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Overview

- Benefits of synching exercise with menstrual cycles
- Phases of menstruation
- Hormones & Physiology for each phase
- Recommended exercise suggestions per phase.....
- Studies/Evidence
- Menstrual irregularities
- Questions to ask your female clients
- Q&A

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Why Cycle Synching?

- Workout with hormones/infradian rhythm
- Maximizing workouts overall & long term
- Less discomfort.....
- Increased efficiency
- Possibly reduce risk of injury/depletion
- Manage symptoms of PMS
- Feeling better/more aligned, balanced & in tune

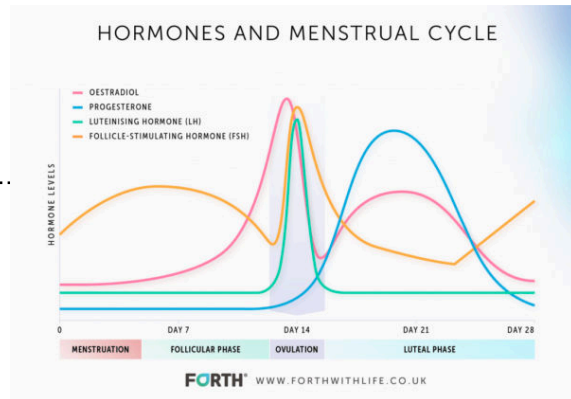
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Male vs Female Hormone cycles

- Males 24 hr hormone cycle
- Females 28 (ish) day hormone cycle.....
- Women left out of clinical trials until 1993
- We are not small males
- Menstrual cycles are 5th VITAL sign of health (ACOG, NIH)

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Female Hormone cycle



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Follicular Phase

- Estrogen rising
- Longest phase avg 16 days (varies greatly)
- Pituitary gland releases FSH - dominant follicle forms & releases more estrogen - triggers decrease in FSH - dominant follicle hits maturity
- End of phase: high estrogen triggers pituitary gland to release LH (activates mature egg & begin ovulation)

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Effects of Estrogen on the body

- Regulating menstrual cycle
- Sexual development
- Heart health
- Bone development & health
- Anabolic
- Mood regulation
- Higher pain tolerance & Improved muscle recovery

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Follicular Phase Recommendations

- Lifting heavy
- HIIT
- Regular programming
- Easily reach peak HR
- Study found improved performance in cycling time trial during late phase (surge in estrogen - suppressed progesterone)

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Ovulatory Phase

- Testosterone peaking
- Estrogen still high
- 2-3 days (16-32 hours)
- FSH & LH increasing - LH triggers body to begin ovulation
- Ovary releases mature egg
- Egg travels down fallopian tube towards uterus to be fertilized
- End phase: egg dissolves or dies if unfertilized
- Body Temp increases

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Effects of Testosterone on the body

- Increases muscle mass
- Healthy bones
- Promotes cognitive health
- Supports healthy libido or sex drive
- Decreases BF

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Ovulatory Phase Recommendations

- PR's
- HIIT
- New activities
- Mindful of knees

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Luteal Phase

- Elevated progesterone
- Progesterone and Estrogen highest at beginning
- Progesterone & Estrogen fall right before menstruation
- Egg (now corpus luteum) produces progesterone
- Avg 14 days
- Female athletes identify performance relatively worse during early late luteal/early follicular phases
- May fatigue quicker in hot/humid conditions
- RPE may be higher in latter stages

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Effects of Progesterone on the body

- Causes uterine lining to thicken (ready for fertilized egg to implant)
- Fatigue.....
- In conjunction w. Estrogen, forms equilibrium for peak bone density
- Catabolic properties

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Luteal Phase Exercise Recommendations

- High to moderate at beginning of phase
- Movement key to reduce symptoms of PMS
- Light/Moderate exercise in late phases.....
- Longer, lower intensity
- RPE & resting HR may be higher, peak HR lower
- Watch hot/humid conditions

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Menstrual Phase

- Shedding of uterine lining, unfertilized eggs, unviable embryos
- Within 2 days of menstruation, estrogen begins stimulating lining.....
- Avg 4-6 days, normal ranges 2-8
- Avg blood loss 30 mL

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Menstrual Phase Exercise Recommendations

- Reduction of intensity if needed
- Movement encouraged
- May opt for mobility, light/moderate cardiovascular and strength.....
(correctives/technical)
- VO2 max & other endurance measures lower
- Mindful of impact and sore breasts
- Modify if needed - permission

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Back/hip Mobility

- Cat/Cow
- Active dynamic 90/90 hip sequence
- Dynamic hip flexor/hamstring stretch
- Seated adductor stretch
- Static hip opening over block/foam roller
- Legs up the wall, option elevate hips

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Cat/cow



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Active dynamic 90/90 hip sequence



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Dynamic hip flexor/hamstring stretch



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Seated Adductor Stretch



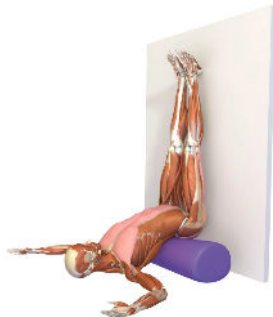
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Static Hip Opener Foam Roller/Block



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Legs up the wall



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The effects of 8 weeks of regular aerobic exercise on the symptoms of PMS in non-athlete girls

- Samadi et al, 2013, 40 non-athlete females aged 18-25
- "Symptoms of PMS greatly improved after 8 week aerobic exercise"
- Included physical and psychological symptoms
- Exercise can be used as effective treatment for PMS

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Exercise performance over menstrual cycle in hot, humid conditions

- ▶ Jonge et al, 2012, 12 recreationally active females
- ▶ Performance decreased (prolonged exercise) in luteal phase in hot, humid conditions
- ▶ No change in temperate conditions

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Effects of Follicular vs Luteal based Strength Training

- ▶ Sung et al., 2014, 20 women without OC
- ▶ Muscle strength, volume & microscopic parameters
- ▶ FP: increase in max isometric force, muscle diameter inc Type II fibres

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Effects of Follicular vs Luteal based Strength Training

- ▶ Kissow et al., 2022, ROL
- ▶ Studies indicate that resistance training conducted in the follicular phase may be superior to luteal phase-based training in terms of enhancing muscle strength and mass

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ACL Tears During Follicular Phase

- ▶ 2013 study, 172 patients, Lefevre et al, 2013
- ▶ Female recreational skiers
- ▶ ACL tears 2.4x frequent pre-ovulatory than post (follicular and ovulatory than luteal)
- ▶ Oral contraceptives provided no protective effect

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Injury Incidence Across MC in Int'l Footballers

- 4 year study on female international footballers, Martin et al, 2021
- Muscle and tendon injuries 88% higher in late follicular compared to early follicular or luteal
- Muscle and tendon injuries occurring twice as often in late follicular compared to other phases
- Many occurring during 'overdue' dates

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Sex differences in Knee Joint Laxity Across MC

- 22 females, Shultz et al, 2005
- Estrogen & Progesterone receptors present on ACL
- Significant increases in knee laxity in pre-ovulatory & mid-luteal (coincides with increase in estrogen and estrogen/progesterone)
- Changes 3-7 (avg 5) days after estrogen rise

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Menstrual Cycle Effects on Exercise-Induced Fatiguability

- Pereira et al, 2020, review of 46 studies
- 7 less fatiguability during luteal phase
- 8 less fatiguability during follicular phase
- Inconsistencies - limb, type of contraction, muscle mass engaged, & technique used

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Where to start?

- Spend 1-3 months tracking
- Monitor sets, reps, weights, PRs
- Include energy, mood, recovery, hunger etc.
- Note patterns - bring awareness
- Work with natural patterns & rhythms
- Program accordingly - adjust along the way if needed
- Permission
- Re-test in same phases

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Menstrual Irregularities

- Adenomyosis
- PCOS
-
- Endometriosis
- Female athlete triad syndrome
- Polymenorrheic (<21) / Oligomenorrheic (>35)

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Adenomyosis

- Lining of uterus grows into muscular wall of uterus
- Painful, heavy periods, painful intercourse
-
- Enlarged uterus
- Treatment: birth control, medication, surgery (hysterectomy)
- Refer: pelvic floor physiotherapy

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PCOS

- Cysts on ovaries
- Painful & irregular periods
- High androgen levels (excess facial & body hair), acne
-
- Larger ovaries, poor functioning ovaries, follicles on ovaries
- Increased risk of heart disease & insulin sensitivity
- CV exercise key to manage insulin and reduce CV disease

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Endometriosis

- 1 in 10 women
- Avg 7 years to diagnose
- Endometrial-like tissue grows outside of uterus
- Can affect surrounding organs and tissues
-
- Painful cycles and ovulation, cysts, infertility, painful intercourse
- Back pain common, heavy bleeding, digestive disorders
- Hormones, medication & Surgery treatment
- Refer Pelvic floor physiotherapy

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RED-S formerly Female Athlete Triad

- Relative Energy Deficiency in Sport
- Disordered eating; irregular menses; bone loss
- Imbalance b/w energy available & energy expended in sport
- Refer: sport or social psychologist

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Questions to ask female clients

- Is your cycle regular?
- Does your cycle limit what you can do exercise-wise?
- Do you skip or modify workouts because of your cycle?
- What medications do you take to get through your cycle?
- When is energy at peak? When is motivation highest?
- Have you seen a Pelvic Floor Physiotherapist?
- Have you been assessed by your doctor or health care provider?

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Birth control, post-menopausal considerations

- Birth control: may not see same trends
- Slightly reduced exercise performance
- Post menopausal: option to work with moon cycles
- Individualized approach best

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Who is cycle synching for?

- Clients who suffer from painful cycles & PMS
- Clients with endometriosis, PCOS or other menstrual irregularities
- Clients who are in tune with bodies and open to modifying workouts
- Clients who already track and understand their cycles
- Clients looking to work with their body's natural rhythms & cycles

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Summary

- Push when feeling energized
- Reduce intensity when feeling depleted
- High and low energy days normal
- Push during follicular & ovulatory
- Reduce during luteal & menstrual cycles
- Find patterns, track and note, strength log, re-test in same phase
- Ask questions to help guide female clients & give permission
- Communication is key!

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Thank You!

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