Long-Term Changes in Body Fat and Body Weight in Fire Fighters: A Six Year Longitudinal Study

J.W. Womack, M.S.,

J.S. Green, Ed.D., Ph.D., FACSM,

S.F. Crouse, Ph.D., FACSM,

N.L. Jackson, M.S.,

N. Pronk, Ph.D.

Applied Exercise Science Laboratory
Dept. of Health and Kinesiology

Texas A&M University

Background

- Fire fighters job requirements…..
  - Are physically and mentally strenuous
  - Often change from states of complete inactivity to a physiologically and psychologically demanding state with little or no warning

    (Davis & Dotson, 1987).

Background

- In 1995, 47.7% of on-duty fire fighter deaths were the result of heart attack

  (National Fire Protection Agency, 1996)

- Almost every year since 1977, heart attack has been the leading cause of fire fighter on-duty deaths

  (Washburn, LeBlanc & Fahy, 1996)

Purpose

- The purpose of this study was to examine body composition variables related to cardiac risk in fire fighters as assessed over an extended period of years to determine:
  - if overall values were outside of optimal range
  - if any significant trends could be found

Methods

- Subjects were full time fire fighters employed by a moderate to large municipality

  (n = 49, 43 males and 6 females, mean age = 41.8 + 9.2 yrs.)

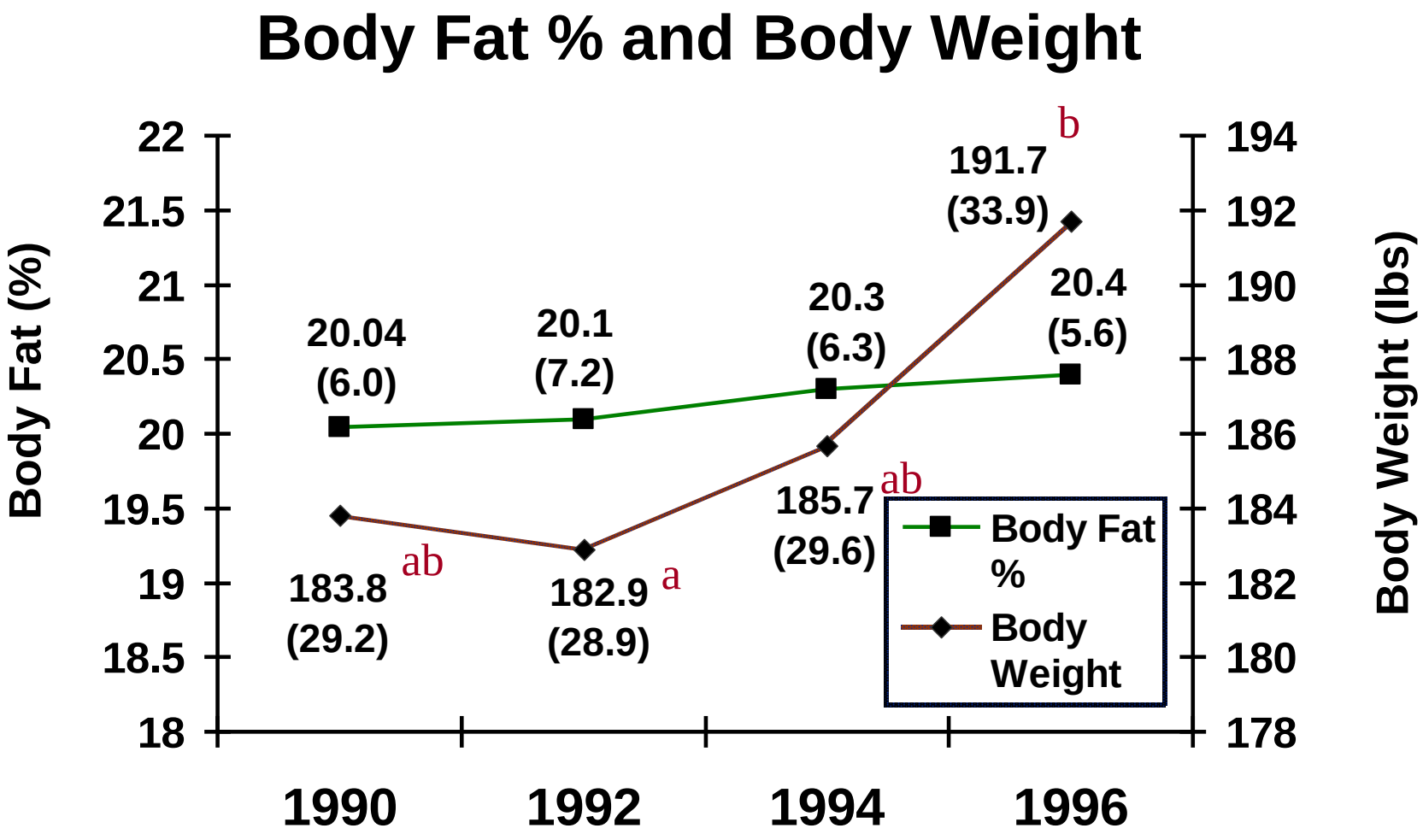
- Subjects were tested annually a minimum of 4 out of 7 years. ($\bar{x}$ = 5.97 tests / seven yrs.)

- Subjects were counseled after each testing session regarding to how they could reduce their overall heart disease risk

Methods

- Subject's were assessed for:
  - **Body fat %**
    - **Underwater weighing**
    - **Skinfolds**
  - **Body weight**
    - **Detecto medical scale**

Results



Means with the same letter are not significantly different

Conclusions

- Although statistically significant year to year differences were found in body weight, the changes were not of physiological importance

- Over the years, body weight and body composition values remain out of recommended ranges