다낭성난소증후군과 대사 증후군

Chonnam National University Medical School
Department of Obstetrics and Gynecology

Cho Moon Kyoung

Polycystic ovary syndrome

June 2009

Su	Mo	Tu	We	Th	Fr	Sa
	1 13	2 14	3 15	4 16	5 17	6 18
7 19	8 20	9 21	10 22	11 23	12 24	13 25
14 26	15 27	16 28	17 29	18 30	19 1	20 2
21 3	22 4	23 5	24 6	25 7	26 8	27 9
28 10	29 11	30 12				

July 2009

Su	Mo	Tu	We	Th	Fr	Sa
			1 13	2 14	3 15	4 16
5 17	6 18	7 19	8 20	9 21	10 22	11 23
12 24	13 25	14 26	15 27	16 28	17 29	18 30
19 31	20 32	21 33	22 34	23 35	24 36	25 37
26 38	27 39	28 40	29 41	30 42	31 43	

August 2009

Su	Mo	Tu	We	Th	Fr	Sa
						1 44
2 45	3 46	4 47	5 48	6 49	7 50	8 51
9 52	10 53	11 54	12 55	13 56	14 57	15 58
16 59	17 60	18 61	19 62	20 63	21 64	22 65
23 66	24 67	25 68	26 69	27 70	28 71	29 72
30 73	31 74					

September 2009

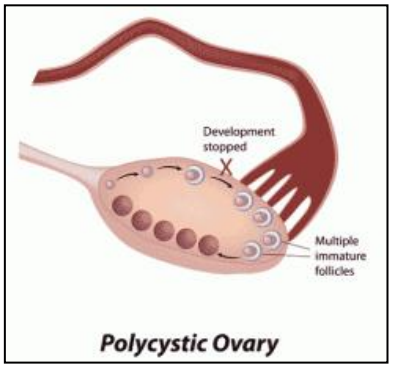
Su	Mo	Tu	We	Th	Fr	Sa
		1 75	2 76	3 77	4 78	5 79
6 80	7 81	8 82	9 83	10 84	11 85	12 86
13 87	14 88	15 89	16 90	17 91	18 92	19 93
20 94	21 95	22 96	23 97	24 98	25 99	26 100
27 101	28 102	29 103	30 104			

October 2009

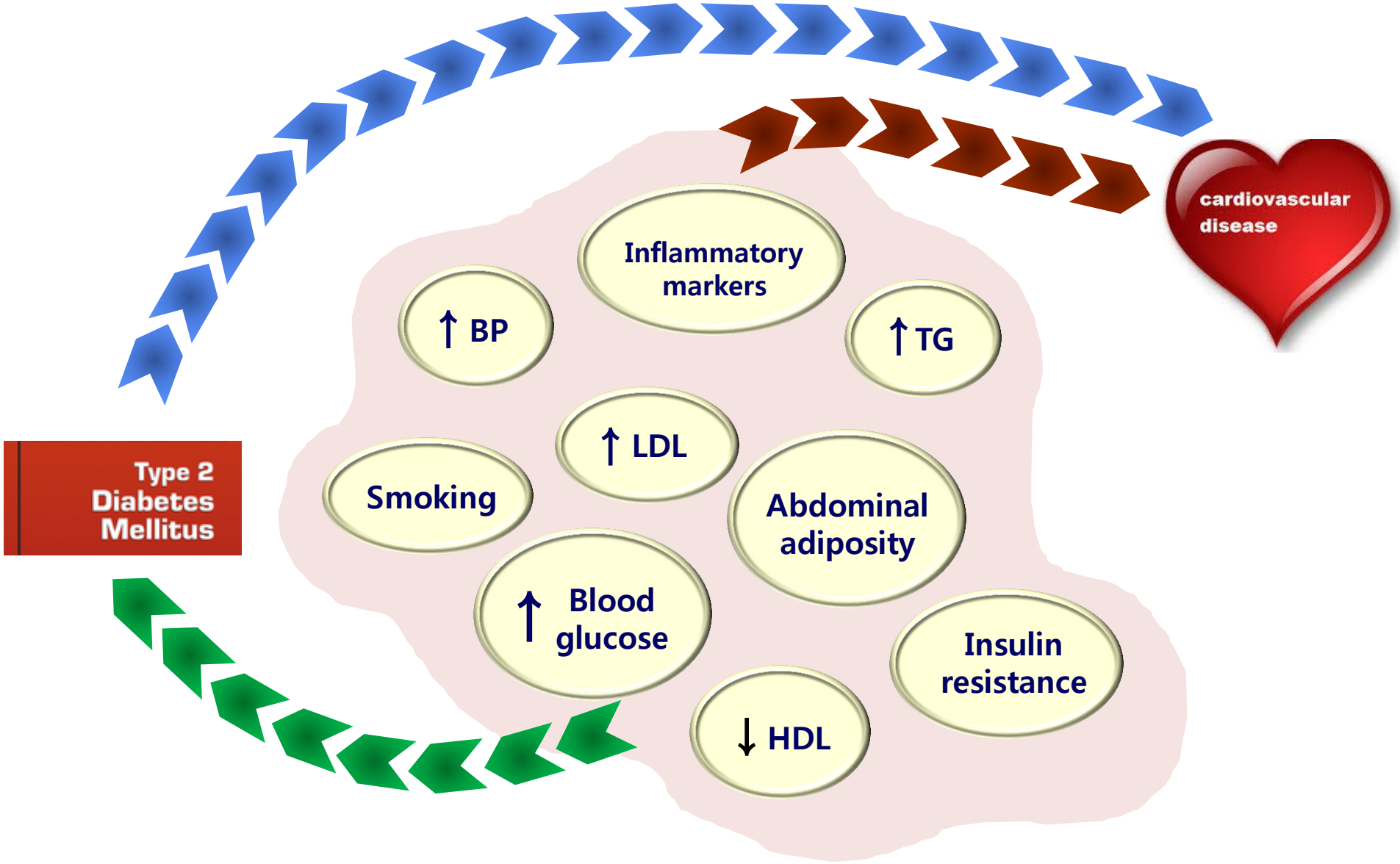
Su	Mo	Tu	We	Th	Fr	Sa
				1 105	2 106	3 107
4 108	5 109	6 110	7 111	8 112	9 113	10 114
11 115	12 116	13 117	14 118	15 119	16 120	17 121
18 122	19 123	20 124	21 125	22 126	23 127	24 128
25 129	26 130	27 131	28 132	29 133	30 134	31 135

November 2009

Su	Mo	Tu	We	Th	Fr	Sa
1 136	2 137	3 138	4 139	5 140	6 141	7 142
8 143	9 144	10 145	11 146	12 147	13 148	14 149
15 150	16 151	17 152	18 153	19 154	20 155	21 156
22 157	23 158	24 159	25 160	26 161	27 162	28 163
29 164	30 165					



Common clinical manifestations associated with PCOS **across the life course**


cardiovascular disease
Inflammatory markers
↑ BP
↑ TG
↑ LDL
Smoking
Abdominal adiposity
↑ Blood glucose
Insulin resistance
↓ HDL
Type 2 Diabetes Mellitus

Metabolic syndrome

	WHO (1998)	EGIR (1999)	ATPIII (2005)	AACE (2003)	IDF (2005)
IR	IGT, IFG, T2DM, lowered insulin sensitivity	Plasma insulin **> 75th %**	X	IGT or IFG	X
BW	WC/HC **> 0.85** or BMI **> 30**	WC **≥ 80 cm**		BMI **> 25**	WC **≥ 80 cm**
TG	**≥ 150** mg/dL				
HLD-C	**< 39** mg/dL		**< 50** mg/dL		
BP	**≥ 140/90** mmHg		**≥ 130/85** mmHg		
Glucose	IGT, IFG, or T2DM	IGT or IFG	**≥ 100** mg/dL	IGT or IFG	**≥ 100** mg/dL
Other	microalbuminuria	X	X	X	Other features of IR

Metabolic syndrome

	AHA/NHLBI	IDF
	any 3 of the following 5 features	**WC ≥ 80 cm** + **any 2** of the following
WC	≥ **80 cm** (in Asian women)	
TG	≥ **150 mg/dL** or on medication	
HDL-C (fasting)	< **50 mg/dL** (in women) or on medication	
BP	≥ **130 mmHg** systolic or ≥ **85 mmHg** diastolic or on medication	
Glucose (fasting)	≥ **100 mg/dL** or on medication	

Metabolic Syndrome/Insulin Resistance Syndrome/Pre-Diabetes

ORIGINAL ARTICLE

Prevalence of the Metabolic Syndrome Defined by the International Diabetes Federation Among Adults in the U.S.

Prevalence of metabolic syndrome among U.S adults aged > 20 years

	n	NCEP definition	IDF definition	NCEP definition using IDF waist circumference criteria	IDF definition using NCEP waist circumference criteria
Women					
Unadjusted	1,776	35.4 ± 1.2	38.1 ± 1.2	38.8 ± 1.2	33.0 ± 1.2
Age-adjusted	1,776	34.5 ± 1.4	37.1 ± 1.3	37.7 ± 1.3	32.2 ± 1.3
20–29 years	253	12.1 ± 2.6	14.6 ± 2.7	14.6 ± 2.7	12.1 ± 2.6
30–39 years	287	23.3 ± 2.3	23.4 ± 2.3	24.6 ± 2.0	21.8 ± 2.5
40–49 years	337	31.9 ± 3.3	33.3 ± 3.5	33.3 ± 3.5	29.8 ± 3.2
50–59 years	252	42.9 ± 3.6	49.0 ± 3.6	49.1 ± 3.6	40.3 ± 3.8
60–69 years	315	60.9 ± 2.7	62.6 ± 3.2	65.0 ± 2.7	55.0 ± 3.3
≥70 years	332	57.8 ± 3.7	63.2 ± 3.2	64.4 ± 3.4	54.1 ± 3.5

제 5기 국민건강영양조사로 추정한 한국 성인의 대사증후군 유병률과 관련 요인

Variable	Category	n	%	MS (Weighted %)	p^*
Area	Urban	4462	78.8	17.5	<0.001
	Rural	1208	21.2	23.6	
Gender	Men	2447	49.6	16.8	0.003
	Women	3223	50.5	20.7	
Age (years)	20-29	647	18.5	4.5	<0.001
	30-39	1170	22.0	10.6	
	40-49	1094	22.6	14.9	
	50-59	1110	18.4	27.5	
	60-69	949	10.7	35.4	
	≥70	700	7.9	43.1	

Human Reproduction Update, Vol.16, No.4 pp. 347–363, 2010
Advanced Access publication on February 16, 2010 doi:10.1093/humupd/dmq001

human reproduction update

35 studies

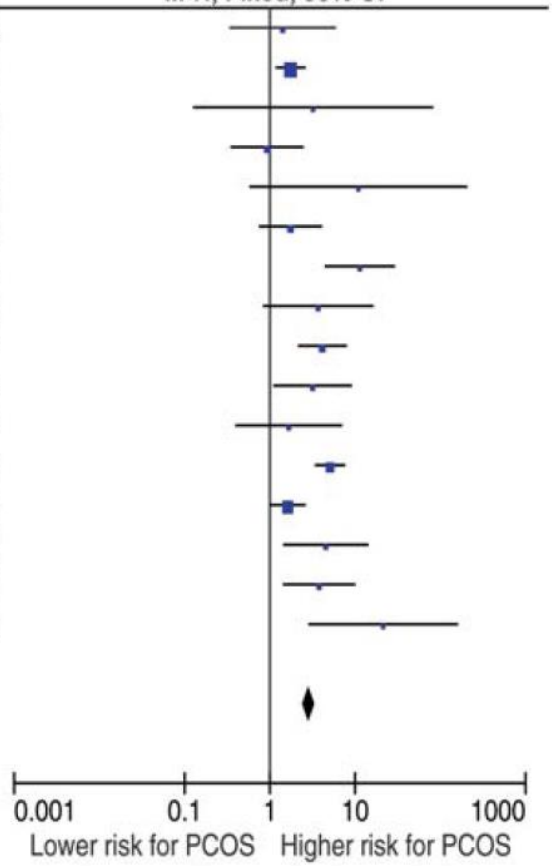
Impaired glucose tolerance, type 2 diabetes and metabolic syndrome in polycystic ovary syndrome: a systematic review and meta-analysis

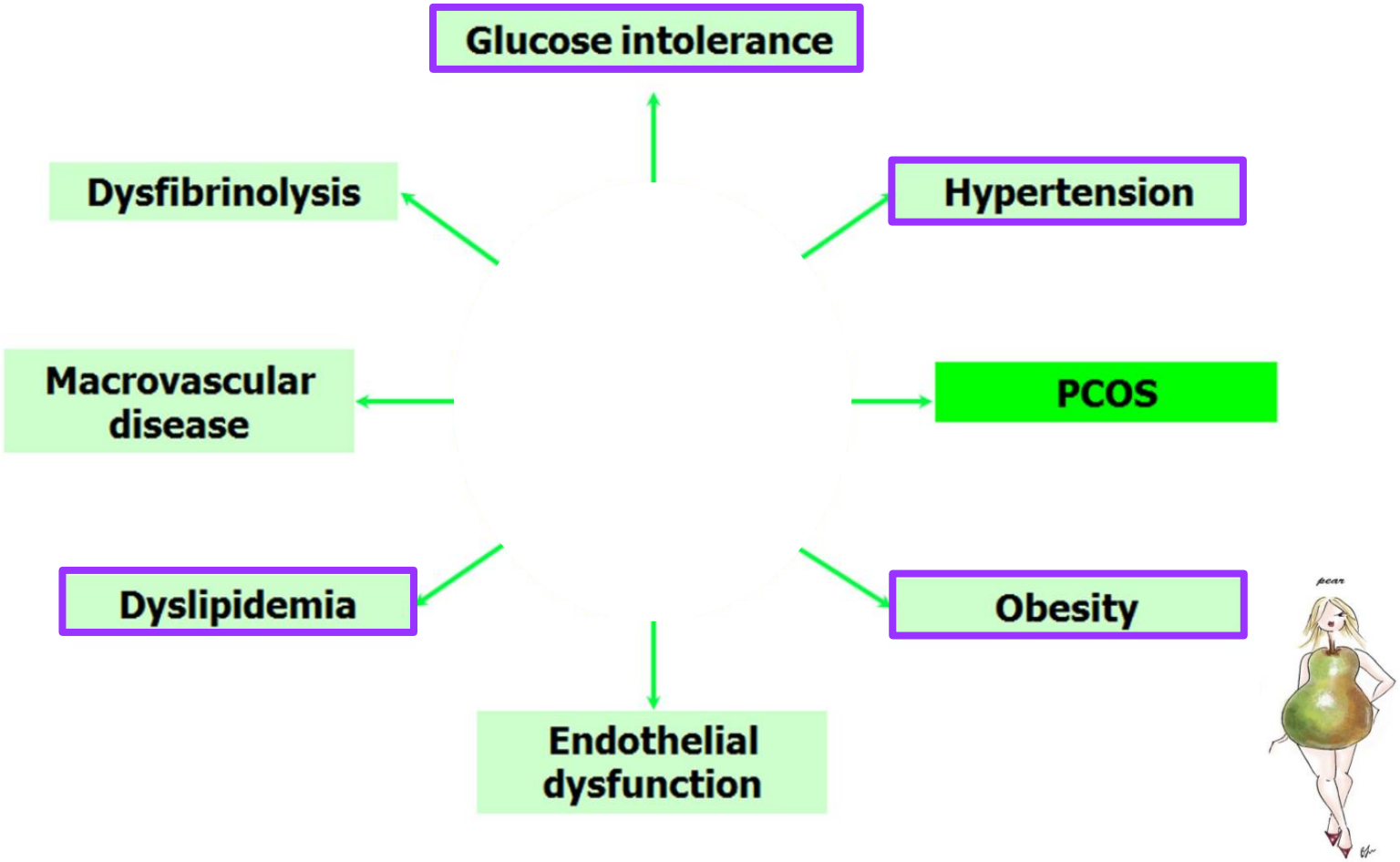
Prevalence of metabolic syndrome in women **with and without PCOS**

	PCOS		Control			Odds Ratio	
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Fixed, 95% CI	Year
Faloia 2004	10	50	3	20	2.4%	1.42 [0.35, 5.80]	2004
Dokras 2005	45	129	442	1887	26.0%	1.75 [1.20, 2.55]	2005
Vrbikova 2005	1	69	0	73	0.3%	3.22 [0.13, 80.36]	2005
Alvarez-Blasco 2006	8	32	19	72	6.2%	0.93 [0.36, 2.42]	2006
Leibel 2006	7	36	0	21	0.4%	10.93 [0.59, 201.92]	2006
Welt 2006	74	418	7	64	7.1%	1.75 [0.77, 3.99]	2006
Coviello 2006	18	49	8	165	1.6%	11.40 [4.55, 28.53]	2006
Carmina 2006	23	282	2	85	2.0%	3.69 [0.85, 15.96]	2006
Shroff 2007a	92	258	13	110	8.3%	4.14 [2.20, 7.78]	2007
Caliskan 2007	15	182	5	182	3.2%	3.18 [1.13, 8.94]	2007
Shroff 2007b	6	24	4	24	2.1%	1.67 [0.40, 6.87]	2007
Cussons 2008	62	168	91	883	13.0%	5.09 [3.48, 7.45]	2008
Shaw 2008	58	104	125	286	20.8%	1.62 [1.03, 2.55]	2008
Attuoua 2008	17	107	4	100	2.5%	4.53 [1.47, 13.98]	2008
Gulcelik 2008	20	60	7	60	3.3%	3.79 [1.46, 9.82]	2008
Cheung 2008	52	288	1	98	0.9%	21.37 [2.91, 156.79]	2008
Total (95% CI)		2256		4130	100.0%	**2.88** [2.40, 3.45]	
Total events	508		731				

Heterogeneity: Chi² = 45.40, df = 15 (P < 0.0001); I² = 67%

Test for overall effect: Z = 11.51 (P < 0.00001)




Glucose intolerance
Hypertension
PCOS
Obesity
Endothelial dysfunction
Dyslipidemia
Macrovascular disease
Dysfibrinolysis

Diagnostic criteria for PCOS

NIH consensus 1990	Rotterdam consensus 2003	AE-PCOS ANDROGEN EXCESS & PCOS SOCIETY definition 2006
✓ Clinical &/or biochemical **hyperandrogenism**	Clinical &/or biochemical **hyperandrogenism**	✓ Clinical &/or biochemical **hyperandrogenism**
&	**OR**	**&**
✓ **Oligo/amenorrhea**	✓ **Oligo/amenorrhea**	**Oligo/amenorrhea**
	OR	**OR**
	✓ **Polycystic ovaries** appearance on ultrasound	✓ **Polycystic ovaries** appearance on ultrasound

Exclusion : Late-onset CAH, androgen-producing tumor, hyperprolactinemia, thyroid dysfunction, Cushing's syndrome, androgen/anabolic drug abuse

Potential PCOS phenotypes

		A	B	C	D	E	F	G	H	I	J
Panel Terminology	**Diagnostic Criteria**										
Androgen Excess	Hyperandrogenemia										
	Hyperandrogenism*										
Ovulatory Dysfunction	Oligo-anovulation										
Polycystic Ovarian Morphology	Polycystic Ovaries										
		Classic PCOS						**Ovulatory** PCOS			PCOS **w/o HA**
NIH	*NIH 1990 Criteria*										
eshre	*Rotterdam 2003 Criteria*										
AE-PCOS ANDROGEN EXCESS & PCOS SOCIETY	*AE-PCOS 2006 Criteria*										

Cardiovascular and metabolic profiles amongst different polycystic ovary syndrome phenotypes: who is really at risk?

- cross-sectional multicenter study
- 2,288 well phenotyped PCOS

Classic PCOS | PCOS **w/o HA**

Parameter	HA PCOS (n = 1,219)	Non-HA PCOS (n = 1,069)	Adjusted *P* value
Obesity (BMI ≥30 kg/m^2)	498 (40.9)	113 (10.6)	<.001[a]
Overweight or obesity (BMI ≥25 kg/m^2)	828 (67.9)	305 (28.5)	<.001[a]
Hyperglycemia (fasting glucose >6.0 mmol/L)	49 (4.0)	22 (2.1)	.953
Insulin resistance (1/HOMA-IR <0.47)	528 (43.3)	150 (14.0)	<.001
Hypertension (BP ≥140 mm Hg systolic and/or ≥90 mm Hg diastolic	214 (17.6)	126 (11.8)	.348
Enlarged waist circumference (≥88 cm)	652 (53.5)	188 (18.8)	.044
Dyslipidemia			
(TC ≥5.0 mmol/L)	588 (48.2)	507 (47.4)	.593
(TG >1.7 mmol/L)	191 (15.6)	78 (7.3)	.344
(LDL-C ≥3.0 mmol/L)	753 (61.8)	558 (52.2)	.025
(HDL-C <1.2 mmol/L)	498 (40.9)	193 (18.1)	.001
MetS	314 (25.8)	70 (6.5)	<.001[a]

0021-972X/06/$15.00/0
Printed in U.S.A.

- Observational study
- 418 women with PCOS

The Journal of Clinical Endocrinology & Metabolism 91(12):4842–4848

doi: 10.1210/jc.2006-1327

Characterizing Discrete Subsets of Polycystic Ovary Syndrome as Defined by the Rotterdam Criteria: The Impact of Weight on Phenotype and Metabolic Features

Classic PCOS | **Ovulatory PCOS** | PCOS **w/o HA**

	IM/HA (n = 305)	HA/PCOM (n = 77)	IM/PCOM (n = 36)	Control (n = 64)	*P* value, ANCOVA
Age (yr)	28.7 ± 5.6	29.6 ± 6.0	30.2 ± 6.8	30.8 ± 6.1	0.04
Height (m)	1.64 ± 0.07	1.66 ± 0.06	1.66 ± 0.07	1.66 ± 0.08	0.16
Weight (kg)	86.5 ± 24.2^a	74.9 ± 19.8^b	67.5 ± 13.5^b	75.5 ± 22.0^b	<0.001
BMI (kg/m^2)	32.0 ± 8.6^a	27.0 ± 6.8^b	24.7 ± 5.4^b	27.3 ± 6.8^b	<0.001
Waist circumference (cm)	100.0 ± 19.7^a	88.0 ± 15.4^b	82.2 ± 12.1^b	87.7 ± 14.5^b	<0.001
Hip circumference (cm)	112.0 ± 17.8^a	104.4 ± 14.4^b	99.7 ± 10.4^b	104.3 ± 13.8^b	<0.001
Waist/hip ratio	0.89 ± 0.08^a	0.84 ± 0.07^b	0.82 ± 0.07^b	0.84 ± 0.06^b	<0.001
SBP (mm Hg)	119.0 ± 13.1	114.7 ± 13.8	111.4 ± 11.2	119.4 ± 13.2	0.08
DBP (mm Hg)	75.3 ± 9.4	71.6 ± 9.8	71.9 ± 10.1	73.0 ± 7.7	0.4

SPECIAL FEATURE (2010)

Consensus Statement

Assessment of Cardiovascular Risk and Prevention of Cardiovascular Disease in Women with the Polycystic Ovary Syndrome: A Consensus Statement by the Androgen Excess and Polycystic Ovary Syndrome (AE-PCOS) Society

AE-PCOS ANDROGEN EXCESS & PCOS SOCIETY

- Observational study
- 418 women with PCOS

Classic PCOS **Ovulatory PCOS** **PCOS w/o HA**

	IM/HA (n = 305)	HA/PCOM (n = 77)	IM/PCOM (n = 36)	Control (n = 64)	*P* value, ANCOVA
LH (IU/liter)	27.3 ± 15.6^{a}	19.9 ± 17.5^{b}	23.3 ± 15.4^{a,b}	15.9 ± 12.3^{c}	<0.001
FSH (IU/liter)	10.4 ± 2.9	10.5 ± 3.3	9.9 ± 3.0	9.6 ± 3.5	0.15
LH/FSH	2.7 ± 1.4^{a}	1.8 ± 1.1^{b}	2.3 ± 1.3^{a,b}	1.7 ± 1.1^{c}	<0.001
Testosterone (ng/dl)	68.4 ± 36.7^{a}	51.8 ± 22.6^{b}	35.2 ± 10.5^{c}	32.2 ± 15.1^{c}	<0.001
SHBG (nmol/liter)	33.0 ± 18.5^{a}	50.6 ± 27.0^{b}	51.9 ± 17.8^{b}	55.1 ± 33.0^{b}	<0.001
Free testosterone	1.45 ± 0.92^{a}	0.88 ± 0.49^{b}	0.53 ± 0.17^{c}	0.51 ± 0.30^{c}	<0.001
Adione (ng/ml)	3.8 ± 1.3^{a}	3.9 ± 1.6^{a}	2.7 ± 0.6^{b}	2.6 ± 1.0^{b}	<0.001
DHEAS (μg/dl)	195.5 ± 95.9^{a}	218.8 ± 101.5^{a}	126.8 ± 64.2^{b}	146.1 ± 75.5^{b}	<0.001
17OH-progesterone (ng/ml)	1.50 ± 0.76^{a}	1.84 ± 1.55^{b}	1.22 ± 0.68^{a,c}	1.10 ± 0.58^{c}	<0.001

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AE-PCOS ANDROGEN EXCESS & PCOS SOCIETY

- Observational study
- 418 women with PCOS

Classic PCOS **Ovulatory PCOS** PCOS **w/o HA**

	IM/HA (n = 305)	HA/PCOM (n = 77)	IM/PCOM (n = 36)	Control (n = 64)	*P* value, ANCOVA
Metabolic syndrome					
Total no. (%)	64 (22.2)	8 (10.5)	2 (5.6)	7 (11.1)	0.01
20–29 yr (%)	28 (17.3)	2 (5.7)	2 (15.4)	3 (11.5)	0.4
30–39 yr (%)	31 (29.5)	5 (16.7)	0 (0)	4 (11.4)	0.01
BMI > 30 kg/m^2					
20–29 yr (%)	24 (30.4)	1 (10.0)		2 (25.0)	0.4
30–39 yr (%)	26 (39.4)	4 (30.8)		4 (36.4)	0.8

ASRM PAGES (2012)

Consensus on women's health aspects of polycystic ovary syndrome (PCOS): the Amsterdam ESHRE/ ASRM-Sponsored 3rd PCOS Consensus Workshop Group

High-risk PCOS subset

- Syndrome XX
- Female Metabolic Syndrome (FMS)
- Reproductive Syndrome (MRS)

SPECIAL FEATURE (2010)

Consensus Statement

Assessment of Cardiovascular Risk and Prevention of Cardiovascular Disease in Women with the Polycystic Ovary Syndrome: A Consensus Statement by the Androgen Excess and Polycystic Ovary Syndrome (AE-PCOS) Society

AE-PCOS
ANDROGEN EXCESS & PCOS SOCIETY

Cardiovascular risk stratification in women **with PCOS**

At risk

PCOS women with any of the following risk factors:

- Obesity (esp. Increased abdominal adiposity)
- Hypertension
- Dyslipidemia (↑ LDL &/or non-HDL)
- Subclinical vascular disease
- IGT
- F/H of premature cardiovascular disease
  (<65y of age in female relative)

At high risk

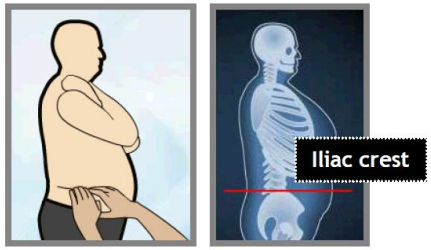
PCOS women with:

- Metabolic syndrome
- T2DM
- Overt vascular or renal disease

Screening guidelines for cardiometabolic risk in PCOS

ALL PCOS women

- **BMI** — Every visit
- **Waist circumference** — Every visit
- **BP** — Q 1y or Every visit
- **Lipid profile** — Q 2y or Q 1y
- **Glucose**



Screening guidelines for cardiometabolic risk in PCOS

75g OGTT

Q 2y or Q 1y

- **Classic** PCOS
- BMI > **30 kg/m²**
- **Acanthosis nigricans**
- personal history of GDM
- Family history of T2DM

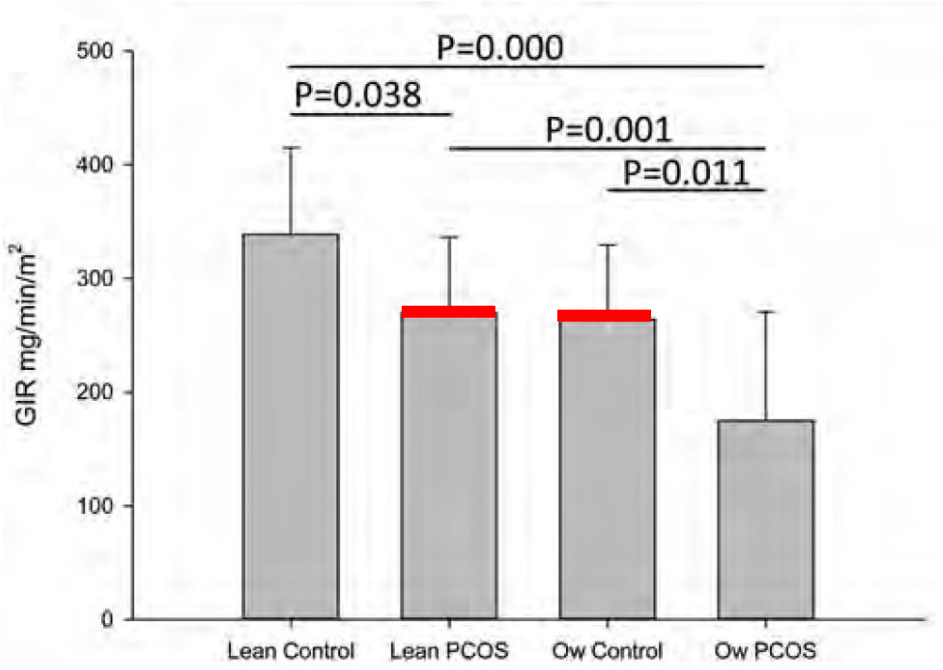
- Advanced age (**>40 yrs**)

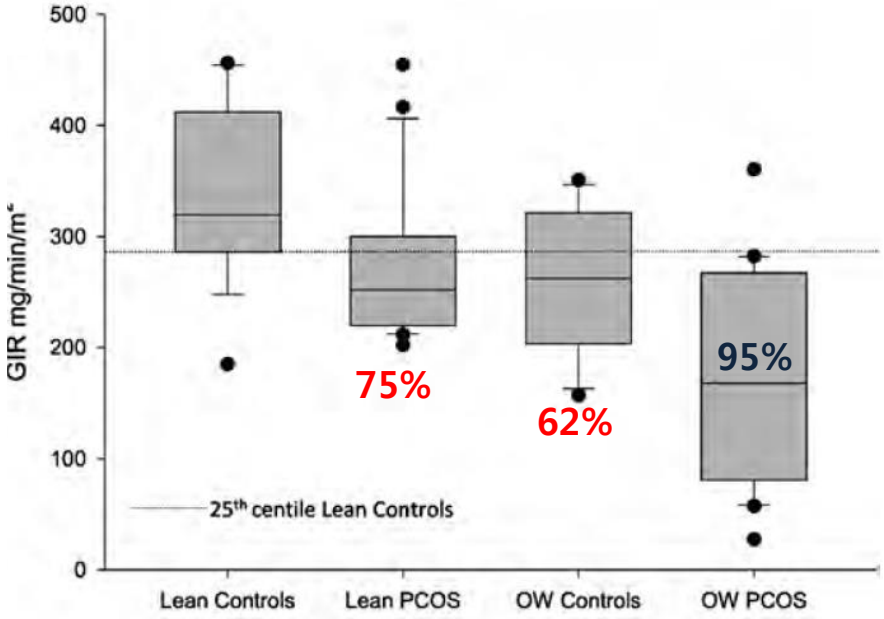
Q 3~5y

Human Reproduction, Vol.28, No.3 pp. 777–784, 2013
Advanced Access publication on January 12, 2013 doi:10.1093/humrep/des463

human reproduction ORIGINAL ARTICLE *Reproductive endocrinology*

Women with polycystic ovary syndrome have intrinsic insulin resistance on euglycaemic–hyperinsulaemic clamp





Diabetes risk score in the diagnostic categories of polycystic ovary syndrome

(2011)

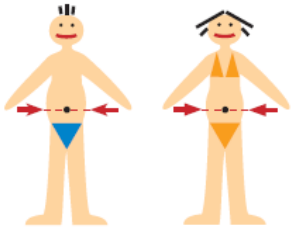
Type 2 diabetes risk assessment form

1. Age
- ☐ Under 45 years (0 p.)
- ☐ 45–54 years (2 p.)
- ☐ 55–64 years (3 p.)
- ☐ Over 64 years (4 p.)

2. Body-mass index
(See reverse of form)
- ☐ Lower than 25 kg/m² (0 p.)
- ☐ 25–30 kg/m² (1 p.)
- ☐ Higher than 30 kg/m² (3 p.)

3. Waist circumference measured below the ribs (usually at the level of the navel)

MEN		WOMEN	
☐ Less than 94 cm	(0 p.)	☐ Less than 80 cm	(0 p.)
☐ 94–102 cm	(3 p.)	☐ 80–88 cm	(3 p.)
☐ More than 102 cm	(4 p.)	☐ More than 88 cm	(4 p.)



4. Do you usually have daily at least 30 minutes of physical activity at work and/or during leisure time (including normal daily activity)?
- ☐ Yes (0 p.)
- ☐ No (2 p.)

5. How often do you eat vegetables, fruit or berries?
- ☐ Every day (0 p.)
- ☐ Not every day (1 p.)

6. Have you ever taken medication for high blood pressure on regular basis?
- ☐ No (0 p.)
- ☐ Yes (2 p.)

7. Have you ever been found to have high blood glucose (eg in a health examination, during an illness, during pregnancy)?
- ☐ No (0 p.)
- ☐ Yes (5 p.)

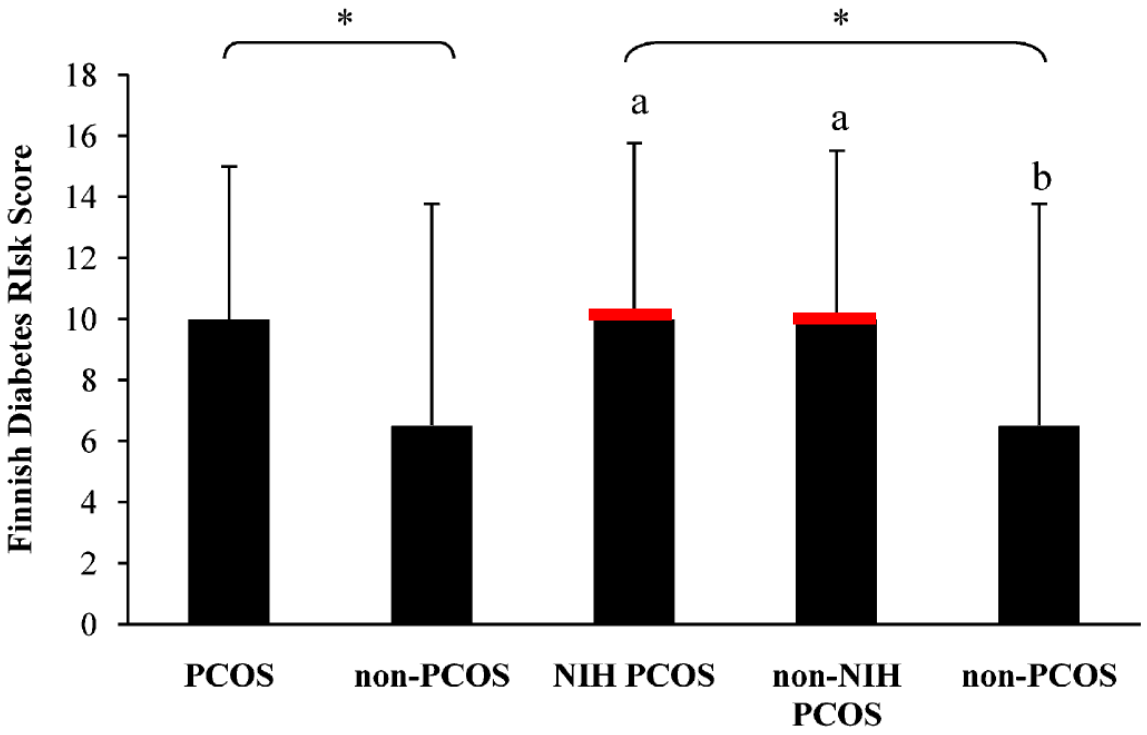
8. Have any of the members of your immediate family or other relatives been diagnosed with diabetes (type 1 or type 2)?
- ☐ No (0 p.)
- ☐ Yes: grandparent, aunt, uncle or first cousin (but no own parent, brother, sister or child) (3 p.)
- ☐ Yes: parent, brother, sister or own child (5 p.)

Total Risk Score

The risk of developing type 2 diabetes within 10 years is

Lower than 7	**Low:** estimated 1 in 100 will develope disease
7–11	**Slightly elevated:** estimated 1 in 25 will develope disease
12–14	**Moderate:** estimated 1 in 6 will develope disease
15–20	**High:** estimated 1 in 3 will develope disease
Higher than 20	**Very high:** estimated 1 in 2 will develope disease

- Cross-sectional study



American Diabetes Association®

Diagnostic criteria for DM (2010)

	Normal Glucose tolerance	Impaired Glucose Tolerance 'PREDIABETES'	Diabetes Mellitus
Fasting plasma glucose	<100mg/dl	100-125mg/dl	***>/=126mg/dl***
2 hr plasma glucose during an OGTT**	<140mg/dl	140-199mg/dl	***>/=200mg/dl***
Random Blood glucose + Symptoms of diabetes*			***>/= 200mg/dl***
A1C	<5.6%	5.7-6.4%	***>/= 6.5%***

*polyuria, polydispsia, weight loss

**after a glucose load of 75g anhydrous glucose dissolved in water

Human Reproduction, Vol.28, No.9 pp. 2537–2544, 2013
Advanced Access publication on June 11, 2013 doi:10.1093/humrep/det255

human reproduction ORIGINAL ARTICLE *Reproductive endocrinology*

Assessment of glucose metabolism in polycystic ovary syndrome: HbA1c or fasting glucose compared with the oral glucose tolerance test as a screening method

- Cross-sectional study
- 671 women with PCOS
- 2006~2012

	All women	Normal weight (BMI < 25 kg/m^2)	Overweight/obese (BMI ≥ 25 kg/m^2)
Prediabetes	76 (12.8%)	24 (7.2%)	52 (19.4%)
Elevated HbA1c (5.7–6.4%)	19 (3.2%)	1 (0.3%)	18 (6.7%)
Elevated FG (100–125 mg/dl)	31 (5.2%)	12 (3.6%)	19 (7.1%)
T2DM	9 (1.5%)	0	9 (3.2%)
Elevated HbA1c (≥6.5%)	6 (0.9%)	0	6 (2.1%)
Elevated FG (≥126 mg/dl)	7 (1%)	0	7 (2.5%)

Human Reproduction, Vol.28, No.9 pp. 2537–2544, 2013
Advanced Access publication on June 11, 2013 doi:10.1093/humrep/det255

human reproduction ORIGINAL ARTICLE *Reproductive endocrinology*

Assessment of glucose metabolism in polycystic ovary syndrome: HbA1c or fasting glucose compared with the oral glucose tolerance test as a screening method

- Cross-sectional study
- 671 women with PCOS
- 2006~2012

Sensitivity, specificity and level of agreement for prediabetes & T2DM **with HbA1c elevation** alone in PCOS women

	Yes	No	Sensitivity (%)	Specificity (%)	k-index	P-value
Prediabetes						
HbA1c 5.7-6.4%						
Yes	19	0	**25%**	**100%**	**0.36**	**<0.001**
No	57	518				
T2DM						
HbA1c ≥ 6.5%						
Yes	6	0	**66.7%**	**100%**	**0.80**	**<0.001**
No	3	603				

다낭성난소증후군과 대사 증후군

- Lifestyle modification 

- Medical therapy

- 9 x RCT
- N= 610
- Age ; mean 27 years (18–35 years)
- F/U length : aver. 5months (1.5-11months)

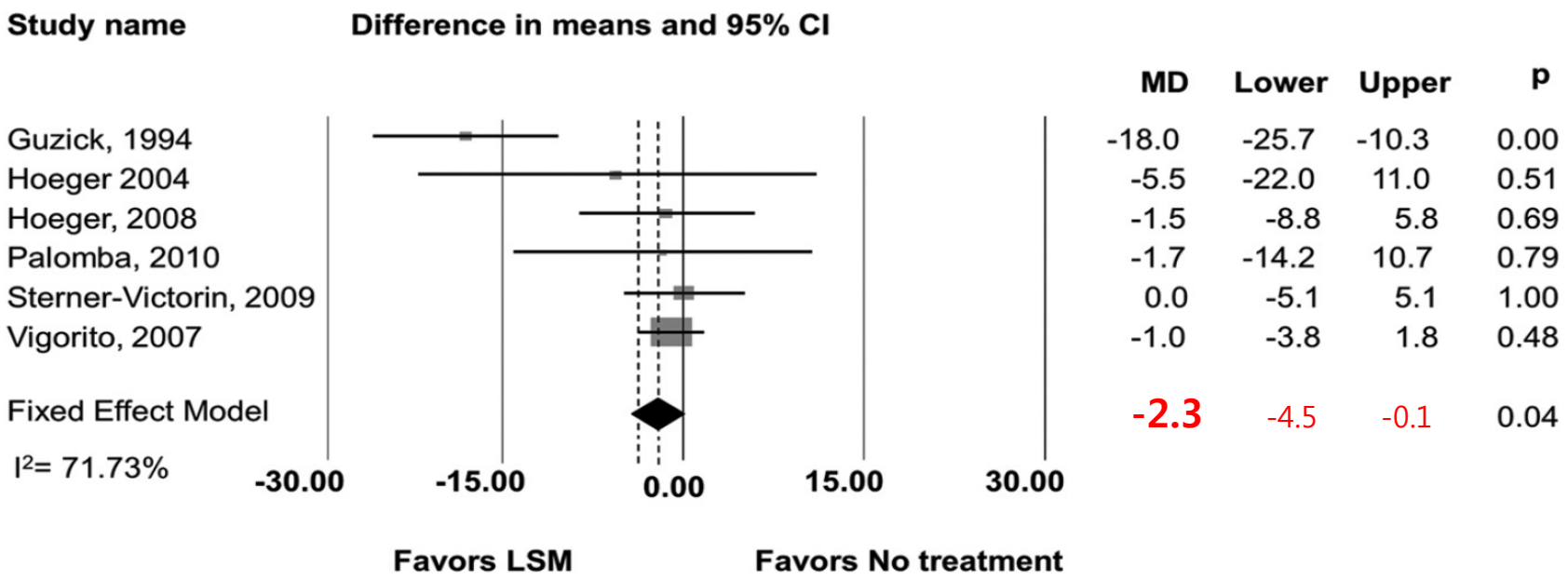
(2013)

SPECIAL FEATURE

Review

Lifestyle Modification Programs in Polycystic Ovary Syndrome: Systematic Review and Meta-Analysis

Fasting blood glucose



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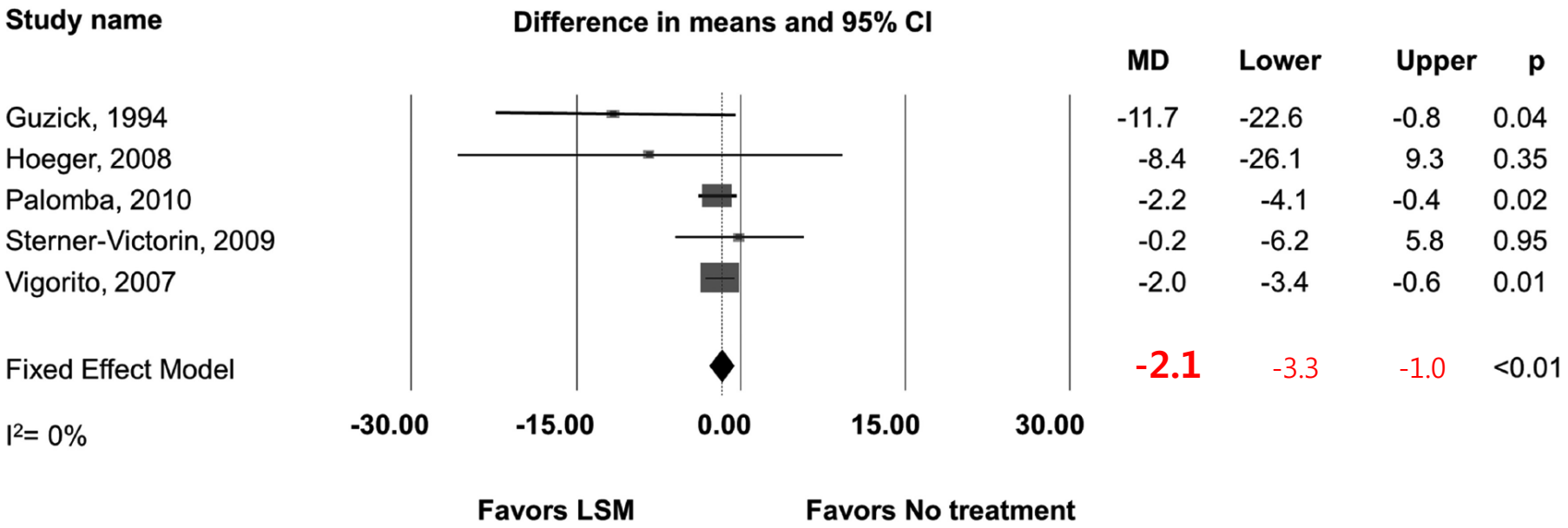
(2013)

SPECIAL FEATURE

Review

Lifestyle Modification Programs in Polycystic Ovary Syndrome: Systematic Review and Meta-Analysis

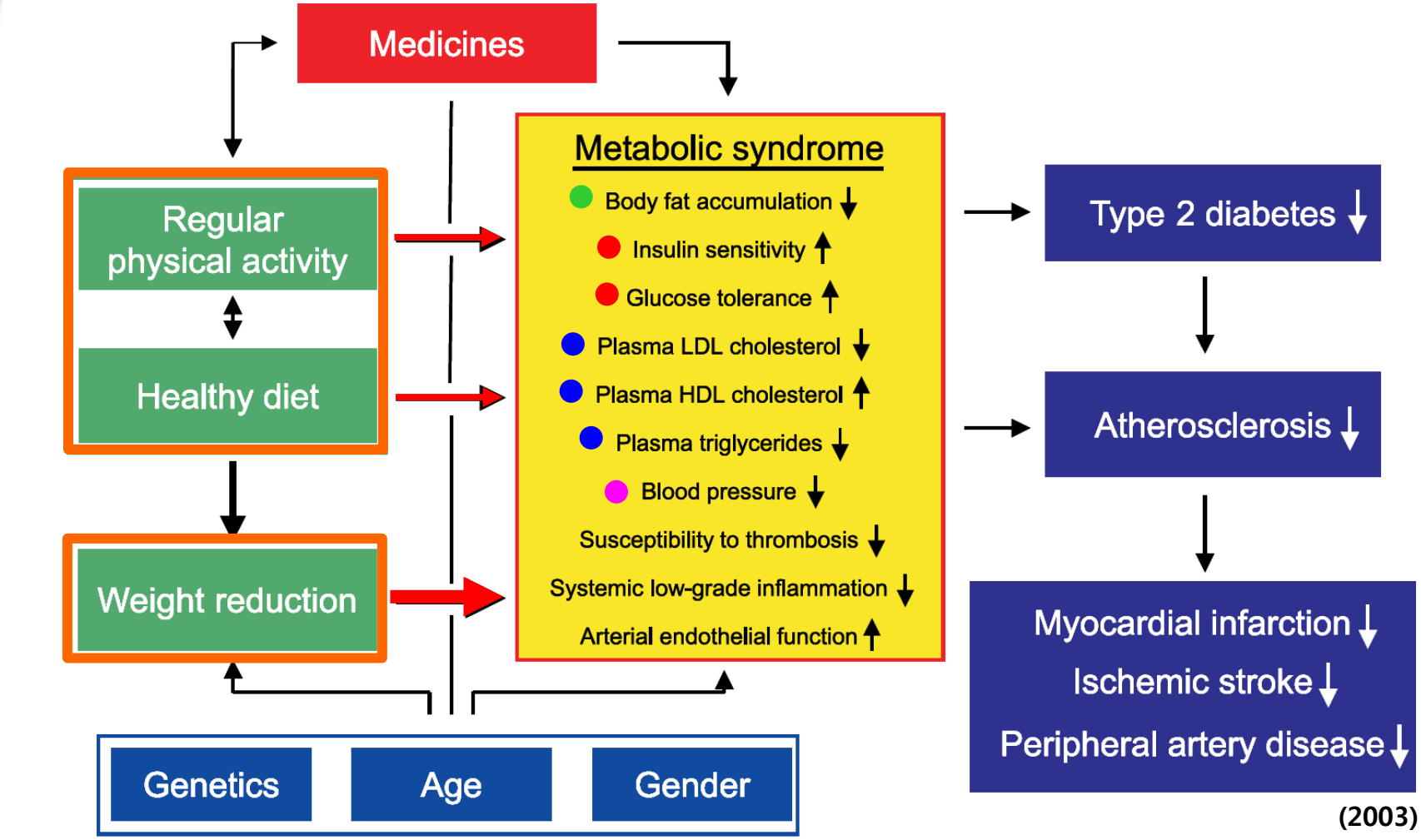
Fasting blood insulin



AHA Scientific Statement

Exercise and Physical Activity in the Prevention and Treatment of Atherosclerotic Cardiovascular Disease

A Statement From the Council on Clinical Cardiology (Subcommittee on Exercise, Rehabilitation, and Prevention) and the Council on Nutrition, Physical Activity, and Metabolism (Subcommittee on Physical Activity)



(2003)

Lifestyle modification

10-20%

< 80 cm

Lifestyle modification

AE-PCOS ANDROGEN EXCESS & PCOS SOCIETY

Diet | **Exercise**

- **500–1000 kcal/d reduction**
- **< 30%** calories from **fat**
- **< 10%** calories from **saturated fat**

1300kcal/day

아침
통곡물식빵 1쪽 (50g)
계란후라이 1개
브로콜리&토마토 샐러드 한접시 (180g)
오렌지주스 ½컵

점심
잡곡밥 140g (2/3공기)
냉이된장국 70g (1그릇)
두부야채볶음 92.5g
미역줄기볶음 37.5g (1/2그릇)
깍두기 25g (1/2접시)

간식
저지방우유 (200mL)
사과 ½개 (100g)

저녁
현미밥 140g (2/3공기)
콩나물국 70g (1그릇)
오징어채 15g
야채달걀말이 102g (계란 1개)
배추김치 35g (1/2 접시)

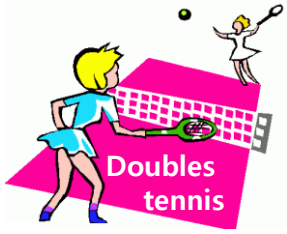
Lifestyle modification

AE-PCOS ANDROGEN EXCESS & PCOS SOCIETY

Diet | **Exercise**

Moderate-intensity physical activity


Brisk Walking




Social dancing

다낭성난소증후군과 대사 증후군

- Lifestyle modification 

- Medical therapy

Use of metformin

3.6 We recommend metformin in women with PCOS who have T2DM or IGT who fail lifestyle modification

Use of other drugs

3.9 We recommend against the use of insulin sensitizers, such as inositols (due to lack of benefit) or thiazolidinediones (given safety concerns), for the treatment of PCOS (1⊕⊕⊕○).

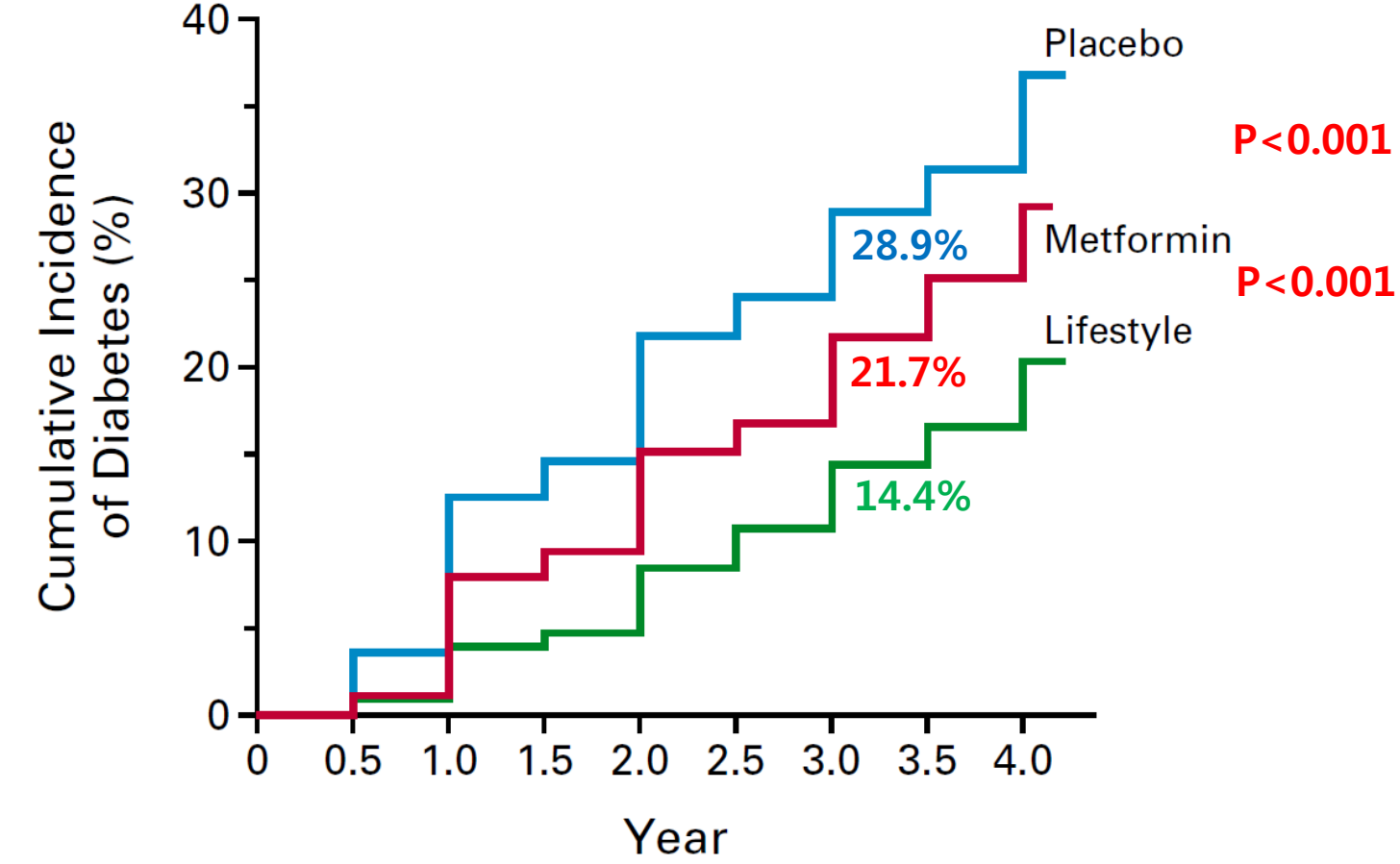
The Committee suggests the use of metformin only in women with PCOS who are already undergoing lifestyle treatment and do not have improvement in IGT and in those women with IGT who are of normal weight, where weight loss in not appropriate.

The New England
Journal of Medicine

VOLUME 346 FEBRUARY 7, 2002 NUMBER 6

REDUCTION IN THE INCIDENCE OF TYPE 2 DIABETES WITH LIFESTYLE INTERVENTION OR METFORMIN

- RCT
- IGT
- N=3,234
- Age ; mean 51y
- F/U ; aver. 2.8y
- Lifestyle-modification program : at least 7 % weight loss
  + at least 150 min of physical activity/w
- Metformin; 850mg/d -> after 1 month, 850mgx2/d



PCOS risk categories and **lipid target values**

	Risk	LDL target values, mg/dl (mmol/liter)[b]
PCOS	At optimal risk	≤130 (3.37)
PCOS with obesity, hypertension, dyslipidemia cigarette smoking, IGT, subclinical vascular disease	At risk	≤130 (3.37)
PCOS with MBS	High risk	≤100 (2.59)
PCOS with MBS and other risk factors, or with T2DM, or in presence of overt vascular and/or renal disease		≤70 (1.81)

Special Communication

2014 Evidence-Based Guideline for the Management of High Blood Pressure in Adults

Report From the Panel Members Appointed to the Eighth Joint National Committee (JNC 8)

AE-PCOS
ANDROGEN EXCESS & PCOS SOCIETY

Lifestyle Modification
(Diet, Exercise, Weight, Alcohol)

No diabetes or CKD

Diabetes or CKD

Age ≥ 60 yrs

Age < 60 yrs

All ages
Diabetes present
no CKD

All ages
CKD present
(± Diabetes)

SBP <150
DBP < 90

SBP <140
DBP < 90

SBP <140
DBP < 90

SBP <140
DBP < 90

non-black

black

all races

Thiazide, ACE-I, ARB or CCB,
alone or combination

Thiazide or CCB
alone or in combination

ACE-I or ARB
alone or w/ other drugs

Long-life syndrome

다낭성난소증후군

Classic PCOS

Ovulatory PCOS

PCOS **w/o HA**

- BMI
- Waist circumference
- BP
- Lipid profile
- Glucose
- 75g OGTT

Brisk Walking


THANK YOU
FOR YOUR ATTENTION !
李敏