# Waist to height ratio as a new marker of metabolic syndrome in type 2 diabetic patients.

Imen Horchani, Mehdi Oueslati, Meriem Ouerfelli, Ibtissem Oueslati, Karima Khiari, Néjib Ben Abdallah.

Department of Endocrinology, Charles Nicolle hospital. Tunis, Tunisia.

## INTRODUCTION

Metabolic syndrome is closely related to abdominal obesity. Classic anthropometric indices such as body mass index and waist circumference have been used for the screening of metabolic syndrome.

Recently, it has been reported that waist to height ratio is more closely associated with insulin resistance.

The aim of the present study was to assess the relationship between waist to height ratio and components of metabolic syndrome among type 2 diabetic patients.

## METHODS

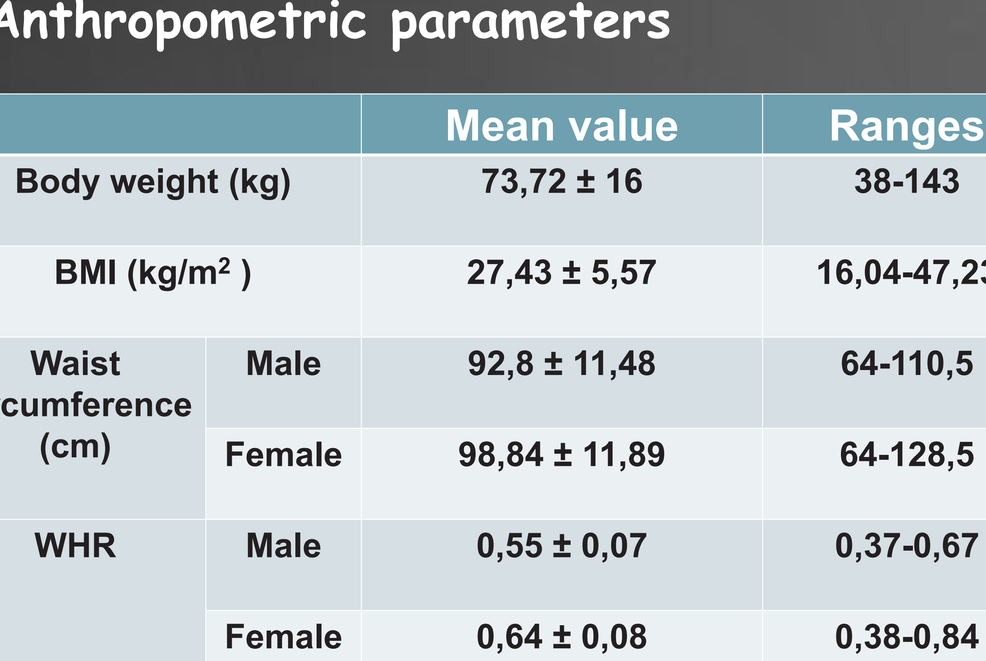
- A cross sectional analysis in 121 type 2 diabetic patients
- 56 women and 65 men.
- We measured anthropometric parameters (body weight, height, waist circumference (WC)) of each patient.
- Body mass index (BMI) was calculated as the body weight divided by the height squared.
- Waist to height ratio (WHR) was calculated as the waist circumference divided by height.
- Fasting blood specimens were collected to measure fasting glucose, glycated hemoglobin (HbA1c), total cholesterol, triglycerides and HDL-cholesterol.

## RESULTATS

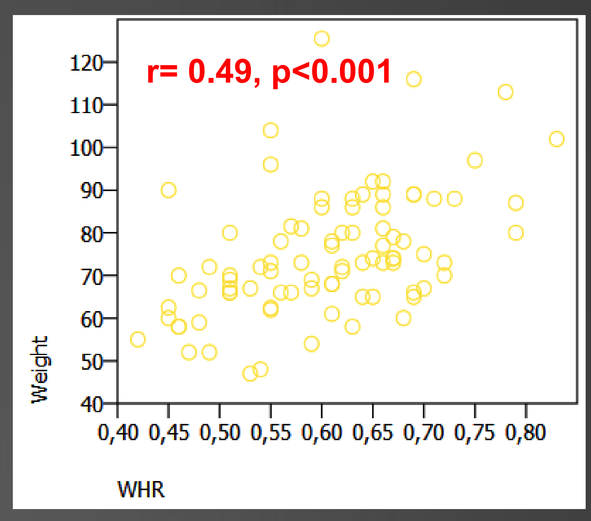
### Anthropometric parameters

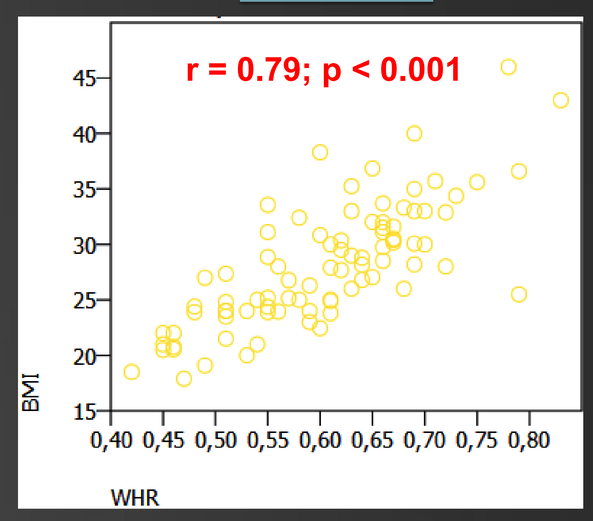
| | | Mean value | Ranges |
|---|---|---|---|
| Body weight (kg) | | 73,72 ± 16 | 38-143 |
| BMI (kg/m$^2$ ) | | 27,43 ± 5,57 | 16,04-47,23 |
| Waist circumference (cm) | Male | 92,8 ± 11,48 | 64-110,5 |
| | Female | 98,84 ± 11,89 | 64-128,5 |
| WHR | Male | 0,55 ± 0,07 | 0,37-0,67 |
| | Female | 0,64 ± 0,08 | 0,38-0,84 |

### Prevalence of overweight and obesity

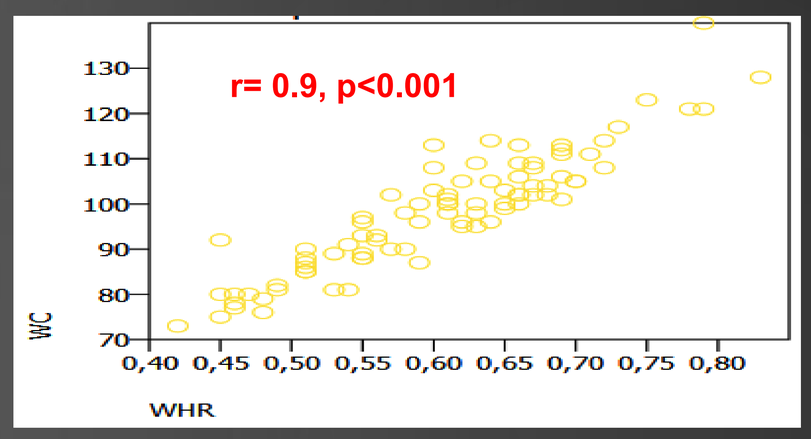



### Correlations between WHR, body weight and BMI




### Correlation between WHR and WC




### Correlations between WHR and blood pressure

| | r | p |
|---|---|---|
| Systolic blood pressure | 0.28 | 0.002 |
| Diastolic blood pressure | 0.218 | 0.01 |

### Correlations between WHR, lipid profile and glycemic control

| | r | p |
|---|---|---|
| Fasting glucose | - 0.01 | 0.8 |
| HbA1c | -0.13 | 0.11 |
| Total cholesterol | 0.3 | 0.001 |
| Triglycerides | 0.314 | <0.001 |
| HDLc | 0.02 | 0.8 |
| LDLc | 0.02 | 0.8 |

## CONCLUSION

It has been demonstrated that waist-to-height ratio is a good predictor of metabolic syndrome. Regardless of sex and age, a cross-sectional, weighted sample estimated the risk factors as high if one's waist-to-height ratio was greater than 0.543 and only moderate between 0.498 and 0.543 (Kahn, 2003).

In our study, we found a positive correlations between waist to height ratio and three components of metabolic syndrome: waist circumference, arterial pressure and Triglycerides.

That 's why, waist to height ratio can be considered as a marker of insulin resistance and it may be a better indicator for screening overweight or obesity-related cardiovascular disease risk factors than the other indices .

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