L3 Pilates

Session Three

Running Order

10-11	**Consolidate Prep and Main – practical in groups** • **Consultation skills – recap** • **Teaching skills – ladder of progression – zoning in - proxemics** • **Progression ladder**
11-12	**Special Pops – pre and post, older adult focus.** **Risk assessment and ICO**
	Lunch
12.30-1.15	**Stretching – types – theory and PNF** • **Applying this to Pilates** • **Pairs practice**
1.15-3	**Close content – using the 34 deck, cheat sheet and manual**

REACP on goal setting

Goal setting for clients

Adds value to your 1:1 business

Goal categories	
Short term goals	Goals which are set over a period of usually **4 – 6 weeks**. A short-term goal may relate to what the Pilates Instructor aims to achieve in just one session, but more usually relates to a period of around one month.
Medium term goals	These are goals set from a period of **around 3 months**, however, six-month goals can be used
Long term goals	These goals commonly relate to periods **from six months** to over several years. People may set 'lifetime goals' which cannot be assessed until later in life. Many long-term goals are set for achievement over the course of a year or a competitive season.

- It is important to set both long term and short -term goals.
- The fulfilment of short-term goals can contribute to the achievement of long-term goals and can assist with motivation

Readiness to change

How ready do you feel to.....? (link with goals)

Not at all ready

100% ready

Exploratory questions (depending on where client gauges their readiness)

- Why level 1 and not zero? Why level 7 and not 5?
- What would help you move to level 4, 8,10?
- How would it feel to be at level 7, 10?
- What could we do to get you to level 4,6,9?

Creating an action plan

Publish it / print it so that client can put it on wall at home and see what they need to do

Include times for review and methods for review to ensure that:

- Goals are being met
- Identify if new goals may be appropriate

Devising an Action Plan

- **Aims of the client** – what they want to achieve - goals
- **Current situation** – where are they now in relation to where they want to be
- **Changes that need to be made** – what do they need to do to get there
- **Options for achieving their aims** – how to move away from their current situation
- **Action plan** – step by step guide showing how they will achieve their aims
- **Teacher/client contract** – what they promise to do and what the teacher promises to do in order to work together toward the aims

S M A R T

Client: “I want to feel better in myself”

Instructor: “What does that mean to you?”
“What would that look like?”
”What specifically would it feel like?”
“How could we work together to make that happen?”

Open questions

Drilling down to the measurable detail

Teaching methods

Imitation

Repetition

Drills

Command

Add On / Link

Layering / Progressive

Experiential / Scenario

Zoning in for correction

If you spot an error in the class:

- Give a general correction to everyone
- Walk to the area where the person is location – and repeat the correction
- If necessary, go to the person and offer a discreet 1:1 correction.

Working with special populations

Principles of anatomy, physiology and fitness

Key role boundaries for special populations

- Any medical conditions must be signposted to a GP for clearance prior to participation, and work with a specialist instructor may be required.
- Apparently healthy special populations with no medical conditions can participate with appropriate adaptations.
- **To work with any special population on a regular basis requires additional qualifications.**

Active iQ

General guidance

- 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+ / PARmedX form

Verbal screen or Interview to gather specific information

DISABILITY

Disability

'An umbrella term covering impairments, activity limitations and participation restrictions.'

(World Health Organization)

- **Impairmen**t: a problem in body function or structure.
- **Activity limitation**: a difficulty encountered by an individual in executing a task or action.
- **Participation restriction**: a problem experienced by an individual in involvement in life situations.

Active iQ

Who?

- Wheelchair users.
- Blindness or partial sightedness.
- Deafness or partial hearing.
- Down's syndrome.
- Stroke.
- Obesity.
- Arthritic conditions.
- Mental health conditions (e.g. depression).
- Cancer.
- HIV.
- Limb amputation.
- Fibromyalgia.
- Cerebral palsy.

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

Equality Act (2010)

Service providers must anticipate the needs of disabled clients and make reasonable changes to accommodate these.

Exercise selection

This will be determined by specific needs, and may include:

- Simplifying some exercises.
- Reducing intensity (fewer repetitions, lower resistance, appropriate range of motion, controlled rate).
- Modifying exercise positions and modalities, for example, using wheelchair-based activities for wheelchair users or chair-based activities for individuals with physical or functional limitations or issues with balance.

Teaching style

Teaching styles and methods will need to accommodate specific needs, and may include:

- Clarity of verbal instructions for the blind or visually impaired.
- Clarity of demonstrations; facing the person and speaking clearly when instructing the deaf or those with partial hearing (e.g. to enable lip reading).
- Finding appropriate ways to engage and encourage people with learning disabilities, for example, Down's syndrome.

Health and safety

This will include:

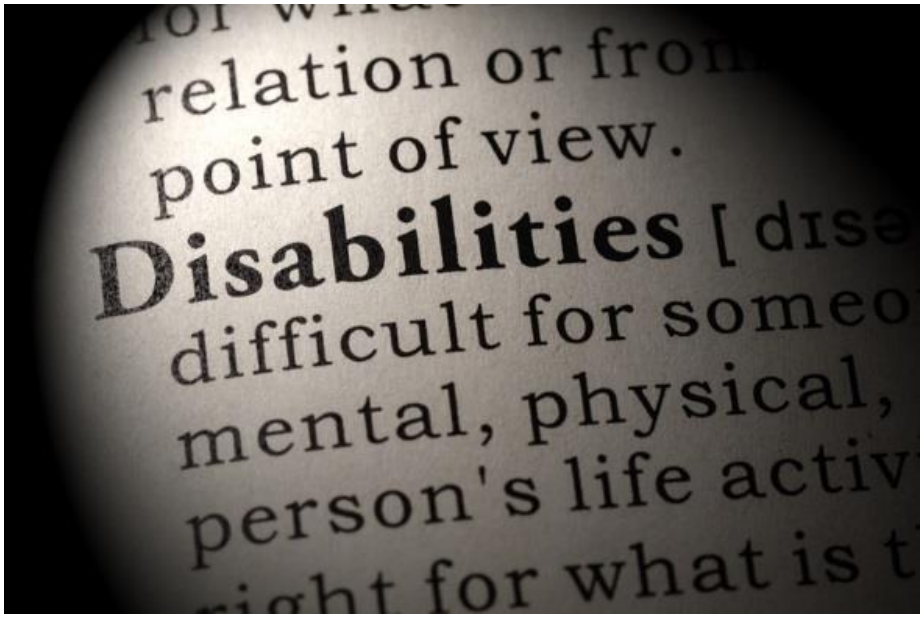
- Consideration given to entry and access to all facilities.
- Safe evacuation procedures in emergencies.
- Respect for other legislation, for example, safeguarding vulnerable adults.

Active iQ

Guidelines for disabled people

Because of the various kinds of disability, describing specific components of an exercise prescription for each condition can be difficult.

- Physical disabilities.
- Spasticity.
- Neurological conditions.
- Damage to sensory nerves.
- Depression.



Guidelines for disabled people

Physical disabilities

- **Progressive disorders** (e.g. multiple sclerosis) – monitor carefully to ensure that the exercise programme is not causing exacerbation.
- **Asymmetrical weakness** (e.g. stroke, cerebral palsy) – aim to improve functioning of the affected side as much possible.
- **Spasticity** – flexibility training can be beneficial for tight and rigid muscles, but seek authorisation from a suitably trained medical authority on how to stretch a spastic muscle without causing injury.

Guidelines for disabled people

- **Neurological conditions** (e.g. muscular dystrophy) – a decline in CNS functioning results in muscles becoming progressively weaker. Concentrate on maintaining general fitness.

- **Damage to sensory nerves** – this can result in pressure sores when not attended to regularly. Vigilance is important.

- **Depression** – a disabling condition in its own right. It can sometimes be a secondary condition resulting from the challenges of living with a disability. Reduced motivation and energy levels can contribute to drop-out. Medications have many negative side effects, including weight gain and suicide risk.

Guidelines for disabled people

If there are any doubts regarding the ability to work safely and effectively with a disabled client, seek the advice of a medical authority.

YOUNG PEOPLE

Physiological considerations for young people

Hormone production in puberty leads to muscle mass increases (25% at birth to 40% BW in adulthood).

A growth spurt may affect the child's ability to coordinate as a result of the time taken for the NM system to adapt.

Anaerobic capacity does not fully develop until approx. 20.

Growth spurts in girls occur between 12 and 13, and in boys between 14 and 15.

Girls tend to stop growing by approx. 18, and boys by approx. 20.

Growth-plate fractures may be a concern during growth-spurt period.

Cardiac output and BP is lower.

Heart rates are higher.

Guidelines for young people

Key areas for consideration include:

- Growth-related issues.
- Flexibility.
- Stage of anatomical and physiological development.
- Suitability of equipment.

Growth-related issues

Avoid:

- Excessive training, for example, playing too much of one sport.
- Playing the wrong sport for their body type.
- Using weights that are too heavy in resistance training.
- Inappropriate size matching in pairs.
- Excessive stationary high-impact moves.

Always:

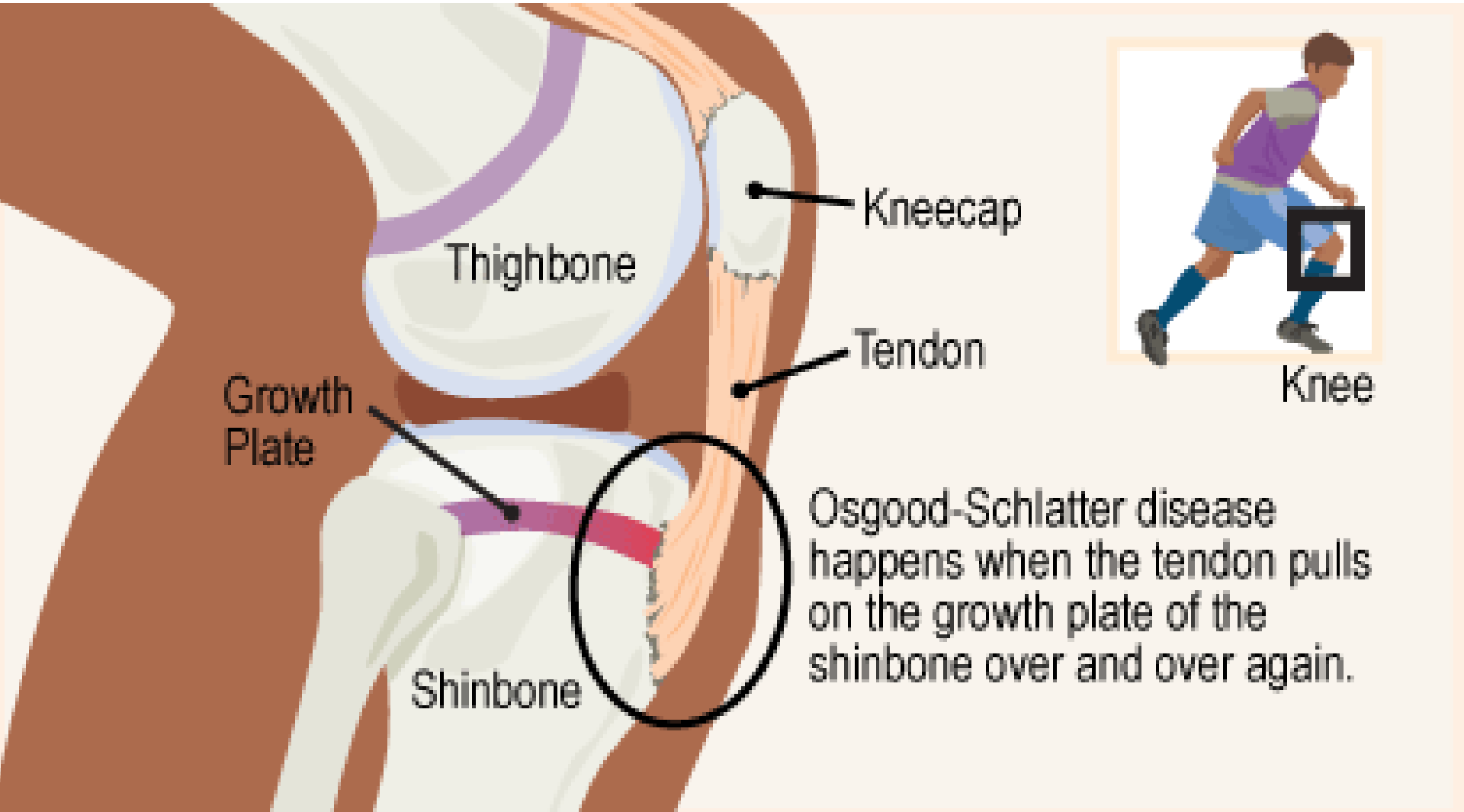
- Teach an appropriate warm-up and cool-down.
- Provide appropriate equipment for the activity (correct size, weight, etc.).
- Focus on technique before intensity or complexity.

Flexibility

The aim should be to stretch only to the point of mild tension and to avoid overstretching.

- During growth spurts, muscle growth does not keep up with bone growth rates.
- The soft tissue around the joints is already stretched, so the risk of injury is increased.

Osgood Schlatter's disease



Sever's disease

Caused by repetitive stress to the heel, and most often occurs during growth spurts, when bones, muscles and tendons are changing rapidly. Children and adolescents who participate in running and jumping sports can be at an increased risk for this condition.

Rest, over-the-counter medication, a change in footwear, and stretching and strengthening exercises will often relieve pain and allow a return to daily activities. Commonly affects girls 7 – 13 years old and boys around 10 – 15 years of age

Cardiovascular and respiratory systems

Avoid high-intensity training, because of:

- Lower cardiac output and stroke volume.
- Higher heart rate and respiratory rate.
- Lower blood pressure.

Avoid increased risk of heat stress and dehydration, by:

- Ensuring adequate hydration.
- Low-intensity, varied warm-up.
- Incorporating active rests in between bouts of vigorous activity.

Exercise guidelines for young people

Frequency	Aerobic – every day. Strength – three days a week. Bone strengthening – three days a week.
Intensity	Moderate-to-vigorous-intensity aerobic exercise.
Time	60 minutes.
Type	Cardio – swimming, dancing, cycling, running, walking. Strength – climbing trees, games (tug of war), as well as resistance exercises. Bone strengthening – jumping, running, skipping, hop scotch and games (basketball, tennis, etc.).

PRE AND POST NATAL

Physiological considerations for pre and postnatal clients

Relaxin softens connective tissue, affecting joint stability.

Pelvic floor and abdominal muscles may be weakened during and after pregnancy.

Heart rate, stroke volume and cardiac output increases.

Changing shape during pregnancy may affect the ability to coordinate as a result of the time taken for the NM system to adapt.

Posture may be hyperlordotic and hyperkyphotic.

Woman may be fatigued, nauseous or dizzy, particularly in the first few months of pregnancy.

Active iQ

Contraindications for pre and postnatal clients

Relative

- Severe anaemia.
- Unevaluated cardiac dysrhythmia (irregular beating of the heart).
- Chronic bronchitis.
- Poorly controlled type 1 diabetes.
- Extreme morbid obesity.
- Extreme underweight.
- History of extremely sedentary lifestyle.
- Growth restriction in current pregnancy.
- Orthopaedic (skeletal) limitations.
- Poorly controlled seizure disorder.
- Poorly controlled hyperthyroidism.
- Heavy smoking.

Absolute

- Heart disease.
- Lung disease.
- Incompetent cervix.
- Risk of premature labour.
- Persistent second- or third-trimester bleeding.
- Placenta previa (low-lying placenta) after 26 weeks' gestation (into pregnancy).
- Premature labour during current pregnancy.
- Ruptured membranes.
- Preeclampsia (pregnancy-induced hypertension).

ACSM, 2017

Guidelines for pre and postnatal clients

- Guidelines relate to normal, healthy, adult women experiencing a normal, healthy, single pregnancy.
- In most cases exercise is safe for both mother and baby.
- Exercise at appropriate intensity is not associated with adverse pregnancy outcome.

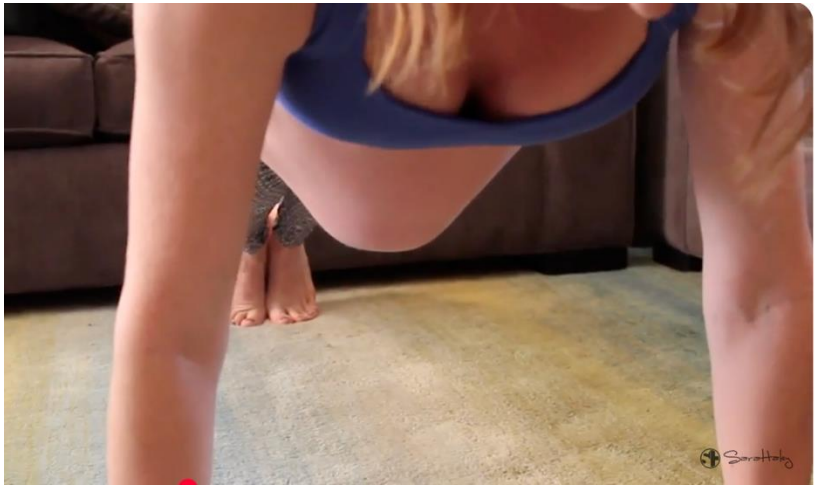
Ante and post natal

Trimester 1	**Trimester 2**	**Trimester 3**	**Post birth**
Increase in weight + 1-3kg Breasts and uterus start to enlarge Hormonal changes commence, e.g. increased relaxin= joint laxity Morning sickness	Increase in weight + 6-8kg Postural changes Possible low back pain Abdominal muscles lengthen and stretch as baby grows Change in centre of gravity	Increase in weight + 3-4 kg Tired more easily Venous return may be reduced Weight of baby presses on pelvic floor Pelvic girdle less stable Increased lordotic curve – possible increased kyphosis	Avoid physical stress for 2 weeks (ACOG) Return to activity normal birth (6 weeks) Caesarean birth (12 weeks) Hormone levels – relaxin - still high (up to one year or more) Weaker pelvic floor Diastasis recti

Pre-natal considerations

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

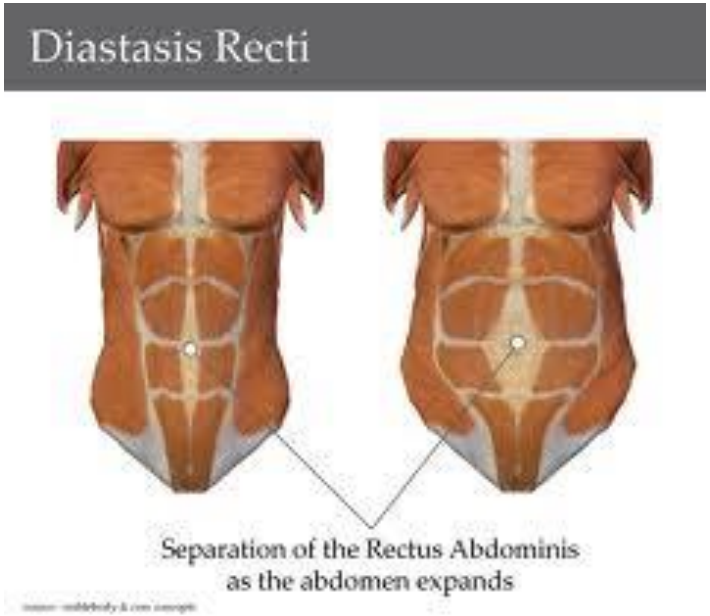
Diastasis Recti – for info only



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

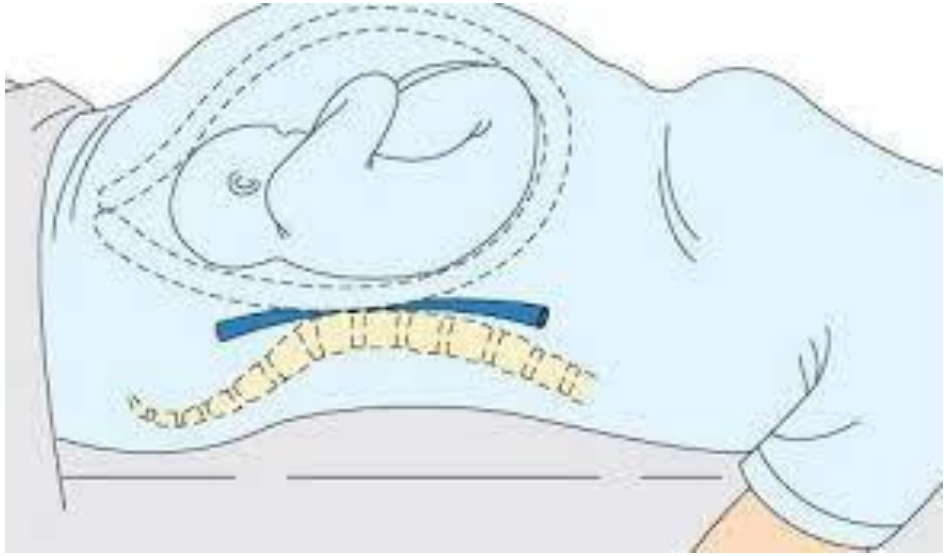
https://www.youtube.com/watch?v=l_I6JnO3aHw

https://www.youtube.com/watch?v=QT4-dMmhYDY



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 blood vessels, 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 effective circulating blood volume.
- can take three to seven minutes
- can mimic symptoms of shock.
- can cause distress for the foetus and mum
- foetal hypoxia (insufficient 0_2) can occur and in *extreme cases*, foetal death.

https://mdsearchlight.com/womens-health/aortocaval-compression-syndrome

Postnatal guidelines

- Avoid physical stress for two weeks (ACOG).
- Return to activity:
  - Normal birth (six weeks).
  - Caesarean birth (12 weeks).
- Hormone levels still high (up to one year).
- Weaker pelvic floor.
- Pelvic girdle less stable.
- Check for diastasis recti.
- Rectus abdominis is mechanically weaker for at least 12 months.

Guidelines for pre and postnatal clients

AVOID

- Exercising in the supine position after 16 weeks.
- Prolonged, motionless standing.
- Heavy, uncontrolled, isometric or prolonged resistance work above the head.
- Leg adduction and abduction against a resistance.
- Loaded forward flexion.
- Rapid changes of direction, position and uncontrolled twisting.
- Exercise with a risk of falling or abdominal trauma.
- Excessive and uncontrolled de-stabilisation techniques.
- Abdominal exercises (focus on posture and pelvic floor).

Active iQ

Guidelines for pre and postnatal clients

- Emphasise correct posture.
- Make movements slower and more controlled.
- Use full range of motion mobility exercises to warm the muscles up.
- Build up intensity of movements much more gradually to avoid sudden increases in blood pressure.
- Use supported stretch positions and move to a comfortable range of motion.
- Use low to moderate intensity and low impact.
- Use more gradual build-up and lowering of intensity.
- Women who are unused to exercise should start with shorter durations (begin with 5 minutes and increase to 30 minutes).
- Maintain adequate hydration.
- Avoid exercising in very hot or humid conditions.
- Avoid heart-rate monitoring – use the talk test.

Active iQ

Guidelines for pre and postnatal clients

- Include exercises for the pelvic floor muscles.
- Avoid supine and prone lying (second trimester onwards).
- Select comfortable starting positions.
- Avoid exercises that place too much pressure on the pelvic girdle.
- Use movements related to everyday life.
- Perform fewer repetitions.
- Use lower and less intense exercises.
- Do not use heavy abdominal exercises; sit-up, crunch or oblique cross-over exercises are not an appropriate choice for abdominal muscle re-education post-birth.
- Include specific relaxation work.
- Avoid positions that may over-stretch the ligaments.
- Select balanced and comfortable positions for passive stretching.
- Use shorter-hold stretches to maintain rather than develop flexibility.

Active iQ

ACOG

- 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: www.acog.org)

Active iQ

OLDER ADULTS

Physiological considerations for older adults

Heart muscle and blood vessels become less extensible and blood pressure increases.

Proportion of fast twitch muscle fibres decrease.

Muscle mass is lost (sarcopenia).

Joint structures degenerate (osteoarthritis).

Ligaments and connective tissue thickens and loses elasticity.

Tidal volume decreases and residual volume increases.

Bone density decreases and may lead to osteoporosis.

Considerations for older adults

- Reduced muscular strength and endurance.
- Reduced coordination and movement speed.
- Reduced flexibility and range of motion.
- Reduced balance, coordination and postural stability.
- Bones less resilient to stress and more susceptible to fracture.
- Stiffer, less mobile joints and reduced shock absorption.
- Lower MHR and THR and lower anaerobic threshold.
- Slower recovery rate.

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 such 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)

Cummings & Melton 2002; Keller 2003

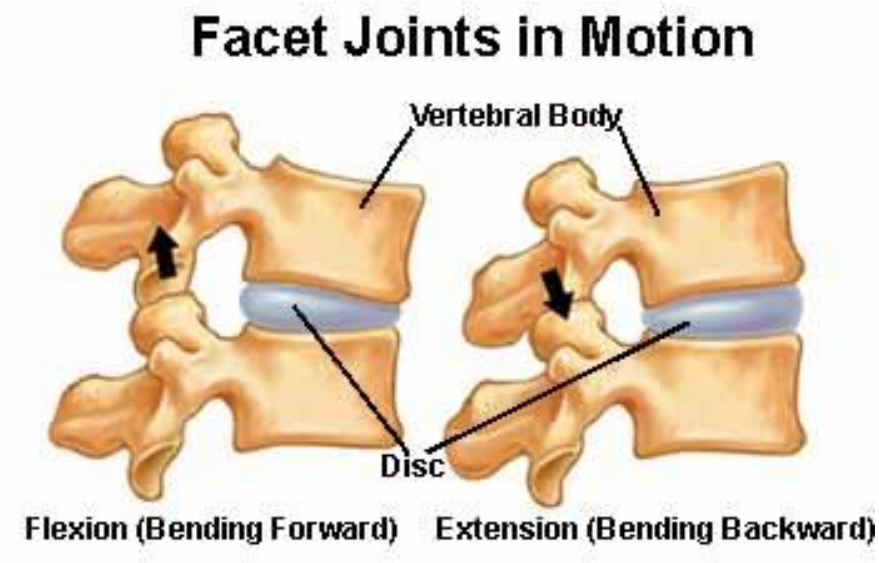
Osteoporosis

- 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).

Guidelines for older adults

- Longer, more gradual warm-up and cool-down.
- More mobility.
- Slower, controlled and simpler movements.
- Focus on posture and correct technique.
- Lower impact and intensity.
- Longer, more gradually tapered cool-down after the aerobic training component.
- More time for transitions, for example, floor to stand.
- Avoid extreme spinal flexion.
- Strengthen postural muscles, pelvic floor and potential fracture sites.

CLOSE or CLOSING PHASE

Structure of the closing phase

Exercises that focus on:

- **Stretching**
- **Balance**
- Mobilisation
- **Relaxation**
- Consolidation: recapping of class objectives

- Include instruction of Principles
- Ending in a standing position, so that clients are ready to leave

Stretching

Three main *techniques*:

Static

Dynamic

Ballistic

Static Stretching

3 main types relevant to fitness instructing

- Short Stretches aka Preparatory Stretches. Held for around 10 seconds
- Maintenance Stretching – held for around 15 seconds
- Developmental Stretching (including PNF – Proprioceptive Neuromuscular Facilitation) – held for 30 seconds +

Closing stretches - base these on client need and/or general population requirements

Some Maintenance

Some Developmental

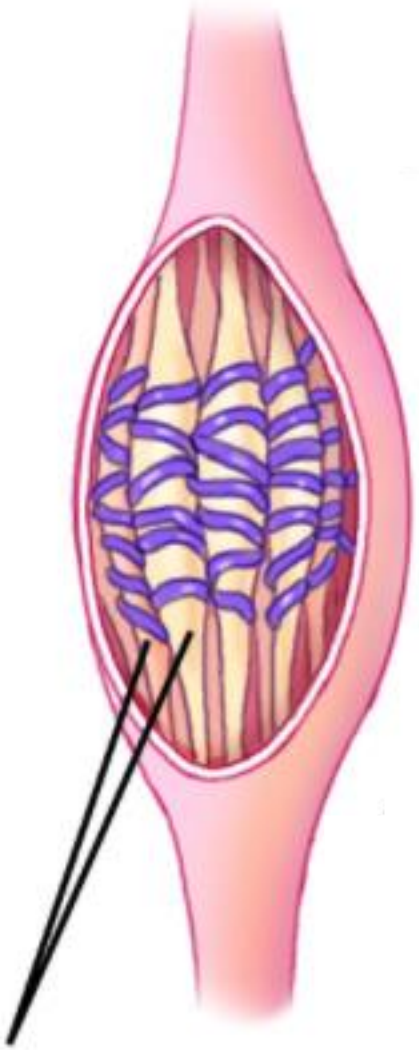
M = 15 seconds

D = 30+ seconds

Option for self PNF

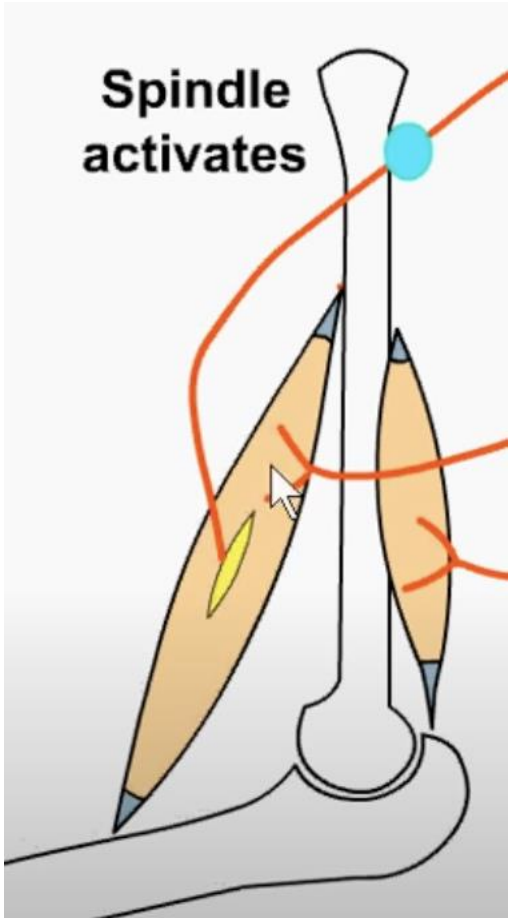
Physiology

- **Muscle spindles** are proprioceptors enclosed in a sheath
- They run parallel to the muscle fibres and provide information on **muscle length and the rate (speed)** of change in muscle length.
- The spindles are stretched when the muscle lengthens.



Muscle spindles

- The muscle spindle records the change in length (and how fast).
- This triggers the stretch reflex which attempts to resist the change in muscle length by causing the stretched muscle to contract.
- The more sudden the change in muscle length, the stronger the muscle contractions will be.
- Also triggers reciprocal inhibition



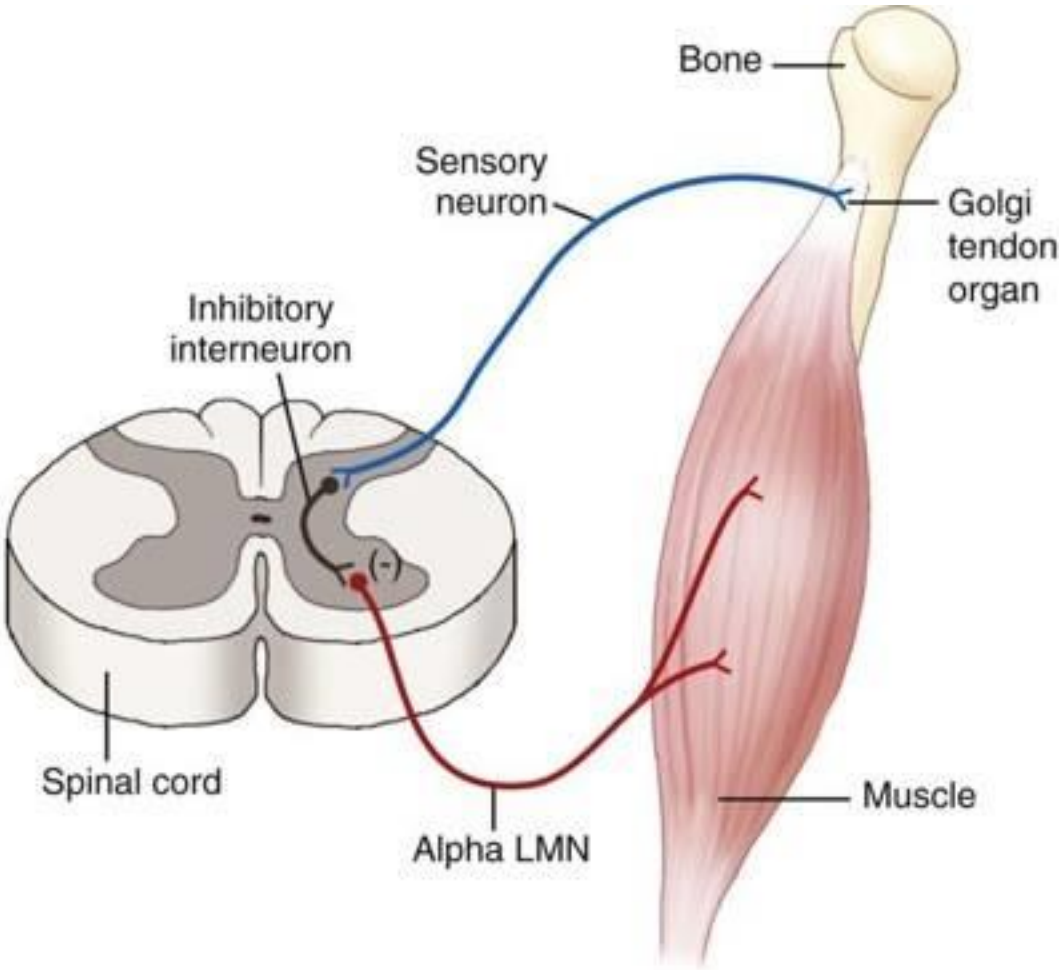
- https://www.youtube.com/watch?v=7T4NI_2qDEM&t=102s

“Training” the stretch reflex

- One of the reasons for holding a stretch for a prolonged period of time is that as you hold the stretch, the muscle spindle becomes accustomed to the new length and reduces its signaling.
- Gradually, you can train your stretch receptors to allow greater lengthening of the muscles.
- The GTOs can also be involved and assist the stretch process

- Useful resource
- http://www.mit.edu/activities/tkd/stretch/stretching_2.html#SEC13

The Golgi Tendon Organs



GTOs detect tension (force) in the muscle

- Don't panic re the technical terms!
- Videos also cover the stretch reflex

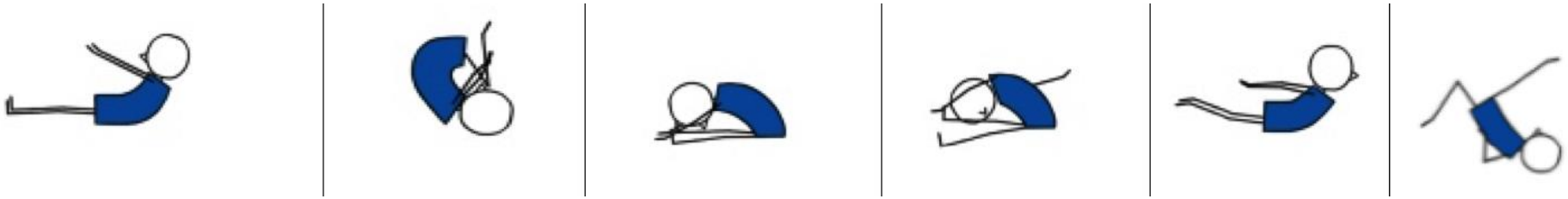
https://www.youtube.com/watch?v=oyiFIcFk9fo

https://www.youtube.com/watch?v=t6DhSK_1fio

Developmental Stretches

- Hamstrings
- Adductors
- Hip flexors
- **Others of choice** (e.g. pecs, anterior delts)

From the 34



Pick out all the exercises which you think could be suitable for inclusion in **CLOSE**

Relaxation – active or passive

- Guided – but no imagery!
- Use “tense – release”
- Focus on breath

Class Structure

- **Time of session**
- Typically 1 hour, however this may be adapted e.g. when dealing with private clients or working in leisure centres

- **Phases**
- Regardless of time available class should always include:
- Preparation, Main and Closing phases

- **Number of exercises**

    - **Beginner's class** (Levels 1-2) 10-15 exercises
    - **Intermediate class** (Levels 2-4) 15- 20 exercises
    - **Advanced class** (Levels 4-5) 20 plus exercises.

Main Phase objectives

- Instruction of Principles

- Scapular stability
- Pelvic stability
- Trunk stability

- Spine mobility
- Shoulder mobility
- Hip mobility

- Strength

Exercise repetition and flow

When planning classes in addition to exercise selection, you should also consider

Repetition/s

- Planning repetitions will help with timings. There should be enough reps to allow you to observe and correct – and for the participants to grasp the basis of the exercise

Flow and transitions

- Exercises should naturally flow from one position to the next and without the need to constantly get up and down from the floor or rolling side to side or back to front

Progressive principle: summary

- Frequency – how often?
- Intensity – how hard?
- Time – how long?
- Type or specificity – what type? specific gains from specific exercise (stabilisation, mobilisation, flexibility, strength)
- Progressive overload – build gradually
- Reversibility – ‘use it or lose it’

Progression and Regressions

Set up and ABC first

Change:

- Start positions – more stable before less stable
- Exercise intensity – use resistance and leverage, range of motion, repetitions,
- Exercise complexity – simple to more technical and complex

Consider:

- Start at appropriate level to meet client or group needs
- Progress gradually (the ladder of progression)

Adaptation to class

Change:

- Frequency – number of sessions attended per week
- Intensity – resistance and leverage, range of motion, repetitions,
- Time - Duration of class – 45 minutes to 60 minutes
- Type of exercises: objectives, complexity – simple to more technical and complex

General changes

- Preparation phase – longer to shorter
- Main phase – shorter to longer
- Closing phase – longer to shorter

- **Number of exercises (approximate)**
  - **Beginner's class** (Levels 1-2) 10-15 exercises
  - **Intermediate class** (Levels 2-4) 15- 20 exercises
  - **Advanced class** (Levels 4-5) 20 plus exercises

Adapting and progressing Pilates exercises: summary

- Start with basics
- Set up ABC Fundamentals in relation to the start position
- Begin with more stable positions, (e.g. Prone lying progressing to quadruped)
- Simple and isolated exercises initially, e.g. arm floats, seme supine knee floats
- Develop precision and flow
- Visualisation and imagery to encourage mindful movement
- Progressively add complexity, combinations (increase technical demands) and intensity
- Progressively build
  - Stable to less stable
  - Repetitions
  - Time under tension
  - Lever length
  - Resistance (bands, balls)
  - Difficulty level of the base exercise