



Advanced Strategies for Exercise Recovery

PRESENTED BY

ISSA's John Bauer and Jenny Scott



What We are Covering Today?

What is exercise recovery?

What are we recovering from?

Recovery modalities

Wearable technology

Recovery guidelines by therapy

What is exercise Recovery?

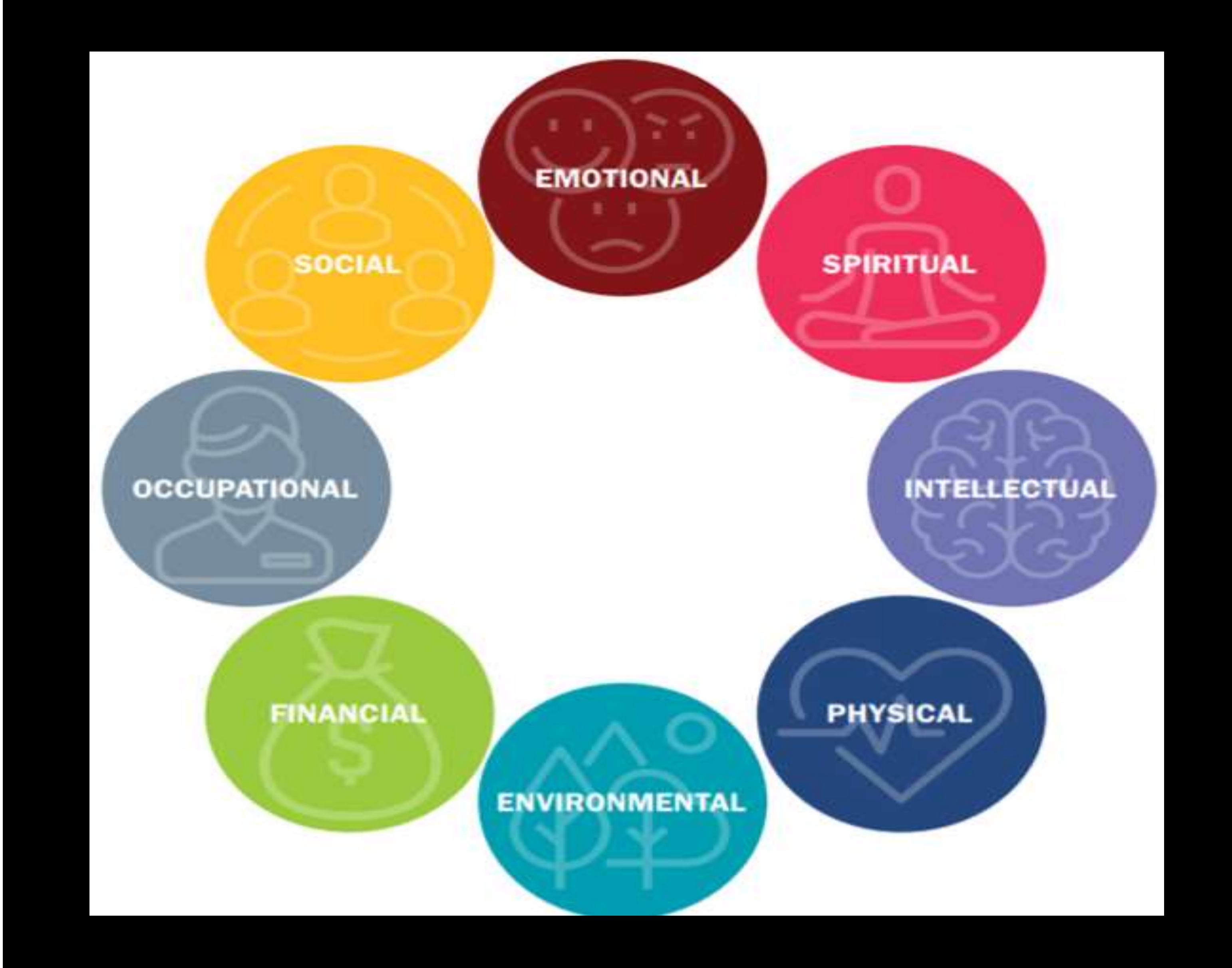
Critical piece of driving results and preventing injury

A way to mitigate the stressors we encounter

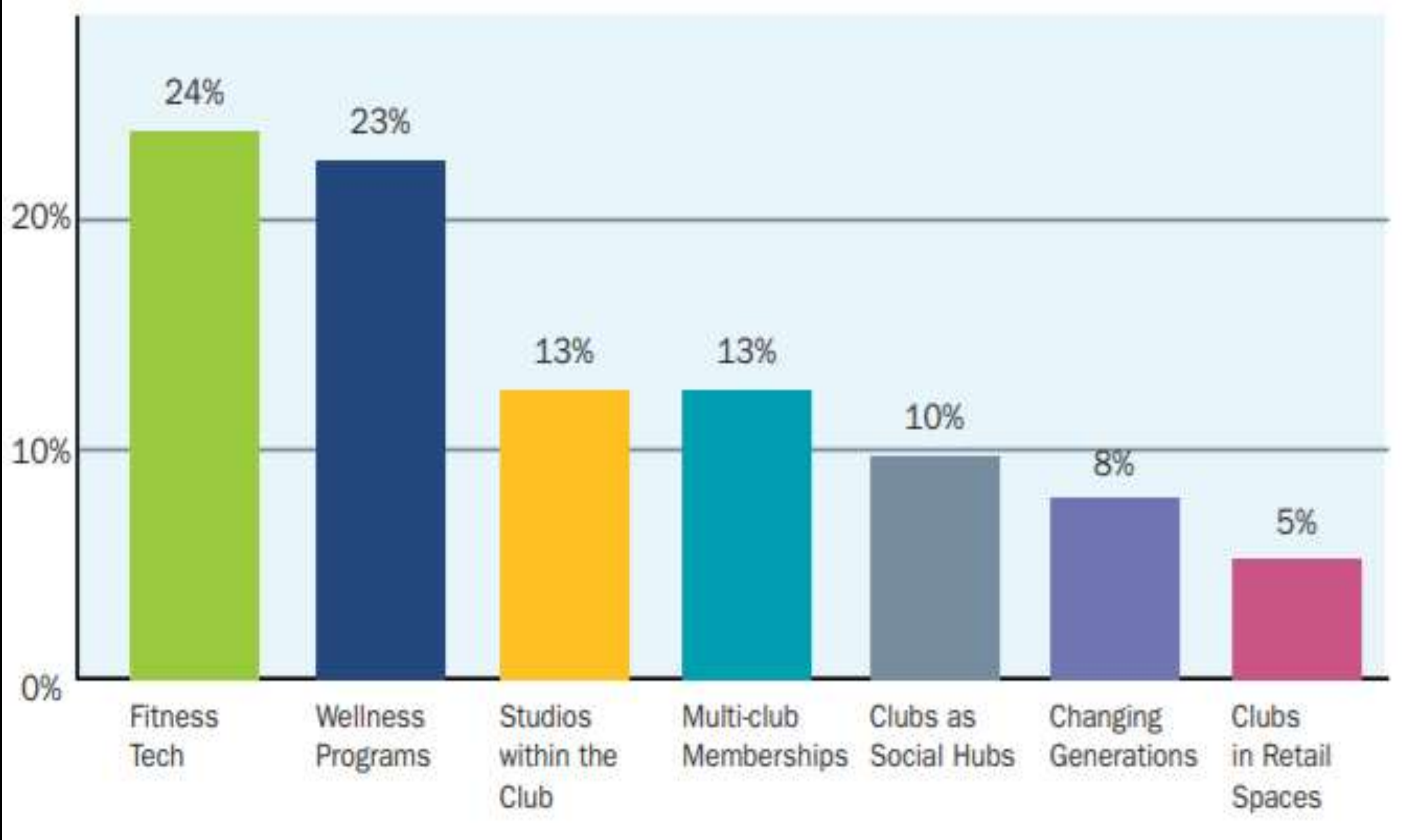
Sports, high-intensity training, and in some cases simple training programs are done to excess.

Fatigue and poor performance are symptoms

What is exercise Recovery?



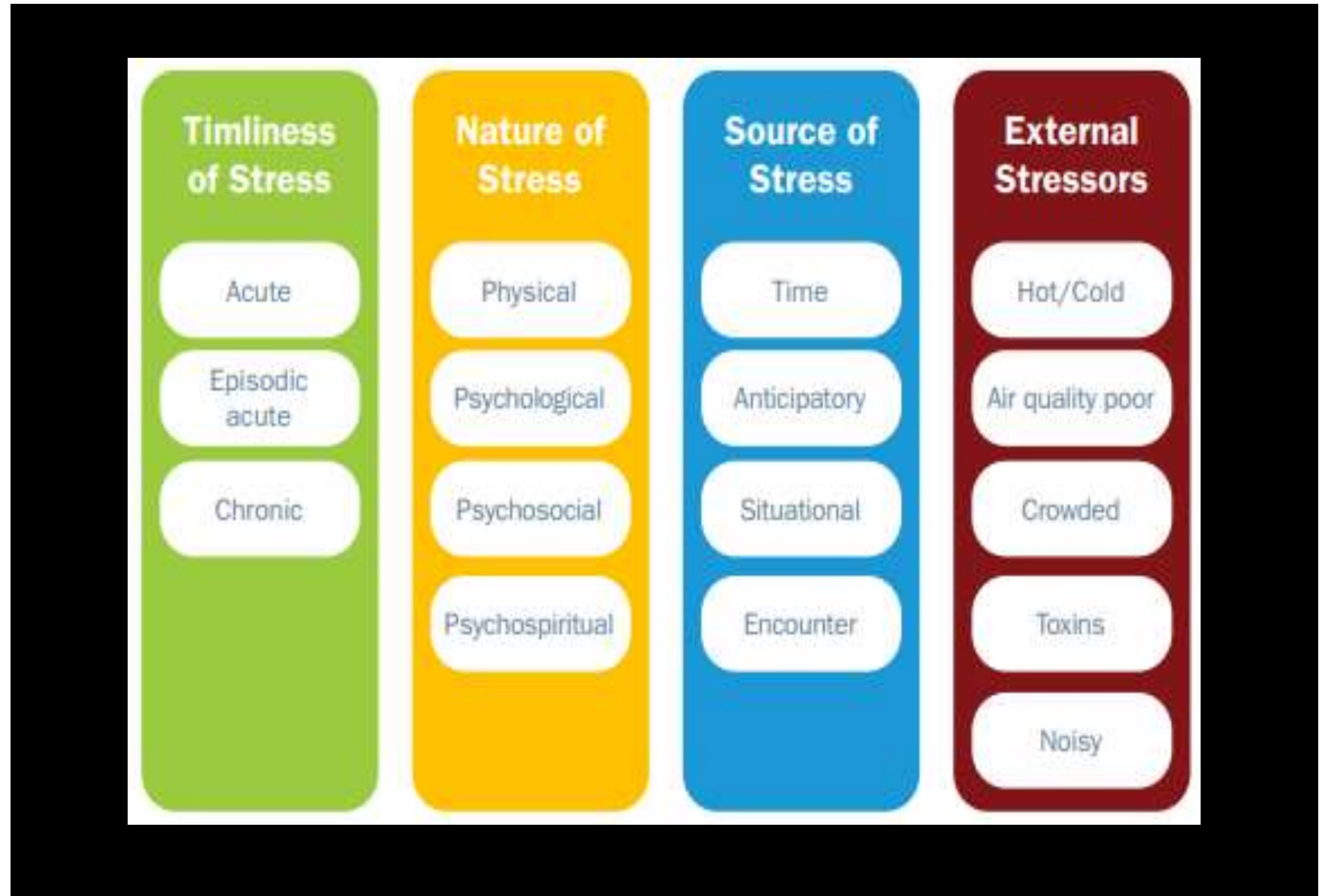
Top Fitness Trends



The Business of Recovery

- \$17 Billion spent annually on recovery-focused products
 - Stress management
 - Sleep habits
 - Nutrition
 - Immune health
 - Psychological health
- It has become more mainstream
- It has become a more common service offering

Types and Sources of Stress



Strain

Categories of Strain:

Cognitive

Anxious thoughts, low concentration and memory

Emotional

Tension, irritability, restlessness, depression

Behavioral

Sleep issues, drinking, eating, smoking, lack of exercise

Physiological

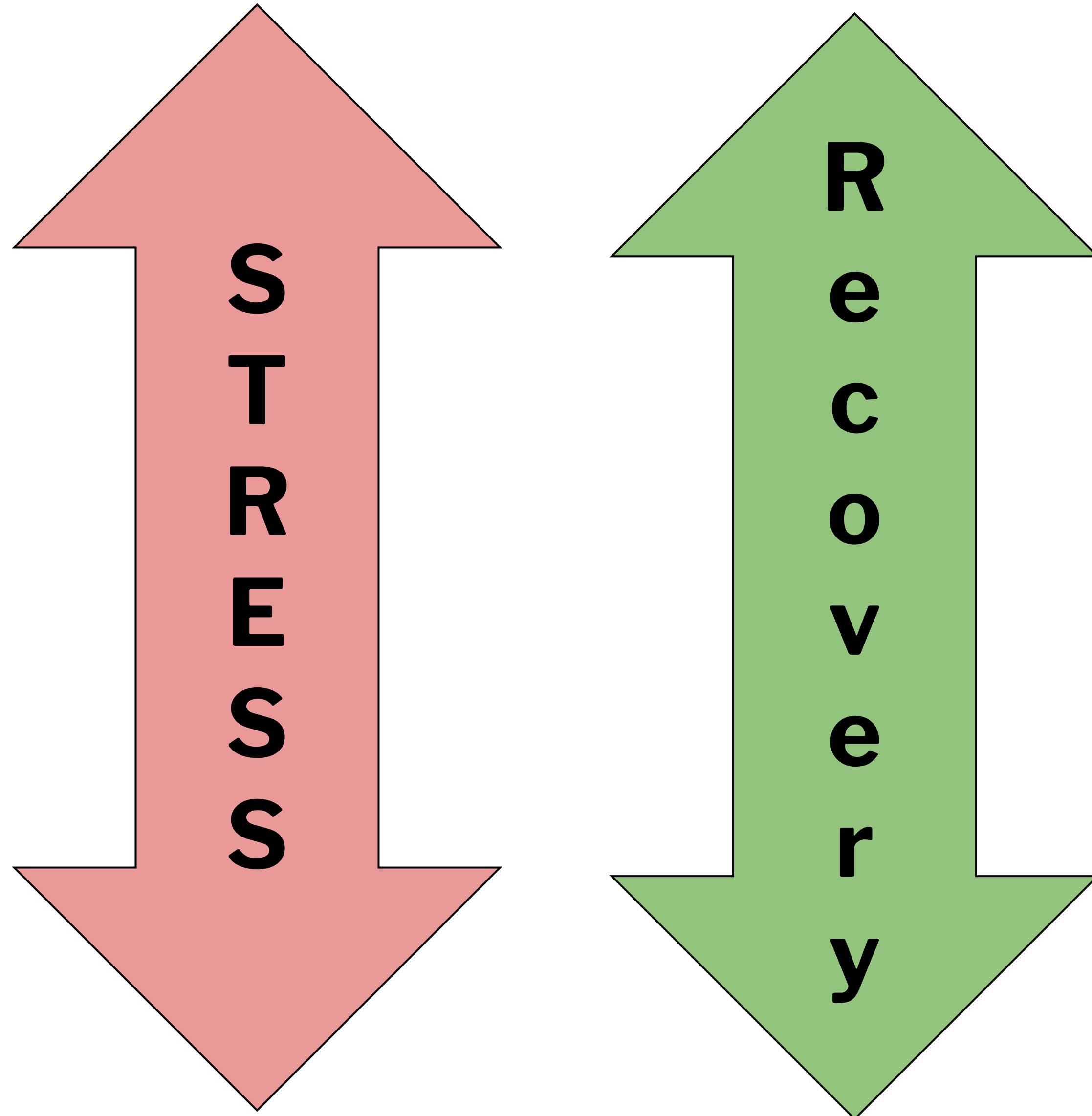
Muscle tension, grinding teeth, headaches, ulcers, weight gain or loss, heart issues

Social

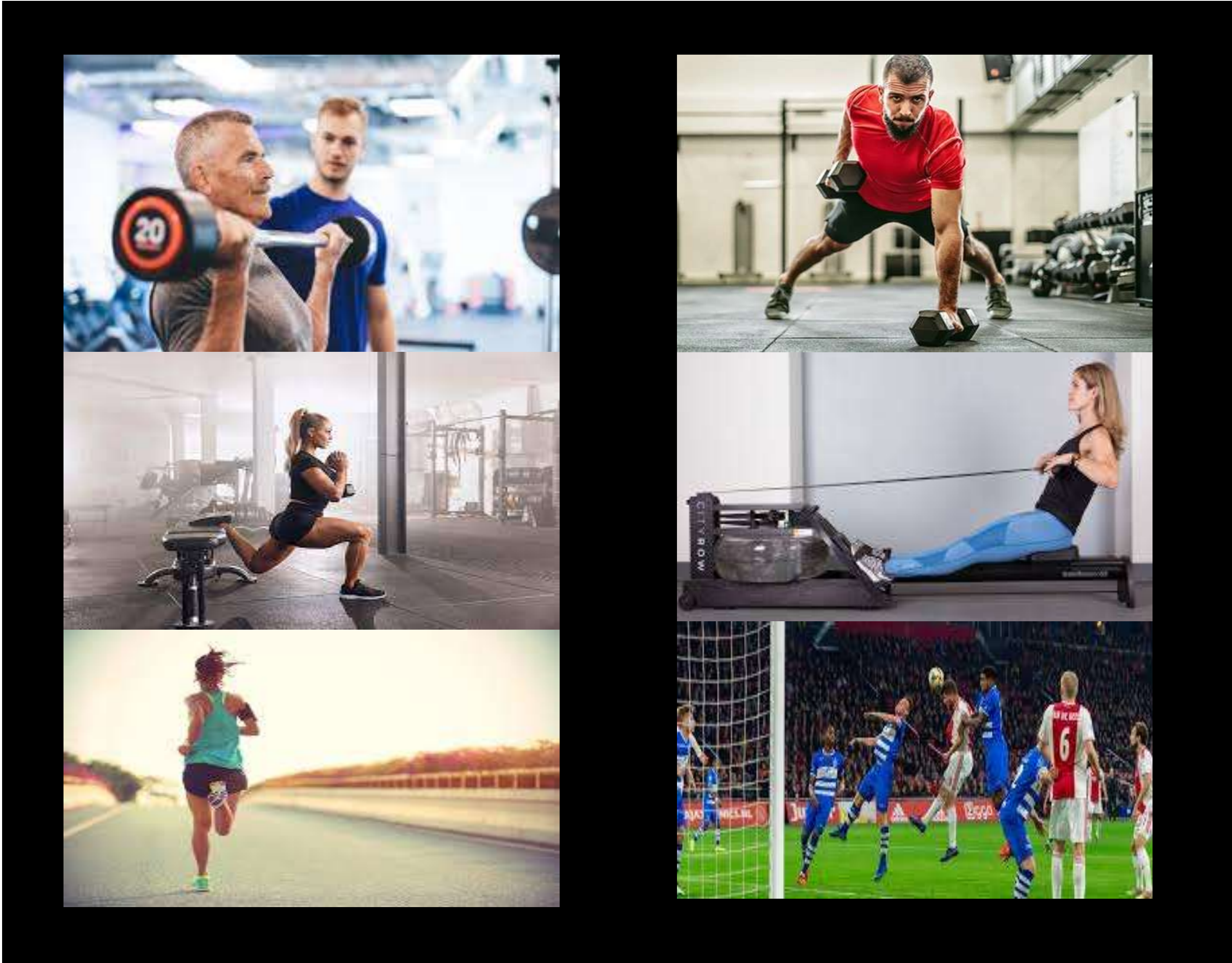
Usually withdrawal, irrational actions or relationships

More stress = Greater need for recovery

What is the right dose?



Exercise Induced Need For Recovery.



Muscle Damage

- Exercise places stress on the musculoskeletal system.
 - New activities
 - New intensities
 - Starting exercise after time off

Exercise Induced Muscle Damage (EIMD)

- Includes DOMS, muscle injuries and tears
- Temporary decrease in muscle force
- Temporary decrease in endurance
- Reduced ROM
- Increased soreness and swelling

Energy systems

ATP/CP

Replenishment happens quickly assuming healthy balanced diet and health kidney, pancreas and liver

Anaerobic glycolysis

Replenishment occurs via gluconeogenesis (synthesis of glucose)

Aerobic energy system pg 125

Replenishment occurs with the consumption of macronutrients to replace glucose

Nervous/ Endocrine system

Stress response is both neurological and endocrinological

Cortisol is often referred to as the “stress hormone” and is useful in the stress response

High cortisol levels related to:

- Lack of sleep
- Low testosterone
- High belly fat
- High BP
- High LDL
- Low HDL
- Anxiety
- Depression
- Digestive and blood sugar issues

- Can also be thought of as Under Recovering
- Too much stress when compared to too little recovery and regeneration

Overtraining

Symptoms of Overtraining			
Performance	Physiological	Psychological	Biochemical
Performance	Altered resting HR, BP, respiration	Depression and apathy	Hypothalamic dysfunction
Training tolerance	Bodyfat and Weight	Self-esteem	Serum cortisol and sex hormone binding globulin
Recovery Time	Lactate Response	Ability to concentrate	Total/free testosterone
Motor coordination	BMR	Self-efficacy	Testosterone/ cortisol ratio
Technical faults	Chronic fatigue	Immunological stress	Muscle glycogen
	Sleep disorders	Illness occurrence	Serum hemoglobin, iron, and ferritin
	Menstrual disruptions	Rate of healing	Negative nitrogen balance
	Headaches	Immune Function	
	GI Distress		
	Muscle soreness and damage		
	Joint aches and pain		



That was a lot.

PHEW!

Recovery Modalities

Stretching and Myofascial Release

Stiffness and soreness may reduce function and performance

- Increase blood flow and circulation
- Improves the rate of muscle repair
- Can reduce the symptoms of fatigue, such as stiffness, soreness and altered joint function
- Stretching, massage and other fascial therapies are effective recovery
- Techniques can used for athletes and general population

Fascial therapy and stretching are a good combination.

One study found that when applied for up to 10 minutes, joint range of motion was improved by 6.2 percent with static stretching, with a minimal effect from foam rolling alone, but by 9.1 percent when stretching and foam rolling were done together.

Activity Intensity	Frequency of WBV Therapy
Light intensity 2-5 days a week	Up to 3 times a week: 15 min maximum per session
Moderate Intensity 3-5 days a week	2-4 times per week: 10-15 min maximum per session
High intensity 2 or more days a week. May include athletes in all seasons	Up to 2-3 times daily as needed: 10-15 min maximum per session

Recovery Goal	Frequency of Local Vibration
Movement prep	1-3 min per muscle group
Reduce acute pain and inflammation	1-3 times a week on affected body regions: up to 15 min total
Reduce chronic pain and inflammation	1-3 times a week on affected body regions: up to 15 min total
Sports muscle recovery	Daily: 1-5 min per muscle group never more than 20 min at a time

The average amount of sleep an individual gets in present day is about two hours less than in the previous two generations!!

Sleep

Sleep disruptors:

- Screens and electronics
- Caffeine
- Alcohol consumption
- Medications
- Stress and anxiety

Strategies for improving sleep:

- Avoid computers, phones, and TV two hours before bed
- Avoid falling asleep with the TV on
- Use topical or oral magnesium when deficient
- Sleep in a cool environment
- Avoid afternoon caffeine
- Get some movement and sunlight in the morning soon after waking

Low-intensity exercise that helps in recovering from high-intensity exercise.

Light Exercise/ Active Recovery

Activity Intensity	Frequency of Active Rest	General recovery Guidelines
Light Intensity 2-5 days a week	As needed between training sessions; mobility, flexibility and light to moderate intensity	No direct recommendation and rest can be as often as needed
Moderate intensity 3-5 days a week	Every 2-3 days; allowing 2-4 rest days per week based on subjective feeling of readiness; mobility, flexibility and light intensity	At least 24 hours between training sessions
High intensity 2 or more days a week; may include athletes in all seasons	24 hours after each training session; mobility, flexibility and very light intensity	At least 48 hours between training sessions



Nutrition and Hydration

- Glycogen storage and recovery
- Gut health
- Macronutrient roles
- Brain is 93% water and Muscle is 73% water
- Dehydration means decreased blood volume
 - This means less delivery of nutrients and oxygen to muscles

Vibration Therapy

Whole Body Vibration

Local Vibration Therapy

- Increases blood flow and muscle temperature
- Helps in overcoming fatigue, decrease recovery time and improve performance
- Also lowers the muscle's firing threshold via the tonic vibration reflex which can reduce the stress during muscle contractions



Percussion Therapy



Compression

- **Compression therapy:**

- Used in medicine for years to prevent deep vein thrombosis, pulmonary embolism and lymphedema.
- Often in the form of compression garments

- **Pneumatic compression:**

- Use air pumps to create pressure
- Typically a cuff, pants, boots or sleeves



Activity Intensity	Frequency of Compression for Recovery
Light intensity 2-5 days a week	2-4 times a month
Moderate intensity 3-5 days a week	1-2 times a week
High intensity 2 or more days a week; may include athletes in all seasons	Up to 3 times a week; allow 12-24 hours after each training session

Cold and Heat Exposure

- Whole body cryotherapy
 - Cold showers
 - Cryotherapy chambers
 - Cold Water Immersion

- Localized Cryotherapy



Contrast water therapy

Cold and Heat Exposure



Recovery Goal	Frequency of Cryotherapy for Recovery
Reduce acute pain and inflammation	2-4 times per week
Reduce chronic pain and inflammation	2-4 times per week
Sports muscle recovery	Up to twice daily
Improve sleep	2-3 times a week

Activity Intensity	Frequency of Contrast Water Therapy for Recovery	General Guidelines
Light intensity 2-5 days a week	As needed between training sessions	Ensure water temperatures remain between 50-59 degrees in the cold tub and 95-113 degrees in the warm tub
Moderate intensity 3-5 days a week	Every 2-3 days	1-3 min warm, 1 min cold; alternate for up to 20 min and always end up in the cold
High intensity 2 or more days a week; may include athletes in all seasons	Can be done daily for up to 10 consecutive days	



- Often overlooked as a rest and recovery tool.
- Can be as simple as sitting still, free of interruptions for a few minutes
- The point is to relax, focus on breath and promote the production of alpha and theta waves.

Meditation

Activity	Frequency of Mindfulness Activity for Recovery
Meditation	As needed; 20-45 min daily
Visualization	As needed; 5-10 min daily
Yoga	As needed; up to 5-6 times a week for up to 90 minutes per session



Wearable Technology

- Market grew 30% in 2020 alone.
- Expected to grow to \$70 billion by 2025
- More coaches and trainers are accessing the data of their clients and athletes.
- Not all data is accurate
- There can be a number of reasons that a person's biometrics may fall outside of the norm
- Pay attention to data over time.

Metrics:

- Heart rate
- Respiration rate
- Blood Oxygen/SP02
- Movement tracking
- Sleep tracking
- Brain Metrics
- Hydration
- Body temperature
- Heart rate variability

Thank you

Visit the ISSA booth

Session 491

Well-Rounded Glute Training