

The Evolution From Cardiac Rehabilitation to Chronic Disease Prevention: One Program's Story



**Peter H. Brubaker PhD
Professor, Health and Exercise Science
Executive Director, Healthy Exercise &
Lifestyle ProgramS (HELPS)**

Thank You



ASAN
Medical Center

Park Seung-Jung MD



Dr. Kee Chan Joo PhD

Pioneers!



5th KACVPR Cardiac Rehabilitation Workshop

1995

제 1 회

ACSM(American College of Sports Medicine)
운동 검사 기사 자격 연수 및 검정



• 기간 : 1995. 6. 18(일) ~ 6. 25(일)
• 장소 : 서울대학교 체육교육과 종합 체육관
• 문의전화 : 880-7804, 7617

- 주최 : 한사랑병원
- 주관 : 서울대학교 체육연구소
한국운동과학회



First Visit to Korea !

Dr. Kee Chan Joo

Great Teacher

Great Scholar

Great Clinician

Great Friend!!

'95 6 22

Other Visits to Korea

ACSM ETT Workshop and Certification
1996 at Seoul National University

Korean Association of Clinical Exercise
Professionals (KACEP) 2001

ACSM Exercise Specialist Exam 2002
KACEP 2002

ACSM Exercise Specialist Exam 2004
Seowon University Alumni Day 2004

3rd International Conference on Exercise
and Health Science 2006

The 1st, 2nd, 3rd KACVPR Cardiac Rehabilitation
Workshop 2007, 2008 & 2009

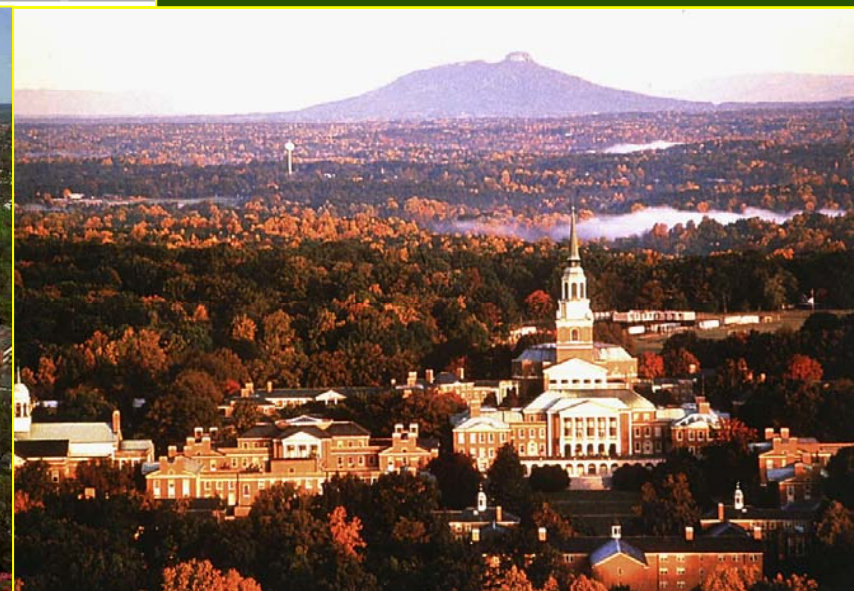
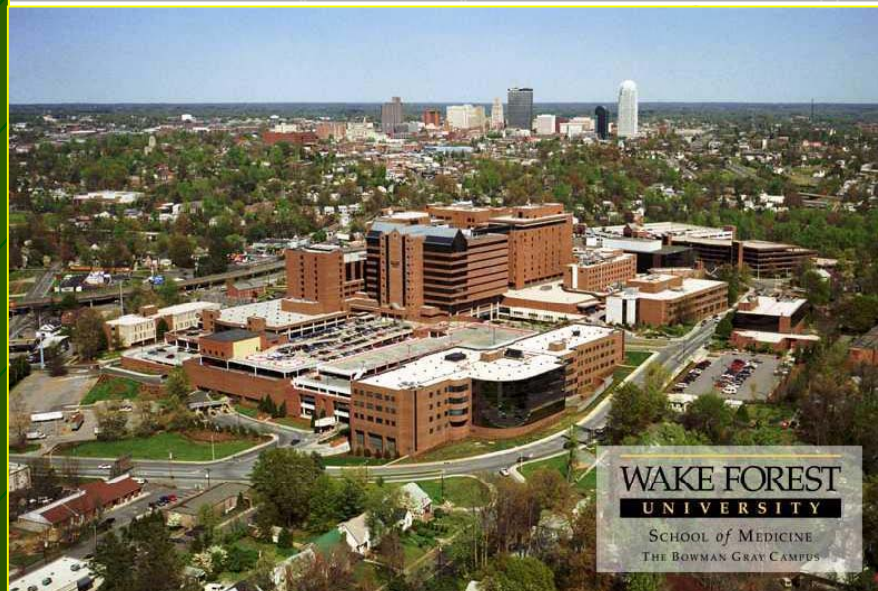


Married in Korea ???





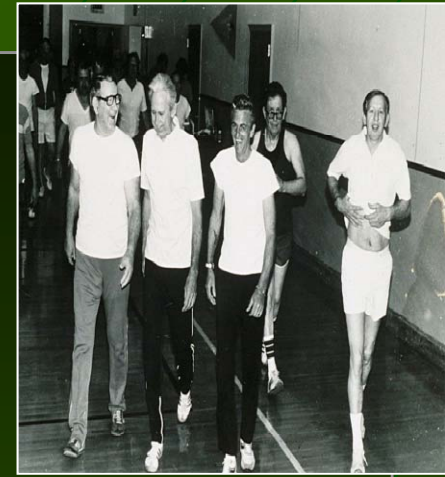
Wake Forest University In Winston-Salem, NC USA





Program Evolution at WFU !

**Adult Fitness Program
1960-1970s**



**Cardiac Rehab
1975 - 2003**



**Healthy Exercise
& Lifestyle Programs
(HELPS) 2003 - ??**

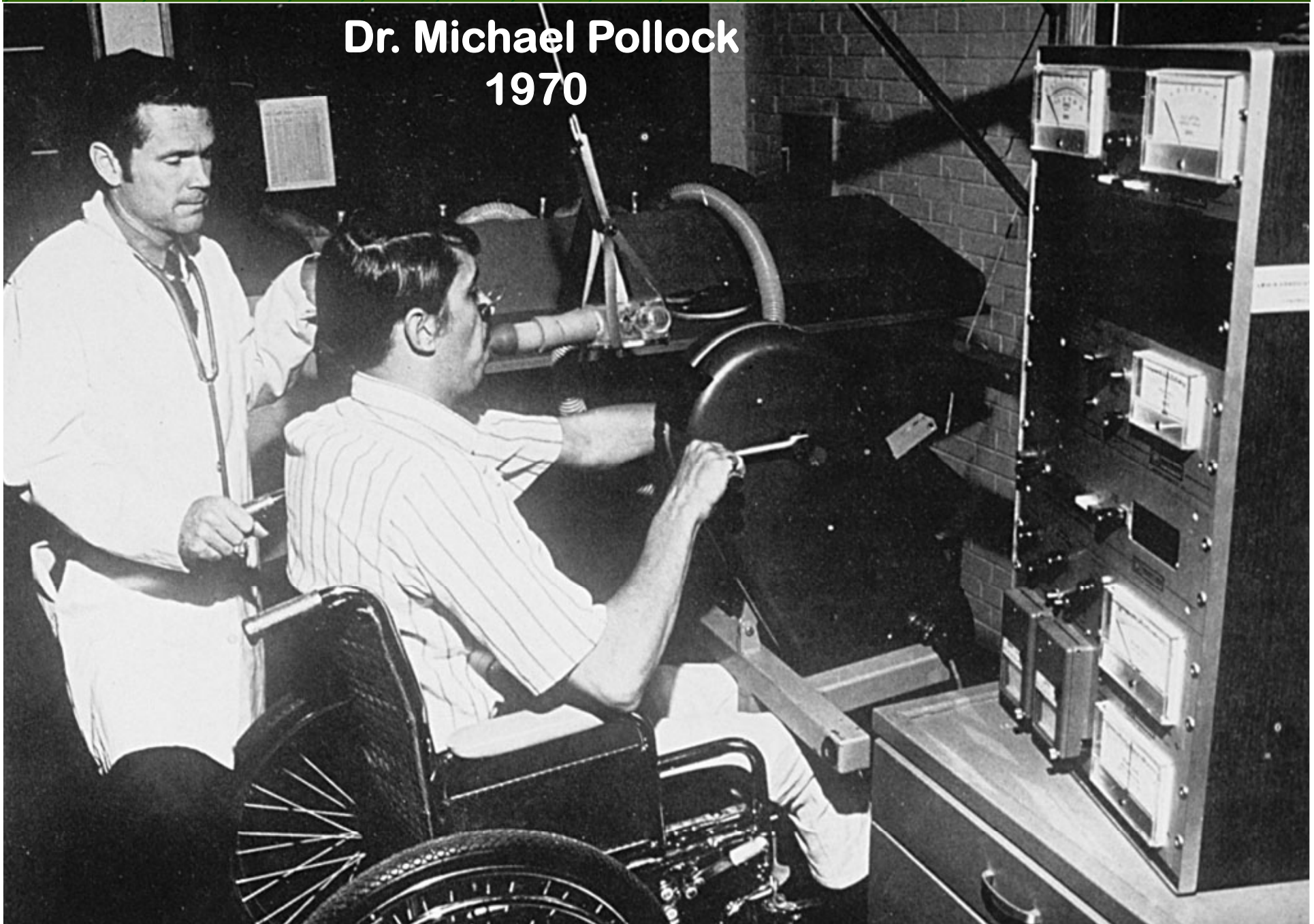


A medically directed, professionally supervised program designed to develop a healthy and active lifestyle through exercise, health and dietary assessments.

HELPS

Healthy Exercise & Lifestyle ProgramS

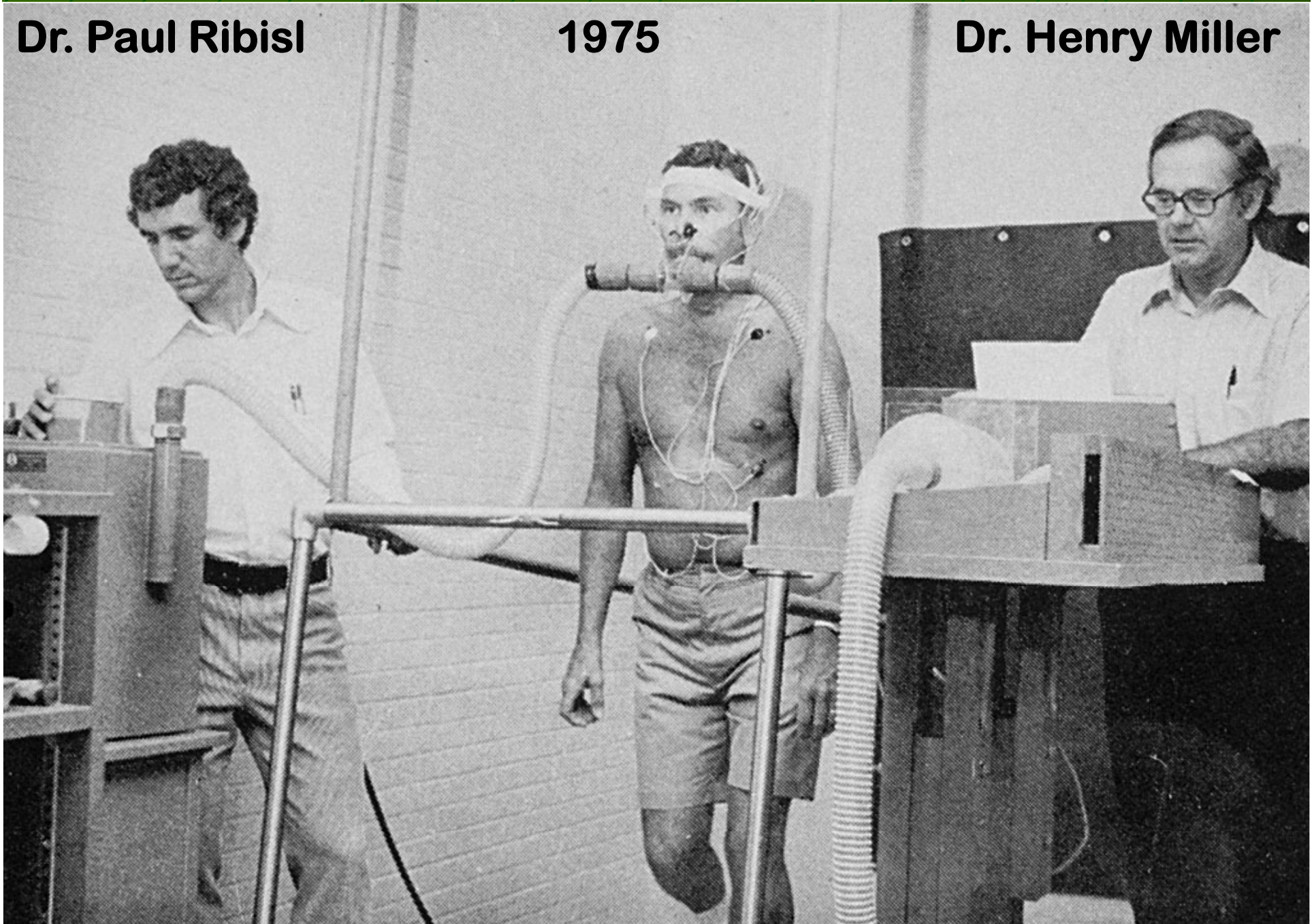
**Dr. Michael Pollock
1970**



Dr. Paul Ribisl

1975

Dr. Henry Miller





CARDIAC REHABILITATION PROGRAM



WAKE FOREST UNIVERSITY
DEPARTMENTS OF
MEDICINE AND PHYSICAL EDUCATION
BOX 7234, REYNOLDA STATION,
WINSTON-SALEM, NORTH CAROLINA 27109
761-5395

CARDIAC REHABILITATION STAFF

Medical Director	Henry S. Miller, M.D.
Program Director	Paul M. Ribisl, Ph.D.
Program Coordinator	Michael Czarnecki, M.A.
Exercise Coordinator	Tommy Boone, Ph.D.
Exercise Specialist	Donald Bergey, M.A.
Psychologist	Wayne Sotile, Ph.D.
Nutritionist	Julie Ellis, M.P.H.
VR Counselor	Albert C. Hillman, M.A.
Administrative Asst.	Marlene Hickman
Med. Records Secretary	Kay Allen
Cardiologist	Joe E. Gaddy, M.D.
Cardiologist	Dean Harris, M.D.
Cardiologist	Ted A. Keith, M.D.
Cardiologist	William J. Spencer, M.D.

Wake Forest University Cardiac Rehabilitation Program 1975-2003

- Started in 1975 by American Heart Association Grant
- Multi-disciplinary approach
- Over 4,000 patients during 28 yrs.
- More than 750,000 patient hours of exercise
- More than 12,000 exercise “stress” tests
- 8 cardiac arrests & 2 AMIs. All successfully managed by staff

Why CRP → HELPS ??

- frustration with third party reimbursement (i.e. health insurance)
- “growing” need for chronic disease prevention !



An iceberg floating in the ocean, with a small tip above the water and a much larger mass submerged below. The image is used as a metaphor for disease prevention levels. The tip above water represents 'Known Disease' and 'secondary prevention/CRP'. The large submerged part represents 'Risk Factors' and 'primary prevention'. The bottom part of the submerged iceberg represents 'Lifestyle' and 'premordial prevention'.

Known Disease
“secondary prevention/CRP”

Risk Factors
“primary prevention”

Lifestyle
“premordial prevention”

US population at high risk

Hypercholesterolemia*

- 106.9 million
- 94 million not treated

Hypertension†

- 65 million
- 27 million not treated

Diabetes‡

- 14.6 million diagnosed
- 6.2 million undiagnosed

**Patients with CHD/stroke:
18.4 million/y**

**Direct: \$105.7 billion/y
Indirect: \$93.2 billion/y
Total cost: \$198.9 billion/y**

**CRP
20%**

*Total-C \geq 200 mg/dL
†BP \geq 140/90 mm Hg
‡FBG \geq 126 mg/dL

AHA. *Heart Disease and Stroke Statistics—2005 Update*.
Hajjar I and Kotchen TA. *JAMA*. 2003;290:199-206.
Ford ES et al. *Circulation*. 2003;107:2185-9.
CDC. www.cdc.gov/diabetes/pubs/pdf/ndfs_2005.pdf.



Lifestyle "crisis" ?



Killer Sofa.

Lack of exercise and a poor diet puts kids at serious risk for Heart Disease, Diabetes, Asthma, Joint Pain and more.

There are steps every parent can take... small steps that can make a big difference. Maybe it's a family walk once a week or having fruit instead of snacks instead of chips. And keeping fast food to a minimum. Start now. Help your kids make healthier choices. Ask your doctor for more information.

Make Healthier Choices.
Eat healthy foods. Get more exercise.

The HSC Foundation
physicians care

Chronic Disease Causes !

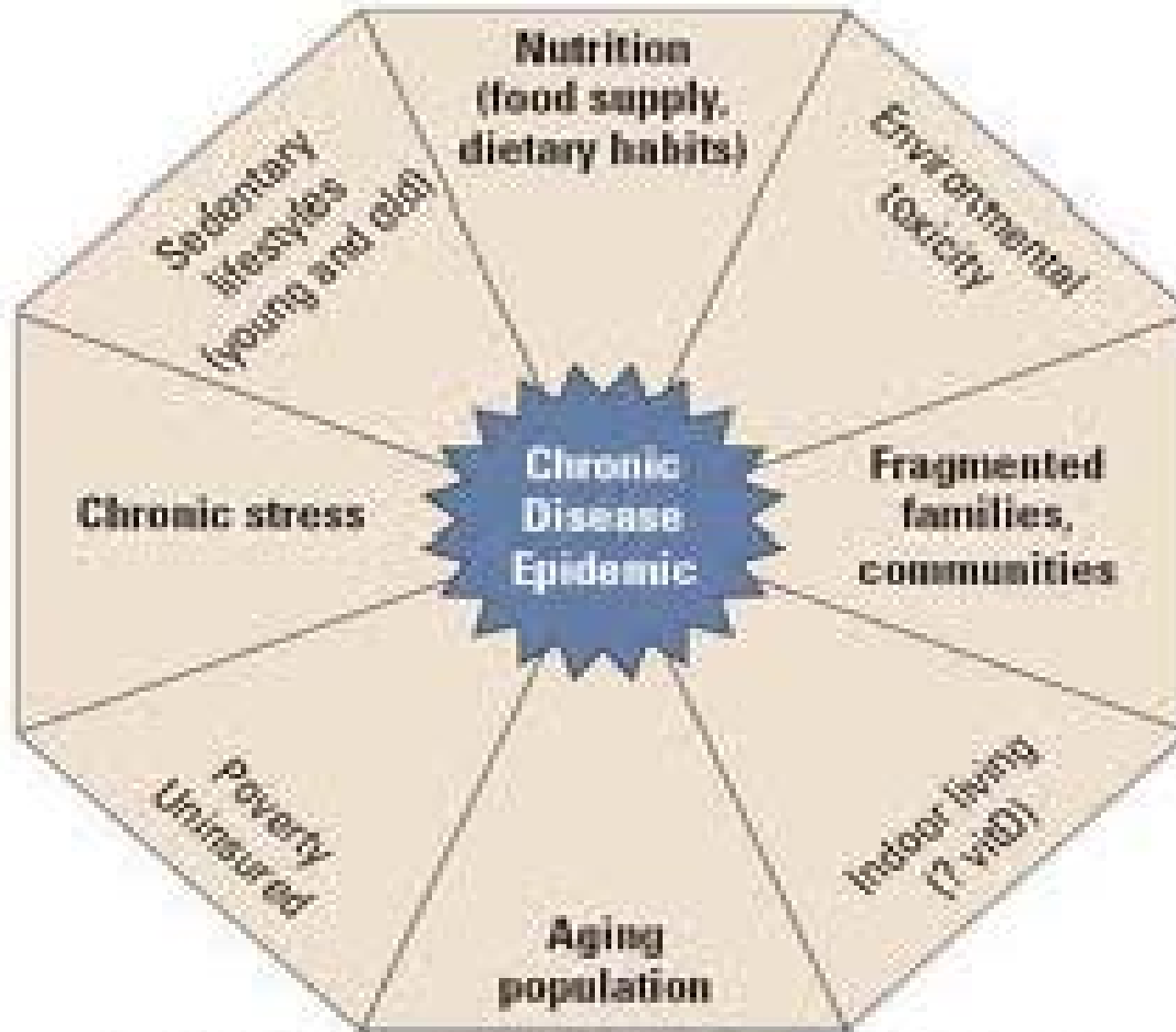
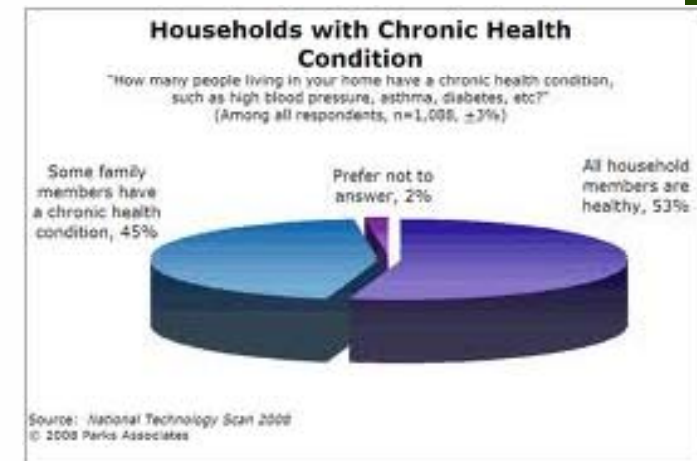
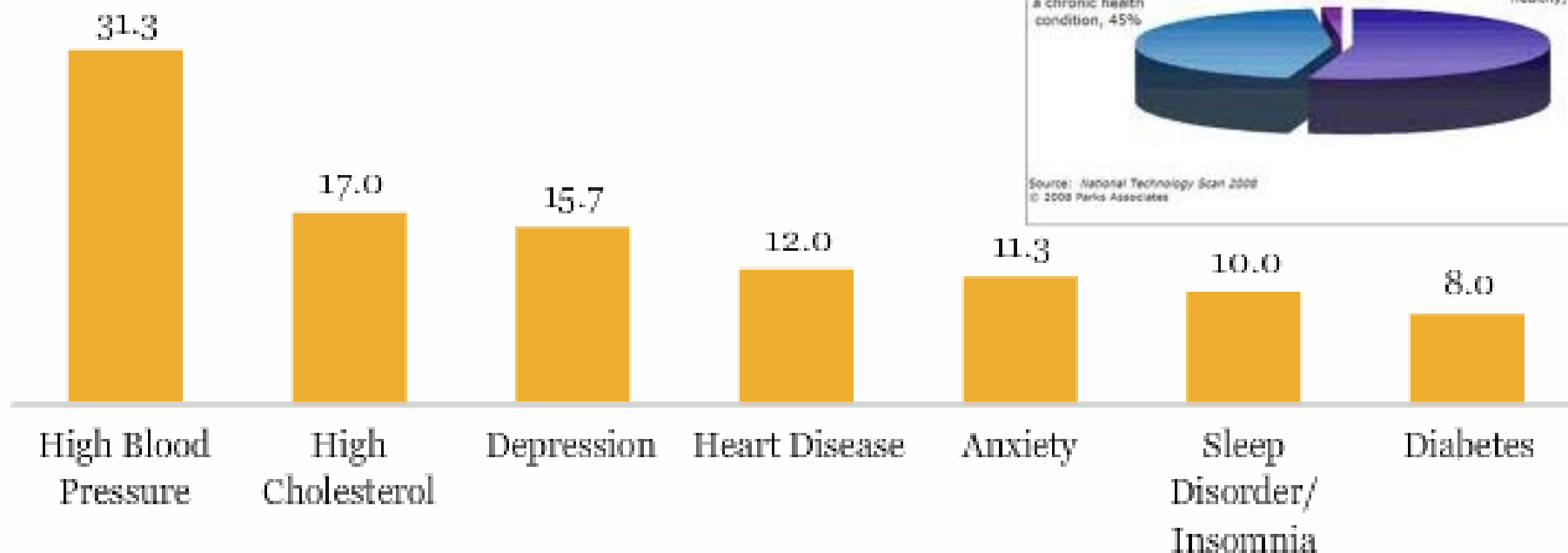


Figure 1: Major Influences Contributing to the Epidemic of Chronic Disease

Chronic Disease in the United States

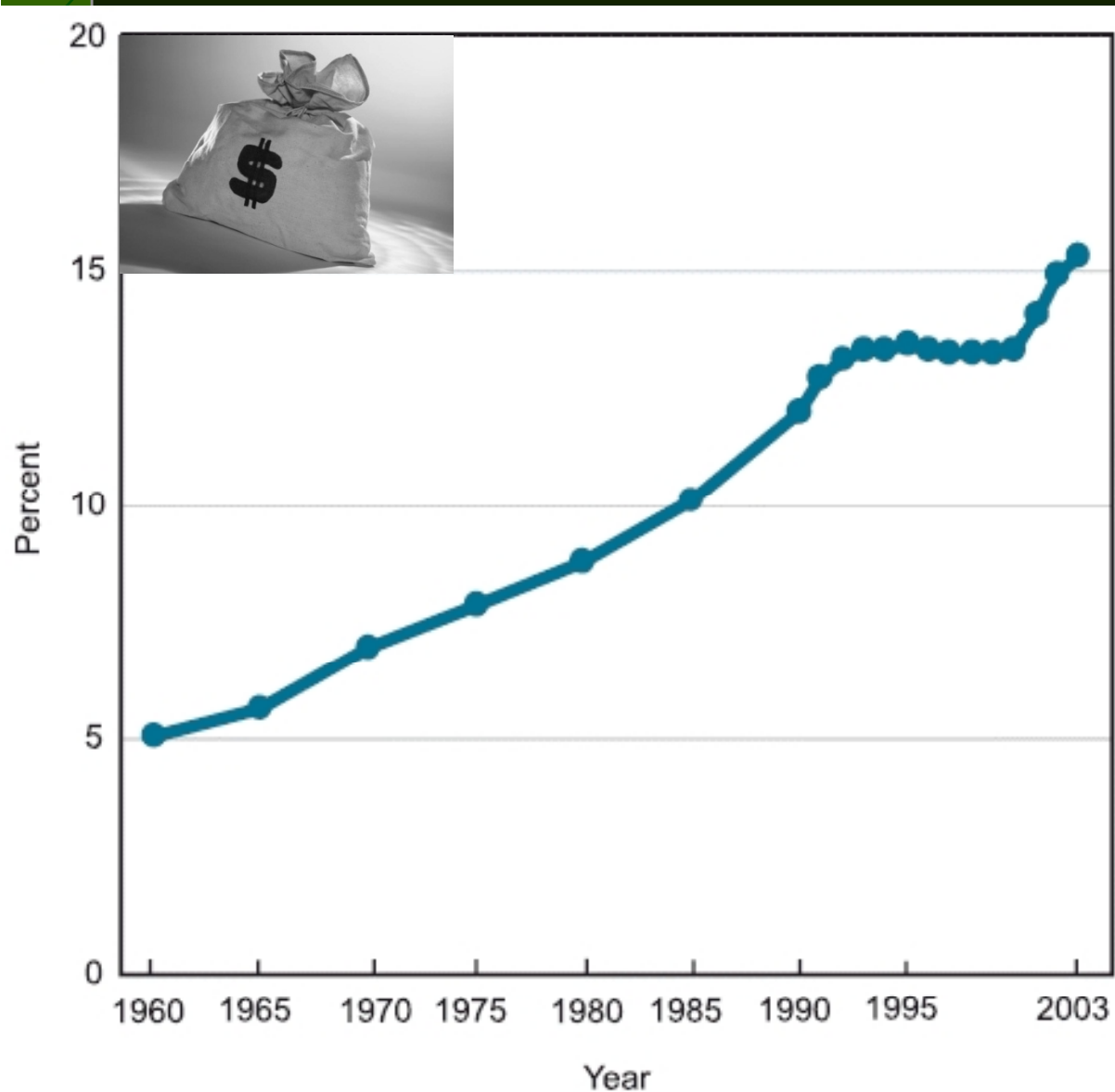
Chronic conditions -- such as high blood pressure, high cholesterol, depression, heart disease, anxiety, sleep disorder/insomnia, and diabetes -- affect the lives of many Americans. This chart shows the percentage of U.S. adults diagnosed with these diseases.

■ % of U.S. Adults With Disease/Condition



Source: Centers for Disease Control and Prevention (2004-2008)

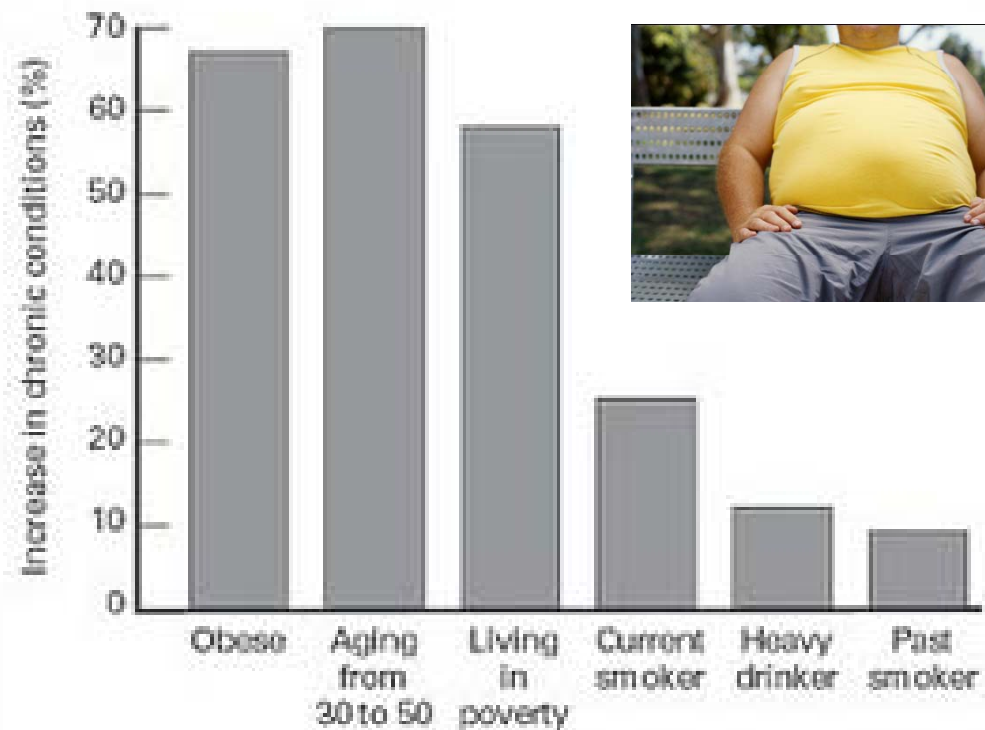
National health expenditures as a percent of Gross Domestic Product: United States, 1960–2003



- US spends 2.2 trillion/yr on health care
- 75 cents of every dollar is used to treat chronic disease conditions
- Only rank 27th in life expectancy in industrialized countries

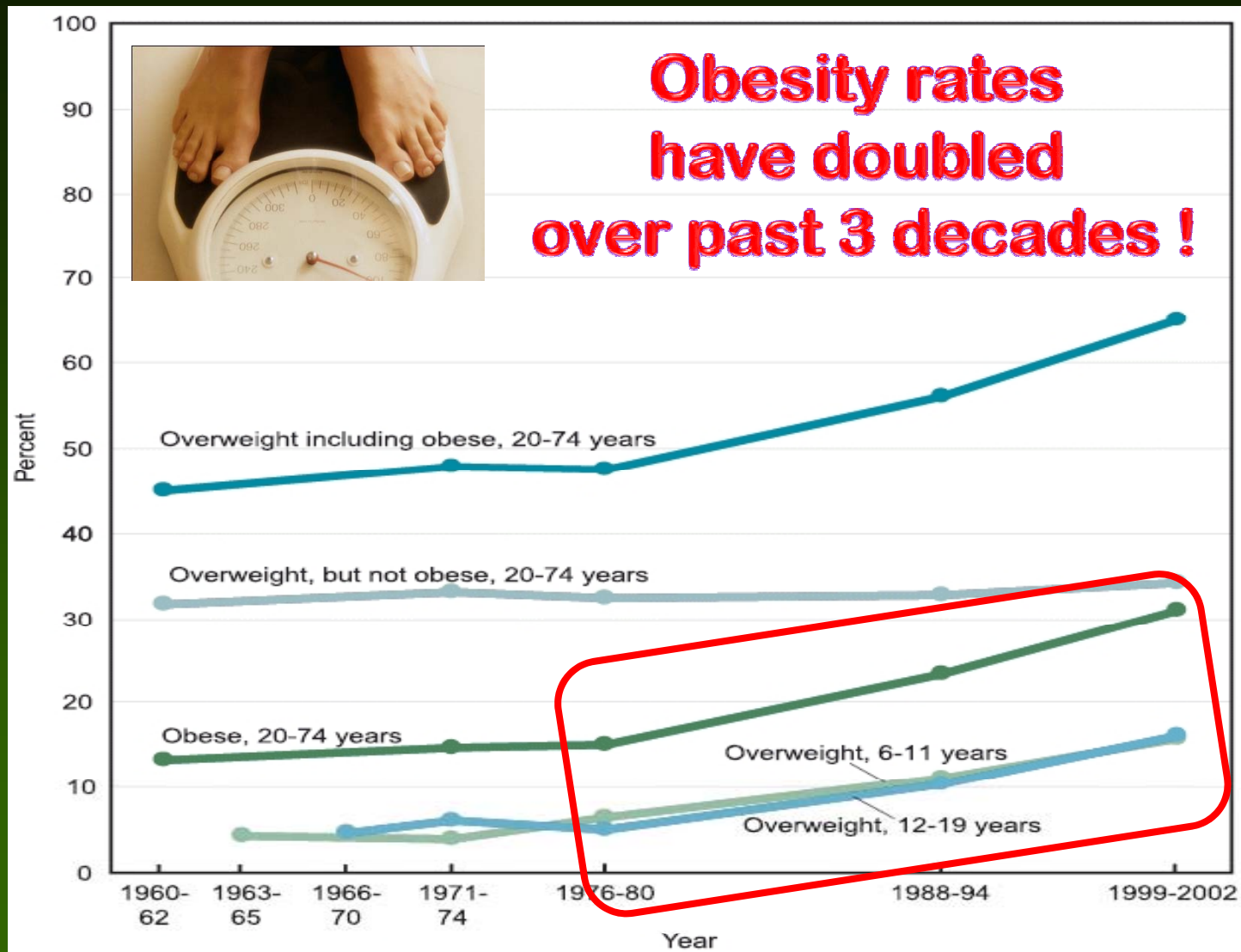
What is Causing the Increase in Chronic Disease ?

Figure 1. Obesity Is Linked to a Significant Increase in Chronic Conditions



Baseline = comparable normal-weight individuals with no history of smoking or heavy drinking.

Overweight and obesity by age: United States, 1960–2002



Obesity & Chronic Diseases: A Global Problem !



face to face
WITH **CHRONIC DISEASE**
heart disease stroke cancer diabetes
chronic respiratory disease
visual impairment hearing impairment



Projected main causes of death, worldwide, all ages, 2005

Communicable diseases, maternal and perinatal conditions, and nutritional deficiencies
30%

Cardiovascular diseases
30%

TOTAL DEATHS 2005
58 million

60% (35 MILLION) DUE TO CHRONIC DISEASES

Injuries
9%

Cancer
13%

Other chronic diseases
9%

Diabetes
2%

Chronic respiratory diseases
7%

The number and rates of projected chronic disease deaths in males and females for four age groups are shown in the table on the facing page. The number of deaths is similar in males and females. The death rates for all chronic diseases rise with increasing age but almost 45% of chronic disease deaths occur prematurely, under the age of 70 years.



- CDC estimates if tobacco use, poor diet, and physical inactivity were eliminated in US, it would prevent;
- 80% of heart disease and stroke
 - 80% of Type 2 diabetes
 - 40% of cancer



Peter Brubaker PhD Executive Director
Heath Thornton MD Medical Director
Julie Ellis MPH Nutritionist
Jordan Hauser MS Ex. Program Director
Jim Ross MS Lab/Assessment Director
Andrea Cox Program Coordinator

HELPS is a medically directed, professionally supervised “chronic disease prevention program” designed to help individuals develop healthy, active lifestyles.



Stable CVD
Diabetes
Arthritic
Overweight
Deconditioned
Elderly
(n=5,000)



HELPS – Assessment & Intervention

- Assessments (initially – then yearly)
 - Laboratory (GXT, biomarkers, body comp.)
 - Dietary
 - Psychosocial/QOL

\$200 USD

- Interventions
 - Exercise (endurance & resistance)
 - Diet/nutrition
 - Smoking cessation
 - Referral to MD for medical management

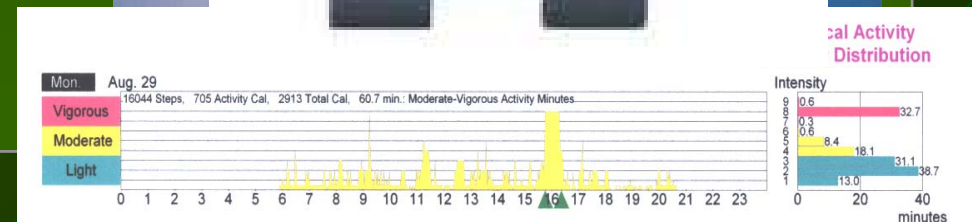
\$55 USD/month

- Education
 - Weekly lectures (health & fitness topics)
 - Individual consultations at entry, 3M, 12M

Scholarship!

HELPS Innovative Interventions

- Know your Numbers
- Get with the Weights
- Holiday Weighty Wager\$
- Lifecorder Challenge





Therapeutic Lifestyle Change (TLC) Program for WFU Employees !

Comprehensive, multifaceted lifestyle intervention based on individualized assessments, behaviorally-based lifestyle interventions, and long-term follow-up

Assessments (initially, 3, 6 & 12 months)

- Exercise test – for screening and ExRx
- Risk Factor Screening – lipids, blood glucose, etc
- Body weight/composition and girth measures
- Accelerometry – physical activity levels and patterns
- Dietary Analysis – caloric and nutrient intake

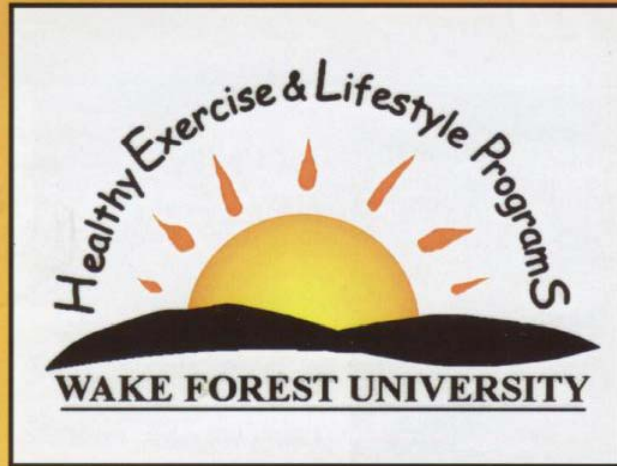
Interventions

- 3 month “Intensive” Program (12 - weekly group sessions)
- Focus on healthy eating, exercise/physical activity, behavioral change
- Structured exercise program (> 2x/week) at CRC
- Individualized feedback on progress/changes

TLC Results (n=90)

At three months, the group results on average have been very positive and included;

- A weight loss of ~ 9 lbs (4.25% of initial bodyweight). One individual lost 47 lbs (18% of bodyweight) and many lost more than 20 lbs in 12 weeks!
- A loss of nearly 2 inches off the waist. Many individuals lost 4-5 inches (10-15%) off their waist
- An ~15% increase in physical function as measured by 6 minute walk test – many improved 30-40%
- A 13 point decrease in total cholesterol and 20 point decrease in triglycerides. Several individuals have decreased cholesterol and triglycerides by more than 100 points
- Most participants demonstrated an improvement in Health-related Quality of Life
- Many participants had a meaningful reduction in resting blood pressure and some have been able to discontinue blood pressure medication.
- Currently evaluating 6 & 12 month data to determine long-term benefits
- Studying impact on employee productivity, absenteeism, health-care savings



A medically directed, professionally supervised program designed to develop a healthy and active lifestyle through exercise, health and dietary assessments.

HELPS

Healthy Exercise & Lifestyle Programs

That's Our Story.....
What's Yours ??