

سندرم متابولیک در بزرگسالان با وزن طبیعی: مطالعه قند و لیپید تهران

*

چکیده

مقدمه:

روش‌ها:

()
(/ / kg/m²)

(ATP III)

BMI

یافته‌ها:

% (/ / %) % /
/ ± /)
/ ± /)
P= / (/ / %)
(P< / kg/m² / ± /
(P< / cm / ± /

BMI

HDL

/ /)

BMI

.(

نتیجه گیری:

WHO

BMI

واژگان کلیدی:

* نشانی:

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مقدمه

افراد تحت مطالعه:

(MONW)

MONW

[]

HDL

ATPIII []

)

[]

(%

()

[]

:

(/ / kg/m²

جمع آوری داده‌ها:

(WHO)

kg/m²

[]

[]

BMI

[]

) BMI

(WHO

()

()

¹ Metabolically Obese Normal Weight

² Adult Treatment Panel

(mmHg ≤ mmHg ≤
(mg/dl ≤)

روش آماری

SPSS

WHR

±

t

[]

/ / kg/m²

BMI

HDL-C

BMI

β

BMI

-

P for trend BMI

(Inter and intra-

Mantel-Haenzel extension chi-square test

/

assay coefficients of variation)

/ /

HDL

/

یافته‌ها

تعریف واژه‌ها

NIH

(±)

(± /) / (± /)

[] / / kg/m²

BMI

(P< /)

/

[]

ATP III

)

(P< /)

(WC)

<

<

HDL

(mg/dl ≤)

(

> mg/dl >)

HDL

)

(

mg/dl

BMI	()
HDL		
BMI		
	(P for trend)	
BMI	HDL	/ %) % /
		(/ / %) % (/
		(P= /)

HDL

HDL

جدول ۱- مشخصات عمومی افراد شرکت کننده در مطالعه قند و لیپید تهران در دو گروه جنسی

زن ها (تعداد=۱۷۰۷)	مرد ها (تعداد=۱۷۳۷)	
/ ± /	/ ± /	سن (سال)
/ ± /	/ ± /	دور کمر (cm)
/ ± /	/ ± /	نمایه توده بدنی (kg/m ²)
/ ± /	/ ± /	قند خون ناشتا (mg/dl)
/ ± /	/ ± /	تری گلیسرید سرمی (mg/dl)
/ ± /	/ ± /	فشار خون سیستولیک (mmHg)
/ ± /	/ ± /	فشار خون دیاستولیک (mmHg)
/ ± /	/ ± /	HDL سرمی (mg/dl)
		فعالیت فیزیکی *
(/)	(/) [†]	
(/)	(/)	
		استعمال سیگار [‡]
(/)	(/)	
(/)	(/)	
		سطح تحصیلات
(/)	(/)	>
(/)	(/)	
(/)	(/)	<

± ± **

: ‡ †
(P< /) P ††

جدول ۲- شیوع سندرم متابولیک و ریسک فاکتورهای آن در دو گروه جنسی*

زنان	مردان	
/ (/ /)	-	دور کمر بالا †
/ (/ /)	/ (/ /)	HDL پائین †
/ (/ /)	/ (/ /)	فشار خون بالا †
/ (/ /)	/ (/ /)	تری گلیسرید بالا †
/ (/ /)	/ (/ /)	قند ناشتای بالا
/ (/ /)	/ (/ /)	حداقل یک ریسک فاکتور ‡
/ (/ /)	/ (/ /)	حداقل دو ریسک فاکتور ‡†
/ (/ /)	/ (/ /)	سندرم متابولیک

%

HDL ‡
 mg/dl > : HDL < :
 mmHg ≤ : mmHg ≤ :
 (P < /) P †
 (P > /) P

جدول ۳- نسبت شانس و فاصله اطمینان ۹۵٪ عوامل خطر سندرم متابولیک به تفکیک چارک های نمایه توده بدنی در مردان

P میزان (for trend)	نمایه توده بدنی (kg/m ²)				مردان
	۲۴/۰-۲۴/۹	۲۲/۸-۲۳/۹	۲۱/۲-۲۲/۷	۱۸/۵-۲۱/۱	
< /	/ (/ /)	/ (/ /)	/ (/ /)	/	HDL پایین
< /	/ (/ /) †	/ (/ /)	/ (/ /)	/	فشار خون بالا
< /	/ (/ /) †	/ (/ /) †	/ (/ /) †	/	تری گلیسرید بالا
/	/ (/ /)	/ (/ /)	/ (/ /)	/	قند ناشتای بالا
< /	/ (/ /) †	/ (/ /) †	/ (/ /)	/	حداقل یک عامل خطر ‡
< /	/ (/ /) †	/ (/ /) †	/ (/ /)	/	حداقل دو عامل خطر ‡

%

mmHg ≤ : mmHg ≤ : HDL mg/dl > : mg/dl > :
 mmHg ≤ : mmHg ≤ :

P < /

P < / †

HDL ‡

BMI

BMI

HDL

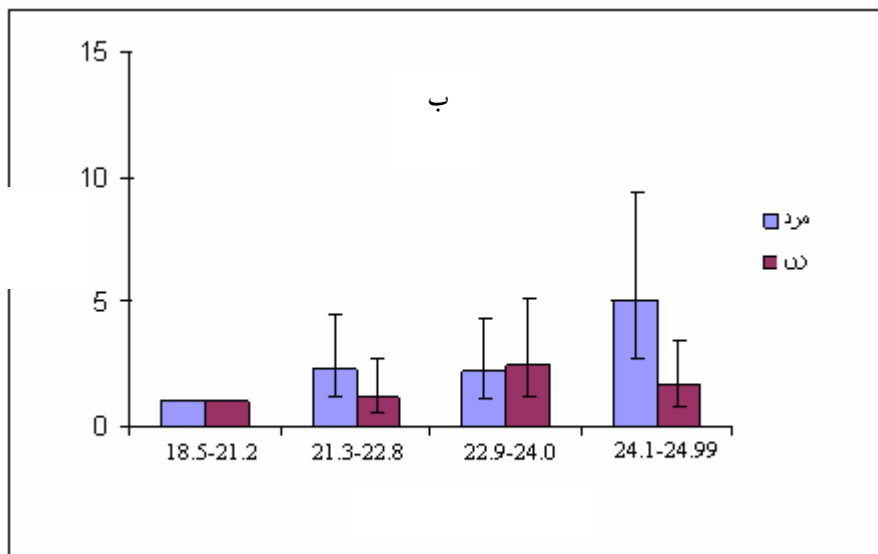
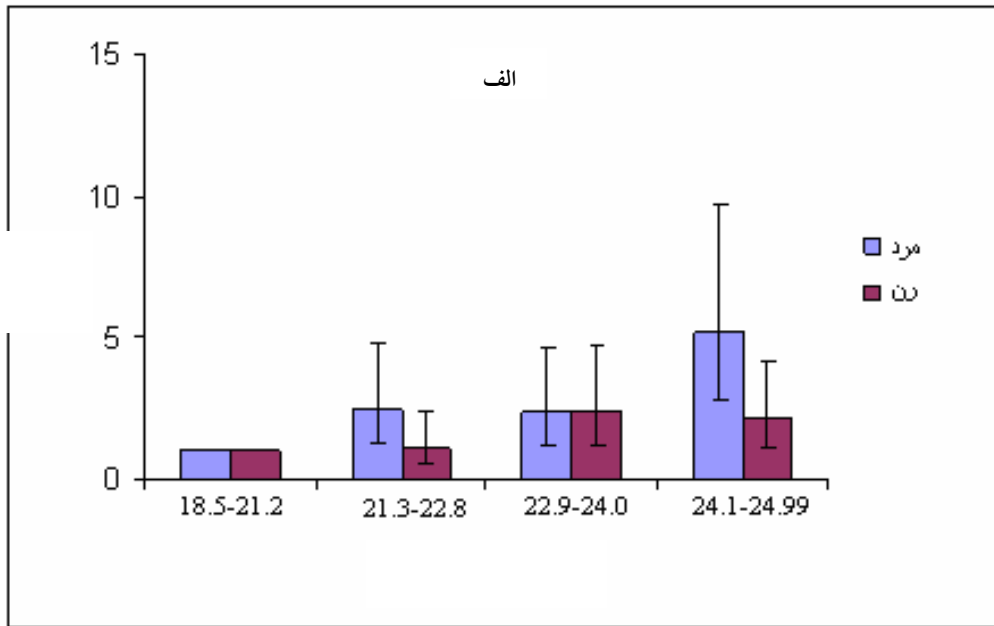
(
(
BMI
BMI
BMI
BMI
بحث
(WC)
BMI
WC (r= /)
WC
BMI
HDL)

جدول ۴- نسبت شانس و فاصله اطمینان ۹۵٪ عوامل خطر سندرم متابولیک به تفکیک چارک های نمایه توده بدنی در زنان

میزان P (for trend)	نمایه توده بدنی (kg/m ²)								زنان
	/	/	/	/	/	/	/	/	
< /	/	(/ /) [†]	/	(/ /)	/	(/ /)	/	/	دور کمر بالا
/	/	(/ /)	/	(/ /)	/	(/ /)	/	/	HDL پایین
/	/	(/ /)	/	(/ /)	/	(/ /)	/	/	فشار خون بالا
< /	/	(/ /) [†]	/	(/ /) [†]	/	(/ /)	/	/	تری گلیسرید بالا
/	/	(/ /)	/	(/ /)	/	(/ /)	/	/	قند ناشتای بالا
/	/	(/ /)	/	(/ /)	/	(/ /)	/	/	حداقل یک عامل خطر [‡]
< /	/	(/ /) [†]	/	(/ /) [†]	/	(/ /)	/	/	حداقل دو عامل خطر [‡]

mg/dl > mg/dl >: HDL < %
 ≤ : mmHg ≤ : mmHg ≤ mmHg ≤ :
 mmHg
 P < /
 P < / †
 HDL ‡

نمودار ۱- نسبت شانس و فاصله اطمینان ۹۵٪ سندرم متابولیک به تفکیک چارک های نمایه توده بدنی



الف- %

(/ =)

BMI

(ATP III)

ب- (P= /)

(P< /)

ATP III

(P< /)

BMI

BMI

BMI

BMI [] Park et al.

BMI

BMI

Ruderman et al. []

kg/m² BMI

Rexode et al []

BMI < kg/m²

[] (MONW)

[]

ATP III

BMI

BMI

BMI

[]

%

[]

BMI

[]

kg/m² BMI

[]

[]

BMI

BMI

HDL

[]

[]

HDL

BMI

[]

BMI

(% /)

Deurenbery-rap et al Naval et al

% H Ito et al []

[]

(/ / :%) % /

BMI

BMI

مآخذ

1. Ruderman NB, Schneider SH, Berchtold P: The "metabolically-obese," normal-weight individual. *Am J Clin Nutr* 1981; 34:1617-21.
2. Ruderman NB, Berchtold P, Schneider S: Obesity-associated disorders in normal-weight individuals: some speculations. *Int J Obes* 1982; 6 (Suppl):151-7.
3. Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults: Executive Summary of The Third Report of The National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, And Treatment of High Blood Cholesterol In Adults (Adult Treatment Panel III). *JAMA* 2001; 285: 2486-97.
4. Azizi F, Salehi P, Etemadi A, Zahedi-Asl S: Prevalence of metabolic syndrome in an urban population: Tehran Lipid and Glucose Study. *Diabetes Res Clin Pract* 2003; 61: 29-37.
5. World Health Organization. (1997b): Obesity: preventing and managing the global epidemic, Report of WHO consultation on obesity; WHO/NUT/NCD/98.1. Geneva: WHO.
6. Tanaka S, Togashi K, Rankinen T, Perusse L, Leon AS, Rao DC, et al. : Is adiposity at normal body weight relevant for cardiovascular disease risk? *Int J Obes Relat Metab Disord* 2002; 26: 176-83.
7. Mirmiran P, Esmailzadeh A, Azizi F: Detection of cardiovascular risk factors by anthropometric measures in Tehranian adults: receiver operating characteristic (ROC) curve analysis. *Eur J Clin Nutr* 2004; 58: 1110-8.
8. Azizi F, Rahmani M, Emami H, Mirmiran P, Hajipour R, Madjid M, et al. : Cardiovascular risk factors in an Iranian urban population: Tehran lipid and glucose study (phase 1). *Soz Praventivmed* 2002; 47: 408-26.
9. National Institutes of Health, National Heart Lung and Blood Institute: Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults- The Evidence Report. National Institutes of Health. *Obes Res* 1998; 6 Suppl 2: 51S-S209.
10. Reynolds K, He J: Epidemiology of the metabolic syndrome. *Am J Med Sci* 2005; 330: 273-9.
11. Park YW, Zhu S, Palaniappan L, Heshka S, Carnethon MR, Heymsfield SB: The metabolic syndrome: prevalence and associated risk factor findings in the US population from the Third National Health and Nutrition Examination Survey, 1988-1994. *Arch Intern Med* 2003; 163: 427-36.
12. Must A, Spadano J, Coakley EH, Field AE, Colditz G, Dietz WH: The disease burden associated with overweight and obesity. *JAMA* 1999; 282: 1523-9.
13. Yamamoto A, Horibe H, Mabuchi H, Kita T, Matsuzawa Y, Saito Y, et al. : Analysis of serum lipid levels in Japanese men and women according to body mass index. Increase in risk of atherosclerosis in postmenopausal women. Research Group on Serum Lipid Survey 1990 in Japan. *Atherosclerosis* 1999; 143: 55-73.
14. Wilson PW, D'Agostino RB, Sullivan L, Parise H, Kannel WB: Overweight and obesity as determinants of cardiovascular risk: the Framingham experience. *Arch Intern Med* 2002; 162: 1867-72.
15. Zhou B, Wu Y, Yang J, Li Y, Zhang H, Zhao L: Overweight is an independent risk factor for cardiovascular disease in Chinese populations. *Obes Rev* 2002; 3: 147-56.
16. Ruderman N, Chisholm D, Pi-Sunyer X, Schneider S: The metabolically obese, normal-

- weight individual revisited. *Diabetes* 1998; 47: 699-713
17. Vikram NK, Pandey RM, Misra A, Sharma R, Devi JR, Khanna N: Non-obese (body mass index < 25 kg/m²) Asian Indians with normal waist circumference have high cardiovascular risk. *Nutrition* 2003; 19: 503-9
 18. Deurenberg-Yap M, Schmidt G, van Staveren WA, Deurenberg P: The paradox of low body mass index and high body fat percentage among Chinese, Malays and Indians in Singapore. *Int J Obes Relat Metab Disord* 2000; 24: 1011-7.
 19. Schurgin S, Siegel RD: Pharmacotherapy of obesity: an update. *Nutr Clin Care* 2003; 6: 27-37.
 20. Ruderman N, Chisholm D, Pi-Sunyer X, Schneider S: The metabolically obese, normal-weight individual revisited: *Diabetes* 1998; 47: 699-713
 21. Deurenberg-Yap M, Chew SK, Lin VF, Tan BY, van Staveren WA, Deurenberg P: Relationships between indices of obesity and its co-morbidities in multi-ethnic Singapore. *Int J Obes Relat Metab Disord* 2001; 25: 1554-62.
 22. Ito H, Nakasuga K, Ohshima A, Sakai Y, Maruyama T, Kaji Y, et al. : Excess accumulation of body fat is related to dyslipidemia in normal-weight subjects. *Int J Obes Relat Metab Disord* 2004; 28: 242-7
 23. Stevens J, Cai J, Pamuk ER, Williamson DF, Thun MJ, Wood JL: The effect of age on the association between body-mass index and mortality. *N Engl J Med* 1998; 338: 1-7.
 24. Blair SN, Ludwig DA, Goodyear NN: A canonical analysis of central and peripheral subcutaneous fat distribution and coronary heart disease risk factors in men and women aged 18-65 years. *Hum Biol* 1988; 60: 111-22.
 25. Bjorntorp P: Abdominal fat distribution and disease: an overview of epidemiological data. *Ann Med* 1992; 24: 15-8.
 26. Pi-Sunyer FX: Medical hazards of obesity. *Ann Intern Med* 1993; 119: 655-60.
 27. Rexrode KM, Carey VJ, Hennekens CH, Walters EE, Colditz GA, Stampfer MJ, et al. : Abdominal adiposity and coronary heart disease in women. *JAMA* 1998; 280: 1843-8.
 28. Stevens J, Cai J, Pamuk ER, Williamson DF, Thun MJ & Wood JL: The effect of age on the association between body mass index and mortality. *N Engl J Med* 1998; 338: 1-7.
 29. Folsom AR, Kaye SA, Sellers TA, Hong CP, Cerhan JR, Potter JD, et al. : Body fat distribution and 5-year risk of death in older women. *JAMA* 1993; 269: 483-7. Erratum in: *JAMA* 1993; 269: 1254.
 30. St-Onge MP, Janssen I, Heymsfield SB: Metabolic syndrome in normal-weight Americans: new definition of the metabolically obese, normal-weight individual. *Diabetes Care* 2004; 27: 2222-8.
 31. Dvorak RV, DeNino WF, Ades PA, Pohlman ET: Phenotypic characteristics associated with insulin resistance in metabolically obese but normal-weight young women. *Diabetes* 1999; 48: 2210-4.
 32. Heber D, Ingles S, Ashley JM, Maxwell MH, Lyons RF, Elashoff RM: Clinical detection of sarcopenic obesity by bioelectrical impedance analysis. *Am J Clin Nutr* 1996; 64: 472S-477S
 33. Dvorak RV, DeNino WF, Ades PA, Pohlman ET: Phenotypic characteristics associated with insulin resistance in metabolically obese but normal-weight young women. *Diabetes* 1999; 48: 2210-4.
 34. Mensink RP, Zock PL, Kester AD, Katan MB: Effects of dietary fatty acids and carbohydrates on the ratio of serum total to HDL cholesterol and on serum lipids and apolipoproteins: a meta-analysis of 60 controlled trials. *Am J Clin Nutr* 2003; 77: 1146-55.
 35. Sacks FM, Katan M: Randomized clinical trials on the effects of dietary fat and carbohydrate on plasma lipoproteins and cardiovascular disease. *Am J Med* 2002; 113 Suppl 9B: S13S-S24.