



L3 Pilates

Session Two





Running order

- Recap and Quiz
- Exploring Prep teaching practice
- Consultation stages of change
- Scope of practice risk stratification
- Posture analysis
- SMART goal setting

LUNCH

- Special populations
 PRACTICAL WORKSHOP
- Exploring Main and the OK Quadrant
- Progressions, regressions and adaptations





Fundamentals & Principles

- Alignment
- Breathing
- Centring (Core)

- •Breathing
- Concentration
- Control
- Centring
- Precision
- •Flow





Preparation

Exploring the purpose and value of the Preparation Phase. This must include:

- Breathing
- Concentration
- Postural alignment
- Mobilisation
- Activation of the core

Stages of Change Model Prochaska and Di Clemente







SMART GOALS



Posture



HEAD THORAX PELVIS LEGS/FEET





Finding 'neutral'

- Anterior Tilt
- ASIS is tipped *forward* of the Pubic Bone
- Usually creates lordosis
- Obvious in pregnant women
- Beer belly







Finding 'neutral'

Posterior Tilt

- ASIS is tipped *backward* relative to the Pubic Bone
- (tucked pelvis)
- Flat back
- No bum!









Screening and measurements

• BMI

NHS BMI calculator

Sit and reach test

https://youtu.be/No8wJ3X3A3Y

Latest PARQ version

https://eparmedx.com/?page_id=79

• Fitness tests – huge variety

https://www.topendsports.com/testing/tests/index.htm





Screening contd../

 Risk of CHD – check the NHS "What is the age of your heart" calculator

https://www.nhs.uk/conditions/nhs-health-check/check-your-heartage-tool/

 ICO and data protection – check to see if you need to register <u>https://ico.org.uk/for-organisations/data-protection-fee/self-assessment/</u>





Low, medium and high-risk clients

- Medical referral clients have a serious condition or medical risk factor for cardiovascular disease (CVD). They should be referred to a medical professional for clearance. Clients in this group may benefit from a regular exercise programme **but** this would need to be supervised by an appropriately qualified instructor (possibly in a clinical setting).
- Special attention clients may present with several factors that contribute to a higher risk for CVD or they are older or have not exercised before. These factors may place the client at low to moderate risk - BUT multiple factors will increase the risk. These clients should be referred to a medical professional for clearance and may need a qualified exercise referral instructor.
- Normal (fit and healthy) clients have no health problems or identified risks for CVD and are a regular exerciser (and under the age of 65).





Risk stratification models

- •Initial ACSM risk stratification.
- •The Morgan and Irwin risk stratification model
- •The NQAF Pyramid

Instructors must understand that the key factor for determining participation in activity should be the extent to which the potential or actual risks are outweighed by the benefits (risk stratification).





Variables of fitness

- Specificity (class must match the needs of the participants).
- Overload (showing progressions in order for individuals to gain improvements by working hard).
- Progression (starting slowly and gradually increasing the amount of intensity and with overloading as appropriate).
- Reversibility (use it or lose it!).

AND use the FITT - VP principles to add in detail:

- frequency (F)
- intensity (I)
- time (for each component and session as a whole) (T)
- type. (T)
- Volume and Progression





- PLEASE NOTE: this qualification does not qualify you to teach special populations as specific groups. You are required to show you have the *knowledge* to adapt your plans to accommodate special pops should someone "drop in" to class AND they are safe to participate.
- Providing your insurance allows, you may then be able to teach 'drop ins' from special populations providing they are screened and OK to participate *and* you feel confident enough in your skills and knowledge to coach them.
- You should not run specific, special population classes unless you also have a specific qualification for that group.





Specialist populations

- Have specific needs that may affect participation and require modifications to be made
 - Age-related physiological changes
 - Physiological changes during pregnancy and post-natal period
 - Impact of specific disabilities
 - Physiological development
- May be contraindications that would exclude from participation
- All groups should be pre-screened using appropriate screening forms, e.g. PAR-Q+ or PARmed-X form
- Verbal screen or Interview to gather specific information





Older Adult: definitions

ACSM definitions

- Aged over 65.
- Aged over 50 with chronic health conditions.





Older adults (50+)

• Age-related changes generally start around age 50

- Inactive lifestyle = may commence earlier!
- Active lifestyle = delay onset and progress of ageing

Other considerations:

- Longevity of exposure to lifestyle factors affecting health, e.g. Inactivity, alcohol and smoking
- Longevity of exposure to health conditions, e.g. High blood pressure, diabetes, high cholesterol





Stages of the ageing process

Chief Medical Officers' CMO report. (2019) definitions:

- Independent already active, healthy, and functional
- Transitioning:
 - In transition function declining due to too much sedentary time, generally healthy.
 - Noticeable changes affecting mobility, functioning, strength and balance, sight, and vision.
 - Progressive loss of independence diagnosis of health condition and/or changes to vision/hearing which impacts functioning.
 - Health conditions.
- Frailty being frail or loss of physical or cognitive function due to chronic health conditions or old age, loss of mobility, strength, balance which affects daily functioning including getting dressed, using the bath, climbing stairs





Ageing process

Age-related physiological changes may include:

- Changes to vision and hearing
- Reduced bone density (osteoporosis), risk of fracture or falls
- Stiffer joints (osteoarthritis)
- Reduced muscle mass, decreased motor units, reduced number and size of muscle fibres (especially fast twitch)
- Increased connective tissue and fat
- Postural and gait changes
- Memory and balance issues



Uista EDUCATION

Continued....

- Postural problems
- Loss of muscle tissue
- Less flexibility
- Weaker pelvic floor muscles
- Forgetting movement patterns more rapidly
- Reduced body awareness
- Reduced movement speed
- Difficulty in maintaining balance



Older adults



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Consider

How would you modify a class and exercises to meet the needs of older adults?



Possible needs:

- Postural problems
- \odot Stiffer, less mobile joints
- \circ Loss of muscle tissue
- \circ Less flexibility
- \circ Weaker pelvic floor muscles
- Forgetting movement patterns more rapidly
- Reduced body awareness
- \circ Reduced movement speed
- \odot Difficulty in maintaining balance





Safety considerations

Depends on Individual and their needs:

- Current and previous activity level and fitness
- Functional ability, e.g. Mobility
- Health conditions that may need to be worked with by referral instructor
- Any absolute contraindications, e.g. Heart conditions, stage 3 hypertension, resting heart rate at or above 100bpm, risk of falls



Active iQ

Blood Pressure Stages

Blood Pressure Category	Systolic mm Hg (upper #)		Diastolic mm Hg (lower #)
Low blood pressure (Hypotension)	less than 80	or	less than 60
Normal	80-120	and	60-80
Prehypertension	120-139		80-89
High Blood Pressure (Hypertension Stage 1)	140-159	or	90-99
High Blood Pressure (Hypertension Stage 2)	160 or higher	or	100 or higher
High Blood Pressure Crisis (Seek Emergency Care)	higher than 180	or	higher than 110
Source: American Heart Association			



Modifications



- Longer preparation and closing phases
- Posture focus activities specific to needs
- Increased joint mobility (stiffer joints)
- Reduced movement speed and resistance (reduced fast twitch fibres)
- Increase teaching time (memory)
- Technique focus (body awareness)
- More stable positions, focus on balance
- Pelvic floor focus
- Less complexity
- Smaller range of motion (less flexible)
- Reconsider some positions, e.g. Supine lying controversial if osteoporosis of spine





Osteoporosis 50+

- One in every 2 women and 1 in every 4 men will suffer an osteoporosis-related hip, spine or wrist fracture during their lives.
- 1 in every 2 women has low bone density and is at risk for fracture
- Fractures can occur spontaneously or through e.g. opening a stuck window, lifting a light object from the floor with a rounded thoracic spine or even just coughing or sneezing.

(National Osteoporosis Foundation [NOF] 2005)





Osteoporosis

- In a controlled study* 89% of the people who performed only flexion exercises suffered additional fractures
- This indicates that it is potentially harmful and dangerous to allow clients to perform flexion exercises when they have known osteoporosis

*Sinaki & Mikkelson 1984

Spinal Extension

- The posterior surface of the vertebrae contain a higher composition of cortical bone
- These areas do get compressed as the spine moves into extension
- the movement is claimed to be much less risky due to the strength of cortical bone.



(Sinaki et al.1986, 1996, 2002).





Ante and post natal

Ante natal period

- Trimester 1: 0-3 months
- Trimester 2: 3-6 months
- Trimester 3: 6-9 months

Post natal period

• Post birth



EDUCANTE and post natal



Trimester 1	Trimester 2	Trimester 3	Post birth
Increase in weight + 1-3kg	Increase in weight + 6-8kg	Increase in weight + 3-4 kg	Avoid physical stress for 2 weeks (ACOG)
Breasts and uterus start to enlarge	Postural changes Possible low back	Tired more easily Venous return may	Return to activity normal birth (6 weeks)
Hormonal changes commence, e.g.	pain Abdominal muscles	be reduced	caesarean birth (12 weeks)
affecting ligaments	stretch as baby grows	presses on pelvic floor	Hormone levels still high (up to one
worning sickness	Change in centre of gravity		Weaker pelvic floor
			Diastasis rectii





Pre natal considerations

- Is client new to exercise? (if so suggest a defer until after the birth)
- Consider a specialist qualification for pre and post natal – essential if you want to specialise or progressively programme
- Extra caution if client has previously miscarried or had a prem baby
- Internal pressure can result in a feeling of core strength



ActiveiQ







Pre natal – FOR INFORMATION ONLY

•Diastasis recti

- 1 finger OK
- 2 fingers: no oblique or rotation
- 3 fingers: no head raised, no leg lowering advise to see GP
- can possibly offer splinting for rotation (with specialist qualification)

https://www.youtube.com/watch?v=I_I6JnO3aHw

https://www.youtube.com/watch?v=QT4dMmhYDY

Supine work

• Eliminate after the 1st trimester



Dizziness and a drop in blood pressure

Supine hypotensive syndrome

Caused when the weight of the uterus, infant, placenta, and amniotic fluids compress the inferior vena cava, reducing return of blood to the heart and cardiac output.





Supine hypotensive syndrome

- Also know as "Aortocaval compression syndrome"
- can result in a loss of 30% of the effective circulating blood volume.
- can take three to seven minutes
- can mimic symptoms of shock. This is because blood pressure drops and uterine arteries contract to redirect blood to the major organs. This can cause distress for the foetus
- foetal hypoxia (insufficient 02) can occur and in <u>extreme cases</u>, foetal death.





Contraindications for exercising during pregnancy

- Pregnancy induced hypertension.
- Pre-term rupture of membrane
- Pre-term labour during the prior or current pregnancy
- Incompetent cervix
- Bleeding, and persistent second to third trimester bleeding
- Intrauterine growth retardation





Contraindications and safety considerations

Avoid the following:

- Exercising in the supine position after 16 weeks
- Prolonged motionless standing
- Isometric exercises
- Rapid changes of direction or position
- Uncontrolled twisting
- Exercise with a risk of falling or abdominal trauma
- Excessive and uncontrolled de-stabilisation (balance) techniques
- Abdominal exercises





Contraindications and safety considerations

Exercise should stop if any of the following is experienced:

- Any signs of bloody discharge from the vagina.
- Any "gush" of fluid from the vagina (premature rupture of membranes).
- Sudden swelling of the ankles, face, or hands.
- Persistent, severe headaches and/or visual disturbance; unexplained spell of faintness or dizziness.
- Swelling, pain, and redness in the calf of one leg (phlebitis).
- Elevation of pulse rate or blood pressure that persists after exercise.
- Excessive fatigue, palpitations, chest pain
- Persistent contractions .. may suggest onset of premature labour.
- Unexplained abdominal pain.





Post natal clients

- Ensure 6 week post natal check has been done.
- 12 week if C Section
- Caution re diastasis can be easier to spot after the birth
- Be aware of pelvic floor muscle issues (leakage etc)
- Relaxin could make joints hypermobile for 6-12+ months post birth



Ante and post natal

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CONSIDER

How would you modify a class and exercises to meet the needs for ante natal or post natal women?

Think about exercises you could or could not include



Active iQ





- Use ParMed X for pregnancy screening tool
- Check with GP prior to participation, especially if previously inactive, as greater risk
- Lower intensity
- Maintain hydration
- Adapt exercise positions
- More stable positions
- Low intensity (less repetitions, resistance)
- Avoid supine lying post 16 weeks
- Avoid exercising to point of exhaustion
- Avoid abdominal exercises focus on posture mobility and pelvic floor

Source: American College of Obstetricians and Gynaecologists ACOG: <u>www.acog.org</u>)





Disabled people

May include:

- Physical disability, e.g. spinal cord injury or limb amputation
- Neurological conditions, e.g. multiple sclerosis, stroke, cerebral palsy
- Cognitive and psychological conditions, e.g. Downs syndrome or mental health conditions
- Sensory, e.g. partial sighted or blind or partial hearing or deaf



Disabled people

Condition	Consideration
Progressive disorders (e.g. Multiple sclerosis)	Careful monitoring to ensure that exercise does not cause the condition to worsen (exacerbation).
Asymmetrical weakness (e.g. stroke)	Aim to improve the affected side as much as possible, without neglect for the other side
Spasticity	Flexibility can be beneficial, but seek advice from a medical authority on how to stretch a spastic muscle without causing injury.
Neurological conditions (e.g. muscular dystrophy)	Focus on improving general fitness. Refer any rapid decline in function to their GP immediately
Sensory nerve damage	May result in an inability to detect pressure against the skin, which if left unprotected may result in a pressure sore
Depression	Often secondary as a result of the challenges of living with a disability. Can affect adherence – low motivation, low energy, may be suicide risk



Disabled people



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Consider

How would you modify a class and exercises to meet the needs of a disabled client?

Think about exercises you could or could not include







Modifications



- Depends on specific need
- Pre-screening to identify needs
- Adapt exercise positions, e.g. Wheelchair-based activities or chairbased activities
- Adapt teaching style for visual or hearing impairments
- Simplify, less complex when appropriate
- Lower intensity (repetitions, resistance, range of motion, rate) as appropriate
- Vulnerable people and safeguarding



Young people (14-17)

Key considerations:

- Growth-related issues and injury risk
- Flexibility
- Stage of anatomical and physiological development
- Immaturity regarding their safety and the safety of others
- Reduced coordination and motor skills whilst growing



Active iQ

Osgood Schlatter's Disease

Can develop for no apparent reason.

- Overuse of the quadriceps muscles
- Repeated strain on the attachment of the patellar ligament to the growing tibia.
- The growing tibia isn't quite strong enough to withstand the strain
- Can cause redness and soreness where the ligament attaches. In some cases, a small flake of bone is pulled off the tibia by the pulling ligament.
- Healing bone (callus) then forms which may cause a hard bony bump to develop.



E Sever's Disease

Growth Plate

Usually occurs during the growth spurt of adolescence 8 and 13 for girls and 10 and 15 for boys. Sever's disease rarely occurs in older teens



Modifications



- Pre-screening
- Longer preparation and closing
- Lower intensity (repetitions, resistance, range of motion, rate)
- Simplify, less complex, less technical demands
- Adapt teaching style
- Consider vulnerable people and safeguarding legislation