortable
-  Controlled dynamic stretches may be combined with static stretches, reduce pressure on joints and release tension
-  Maintenance stretches recommended post natal until joint stability returns
-  Breastfeeding adjust position as necessary

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## Flexibility Guidelines – Experienced Participant

<b>MODE</b>	Controlled dynamic can be mixed with static Maintenance stretches only Reduce complexity and adjust positions as required
<b>FREQ</b>	3-7 x wk
<b>INTENSITY</b>	Maintenance/ROM stretches
<b>PACE/SPEED</b>	slowly
<b>DURATION</b>	Limited – 8-10 secs
<b>Special Consids</b>	Relaxin Positions, mothers comfort

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## Flexibility Guidelines – De-Conditioned/Post Natal Participant

<b>MODE</b>	Controlled dynamic can be mixed with static Maintenance stretches only Reduce complexity and adjust positions as required Post Natal participants can develop stretches once joint stability established Basic positions
<b>FREQ</b>	3-7 x wk
<b>INTENSITY</b>	Maintenance/ROM stretches
<b>PACE/SPEED</b>	slowly
<b>DURATION</b>	Limited – 8-10 secs
<b>Special Consids</b>	Relaxin Positions, mothers comfort

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## Supporting Pre and Post Natal Clients with Exercise & Nutrition

## Module 6 – Kegel Exercises

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## Kegel Exercises

- Performed daily and in class
- During and post pregnancy
- Worked at varying speeds, in various exercises, like any muscle for maximum results
- Helps prevent incontinence

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## Different Kegel Exercises

- Simple Kegel exercise
- Stage one Wave – find the muscles
- Stage two – technique and feel
- Stage three – exercise positions

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## Exercises

- The pelvic tilt
- The hip roll
- The hip hitch
- The push
- The bridge
- The side leg lift
- The lying clam
- The breath oscillator
- The birth mother
- The wild child

75