



# **Energy and Women's Health** **some key issues**

---

CR Soman



# Low energy fuels compound health problems of women

---

- Firewood and cow dung are low energy household fuels
- More energy has to be spend by the housewife in relation to the fuel
- Low energy fuels used in Indian households are worst indoor pollutants



# Indoor pollution and human health

---

Indoor pollution is related to

- acute respiratory illness
- Asthma
- COPD
- ? Coronary heart disease
- ? Cancers

A polluted environment causes psychological stress



# Fetching low efficiency fuel demands extra energy

---

Energy requirement of women increase if they spend long hours fetching fuel and water

# Energy equation in human lives

---

Energy is neither created nor destroyed  
*(Law of thermodynamics)*

Energy input = Energy output manifests as  
heat, work and storage as energy rich nutrients

Input energy is exclusively from the food that we  
eat

# Energy providing nutrients of food

---

- Carbohydrates – sugars and starches
  - Proteins – animal and vegetable
  - Fats – animal and vegetable
- 
- 1 gm of carbohydrates provides 4 Kcal
  - 1 gm of proteins provides 4 Kcal
  - 1 of fat provides 9 Kcal

# Unit of energy

---

Kilo calorie is the conventional unit of energy transactions in living organisms

- 1 Kcal = 1000 physical calories
- SI unit of energy is Joule
- 1 calorie = 4.184 joule
- 1 Kcal = 4184 Joules



# Components of human energy requirement

---

- Resting requirement
- Requirement related to occupation
- Requirement related to non-occupational activities

For calculation purposes experts allowed 8 hours each to these three categories



# Resting requirement of energy

---

Energy needed to ensure smooth functioning of the cells, tissues and organs

Cells utilise energy during every movement of their existence.

They carry out work – electrical, osmotic and mechanical – for survival

# Resting energy requirement is similar for people of diverse ethnic origins

---

- Men have 5 – 10 % extra energy requirement for unit surface area
- Women have less metabolising mass.
- During growth resting energy requirement gets higher - children need more resting energy for unit surface area than adults

# A major component of energy requirement is occupational energy need

---

Idyll occupations demands less energy

Physically demanding occupations bring in greater demands on energy

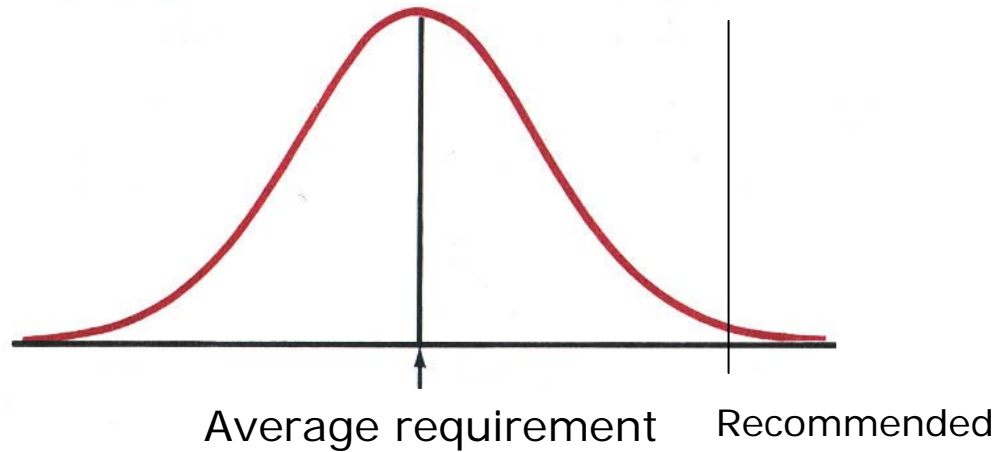
# The great Indian dilemma

---

Energy consumption in people with idyll occupations far exceed that of people who need much higher energy input on account of increased physical activity.

# Energy requirement distribution

---



# The energy requirement of the Indian women is declining steadily

---

However the food availability has shown steady improvement over the years

Reason for declining energy needs

- Improved transportation
- More gadgets for assist energy demanding jobs
- Greater access to amenities like water
- Improved access to efficient fuels
- More labour regulations with control working hours
- Greater recreational opportunities

# The energy content of Indian diet is rising

---

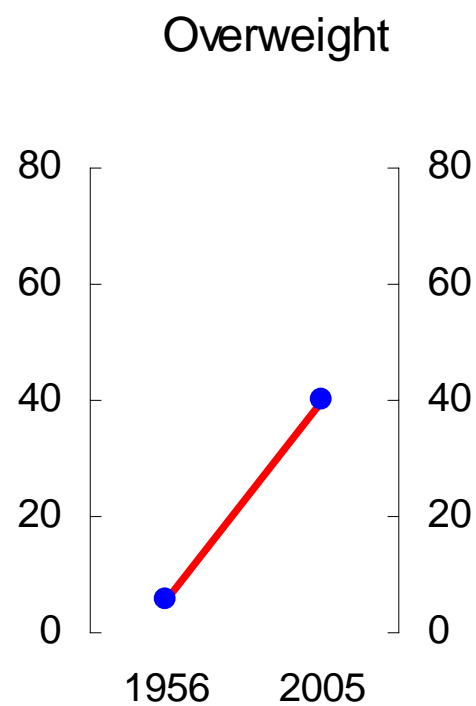
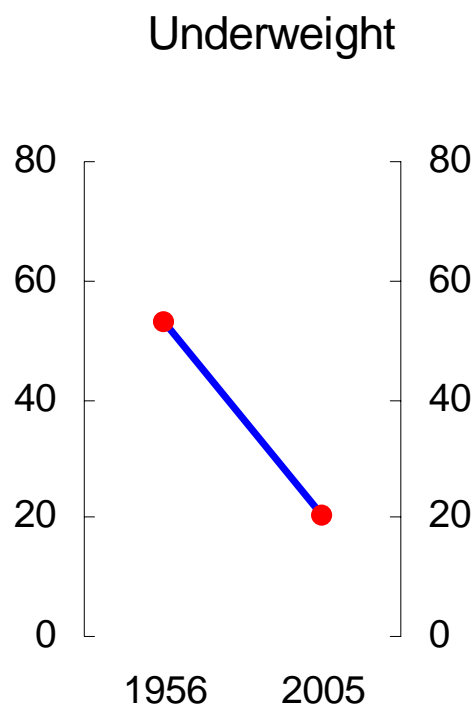
- Access to cheap junk foods
- Increasing consumption of fats and oils
- Greater access to subsidised food
- Greater awareness on nutrition and health

# This imbalance is creating a new health problem for women

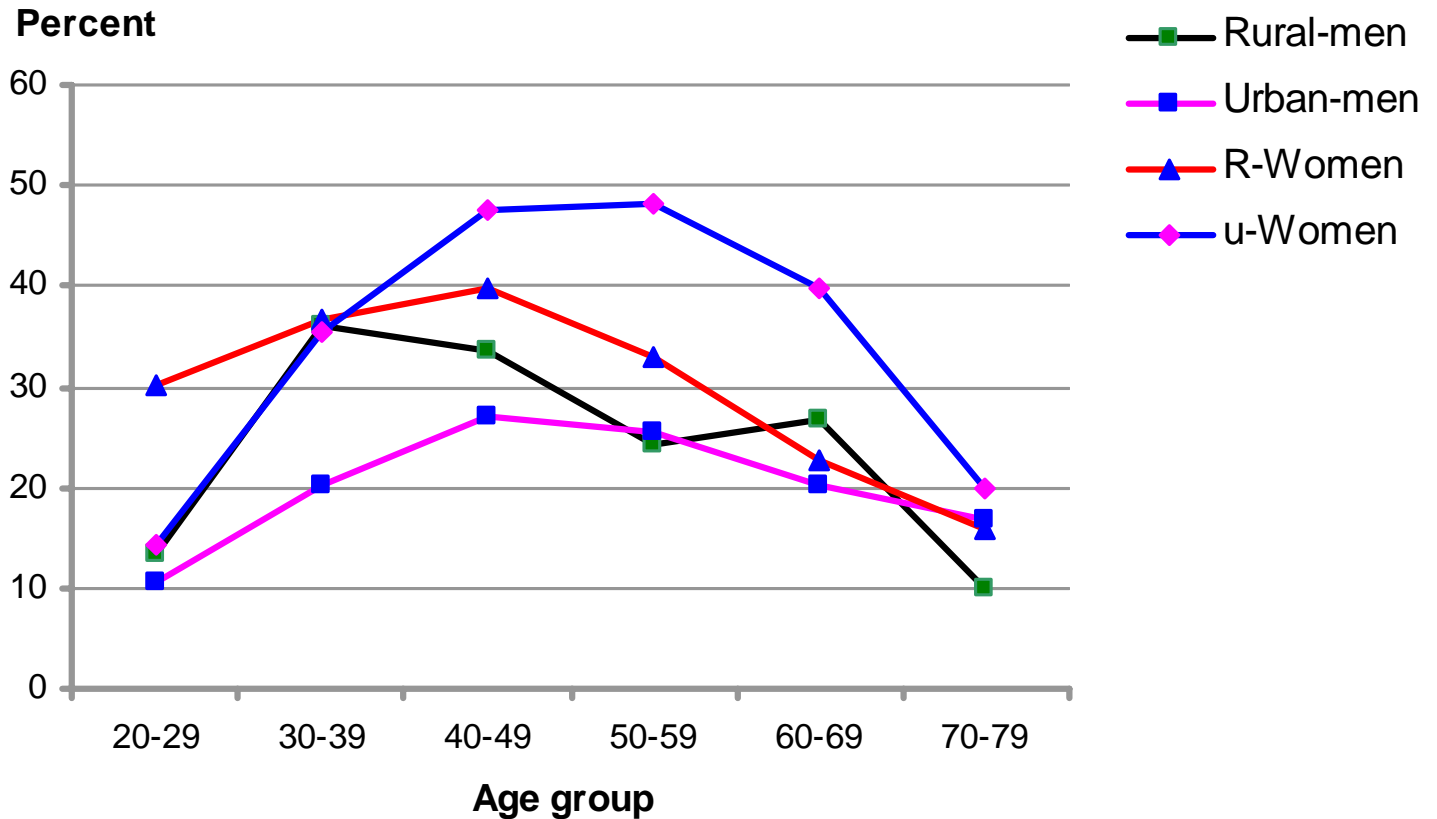
---

- The burden of malnutrition is shifting from under-nutrition (under-weight) to over nutrition and obesity

# Changes in underweight and overweight in Kerala 1956-2006



# Prevalence of overweight in men and women – Kerala\*



\* Prolife- ongoing studies