

Breathing Technique during Exercise

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The 18th International meeting on respiratory care
Indonesia (Respina).

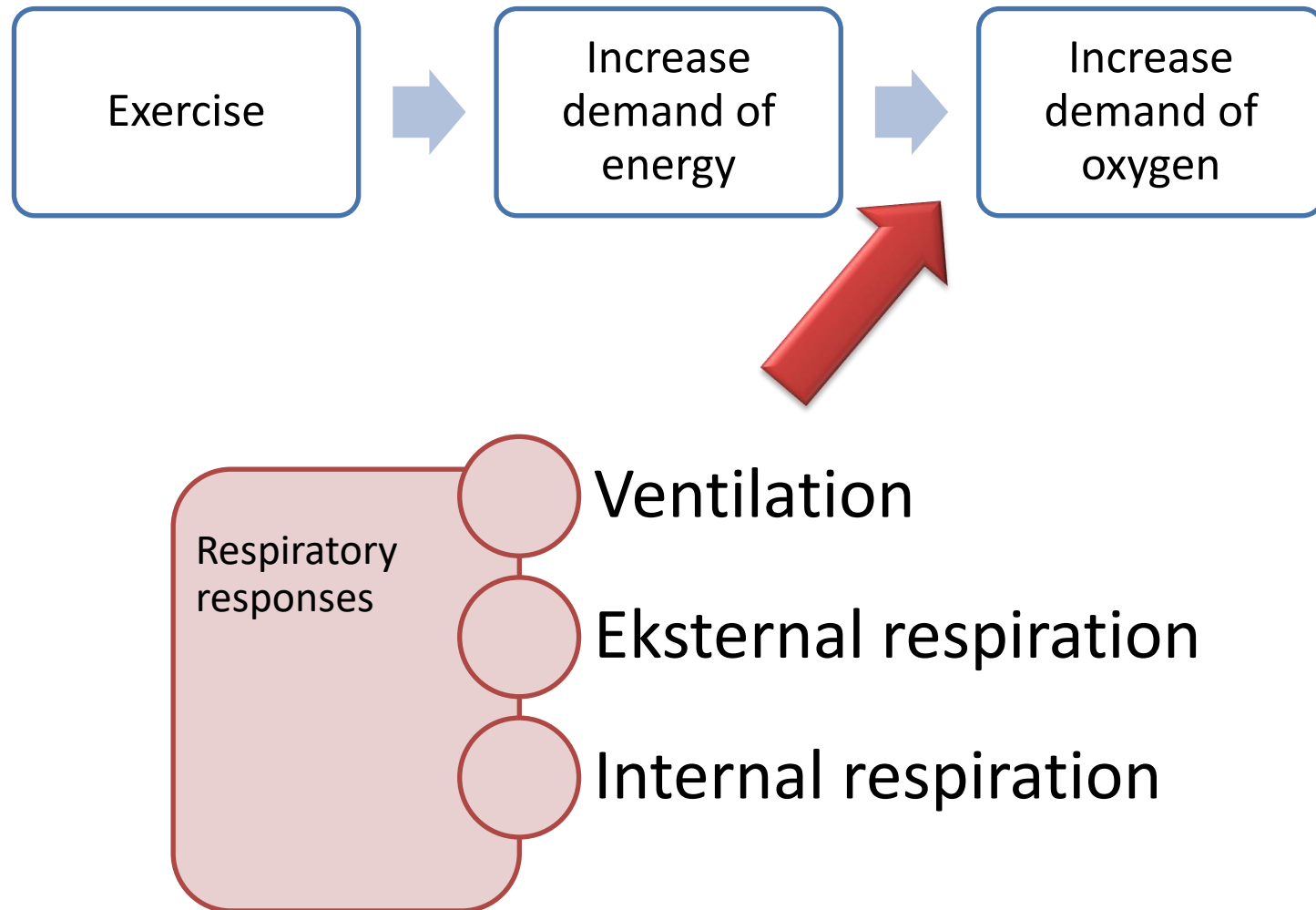
Breathing : Diamond of Life

Shangri-La. Jakarta. 26-27 Agustus 2016.

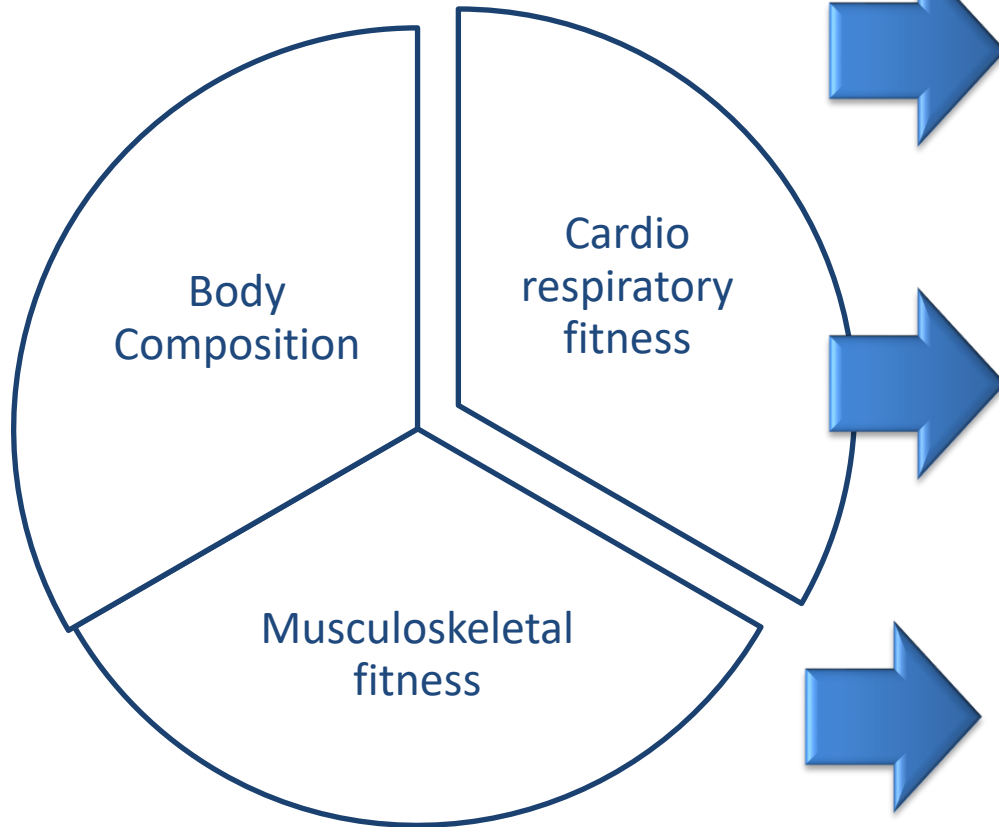
Benefit of Exercise Based on Evidence

- Lower risk of early death
- Prevent of chronic degenerative disease (Cancer, High BP, Diabetic, breast-colon cancer)
- Improved cardiorespiratory and muscular fitness
- Prevent of fall and improve quality of life (geriatric patient)
- Reduced depression (psychology)
- Better cognitive function
- Supporting management of DM, Osteoporosis, Hypertension, CVD, Asthma, COPD etc

Response of Respiratory system during exercise



Health – Related Fitness



Aerobic

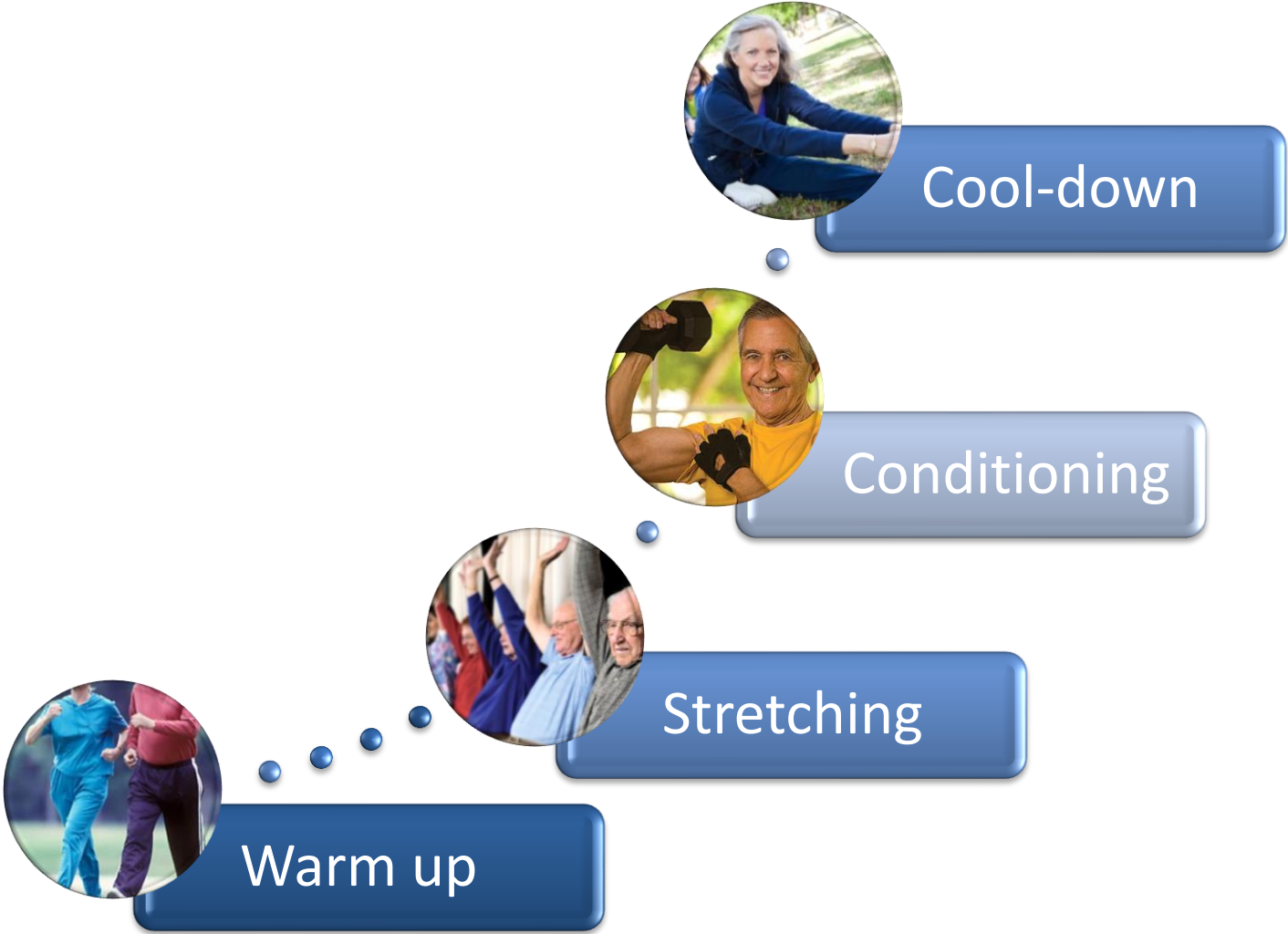


Strength/Resistance



Flexibility

Component of Exercise Session



Breathing in Exercise

- Breathing seems simple (inhale-exhale), but doing it properly during exercise surprisingly complex
- The average person's lungs move about 0.5 liters of air with each relaxed breath. → can jump to 3 liters during vigorous exercise
- Effective breathing is as important as the exercise itself.
- Proper oxygen delivery to the body's tissue safeguards the performance and can increase ⁶

Aerobic Exercise

- Cardiorespiratory exercise
- Mode of exercise :
 - Walking, running, elliptical
 - Cycling, swimming, aquatic exercise (for patient with knee problem and obesity)
- American College of Sports Medicine (ACSM)
Recommendation :
 - Aerobic exercise moderate intensity
 - 3-5 times/week
 - 30 minutes/day **Or** total 150 minutes per week

Breathing during Aerobic Exercise

- Proper breathing during aerobic exercise i.e. running :
 - Depend on the speed or pace
 - 3 : 2 inhale to exhale ratio (full inhale and full exhale) is effective for improve endurance
 - INHALE on the LEFT, RIGHT, LEFT foot strikes and EXHALE fully on the RIGHT, LEFT foot strikes
 - This pattern is not that hard to turn into a habit → May require you to slow your pace down for a few runs to master the technique
 - Naturally drop to a 2:1 ratio when try to increase speed (pushing it to the finish).
 - No problem, But realize it is difficult to maintain a pace that requires to breathe at a 2:1 ratio.
 - CO₂ in the body will increase if the breathing patterns are short and hurried → It will increase the heart rate and lactic acid production, and decrease the endurance in any cardiovascular event (running, swimming, biking, etc.)

Strength Training

- Strength training or Resistance training or weight training
- It is very useful to maintain muscle mass especially for strength and muscle
- Strength training method :



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body weight



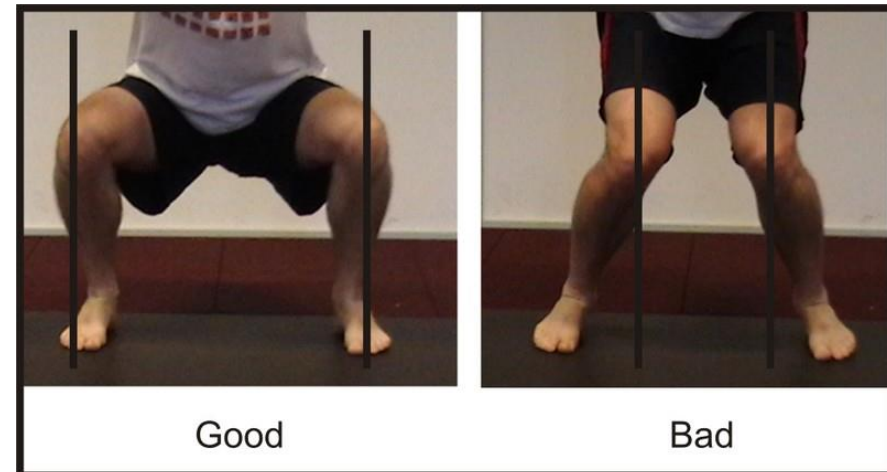
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- ACSM recommendation for strength training
 - 2-3 times/week with non consecutive days
 - 10-15 repetition
 - 1-3 set
 - 8-10 training in major muscle group
- Strength training have a potential risk :
 - Musculoskeletal injury → poor technique, overweight
 - Hernia, High BP → poor breathing technique

Prevent injury during Weight Training

- Learn Technique FIRST !!
- Start Low go Slow when choosing weight

Poor Technique



Breathing Technique during Weight Training

- Inhale → In easy part, less strenuous phase
- Exhale → In hardest part, in exertion phase/maximum contraction phase
- Inhale-exhale ratio 3:2 to 3:3

Take Home Message

- Breathing technique is very IMPORTANT when we do exercise
- Understand and Practice of Breathing technique is needed to get optimal result of exercise
- Aerobic training : Apply inhale-exhale ratio 3:2 and pace adaptation to improve endurance
- Strength training :
 - Learn movement technique for target muscle
 - Start low go Slow in choosing weight
 - Proper breathing technique

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