Physical Activity Interventions

Read chapter 17-19
Exercise Adherence

- Interventions
- Models of Physical Activity
- Determinates and Correlates of Physical Activity
- Myths and facts about physical activity
Promoting Physical Activity

- Individual Level Intervention Strategies
- Group Level Intervention Strategies
- Community Level Intervention Strategies
Promoting Physical Activity

- Exercise interventions must be applied based on the characteristic of the target group.
- Exercise interventions must be applied based on the limitations of the setting.
- Exercise interventions must be applied based on consideration of potential personal and environmental barriers.
Characteristics of the Target Group

Psychological and physical profiling of the Client
- Level of Depression
- Level of life stress
- Level of sense of self
- Perceived and actual barriers to exercise
- Attitude toward exercise
- Stage of exercise
- Level of exercise self-efficacy
- Social physique anxiety level
- Motivation to exercise
- History of exercise
Characteristics of the Target Group

Married, single or divorced
Married or single with small children
Occupation
Income
Age
Gender
Disabilities
Injury
Accessibility & Density of PA Resources
Home based equipment
Media based intervention
Traditional delivered interventions
Work site PA facility
Community access to PA facility
Access to hospital or private PA centers
Neighborhood access to parks, walking, running, or biking trials
Physical Activity Setting

Exercise leader
Access to PA equipment and/or activity
Variety of spaces (pool, gym, weights, running track)
Number and type of programs
  individual and group;
  social and competitive;
  variety of high and lowly intensity;
  stress management programs;
  healthy and disabled; Etc.)
Access (time the center is open)
Distance to and from home and/or work
Safety
Personal Barriers

Physical barriers
- Cost of PA facility
- Transportation
- Safety
- Characteristics of exercise program
  - Intensity
  - Duration
  - Frequency

Perceived barriers
- Attitude toward PA
- Exercise self-efficacy
- Schedule
- Time
- Intention of exercise
Environmental Barriers

Climate

Social support
  Spousal influence
  Family influence
  Friends influence
Individual Intervention

- Characteristics of the target group
- Physical Activity Setting
- Personal Barriers
- Models of PA
- Promote PA

Unit III: Chapters 17-19
Types of Individual Interventions

- Health Education
  - Benefits of exercise
- Health risk appraisal
  - Confronting the client about their risk
- Exercise prescription
  - Duration, intensity, frequency
  - Progression
- Physical Education Programs
Types of Individual Interventions

- Behavior modification
  - Reinforcement
  - Goal setting
  - Contracts
  - Client profiling (e.g. barriers to exercise)
  - Self-monitoring (e.g. logs, fitness testing)
Individual Interventions

- What chance will one have in adhering to exercise in the *absence of one or more of these intervention*?
Found to increase adherence rates by as much as 38%

Identical for both genders, across ages, and race.

Greater for healthy clients then non-healthy

- Small to moderate effect size for people who were high risk for CV disease
Which type of intervention is the most important?

A. Physical Education  
B. Exercise prescription  
C. Health risk appraisal  
D. Health education  
E. Behavior modification

Answer: Behavior modification had a very large effect size on increasing physical activity where as all others approaches were small.
How should the intervention be delivered?

- Mediated interventions versus face-to-face
- In groups or individually
- Non-supervised or supervised
- Intervention delivered in a community setting or in a worksite PA facility
How should the intervention be delivered?

- Mediated Interventions were more effective than face-to-face
- Interventions delivered in groups were better than those delivered individually
- Larger in non-supervised than supervised
- Interventions delivered in a community settings had greatest impact then schools, home, work site and health care settings.
Mediated Interventions

Where a person, group, or health profession utilizes some medium other than personal contact to change one’s exercise behavior.

- Television
- World Wide Web
- Printed materials
- Posters
Mediated Interventions (Dirkin, 1994)

- Supplement existing face to face fitness counseling

OR

- Replace existing face to face fitness counseling

- 200 studies involving a variety of mediated interventions
  - Mass media campaigns at the state and national level
  - TV advertising
  - Telephone
  - Mass media community event
  - Printed materials delivered in the mail
  - Worksite seminars
  - Motivated matched print materials
  - Interactive computer system
  - Newsletters
State & National Level Mass Media Approach

Broad based mass media approach has resulted in marginal changes in PA levels.

Why?

Does not account for individual differences within the population.
The media approach that targets a segment of the population have showed positive results

- E.g., Community events attract participants if they are held within worksite PA facility
- E.g., Stage matched self-help manuals with community based events resulted in a higher percentage of first time exercisers.
Community Based Media Interventions (review continued)

- Targeted population was healthy adults
- The purpose was to increase leisure activity, intensity of exercise, or home based exercise
- Media used were printed materials, telephone contacts, worksite seminars, information displays, and self-help printed materials
- Results:
  - 56% of 105 healthy adults met criteria in single mailing
  - Subject receiving telephone contacts increase significantly in their aerobic ability
  - Better adherence in moderate intensity exercise 64 healthy middle aged men
Media Interventions at Worksite and university settings

- Targeted population was 4,300 Johnson and Johnson employees; university students, Bank of American retirees, etc.
- Purpose was to increase low impact, leisure activity, vigorous activities, or walking
- Media used were telephone contacts, weekly exercise class self-help printed materials, and motivationally matched printed materials
- Results
  - Increase in vigorous exercise
  - Insurance costs lowered 10%
  - Increase in minutes of PA per week
  - Increase in walking
Current PA Mediated Campaigns in US by CDC

- Director’s Physical Activity Challenge
  - Worksite health promotion program
  - Promote regular, moderate intensity PA based on Transtheoretical & Social Cognitive model
  - Electronic mail was one of the media sources
  - 3000 (80%) participants reached the moderate intensity goal

- Physical Activity: It’s Everywhere You Go
  - Purpose was 30 minutes of moderate intensity PA per day
  - Print media and audiovisual marketing kit
  - Used the transtheoretical model; matched motivated materials
Successful Mass media Programs

- Target the lower income, less educated, older, and less socially support population groups
  - These groups have the lowest activity levels
  - Rarely see their physician
  - Media viewed as less threatening and costly

- Stanford 5 City project
  - Targeted ethnic group with educational material written in Spanish and radio.

- Home based intervention to promote walking in ethnically diverse women (Chen, Sallis, & Castro, In press)
  - Printed materials, mailing, telephone calling
  - Increased walking behavior
New Media Technologies

- Personal computers using the Webcam technology with fitness counselor
- Digital telephone systems is cost effective and accessible to socioeconomic disadvantaged
- Ipods interfaced with computers
Key Factors in Developing Media Campaigns

- Usually based on Self-Efficacy and Transtheoretical Models
- Need to identify a specific population within a health club, university students, or community.
- Media used needs to be accessible to the targeted population with little physical or perceived barriers.
- Media delivery should involve the participants in goal setting, stage matching motivational materials, and enhances one’s self-efficacy (e.g. schedule, exercise, etc.).
- Activity (e.g., walking or level of exercise) needs to meaningful and develop a greater sense of self.
Exercise Prescription
Exercise Prescription

Intervention

- Interventions that targeted a more active leisure time lifestyle was greater than specific strength and/or aerobic exercise programming.

- Most clients prefer and adhere to PA when it is of low-intensity then high intensity PA.

- Shorter exercise bouts were greater than longer.

  - “It would seem that people are more likely to be physically activity if the behavior (exercise) is not perceived to be overly stressful and integrated into their lifestyle”
Exercise Prescription

Based on ACSM Guidelines that manipulating the four components of exercise:

Duration
Intensity
Frequency
Mode

Progression = ACSM Goal
Steps of Exercise Prescription

Step 1
Medical Screening

Step 2
Physical Fitness, Nutritional, & Psychological Assessment

Step 3
Goal Setting & Stage Matching Strategies

Step 4
Development of Exercise Program

Step 5
Exercise & Nutritional Adherence

Step 6
Re-assessment of Physical Fitness & Nutritional Aspects
Stage 1: Medical Screening

- Personal & Family History
- ACSM Guidelines based on Age
- Physiological Measures
  - Blood pressure
  - Blood chemistry
  - Resting Heart Rate
- Drug History
- Health Risk Profile
Step 1: Medical Screening

- Apparently healthy individuals:
  - Under the age of 45 and apparently healthy with no risk factors can proceed to physical fitness testing.
  - If over 45 and apparently healthy with no risk factors a stress test should be taken before exercise.
Step 2: Medical Screening

- Individuals at high risk
  - At least one risk factor or has symptoms, stress test is recommended for those under the age of 35.
  - Over the age of 35 with one or more risk factors, stress test should be required.
- Individuals with known disease needs always to be tested.
- If in doubt always refer them to a M.D. for a review.
Risk Factors

- Hypertension (140/90)
- Hyperlipidemia
  - Total CHL at or greater than 250
  - Triglycerides at or greater than 150
  - HDL ration at or greater than 5
- Smoking
- Electrocardiographic abnormalities
- Family history of CV diseas before 60
- Sedentary lifestyle
- Type A coronary prone behavior with stressful occupation
- Diabetes mellitus or glucose at or greater than 100
- Hypoeruricemia
- Obesity (22%; 19%)
Step 2: Assessment

- Physical Fitness Assessment*
  - * ESAT 3420 Exercise Testing & Prescription Course

- Nutritional Assessment*
  - * ESAT 3410 Performance nutrition & weight management

- Psychological Assessment
Psychological Assessment

- Identify compliers and non-compliers based on determinates and correlates
- Key psychological correlates:
  - Self-efficacy
  - Depression
  - Stress
  - Barriers
- Attitude toward Exercise
- Stages of changes for exercise
Step 3: Goals Setting

Key motivational intervention

Considered to be a cornerstone of success of one’s fitness program

Formal and continuous goals setting throughout one’s fitness program increases adherence to exercise
Step 3: Goals Setting

- Goals need to be realistic, attainable, flexible, meaningful, and challenging.
- Stair step approach to fitness
- Major pitfall in setting goals is to set them early and never assess them until the very end.
Step 3:

- Goals setting activity based on IAR model.
- In-class individual activity for credit.
Step 4: Development of A Program

- Based on psychological and physiological assessments
- ACSM guidelines apply to clients that have been exercising for less than 6 months, that is clients in the action stage.
- But in many cases ACSM guidelines for a beginning exercisers is too intense, so a starter program is recommended.
Pre-starter Program

- Activity is closely associated with their daily activity, such as walking.
- Need to be convenient, that is, it can be done around home or work.
- No dress out is necessary.
- Should not be concerned with meeting ACSM training goal.
- The goal is just movement.
Pre-starter example

- Walk at lunch hour
  - Week 1 = 5 min
  - Week 2 = 10 min
  - Week 3 = 15 min
  - Week 4 = 20 min
  - Week 5 = 10 min
  - Week 6 = 15 min
  - Week 7 = 20 min
  - Week 8 = 25 min
  - Week 9 = 15 min
Starter Program

- 3-5 METS (low in intensity)
- Establish a exercise habit
- 3 days a week!
- Just do it!  6-8 weeks!
- Short in duration
  - Aerobic 10 -15 minutes
  - Weight 7-10 stations; 8-15 reps.
- Gradually work on duration not intensity.
- Client choice
- Keep a log
- Before and after (Show benefit in weight, inches, etc.)
Key Psychological Factors During Pre- and Starter Programs

- Elimination of barriers to exercise
- Emphasize the benefits to exercise
- Social support to exercise
- Motivation techniques (e.g., contracts)
- Plan for slippage
- Extrinsic rewards
- Establish a schedule (time to exercise)
- Goal setting
Exercise Program

- Progression (keeping logs)
- Use periodization training methods
- Physiological goal is to meet the ACSM training effects.
- Psychological goal is for PA and exercise to become a habit
- Variety within the program become important
- Slippage control
- Goal setting
Step 5: Adherence

- Contracts
- Rewards
- Contingency plan for slippage
- Social support
- Time of exercise
- Variety in PA program
- Intensity of exercise
- Duration of exercise
- Setting daily and weekly goals
Step 6: Re-assessment

- Re-assess the physiological components
  - Aerobic ability every 16 weeks.
  - Strength every 8 weeks
  - Flexibility every 8 weeks
  - Body composition every 16 weeks.

- Re-assess life stress
Behavior Modification Interventions

- Based upon:
  - Bandura’s Model of Self-efficacy
  - Transtheoretical or Stage Model
Self-Efficacy

- Belief and expectations about how capable one is to perform PA or exercise to achieve an outcome (e.g. low weight, fitness).
- Major determinate of adherence in all the models
Self-Efficacy Sources

- Performance accomplishments
- Vicarious experiences (modeling)
- Verbal persuasion
- Emotional arousal
- Physiological states

Efficacy expectations

Exercise
Stage Theory

- Stage model reflects behavior change in exercise adherence
- Assumes individuals in same stage are similar with respect to characteristics, such as level of PA.
- Therefore, there are specific behavior modification interventions that are appropriate at each stage.
Stage Model

1. Pre-contemplation
2. Contemplation
3. Preparation
4. Action
5. Maintenance
Precontemplation Stage

- Individuals are inactive and have no intention to start exercising. They are not seriously thinking about changing their level of PA within the next six months.
Behavior Interventions at Precontemplation Stage

- **Goal:** To begin thinking about changing

- **Strategies:**
  - Provide them health information of benefits
  - Reduce the actual and perceived costs & barriers
    - Intention to exercise is low
    - Willingness is low
    - Self-efficacy is low
    - Perceived & actual access to facilities
  - Strengthen actual and perceived benefits of PA
Pre-contemplation Stage

- Health pamphlets
- Media advertising
- Awareness of risks
- Benefits of exercising
- Health clinics & workshops
- Wellness seminars (topics such as weight loss and physical activity)
Contemplation Stage

- Individuals are also inactive, but they intend to start regular exercise within the next six months.
Behavior Intervention at Contemplation State

- **Goal:** To adopt regular exercise

- **Strategies**
  - Marketing and media campaigns with accurate information
  - Activities to increase self-efficacy
    - Modeling, demonstrating, verbal persuasion
  - Evaluate pros and cons of exercise
Decision Balance Sheet

- Positive
- Negative
Preparation Stage

- Individuals are active below the criterion level (CDC or ASCM) but intend to become more active in near future (1 month)
- Starters or irregular exercisers
Intervention for Preparation Stage

- **Goals**: To adopt regular exercise at criterion levels

- **Strategies**
  - Assessment of physical and psychosocial traits
  - *Goal Setting*
  - Evaluate one’s environment and social support
  - Evaluate one’s barriers to modifying behavior
Preparation Strategies

- Self-Monitoring activities
  - Weekly workout progress log
  - Computer programs that record your workouts
    - Self-monitoring exerciser checklist of type, mode, intensity of exercise, time, distance, heart rate, number of steps, kcal, etc.
  - Cue controls
- Starter Program
Cue Controls

- Have a set time for PA
- Separate PA from other activities
- PA is pleasant surroundings
- Seek to spend time with friends
- Exercise posters
- Modeling effect from spouse
Action Stage

- Individual engaged in regular exercise at the criterion level for less than six months.
- This is the least stable stage and are at great risk of relapse.
Interventions at Action Stage

- **Goal:** To establish exercise as a habit

- **Strategies:**
  - Rewards and punishment
    - Contingency contracts
  - Slippage control
    - Boredom, lack of time, laziness, vacations, and illness
  - Proper exercise prescription
Contingency Contracts

- I will: ______
- I will enlist the help of: _____
- My responsibilities are: ______
- My helper’s responsibilities are: _____
- My reward: _____
- My punishment: _____
Effective Rewards

- What kinds of things do you like to have?
- What are your major interests? Hobbies?
- Who do you like to be with?
- What do you do for fun?
- What do you do to relax?
- What makes you feel good?
- What would you hate to lose?
Slippage Control

- Time management training
- Stress management training
- Barriers to exercise
  - Tape the TV show
- Backup Plan (type & place)
  - Swimming pool not open I will walk on treadmill
  - Snowing can’t walk, put on a aerobic tape
Maintenance Stage

- Individuals who have been exercising regularly for more than six months.
- Risk of relapse is low.
Intervention at Maintenance Stage

- Re-evaluate goals at regular intervals every 8-16 weeks.
- ACSM Exercise prescription Guidelines
- Variety of exercise routines
Special Concerns

- Promoting PA in Children
- Walking is the number one PA activity to become active
- Personality matching
Promoting PA in Children

- Since 1970, the percent of obese children 6-11 years old has tripled.
- Obesity has doubled among preschool children and adolescents.
- Most of the efforts have been on educating children and changing their behavior...with limited results.
- Changing the environment is now the essential strategy.
- Children do not walk to and from school
Promoting PA for Children

- Social physique anxiety in children
- Body composition
- Pre adolescent period versus post adolescent
- Child needs to be active early
- Self-efficacy promotion
- Puberty changes
- Exercise prescription
- Weight training versus body building
- Parents influence
- Peer influence
- Behavioral modification
- Rewards
- Mineral loss (intense programs result in bone loss)
Promoting PA in Children

- Children need safe places
- Children need accessible places to play
- Special attention should be given to the low income and minority communities with few parks, sidewalks, and sports facilities.
- Increase outdoor activities in the preschool population
- Increase the number of sidewalks; increases walking and skateboarding.
- Establish safe routes to and from school.
- Establish a PE curriculum that stress fitness than provide PE class of appropriate length and frequency.
- Provide play equipment, balls and other equipment for young children at parks and play grounds.
- Provide supervised facilities so young people can be active.
- Kids spend more time watching TV then in school. Reduce view time!
Walking

- Walking is the most popular form of exercise for adult Americans (Segal, 1995).
  - Because it is safe (Procari, et al., 1988)
  - Effective (Dishman, 1994)
  - Simple (Kriska, et. al, 1986)
- Walking at moderate (3-6 METs) can improve one’s health if done on a regular basis and meets CDC guidelines (Fletcher, et al, 1996)
- Walking can be self-regulated by:
  - Exertional perceptions
  - Without a great levels of physiological strain
  - More enjoyable
Self-selected walking pace can elicit an intensity that is perceptually preferred and fall within the health/fitness guidelines.

- Fitness level of the person influences the preferred pace.
- Body weight was not a factor in self-selective walking pace (Pintar, et. al, 2006)
- Don’t expect self-selected walking pace to produce clients who are highly fit.
Personality Matching

- We have stage matching based on PA levels.
- We forgot about the persons personality!
  - We needs to assess their personality then provide both PA and personality matching interventions.
Personality Match Interventions & PA

- Less extraverted clients require:
  - Strategies that strengthen one’s intentions
  - Goal setting
  - Behavioral strategies

- Neurotic clients require:
  - Normative based interventions (e.g., involving friends, family)

(Rhodes, 2006)
Group level Strategies
How should the intervention be delivered?

- Mediated Interventions were more effective than face-to-face
- *Interventions delivered in groups were better than those delivered individually*
- Larger in non-supervised than supervised
- Interventions delivered in a community settings had greatest impact then schools, home, work site and health care settings.
Dyersville Experience

- 450 participants lost a combined 7,500 pounds
  - Each week, entire team stepped onto a giant truck scale to monitor their progress
- WHY did this group intervention work?
Long-term consequences

- Group based interventions are effective in the short term but what happens when the class or program ends?
  - Do the clients stop exercising or regain the weight?
  - Do the clients PA behavior regress?
- Group-mediated programs maintain a higher rate of PA after the program then traditional exercise programs.
Group Cohesion Research

- Alan (2003) demonstrated that connection is what brings old adults to a group exercise experience.
- Group classes that are taught from a student-center perspective with an emphasis on cohesion enhances adherence (Carron, et. al., 1998).
- Heinzelmann & Bagley (1970) reported 90% of adult participants in an exercise program preferred to exercise in a group setting.
- Group exercise produces higher rates of exercise maintenance (Massie & Sheppard, 1971).
- Seniors believe they have a better exercise experiences in groups (Carron, 1999)
- Developing a highly cohesive group focused on the exercise task and the outcomes it can produce relates directly to high exercise compliance (Carron et. al., 1996)
Group Interventions

- What types of PA groups are there?
- What types of PA groups do you participate in? Why?
- What made you choose this type of group?
- Once you began exercising in the group was it a successful experience? Why or why not?
Group Intervention

- Formal and informal groups
  - Structured with a leader delivered by a PA resource where you enroll.
    - Members adhere to the leader-directed activities
    - Members roll is as a participant
  - Unstructured where a group in the neighborhood decide to walk early each morning?
    - Members adhere to the norm of the group
    - Members roll is flexible

- Which type do you think is the most effective? Why or why not?
What makes a successful group interventions?

- We have learned:
  - High level of cohesion is related to greater adherence.
    - Fostering cohesion in the group.
  - Size of the class is related to greater adherence
    - Small and large classes
  - Perceived and social support
    - Foster social support in the group.
  - Type of the exercise leader
    - Socially enriching leader
What are some ways we can increase social cohesion and group support?

- Gender makeup
  - Women often report that they feel uncomfortable in exercise groups where male exercisers are in the majority (Benson, Arthure, & Rideout, 1997)
  - Men seem not to care

- Similarity of oneself to other group members
  - Obese people prefer exercising with other obese people (Bain, Wilson, & Chailkind, 1989)
  - People generally want to exercise with others of similar abilities.
What are some ways we can increase social cohesion and group support?

- Socially enriching versus bland groups
  - Groups that involved participants that were enthusiastic, encouraged each other, and socially interacted experienced greater adherence.
  - Novice participants may not like the socially enriching environment and prefer first to master the exercise skills.
What are some ways we can increase social cohesion and group support?

- Buddy system
  - Pair a experienced participant with inexperienced participant

- Environmental factors
  - Music needs to be enjoyable
  - Temperature affects the clients mood, fatigue, and tension (Hansen, Stevens, & Coast, 2001)
What are some ways we can increase social cohesion and group support?

- **Gym mirrors or no mirrors**
  - Highly active women report greater feelings of self-efficacy when exercising in front of a mirror.
  - Inexperienced exercises prefer not! (Martins, Ginis, Jung, and Gauvin, 2003)

- **Class size**
  - Participants in small classes expect more individual attention and reinforcement.
  - Participants in large classes expect a leader who address attention and reinforcement to whole group not individually (Carron, 1990)
What are some ways we can increase social cohesion and group support?

- Family, spouse, and parental support
  - Provide opportunities for the spouse to participate
  - Child day care centers
  - Pester one love one to exercise may result in behavioral reactance, that is, doing the opposite.
What are some ways we can increase social cohesion and group support?

- Each PA groups must be made distinctive (foster feelings of distinctiveness)
  - Group name, group T-shirt
- Have the individuals be given the right to choose
  - Intensity, duration, and goals of program
- Have each experienced group member spend time helping new members
  - New members will learn individual sacrifice, techniques necessary for participation in the class, and gain skill
- Establish Common Goals
What are some ways we can increase social cohesion and group support?

- Westcott (1991) indicated that participants rated knowledge as the most important characteristic of a fitness instructor.

- Recently Kennedy (2004) reported classes named “turbo”, “ulimtate”, “high intensity”, “high impact” were not attended.

- Knowing your participants was directly related to adherence in the group.
Creating a Positive Group Environment

- Introduce yourself to the class and have them introduce each other.
- Wear attire and footwear that fit the population.
  - E.g., seniors do not wear spandex
- Explain the class format and what is expected.
- Give positive cues, that is, smile, be energetic, etc.
Group Exercise Leader Skills

- Understanding of muscle balance
- Proper warm-up and stretching
- Prove movement options and verbal cues
- Beginning intensity within the exercise session
- Demonstrate methods of monitoring intensity during cardio segment
- Use different choreographic techniques
- Know step training, kickboxing, stationary indoor cycling, and water exercise.
- Have alternative expertise; such as yoga or pilates; weight training; etc.

- Provide multiple muscle group modifications,
- Type of positive music
- Demonstrate exercise with proper form and alignment
- Know a variety of flexibility exercises appropriate for the target group
- Understand relaxation and deep breathing techniques
- Be able to teach low and high impact classes
- Create smooth transitions in the session
Community Intervention Strategies

- Considered to be the most important for the citizens of the city, state, or country.
Community Level Interventions

- Interventions that assist entire communities
  - Cross country trails
  - Walking & Biking Trails
  - Open Gym
  - University, School, & Community Projects
Key Factor in Community Intervention

- Must be a shared common value to people in the community and by all institutions (government, private business, mass media, schools, university, etc)
  - Interventions must associate with their way of life in the region
  - Intervention must provide the people with some distinctiveness
Community PA Delivery Sites

- Schools
- Work site
- Community centers
- Health Care Facilities
School Sites

- Offered through Physical Education
  - School today offer few PE classes
  - Duration of PE classes are usually short

- School-based interventions have shown
  - Improve knowledge and attitudes toward PA
  - Does increase PA during PE classes but typically, are unsuccessful in increasing out-of-school PA

- School based (CATCH) interventions has shown out-of-school PA increases.
Work Sites

- Industry assumes that there is a link between worker productivity and fitness.

- To date work site PA interventions have had little impact on exercise adherence in their employees.
Health Care Sites

- Touches both healthy and CV diseased population
- The primary prevention programs have had short term positive effects but no long term changes
- Of all the other sites, health care sites have the greatest, positive physical activity effect.
- Health care sites provide more employment opportunities for qualified fitness graduates.
PACE

Community Intervention Program at a Health Care Site
Project PACE

Physician-based Assessment and Counseling for Exercise
Project PACE is a practical system of matching physician counseling with patient readiness for physical activity.
Why are physicians effective PA agents?

- 80% of Americans indicate that their primary source of health information is their personal physician.
- Physicians are in a unique position to improve their patients’ physical activity levels and have access to their medical records and health history.
- Patient surveys show that patients want information about physical activity and that they feel their personal physician is a reliable source of information.
How PACE works

- The entire PACE process requires only 2-5 minutes of interaction between physician and patient.

- Before seeing the physician, the patient completes the PACE assessment form.
How PACE Works

- Based on the patient’s PACE score, the office staff gives him/her three PACE counseling protocols, which the patient completes in 2 - 3 minutes before seeing the physician.

- The protocols are printed so that the patient can take home a copy and the physician has one for the medical record.
Patient’s Pace Score

- **Precontemplator (1)** - People not willing to consider making a change.
- **Contemplator (2 - 4)** - People thinking about making a health behavior change, but don’t have the skills, knowledge, or incentive to do so.
- **Active (5 - 11)** - People in this stage are doing something!
How does the PACE scale work?

- Patients select one statement that best describes their activity pattern.
- The number determines the physician’s counseling protocol.

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<thead>
<tr>
<th>Number</th>
<th>Category</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Pre-contemplators</td>
<td>10%</td>
</tr>
<tr>
<td>2 - 5</td>
<td>Contemplators</td>
<td>50%</td>
</tr>
<tr>
<td>6 - 11</td>
<td>Actives</td>
<td>40%</td>
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How PACE Works

- Inexpensive follow-up procedures occurs, such as a phone call from the office staff and/or a postcard.

- Follow-up prompts the patients to continue their activity program. Accountability.
Benefits of PACE

- Simple and inexpensive
- PAR-Q identifies those at risk of a cardiovascular event.
- Roadblocks of exercise - Stages of Change theory
- Guidelines for “moderate activity” developed by ACSM
CDC Strategies

- **Public Policy**
  - Increase budget toward recreation
  - Zoning & codes

- **Environmental**
  - Require sidewalks
  - Bike lanes
  - Open gyms, community centers

- **Physical Education**
  - Have it in the school!
  - Emphasis on fitness
  - Increase frequency and duration

- **Health Education**
  - Benefits of exercise

- **Extracurricular**
  - Increase access

- **Health Services**
  - Hospitals need be involved!
  - Doctors, nurses, PT’s & AT’s need to involved

- **Community Programs**
  - Involve all institution
  - Be a common goal of community

- **Increase Parental Involvement**
- **Increase the Density of Personal Training**
Environmental Interventions

Refers to the people’s transactions with their physical and sociocultural environments (Sallis, et. al., 1996).
Unit III: Chapters 17-19
Environments & PA Behavior

Environments effect PA behavior in several ways:

a) promoting, or demanding action,
   e.g., these environments are designed for activity such as, sports fields, gyms, health clubs, & YMCAs.

b) discouraging or prohibiting.
   e.g., these environments are designed to restrict or prohibit activity such as classrooms, workplaces, theaters, offices, highways, and living rooms.

PA takes place in specific physical environments that influences the amount and type of the activity.
Environment Interventions & Creating Supportive Environments

All environmental interventions are directed toward creating *supportive environments*.

- A support environment are settings, facilities, and programs.
  - Setting are neighborhoods, schools, and worksites.
  - Facilities are health clubs, cycling paths, parks, etc.
  - Programs are aerobic classes, sport teams, supervised recreation, walking clubs to unsupervised activities they can do on their own.
Supportive Environments

- Design building to promote PA
  - E.g., stairs fun to climb; wide walk places; showers for employees who commute.

- Governments building walking and bicycling for commuting, shopping, and routine activities.

- Provide business (e.g., Cooper Institute for Aerobic Research) offer privileges to employees.

- Employers in Palo Alto reimburse employees who walk or bicycle to work.

- Health insurance provides discounts based on fitness levels.

- Government removes subsidies for companies who rely on sedentary behaviors (e.g. car and oil companies)

- Government increased subsidies for industries that promote PA (e.g. bicycle and sporting goods.)

- Schools that provide daily PA
Environmental Interventions

Environmental interventions should be put in place before educational interventions are attempted.

- Media campaign to promote walking is irrelevant to people in cities where the sidewalks are not required and poorly maintained.
- Duluth mayor encouraging people to ride to work is irrelevant to the citizens because the highways and roads do not have bike lanes.
- UMD encourages the students to walk to school is irrelevant to the students because no one removes snow from their sidewalks in a timely manner.
Environmental Variables Associated with Children’s PA level

Being outdoors
Safe parks
Crime rate
Increases opportunities for winter activities
Increase PA opportunities outside school
Substantial amount of PA takes place in organized sport or activity classes
Decrease time spent in sedentary behavior at home and school.
Environmental Variables Related to Parks

- Parks that are esthetically pleasing and have tree-lined walking paths increases PA use.
- Parks need to be close to shops
- Reduce the use of organized sport team usage of parks.
- Provide walking and bike paths across the entire city connecting the various parks.
- Paths and sidewalks needs to maintained
- Separate paths for bikers and walkers.
Environmental Variables related to one’s Neighborhood

- Low income people are highly concerned with safety, lack of sidewalks, and cost of using recreational facilities.

- Moderate income are highly concerned with location of the recreational facilities, safety but not the cost of using recreational facilities.
Environmental Variables related to Land Use

- Mixed use developments (mixing housing, retail business, and entertainment) are associated with increase PA levels.

- In areas where mass transit is available there is an increase in PA activity.
Summary: Exercise Adherence

- Interventions
- Models of Physical Activity
- Determinates and Correlates of Physical Activity
- Myths and facts about physical activity
The final test about the topics related to exercise adherence will be over chapters 17-19 and notes.