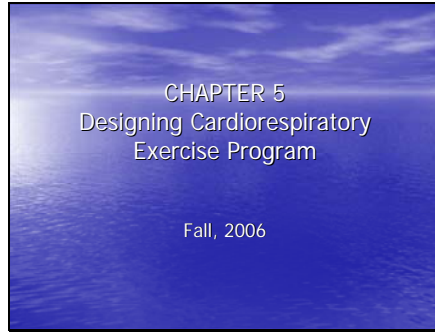


投影片 1



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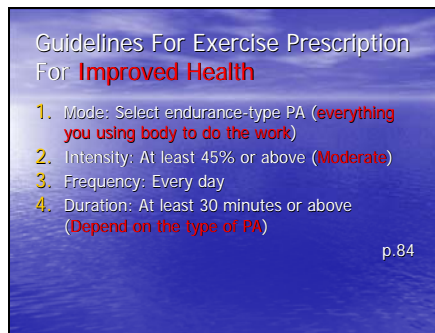
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投影片 2



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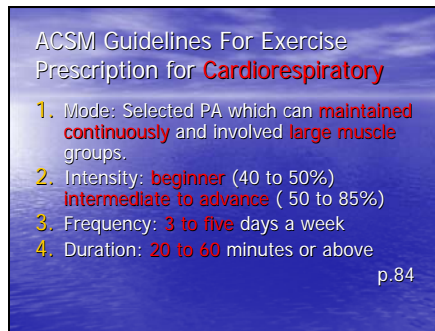
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投影片 3



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投影片 4

Classification of Aerobic Exercise Modalities

- Group I Activities: Provided constant intensity and are **not dependent on skills**
- Group II Activities: may provided constant or variable intensity, **depend on skills**.
- Group III Activities: Provided variable intensity and are **highly dependent on skills**

p.85

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投影片 5

What Are Research Tell Us?

- Thomas et al.,(1995)
- Compare 6 different aerobic exercise modes (treadmill jogging, Nordic skiing, shuffle skiing, stepping, cycling, and rowing)
- Results: **Cycling** had higher perceived exertion compare to other modes.

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投影片 6

What Are Research Tell Us?

- Wallick et al. 1995
- Compared Treadmill jogging, in line skating and aerobic dance hand above head or keep below the shoulders (Berry et al. 1992)
- Results: Heart Rate and VO2 was similar

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投影片 7

What Are Research Tell Us?

- In contrast, Parker et al. (1989) reported:  
Average **steady-state** HR during **20 minutes** of aerobic dance was **significantly higher than treadmill jogging** when the subjects exercised at the **same relative intensity** (60% VO2 max).

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投影片 8

What Are Research Tell Us?

- When exercise modes are equated using **subjective ratings of perceived exertion (RPE)**, research suggests that **treadmill jogging** maybe **superior** to other aerobic exercise modes in terms of **total oxygen consumption and rate of energy expenditure**

(Kravitz, Robergs, & Heyward, 1996; Zeni, Hoffman, & Clifford 1996)

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投影片 9

What Are Research Tell Us?

- Result 1: RPE= **13 to 14** for **15 to 20** minutes experienced a greater total oxygen consumptions compared to others
- Result 2: Rate of energy expenditure for treadmill exercise was **20 to 40%** greater than for stationary cycling

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投影片 10

What Are Research Tell Us?

- When selecting aerobic exercise modes you should consider how **easily** the exercise **intensity** can be **graded** and **adjusted** in order to overload the cardiorespiratory system throughout the improvement stage.

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投影片 11

Intensity of Exercise

- According to ACSM (1995)
- The initial exercise intensity for apparently healthy adults is **50 to 85%** VO2 max.
- Lower intensity exercise **40 to 50%** VO2 max.

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投影片 12

How do we measure Exercise Intensity?

- You can using the
- **Metabolic Equivalents (MET)**,
- Heart Rate (HR) or
- **Rating of Perceived-Exertion (RPE)**

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投影片 13

### Metabolic Equivalents (MET)

- Q: To estimate how fast a women should jog on a level course to be exercising at an intensity of 8 METS?
- To ensure that the exercise intensity does not exceed safe limits.

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投影片 14

### Heart Rate Method

- Based on the assumption that **HR** is a linear function of exercise intensity
- **HR VS. Grade Exercise Test** (GXT; Figure)
- **220-Age \*%**
- **Karvonen (% HRR) Method**
- Target HR =  
 $(\% \text{ HRR})(\text{HR max} - \text{HR rest}) + \text{HR rest}$
- Rating of Perceived Exertion (RPE) Method

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投影片 15

### Duration of Exercise

- ACSM (1995)
- 20 to 30 minutes
- For **healthy** individuals usually can sustain exercise intensities of **60 to 85%** for 20 to 30 minutes
- **Improved stage:** duration can increased every 2 to 3 weeks 'till can exercise for 30 minutes
- **Poorly conditioned** individuals at low **intensity 40%** for only **10** minutes. Need to perform **multiple sessions** in a given day to **accumulate 20 to 30** minutes of aerobic exercise.

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投影片 16

Frequency of Exercise

- Sedentary Individuals (5 to 8 METs)
- 3 times a week
- Increased fitness level then should increased to 5 times per week
- For individuals lower than 5 METs, several daily exercise session are advisable.
- Once the fitness level reached than 2 to 4 days per week with intensity and duration change.

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投影片 17

Rate of Progression

- The greatest conditioning effects occurs during the first 6 to 8 weeks of the exercise program.
- 1st Month: Aerobic endurance may improve as much as 3% per week
- 2nd Month: 2% per week
- After that 1% per week or less thereafter (Sharkey, 1979)

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投影片 18

Benefits of Doing Regular Exercise

- P.91

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投影片 19

Stage of Progression

- 1. Initial Conditioning:** Typically lasts 4 to 6 weeks and consists of stretching exercises, light calisthenics, and low-level aerobic exercises; at least 12-15 minutes, increasing to 20 minutes in 4 to 6 weeks

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投影片 20

Stage of Progression

- 2. Improvement:**
  - Last for 16 to 20 weeks
  - Increase the duration of exercise every 2 to 3 weeks
  - Increase the frequency of exercise from 3 to 5 times per week

Note: Intensity, duration, and frequency of exercise should always be increased independently.

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投影片 21

Stage of Progression

- 3. Maintenance**
  - Stage usually begins 6 months after the start of training
  - Counteract boredom and to maintain the interest level of the participant.

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投影片 22

Essentials of a Cardiorespiratory Exercise Workout

- Warm-up (5 to 10 minutes)
- Aerobic conditioning (20 to 60 minutes), and
- Cool-down phases (5 minutes)

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