Differences among Diabetic & Non-Diabetic persons, concerning Body Fat Distribution assessed by CONICITY INDEX.

E. Kapantais, E. Papadimitriou,
K. Vendiadi, E. Manglara,
K. Kofotzouli, M. Marangos
and N. Katsilambros.

1st Dpt. Propaedeutic Medicine
Athens' University Medical School
"Laikon" General Hospital
Athens - GREECE

Background:

- It is well established that excess body fat around the abdomen is related to several metabolic disorders and mainly to type-2 Diabetes Mellitus (NIDDM).
- The most accurate technique for assessing abdominal fat mass, Axial Computerized Tomography (ACT), is costly and time-consuming.
- Anthropometry could be a valid alternative to ACT for the evaluatin of fat distribution. However, current anthropometric indicators of obesity have several limitations.
- CONICITY INDEX implies that abdominal obesity is modelled as the progression of a body from cylindrical shape toward the shape of 2 cones with a common base at the waist level. This geometric approach expressed with the formula: $\text{CONICITY INDEX} = \frac{\text{abdominal girth}}{0.109(\text{weight}/\text{height})^{1/2}}$
- With this new index, the abdominal girths of persons of the same height and weight are referred to the same standard value for comparison.

Aim:

- To assess the Conicity Index values in a group of NIDDM, aged 50-65 years, as compared to Controls.

- To study the correlation between CONICITY INDEX and WHR in NIDDM and Controls.

SUBJECTS & METHODS:

- **Subjects:** Age: 50 - 65 years.
  86 Controls (53 males - 33 females) &
  64 Type-2 Diabetics (33 males - 31 females).

- **Measurements:**
  Weight, Height, Abdominal Girth,
  Waist circumference, Hip circumference.

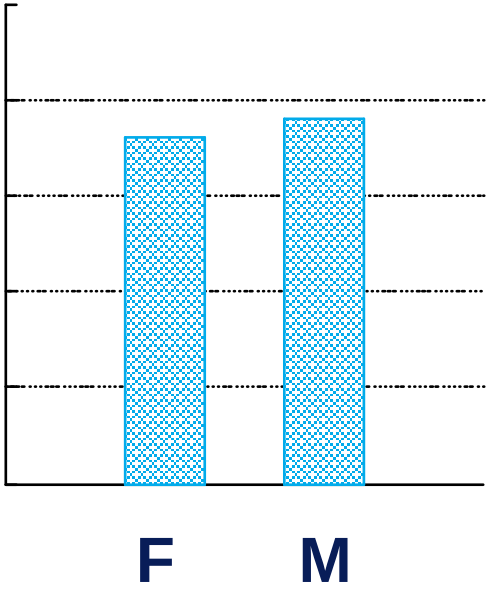
- **Calculation:**
  1) BMI= Weight / Height^2
  2) WHR= Waist circumference / Hip circumference
  3) CONICITY INDEX= $\frac{\text{Abdominal Girth}}{0.109 * (\text{Weight} / \text{Height})^{1/2}}$

RESULTS:

Males : 1.316 ± 0.081

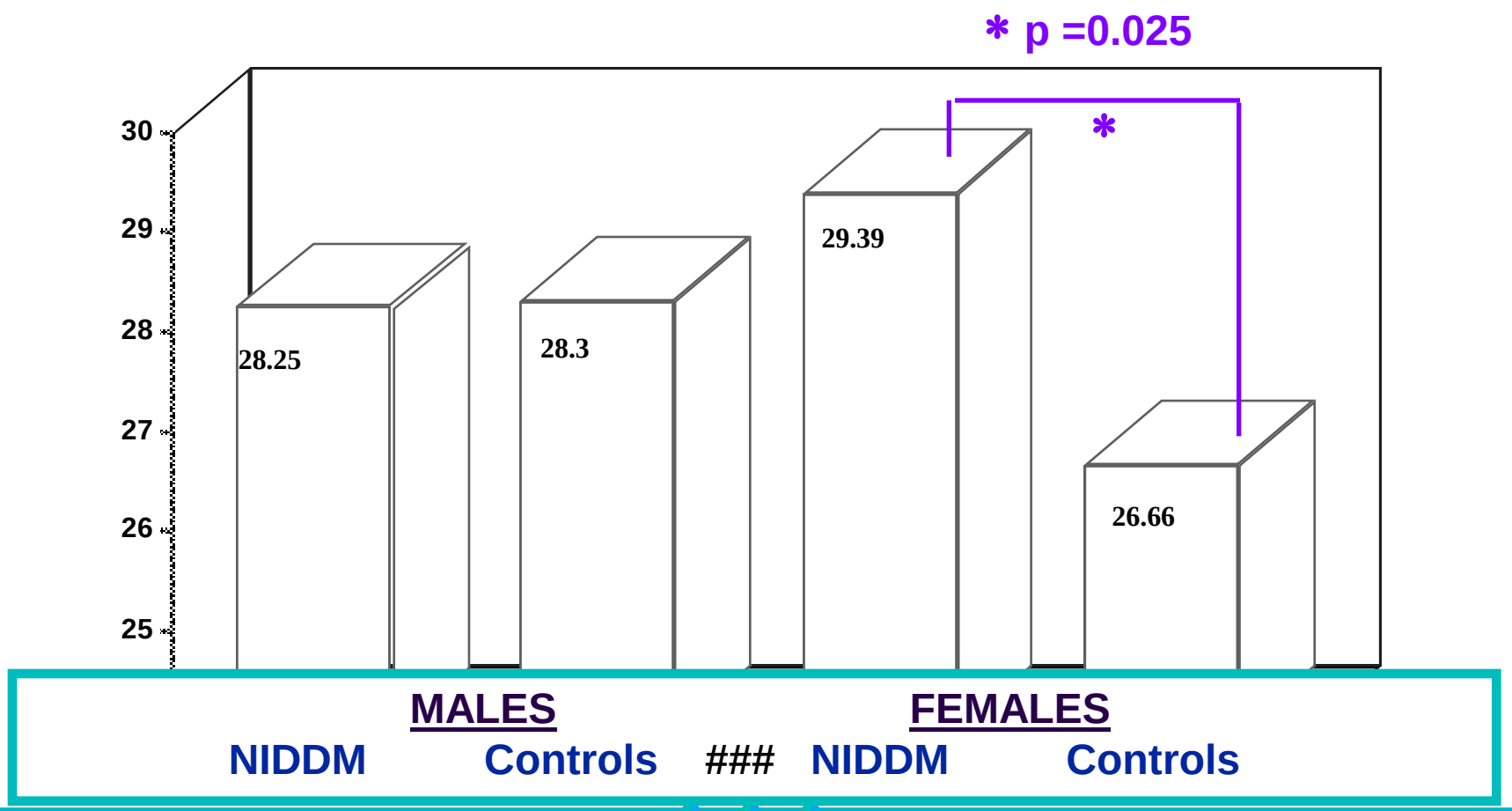
M ± SD

Females : 1.252 ± 0.112

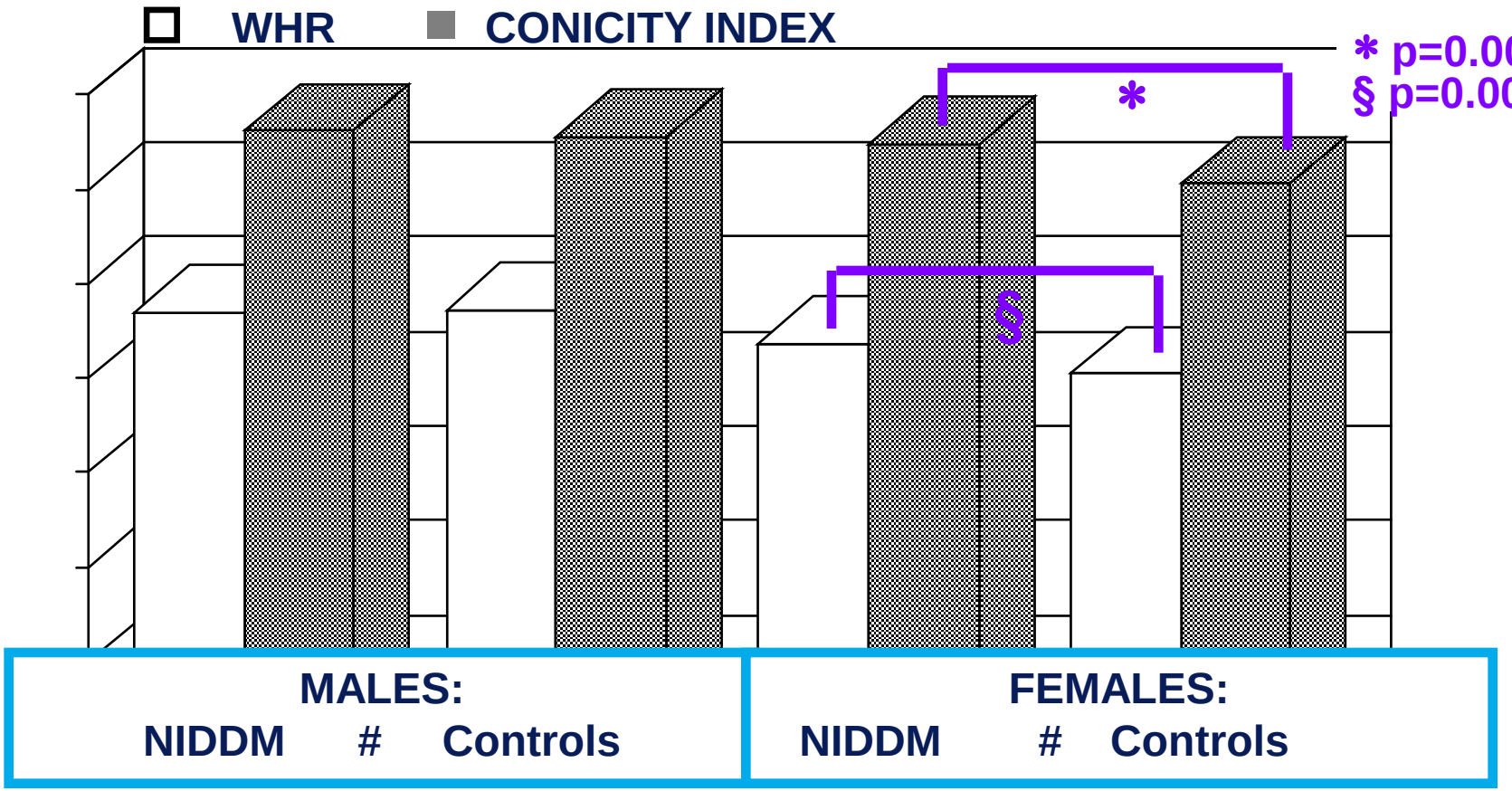


Males and Females
CONICITY INDEX mean values.

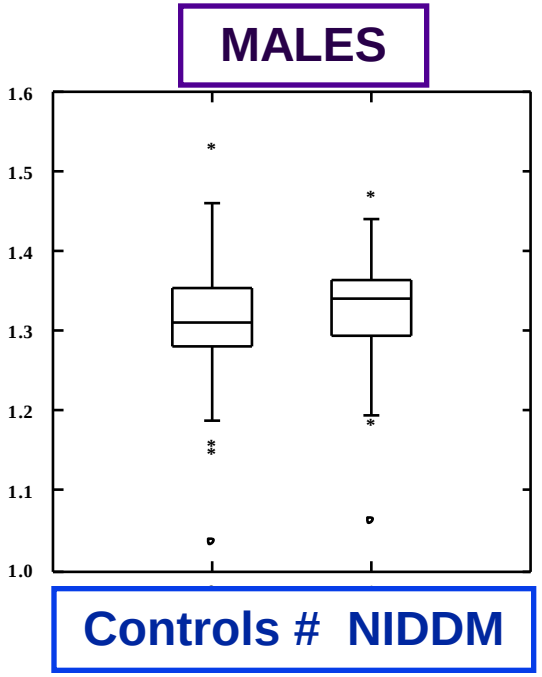
Mean BMI values.

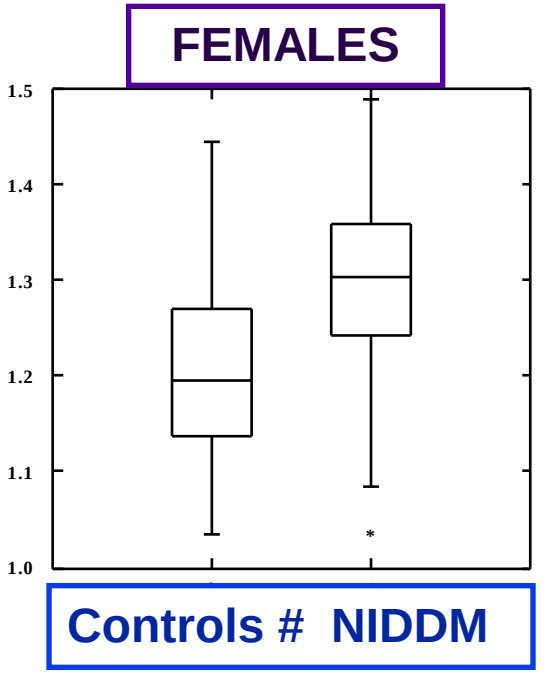


Mean Conicity Index & WHR values



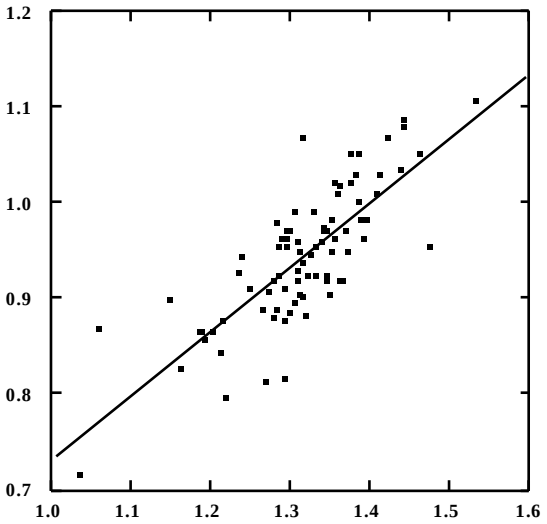
Conicity Index values, in Males and Females, NIDDM and Controls.





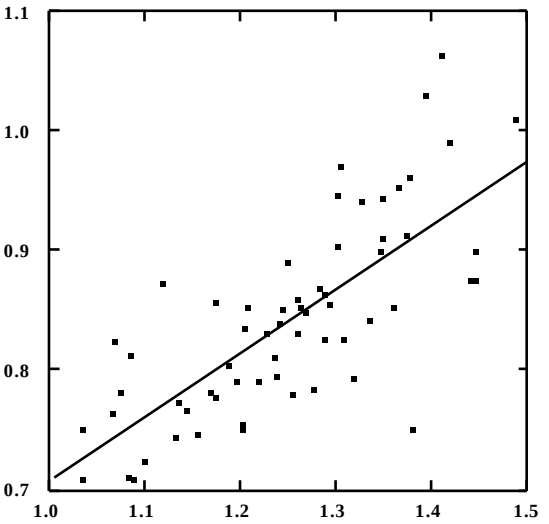
Correlation between Conicity Index & WHR in Males and Females.

r=0.78, p=0.000



MALES

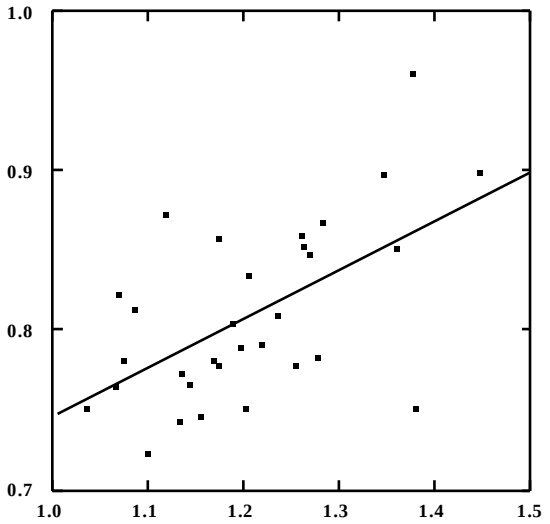
r=0.74, p=0.000



FEMALES

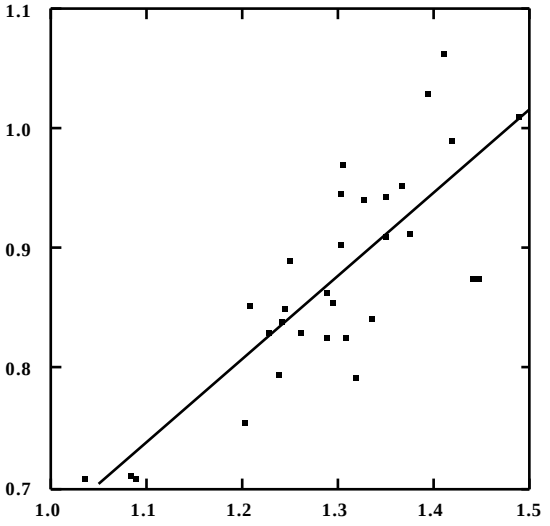
Correlation between Conicity Index and WHR in Females with NIDDM & Controls.

r=0.58, p=0.001



Controls

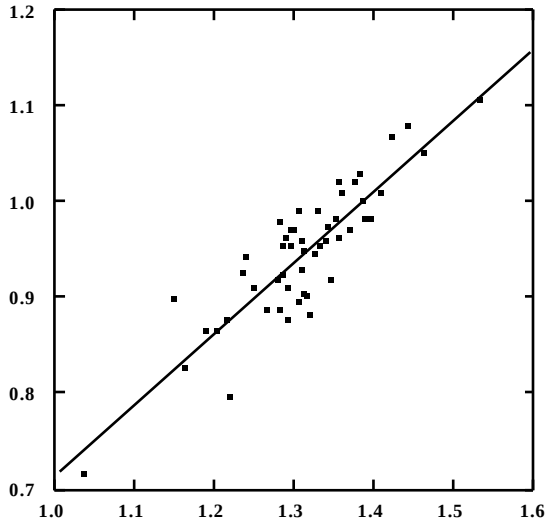
r=0.80, p=0.000



NIDDM

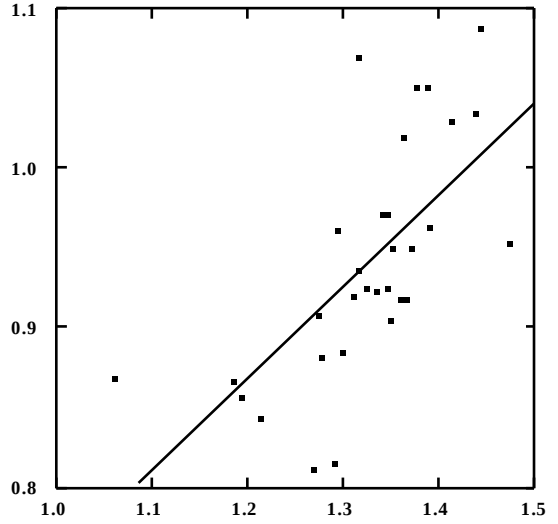
Correlation between Conicity Index and WHR in Males with NIDDM & Controls.

r=0.87, p=0.000



Controls

r=0.66, p=0.000



NIDDM

CONCLUSIONS:

In persons aged 50-65 years:

- **Women with NIDDM present similar Body Fat Distribution, as men with NIDDM.**

- **Conicity Index is closely related to WHR.**