Perimenopause | Lesson I

Women's Health, Fitness, & Hormones

What's Included:

- Benefits of Exercise
- Key Hormone Changes
- Key physiological and orthopedic changes affecting exercise
- Key socialization influences and coaching techniques
- Cases studies for exercise Rx

Perimenpause defined

- The period of a woman's life that occurs just preceding menopause.
- A time when the level of hormones produced by ovaries fluctuate
- Undefined and unique to individual woman the range given is 4-10 years and most often beginning in her 40s (or earlier).
- Menstrual irregularity can be one of the first signs though for women on oral BC may be less definitive.

Candidates

The population now and future

The Numbers

- Largest and fastest growing market in the world with promise for the next 30 years
- 38 million boomer women(influencing)
- 25 million Gen X women
- Gen Y (Millennials) –Replaces the boomers as the largest generation it is going to have the largest cohort of women – entering perimenopause now
- Gen Z even larger predicted – 2045

IDEAL MARKET

- Know they have a problem
- Actively seeking a solution
- Have a sense of urgency
- Have money and are willing to invest

Benefits

Exercise benefits specific to perimenopause

Benefits of Exercise*

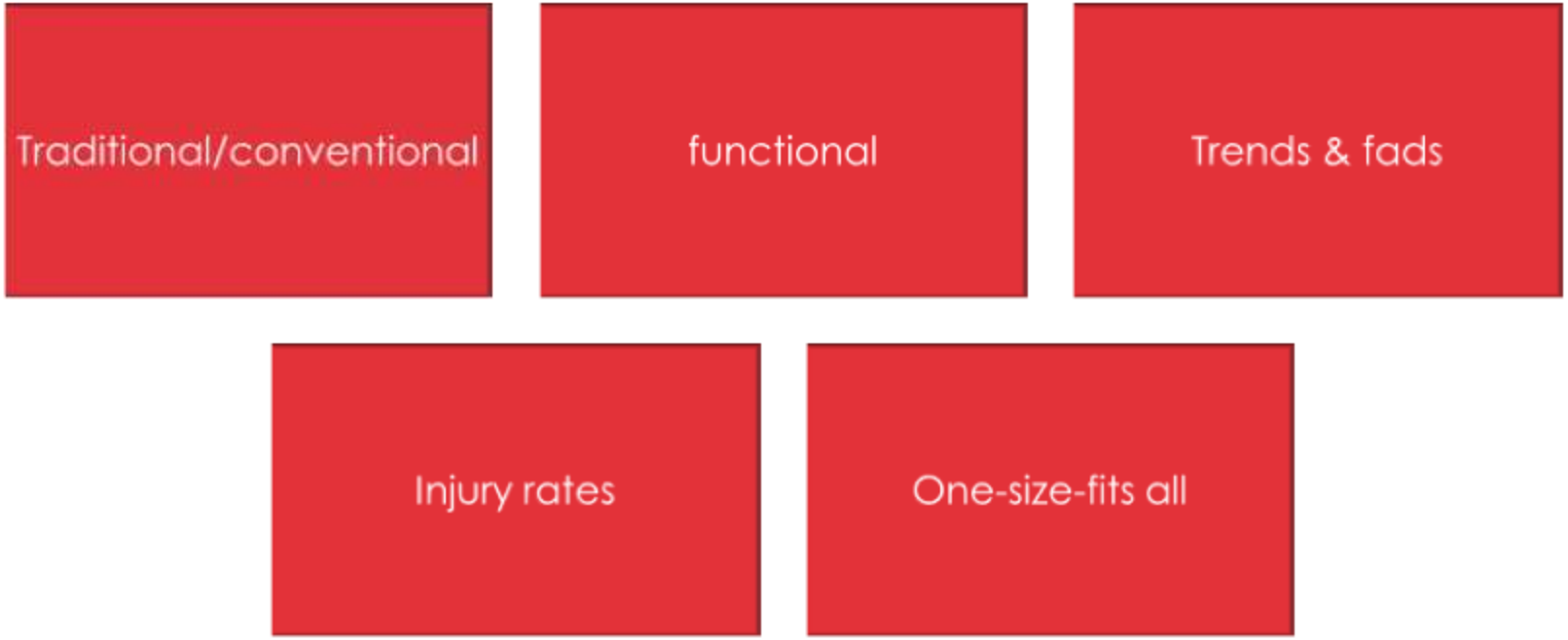
Signs & Symptoms	Exercise*
Hot flashes, night sweats	✓ Proper Ex Rx
Mood changes, anxiety, depression	✓ Proper Ex Rx
Forgetfulness	✓ Yes
Bone loss acceleration	✓ Proper Ex Rx
Sleep difficulties	✓ Proper Ex Rx
Weight gain, belly fat	✓ Proper Ex Rx
Weight loss resistance	✓ Proper Ex Rx

*there is no neutral: exercise will hurt or help hormone balance

Obstacles in the fitness industry

What could get in the way

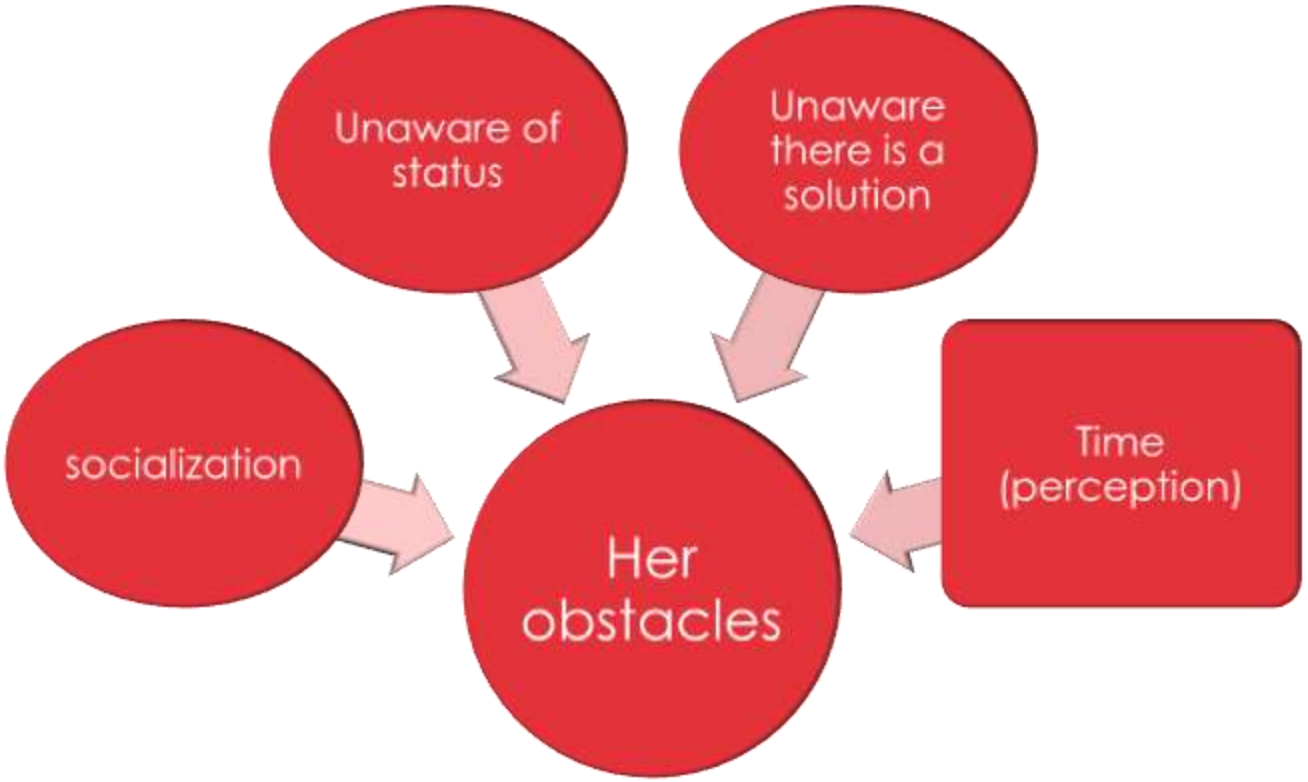
Singular Focus



Obstacles in the population

Limiting beliefs to regular exercise and change

Real or perceived



Next:

- Lesson 2
- The “Dirty Dozen” hormone influencers on and by exercise

Perimenopause | Lesson 2

Women's Health, Fitness, & Hormones

The New "Dirty Dozen"

Hormones that influence and are influenced by exercise

Cortisol

- stress hormone – measured/predicted **4 times a day** it has optimal levels that make us function well. Also the energy hormone.
- High intensity exercise late in the day can throw it off. Too much high intensity exercise w/o recovery will throw it off.
- Cortisol can… cause belly or upper arm fat, increase fat cell size, the number of fat cells, and relocate fat
- Teams up with insulin, when estrogen levels are high >belly fat
- **Fix:** Reducing the allostatic stress load. Eliminate, reduce, or balancing stress with joy. Balance with serotonin. MORE>>

More on Cortisol

Good levels of Cortisol

- Normalizes blood sugar
- Regulate immune and inflammatory reactions
- Regulates sodium and potassium
- Elevates blood pressure but moderated by calcium and magnesium
- Highest at 8am lowest 12-4am
- Wakes you naturally in the morning

Excess OR low Cortisol

- Sleep disorders
- Moodiness
- Decreased tolerance
- Decreased clarity
- Decreased memory
- Low in cortisol = Low blood sugar

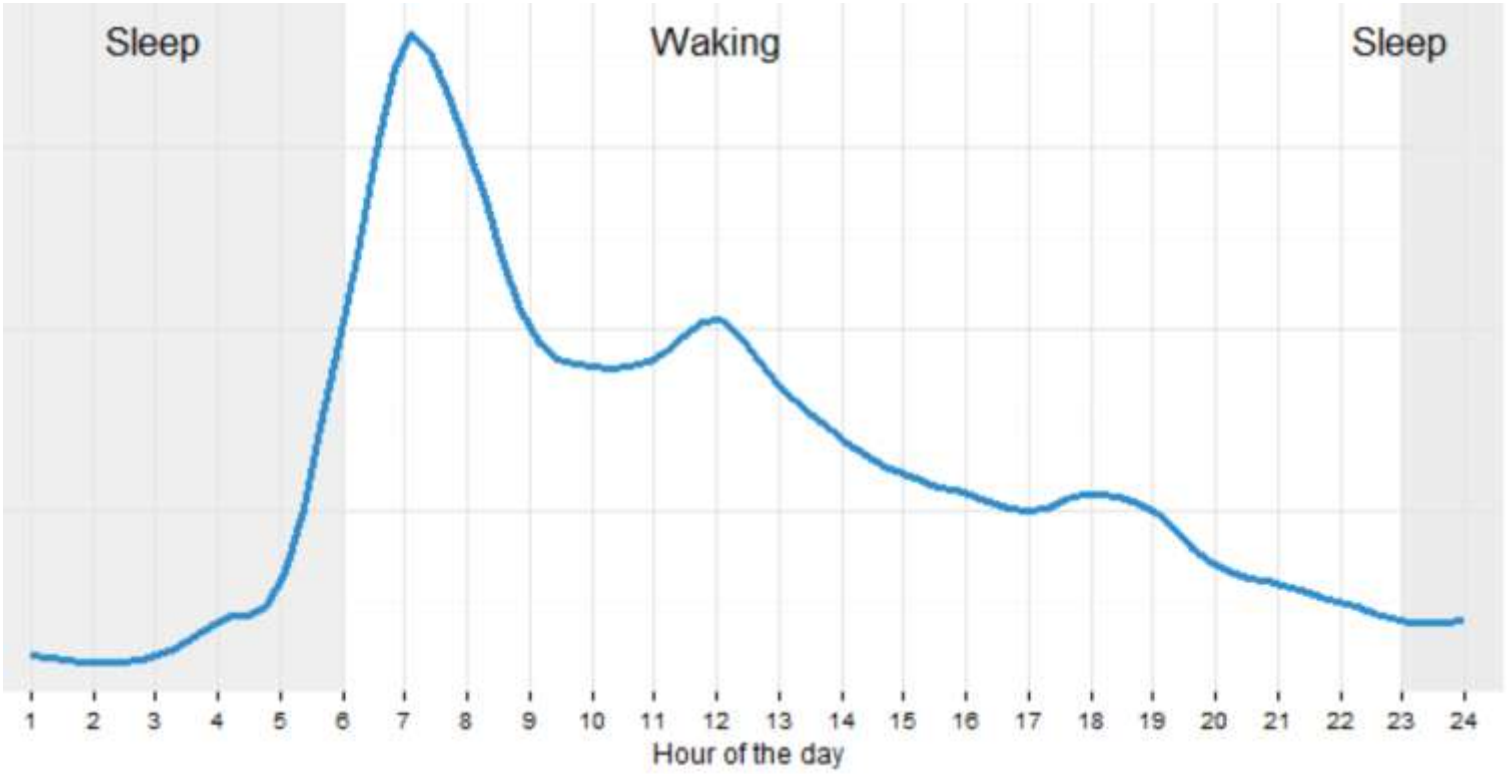


Image credit:Nagy, Tamás. (2015). Psychophysiological responses to distress and eustress. 10.13140/RG.2.1.5154.3207.

Insulin

- teams up with Cortisol to deposit fat in belly. Fructose and or regular snacking, dropping carbohydrates too low or too high and/or the wrong ones insulin STAYS up and fat metabolism halts
- insulin and cortisol together deposit fat in belly. (estrogen high*)
- Cravings caused by cortisol increase desire for carbs that rapidly turn to sugar>insulin>increasing cortisol, causing a vicious circle
- Pre-diabetes and insulin resistance are common during peri-to post menopause
- **Fix:** the right type of carbohydrates, at the right time, neither too low or too high, blood sugar stabilizing foods, eliminate grazing/snacking

Next:

- Estrogen
- Testosterone
- Progesterone
- Pregnenalone
- DHEA

Estrogen

- levels drop with peri and menopause – making body fat deposit at the belly easier… but it's not mandatory with the right habits, fat storage increases in bone protective response
- 3 types of estrogen and pathways that can effect risk of disease (breast cancer)
- Mistakes SHOW up in midlife …they're amplified. *Tons* of high intensity or low intensity exercise…neither one works. Trying to *torch calories and burn fat* when you're already exhausted mean your adrenals pump out more and more cortisol until they don't or it's resisted. "Adrenal fatigue" or risk thyroid issues, or mistakenly are put on thyroid meds when it's the body in balancing mode: Adrenals go high, thyroid goes low in response. More>>

More on Estrogen

Too Low

- Hot flashes
- Night sweats
- Brain fog

Too High*

- Weight gain
- Fat storages
- Skin issues

Fix: 1)Foods that are naturally high or low in estrogen; 2)decreasing stress-related cortisol (for high "relative" estrogen); 3)herbs that naturally influence estrogen

Testosterone

- Too low also causes hot flashes or night sweats
- inability to create lean muscle
- Too low = low libido
- Can be too high due to dose of testosterone hormones or habits
- **Fix:** right exercise type, time, and dose- heavy weights or to fatigue (muscle fatigue vs. tired), avoid endurance exercise, do short interval training no more than 40-45 minutes total/week; Adequate protein, reduce sugar and alcohol; sleep/decrease stress/cortisol

Next:

- Progesterone
- Pregnenalone
- DHEA

Progesterone

- …and estrogen should be in balance.
- But cortisol Blocks progesterone so "estrogen dominance" results
- Hot flashes, and night sweats? Low or high* estrogen (relative to progesterone) can cause.

Fix: Clean diet, more antioxidants, reduce stress from all sources, or balance it. (client education: leverage coaching)

Pregnenolone

- Inhibits cortisol
- Enhances testosterone as a result
- Supports brain function, sleep, mood and may help decrease anxiety and depression
- Adequate levels help exercise produce cortisol for energy ("intervals early" to avoid late day stimulation that could interrupt sleep)
- Precursor to both the "sex hormones" AND cortisol
- "pregnenolone steal" during times of extended stress (to cortisol production and away from sex hormones)

DHEA

- Precursor to sex hormones testosterone, estrogen
- Tied to muscle, longevity, energy, strong immune system, optimal sleep
- Production decreases with age
- Signs of low DHEA mimic cortisol
- Together with cortisol regulate glucose, insulin, inflammation and also affect sex drive, sleep and stamina.

Next:

- Ghrelin
- Leptin
- Glucagon
- Adiponectin

Ghrelin

- the hunger hormone
- Follows cortisol's lead: poor sleep will usually result in ghrelin- caused cravings

Fix: Sleep to reduce negative effects of stress, allowing hungry before eating – not imposing a snack time, stop the 5-6 mini meal time. Not overdoing exercise (or underdoing) then over compensating.

Leptin

- the satiety hormone –stopping when you're full is ideal but if leptin is absent there is no "full" signal
- Poor Ghrelin and leptin together are a bad combination
- A fraction of a percent of people have the opposite: ***early satiety*** which is too much leptin. Often those who have it are obese, eating far less than most people yet storing fat and unable to mobilize and metabolize fat stores

Fix: practice portion control, stop when hunger is gone; for early satiety late day exercise is best

Glucagon

- If insulin increases fat storage, glucagon increases fat burning
- increases with fasting by 2000 x after 24 hours**

Fix: exercise, adequate protein, Intermittent Fasting(IF) or Fasting Mimicking Diet (FMD)

- question IF for women already susceptible to the negative effects of cortisol: start with a fast 12 hours minimum over night and between meals. Fast lightly with more liquid meals to give the body a break and absorb more nutrients

Adiponectin

- helps fat oxidation
- Higher levels improve insulin sensitivity
- low levels are associated with increased obesity.

Fix: Fiber, magnesium, healthy fats. (within scope of practice to ask about food and supplement intake and share knowledge)

Next:

- Growth Hormone (human growth hormone)
- Insulin Like Growth Factor IGF-1

Human Growth Hormone

- stimulated by: heavy strength training
- high intensity exercise
- power movements
- produced during deep cycles of sleep
- Production falls with age

Insulin-like Growth Factor IGF-1

- similar to insulin
- stimulated by the same activities as HGH
- Responsible for repair from exercise damage and associated with longevity.
- Low levels – high inflammation
- High levels – risk of cancer
- Inhibit (fasting, intense walking, reduced calories/protein)
- promote (adequate calorie, protein, fat, optimal cortisol, GH, DHEA)

Next:

- Melatonin
- Serotonin
- Oxytocin

Melatonin

- hormone that regulates sleep.
- Production is reduced in older adults.
- Exposure to sunlight the first 15 minutes after waking can boost melatonin at night
- Melatonin is not directly effected by exercise, but with low melatonin levels reducing sleep, exercise ability or safety is effected.
- Clients who take melatonin should be aware there's a delayed response that if taken too late will make them groggy or hung over in the morning. Taken about 90 minutes before bedtime works best for most.

Serotonin

- the happiness hormone
- helps offset negative effects of stress, reducing overall stress load
- supports gut health and cardiovascular health in addition to mood disorders like depression and anxiety.

Fix: exercise, sunlight, "venting" and carbohydrates (right type and timing)

FLIP: low carb diets may sabotage women in hormone imbalance, adding more complex resistant starches can aid weight loss

Clarification:

- The statement in the video lesson 2.6 at about 6 minutes may have been confusing.
- SSRI's don't cause *reduced* serotonin, they *enhance* it, when prescribed, just as exercise, sunlight, and venting can also do for women.
- Please reach out if there was any confusion around this slide or particular audio.

Oxytocin

- The “cuddle” hormone
- If oxytocin is elevated, cortisol decreases

Please note: During the narration of this slide, the author accidentally says, "*High Thyroid*" when she should have said, "*High Cortisol*."

Adrenal & Thyroid Glands

- Adrenal glands enable the body to deal with stress from all possible sources (exercise, diet, emotions, disease, injury, illness, relationships). Produce cortisol in response to stress.
- Fight or flight response (epinephrine and norepinephrine) is no longer normal for acute stress but chronic and constantly "on" in our contemporary lives
- Resilience, energy, endurance depend on proper adrenal function
- Thyroid regulates thyroid hormones which determine the body's energy use (and other functions). A balance between stress and hormones has to exist. Significant damage is done before detected by lab tests. Warning signs exist. Listen to your client.
- Adrenals high, thyroid low: nature may result in a diagnosis warranting medication without recommending lifestyle change (you're important!)

Next:

- Describing hormone balance in order to have a basis for recognizing imbalance

Hormone Balance

What does optimal look like

Signs of Hormone BALANCE

- Hourglass figure
- Bone density protected
- Exercise reaps rewards in lean muscle and fat loss
- Appetite and satiety are normal
- Cravings are minimal
- Sleep is restful
- Energy is stable throughout the day
- Skin tone and elasticity is good
- Mental focus, clarity, productivity is good
- Libido is good
- Optimistic, stable mood

- Estrogen- progesterone
- Cortisol>ghrelin-leptin
- Testosterone
- Growth hormone
- Cortisol – oxytocin/serotonin

Signs of Hormone *Imbalance*

- Weight gain at the belly, hips, upper arms
- Bloating, gas, constipation, diarrhea
- Cellulite
- Crepe skin, lack of muscle tone even with exercise
- Fatigue
- Sleep issues
- Stress Intolerance
- Lack of Libido
- Weight Loss for no reason*
- Brain Fog, poor memory
- Cravings, lack of satiety
- Early satiety*

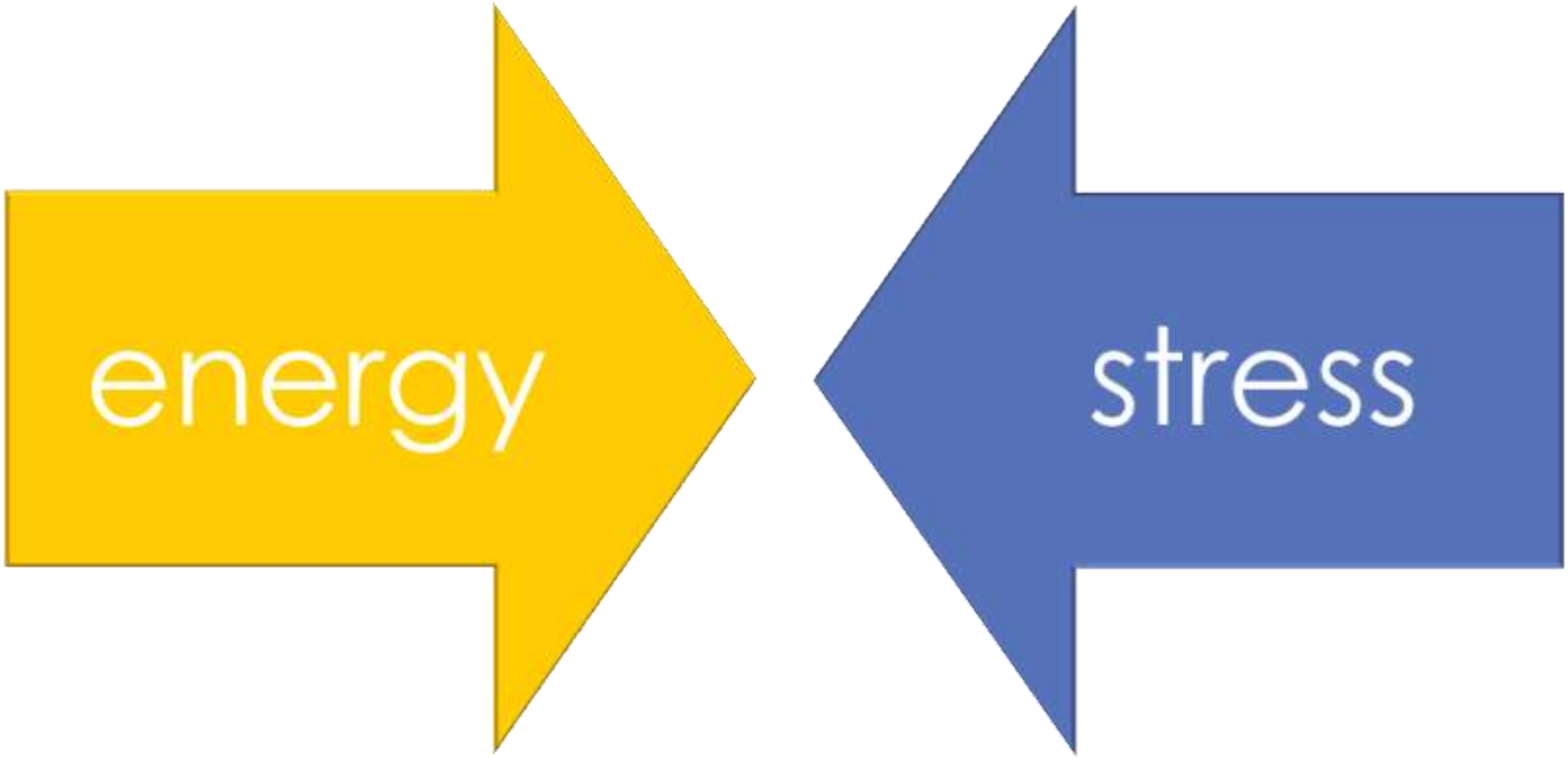
(Common) Hormone Imbalances

- Estrogen Dominance (cortisol blocking progesterone)
- Low Estrogen
- Low Testosterone (and Growth Hormone)
- Leptin Resistance
- Insulin Resistance (with high or low cortisol)
- Hypothyroidism
- Adrenal Fatigue (Termed: HPA axis dysfunction)

The Complex Effect of Cortisol

Energy and Stress

Sweet spot



Next:

- Exercise interventions for Hormone Balance

Exercise Interventions

Soft Protocols

Time of Day

Intense Early

Light Late

Type of Exercise

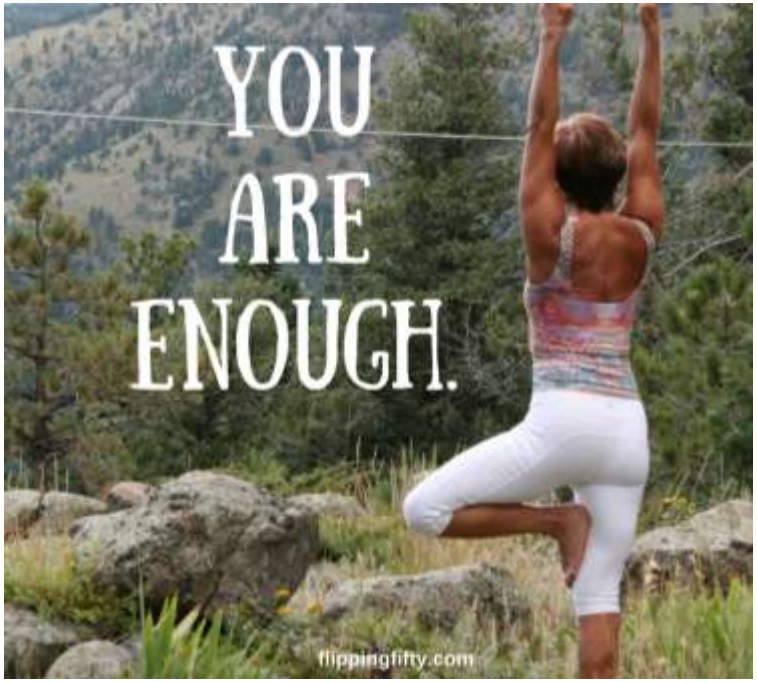
"Cardio" rethink

Strength Training

Intensity of Exercise

Breathless & Fatigue

Recovery



*for hot flashes: Adequate intensity is a must

Quality vs. Quantity Exercise

Quota

Individual Response

Exercise Environment

Next:

- Take the quiz (end of lesson 2)
- Lesson 3
- Common conditions, complaints, exercise interventions

Perimenopause | Lesson 3

Women's Health, Fitness, & Hormones

Conditions Complaints, Injuries

Common in Perimenopause

Conditions

Common concerns

Arthritis

- 1 in 4 women (compared to 1 in 5 men)
- Hands and knees are most common
- First signs show up as estrogen levels begin to drop
- Education around inflammatory +/- foods
- Altering Ex Rx

Fibromyalgia

- 80-90% of Fibromyalgia patients are women (National Institute of Arthritis and Musculoskeletal and Skin Diseases)
- Believed reversible
- *Associated* with autoimmune disorders, often treated as one

Fibromyalgia

- Fibromyalgia is not an autoimmune mediated disease. The causes are not completely understood. Rheumatologists have been the specialists that have usually cared for FM patients. It is now considered a disorder of the nervous system with altered processing of pain signals. It is 6 times more common in women than men and the incidence increases with age. Women reaching perimenopausal age are more prone to it. Women who have fibromyalgia tend to get worse during perimenopause and post menopause. It is not yet known if that is due to the sleep disruption that can commonly occur or if it is due to hormone shifts directly.

Prolapsed uterus or bladder

- Weakened pelvic floor, time and or previous pregnancies
- Literal sagging can lead to protruding from the vagina
- Constipation
- Obesity
- Pelvic floor exercise, avoidance of traditional core exercise
- Hormone therapy

Repetitive Postures & Movements

Cumulative effect of daily life

Plantar fasciitis

- Related to changes in estrogen
- Decrease in layer of fat on foot
- Years of cumulative effect of high heels, running
- Sudden increase in activity in effort to get the weight off

Carpal tunnel syndrome

- Currently only suspected not confirmed hormone alone
- Wrist ratio
- Narrow outlet
- Look at habits and both work and leisure activity

-itis (tendinitis/bursitis)

- Overweight
- Overuse
- Poor posture or misalignment
- Hip
- Elbow
- Previously mentioned wrist
- Achilles

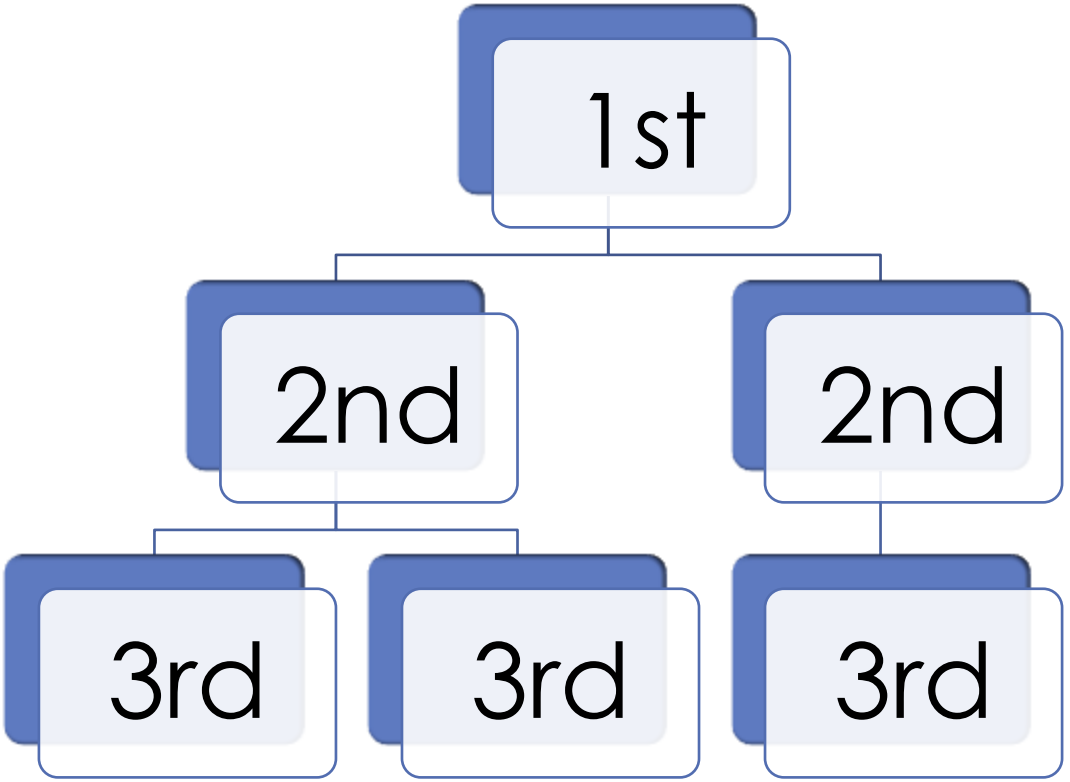
Next:

- Exercise Interventions for injuries, conditions, complaints

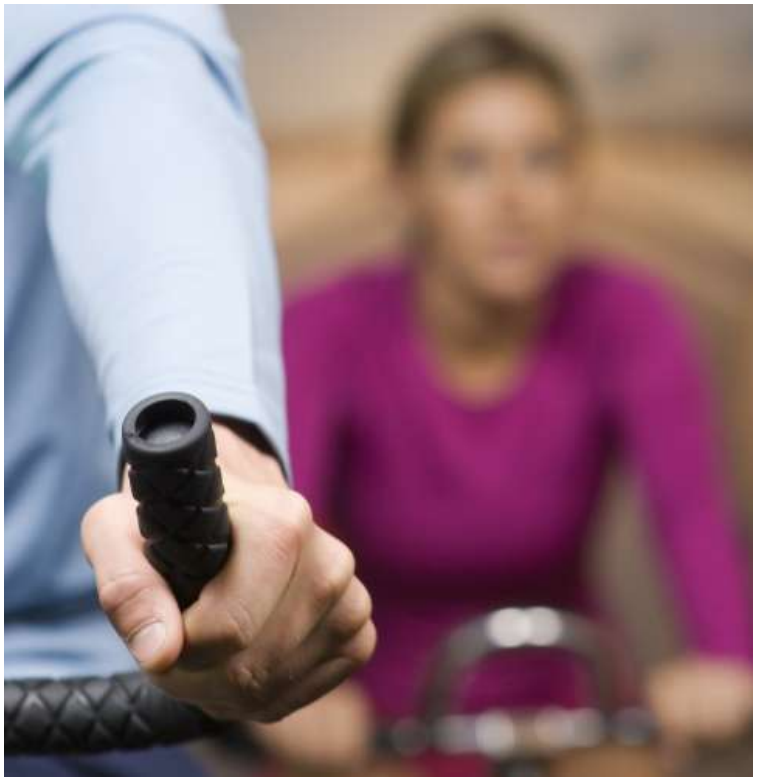
Exercise Intervention Strategies 2

Special situations

Targeting the highest priority



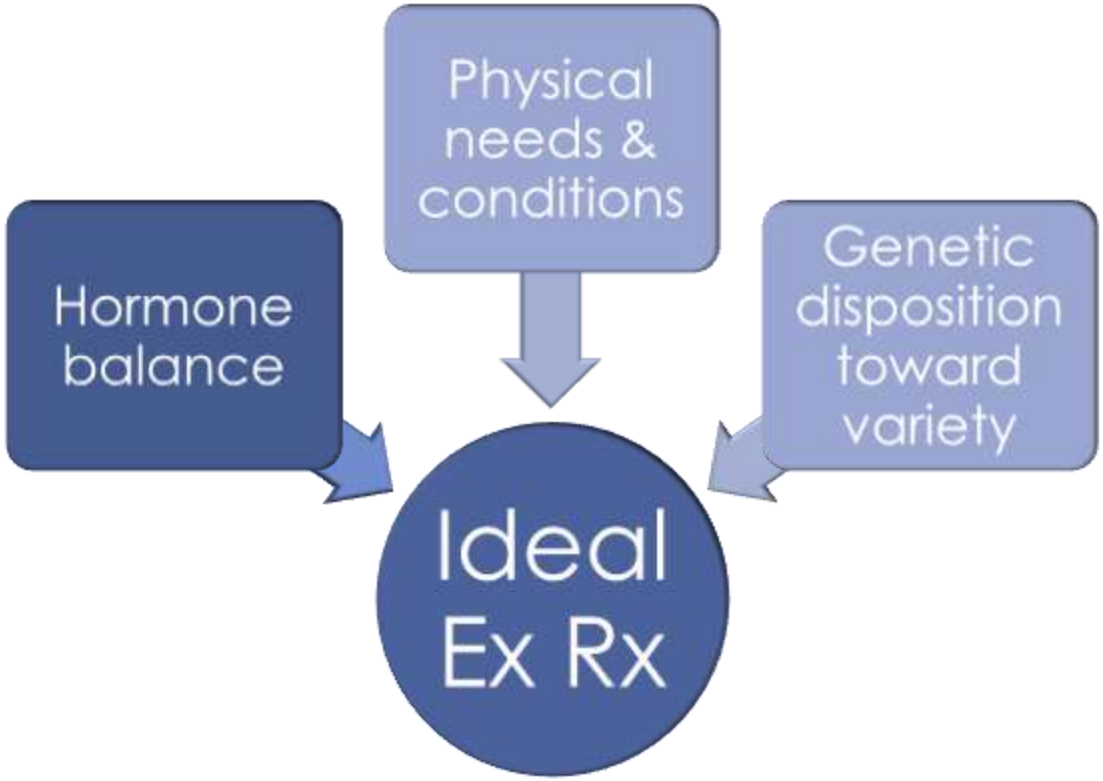
Low Impact



- Does not mean low intensity!
- Selected by both interest and specific condition
- S.I.T. vs HIIT for post menopause likely to be applicable for perimenopause

Source:https://link.springer.com/article/10.1007%2Fs00421-019-04087-9

Variety


Physical needs & conditions
Hormone balance
Genetic disposition toward variety
Ideal Ex Rx

Attention to Detail

- Movement screening
- Pulling exercises
- Locking knees
- Retraction
- Pelvic position

Next:

- Lesson 4
- Integrated Assessment & Programming

Perimenopause | Lesson 4

Women's Health, Fitness, & Hormones

Integrated Assessments & Programming

Common in Perimenopause

Client Self-Assessment

The more you measure the more it matters

Signs & Symptoms

Checklist

- Stress
- Fatigue
- Brain fog
- Low Energy
- Lack of Appetite
- Cycle status

(then rate 0-5)

- Cravings
- Digestion – gas, bloating
- Elimination – constipation, diarrhea
- Low Libido
- Insomnia
- Weight gain

Self-Assessment Interpretation

Create the educational value of testing

Adding It All Up

- The signs & symptoms
- The current workout
- The length of signs & symptoms
- What have you tried?
- What happened?
- Have you lab tested? Discussed with your physician?

Lab Assessment Norms vs. Optimal values

Beyond general values

- "Norms" include a large population of people who don't feel well
- An individual's self-assessment together with labs is the the best combination
- What's "normal" for them? Have they benchmarked labs when they feel "good"?
- Functional and Western medicine often test differently
- Approach from a root cause or from a standardized test
- "The body never lies"
- An understanding of lab interpretation when you've had labs yourself, you understand the levels and the optimal levels

- Your knowledge of labs should depend on the level and depth of coaching you wish to pursue with your client.
- Knowledge of a variety of standardized tests that exist and an awareness that "norms" may not reveal a level of "thriving" is a first step.
- Awareness that treatment of signs & symptoms varies from discovery of the root cause or "why" of the signs & symptoms. From lifestyle medicine, to preventative, functional, integrative, and mind-body medicine there are varied health approaches your client may choose.

Types and methods

- Blood tests
- Saliva tests
- Urine tests
- Hormone levels
- Micronutrient levels
- Cardio metabolic panel
- Heavy metals
- Stool tests
- Leaky gut
- Food sensitivity
- Micotox (mold) exposure
- Self-directed vs. insurance
- DNA/genetic testing

Next:

- Perimenopause Module 5 Exercise Trends Effects on Perimenopause

Perimenopause | Lesson 5

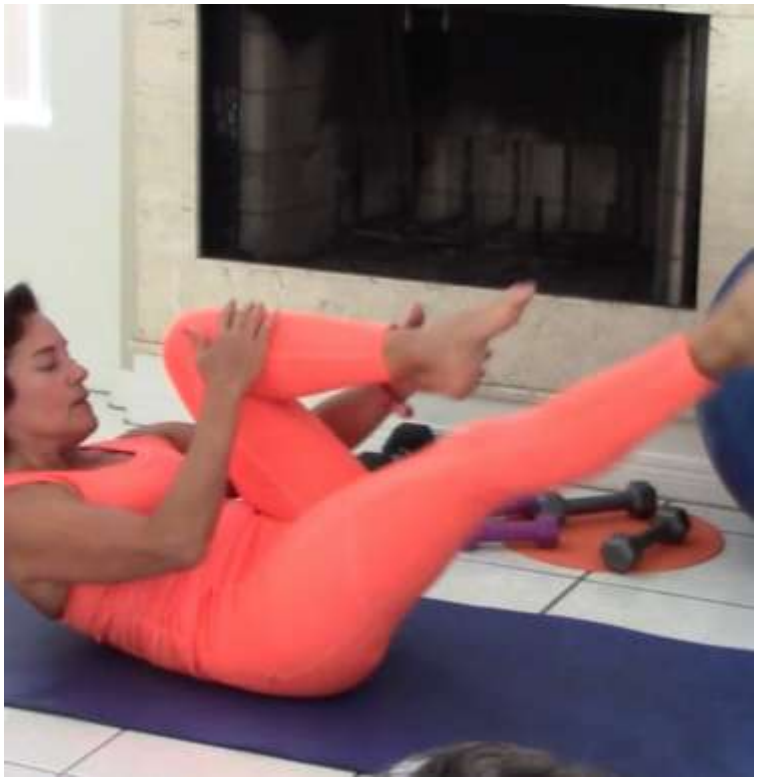
Women's Health, Fitness, & Hormones

Effects of Popular Fads & Trends on Perimenopause

Common in Perimenopause

Yoga & Pilates

Mindbody or more?



- Jan 2020 study published showing single bout of Pilates reduced acute high blood pressure
- Shows promise for alternative exercise for HBP patients
- A 2013 study showed Yoga improves memory better than conditioning exercise.

Bootcamp, Crossfit

High Intensity

- Injury rates rise 544% coinciding with popularity of HIIT
- Maximum of 45 min a week recommendation given for injury risk reduction
- AMRAP, EMOM concerns

Fusion

Blending benefits or blurring results?

Split Routines

Metabolism boost or bust?

Walking

Exercise or movement?

Next:

- Perimenopause Module 6
- Exercise Nutrition During Perimenopause

Perimenopause | Lesson 6

Women's Health, Fitness, & Hormones

Exercise Nutrition During Perimenopause

Identifying need for change

Calories vs. Hormones

Fat burning & fat storage

Rerouting

- Calories don't control metabolism, hormones do
- Calories don't' control what kind of weight you lose (fat or muscle), hormones do
- Calories have little control over hunger, cravings, appetite, energy, hormones do
- Balancing hunger, energy, craving levels is unique to individuals
- There are patters among women socialized similarly and with fluctuations in hormones
- Adjusting to both hormones and resisting norms

Food Allergies vs. Food Sensitivities

Testing

Food allergies and beyond

- 10x the prevalence now compared to 35 years ago
- And yet sensitivities fly under the radar
- Predominantly females reporting food sensitivities
- Relatd to hormones after puberty
- Bloating, gas, weight loss resistance

- Milk
- Eggs
- Peanuts
- Tree nuts
- Soy
- Wheat
- fish, shellfish

Sources: Food Allergy Research & Education (FARE), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5746020/

Micronutrient Sufficiency

Compliance boost

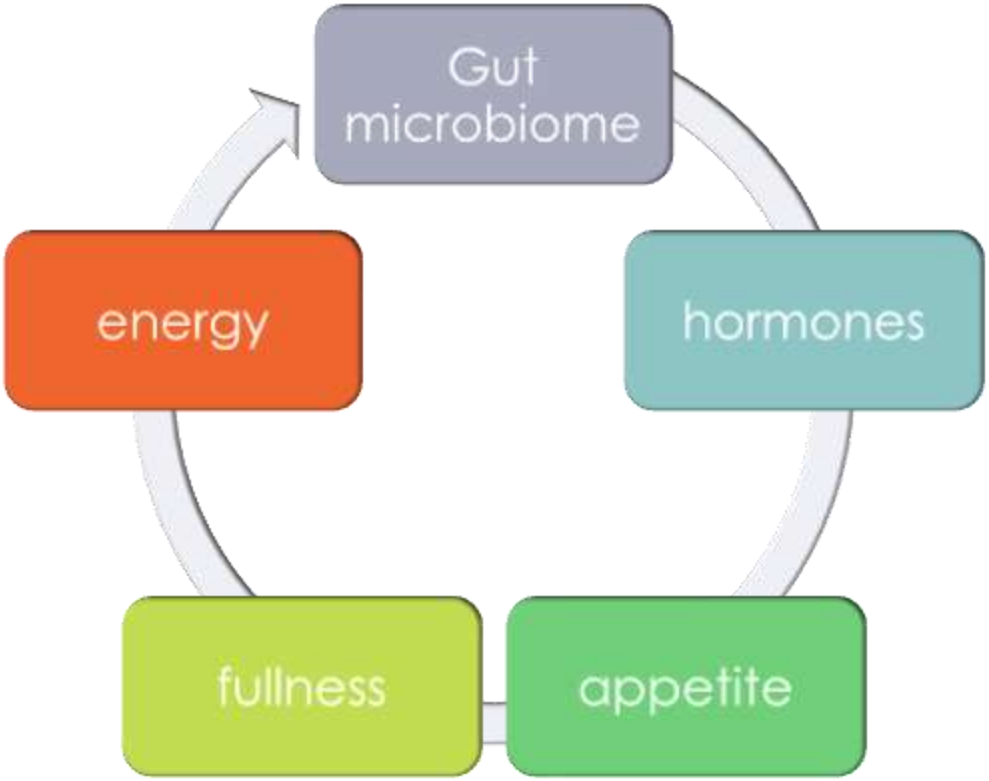
Worth a discussion

- Omega 3 – 90% deficient
- Magnesium – 80% deficient
- Vitamin D – 70% deficient
- B vitamins – stress
- Every day depletion by habits

Gut Health – Hormone Relationship

The gut-brain relationship

Gut><hormones><exercise<>gut…



Source: https://www.ncbi.nlm.nih.gov/pubmed/24892638

Coaching Scope of Practice

Nutrition for Personal Trainers & Coaches

Coaches Do

Actions

- Educate
- Inform
- Share
- Awareness of options
- Collaborate a list of questions for practitioner

Coaching Approach

- Are you aware of … research?
- Have you considered..?
- Is that something you want to explore?
- Blueprint

Next:

- Take the quiz
- Case studies
- Push Pause
- Compare your plan and make note of any section you want to review

Perimenopause | Lesson 7

Women's Health, Fitness, & Hormones

Case Study: Connie

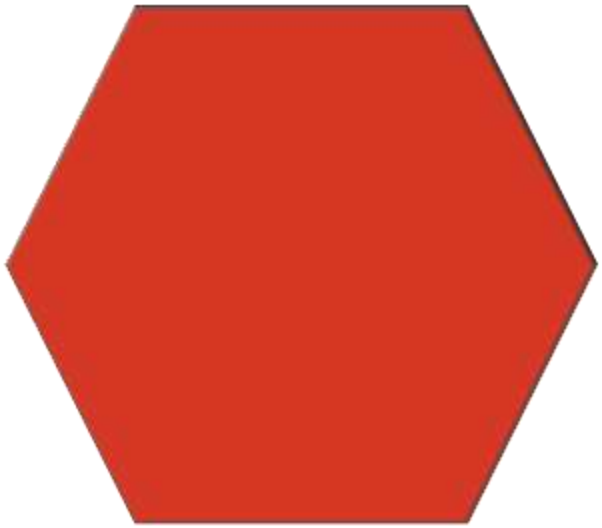
Status

- Loves exercise, never misses
- Not sleeping long enough
- Skips meals or replaces with smoothies often, resorts to same foods
- Always interested in "superfoods"
- Stressful job as hospice nurse
- Menopause +1 year

Complaints

- Can't lose belly fat specifically
- Always tired

Create a plan



Connie First steps: cortisol

- Variety and diversity in meals
- Prioritize sleep (earlier)
- Reduce intense exercise for a week and evaluate how you feel
- Micronutrient testing (physician referral or self-directed)
- Cortisol testing (physician request or self-directed)
- Thyroid testing (physician request or self-directed) including T3, T4 and antibodies

Case Study: Michelle (53 yrs. old)

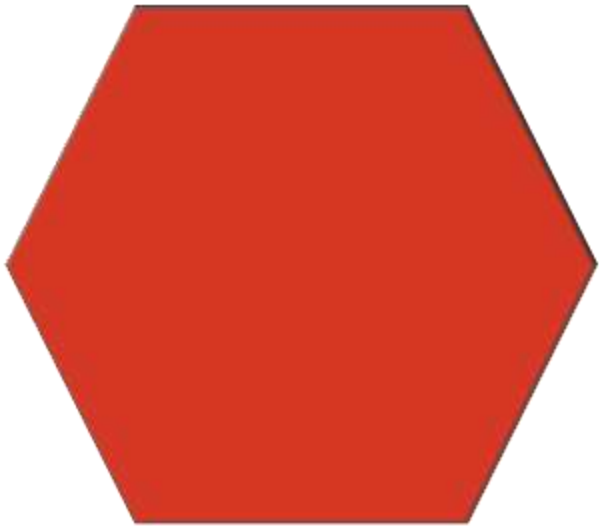
Status

- Prior fitness instructor
- Always goes hard, whenever active "get a good workout" is mantra
- Injured- chronic plantar fasciitis
- Defaults to same foods weekly

Complaints

- Belly fat
- Always tired
- Low libido

Create a plan



Michelle First Steps

- Planned rest days and recovery workouts
- Introduce yoga or Pilates to gain compliance
- Improve diet – voluntarily or suggest:
- Micronutrient testing
- Educate: Plantar fasciitis and hormones may be correlated, so some activities done prior may no longer be tolerable
- Cortisol testing

Case Study: Carrie

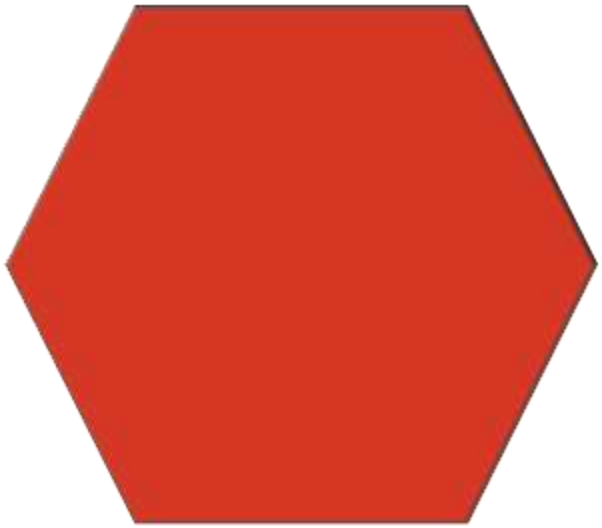
Current status

- CEO in a busy city
- Coffee through am and all day, no breakfast, barely eats lunch, and dinner is sporadic
- Walks 4 miles every day
- Goes to bed late, up early

Complaints

- "Exercise all the time" and "barely eat" and can't lose belly fat

Create a plan



Carrie First Steps

- Decrease her allostatic stress load (i.e., total all-source stressors) as her cortisol levels are currently high and/or low requiring the additional coffee for her
- Reduce coffee to 2 cups a day, substitute matcha or mushroom drink
- Start eating a high-protein, antioxidant-rich breakfast in the morning (it is important to not just emphasize breakfast, but to add micronutrient-dense calorie choices to most if not all meals)
- Replace afternoon coffees with water
- Add short weight training sessions to boost energy, and offset adrenal fatigue, without increasing stress load that might otherwise occur with long bouts of exercise

Next?

- Congratulations!
- Your next step is the Menopause Module where you'll review some of the information here, apply it specifically to the menopause transition, and consider new changes specific to menopause
- Before you move on review any quiz Q and A to be sure you understand Perimenopause and Exercise for your clients.

Recommended Readings:

- *Adrenal Fatigue – James L. Wilson*
- *The Adrenal Reset Diet – Dr. Alan Christianson*
- *The Hormone Fix – Dr. Anna Cabeca*
- *You Still Got It, Girl! The After 50 Fitness Formula for Women – Debra Atkinson*
- *Hot, Not Bothered: 99 Daily Flips to Slimmer, Trimmer, Fitter Faster So You Can Master Metabolism Before, During, and (long) After Menopause – Debra Atkinson*