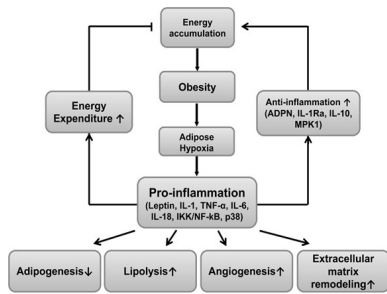


비만군 장병의 영양실태

박 은 미

한남대학교

Obesity, inflammation and DNA repair



Ye et al, AJP, 2013

Study subject

- 성인(20-29세)남자, 난산훈련소
- 신체조성(Body Composition), 허리둘레 및 혈압측정
- 혈액 채취 및 분석 방법
- 식이섭취 빈도 조사를 통한 영양상태 평가
- FFQ and 24hr recall survey
- 건강관련 삶의 질(Health-related quality of life, SF-36)
- 연구대상 동의서(국군 의무사령부 IRB승인)

훈련 중 추가 운동프로그램

저항성 운동	유산소 운동
근력운동 : • 팔굽혀 펴기	
• 스쿼트	• 연병장 경기운동
• 점핑런지	(VO2max 60 ~ 70%)
• 제자리 높이뛰기	• 줄넘기
• 버피테스트	• 20M 서둘러
• 윗몸일으키기	
• 플랭크	

Subject characteristics

Variable	nomal (n=28)	obesity (n=28)	total (n=56)	male (From Korean DRI, 2015)
Age (yr)	20.5±0.7	20.4±0.7	20.4±0.7	19~29
Heigh (cm)	173.9±3.7	179.7±4.7***	176.8±5.1	174.8
Weight (kg)	62.5±4.4	99.7±6.3***	81.1±19.5	68.7
BMI ¹⁾ (kg/m ²)	20.7±1.2	30.9±1.6***	25.8±5.3	22.5
PIBW ²⁾ (%)	93.7±5.7	139.6±7.3***	116.7±24.0	—

¹⁾Body mass index=weight(kg)/height(m)²

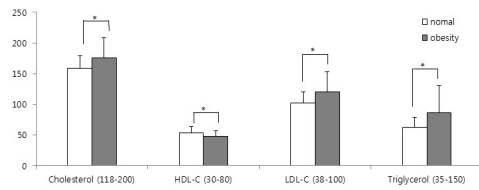
²⁾Percentage ideal body weight=(body weight/ideal body weight) x100

***P<0.001

Blood analysis I

Variable	normal (n=28)	obesity (n=28)	total (n=56)
Cholesterol (mg/dl)	158.6±20.4	175.8±32.4 [*]	167.2±28.2
HDL - C	53.7±9.7	48.0±8.4 [*]	50.9±9.5
LDL - C	101.4±18.9	119.7±33.2 [*]	110.6±28.3
Triglycerol (mg/dl)	62.2±15.6	86.2±43.7 [*]	74.2±34.7

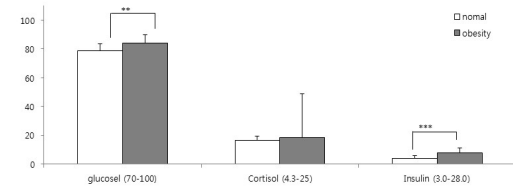
*P<0.05



Blood analysis II

Variable	normal (n=28)	obesity (n=28)	total (n=56)
glucose (mg/dl)	78.6±4.9	84.0±6.0 ^{**}	81.3±6.1
Cortisol (μg/dl)	16.6±2.9	18.5±30.6	17.5±21.6
Total IGE (IU/ml)	393.0±655.8	149.0±240.8	271.0±504.7
Insulin (mIU/L)	4.2±1.6	7.8±3.3 ^{***}	6.0±3.2

P<0.01, *P<0.001

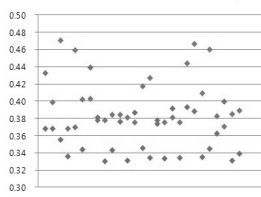


Blood analysis III

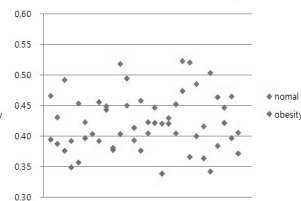
Variable	normal	obesity	total
Insulin sensitivity			
1차 (1wks)	0.40±0.33	0.36±0.28 ^{***}	0.39±0.05
2차 (4wks)	0.44±0.05	0.40±0.04 ^{**}	0.43±0.05

P<0.01 *P<0.001

1차 Insulin sensitivity



2차 Insulin sensitivity



Food intake I

Nutrients	normal (n=28)	obesity (n=28)	total (n=56)	male (19~29세) (From Korean DRI, 2015)
Energy (kcal)	2821.9±1379.8	3295.0±1193.0	3058.5±1300.1	2600
protein (g)	105.4±54.9	140.4±66.4 [*]	122.9±62.9	65
Animal	56.0±34.4	84.0±50.3 [*]	70.0±45.0	—
Vegetable	49.4±24.7	56.4±20.9	52.9±23.0	—
Fat (g)	78.9±51.1	93.9±51.4	86.4±51.3	—
Animal	38.0±24.3	56.8±34.2 [*]	47.4±30.9	—
Vegetable	40.9±32.6	37.1±20.9	39.0±27.2	—
Carbohydrate (g)	431.0±202.4	476.4±140.3	453.7±174.1	—
Cholesterol (mg)	497.1±297.8	574.2±328.4	535.7±313.0	300
Dietary fiber (g)	29.6±21.0	32.9±15.1	31.2±18.2	25
Carbo:Pro:Fat	60:15:25	58:17:25	59:16:25	55~65 : 7~20 : 15~30

*P<0.05

Food intake II

Nutrients	normal (n=28)	obesity (n=28)	total (n=56)	male (19~29세) (From Korean RDA, 2015)
Ca (mg)	770.2±745.6	759.4±387.7	764.8±588.9	800
Animal	380.5±465.1	361.8±288.6	371.2±383.6	—
Vegetable	389.7±327.8	397.6±198.2	393.6±268.4	—
Na (mg)	6414.6±4346.2	7612.8±3746.7	7013.7±4065.7	≒1500
K (mg)	4084.3±3041.4	4600.0±2081.7	4342.2±2595.4	≒3500
P (mg)	1540.9±964.4	1868.2±834.9	1704.6±908.8	700

Food intake III

Fe (mg)	20.1±12.0	24.5±11.3	22.3±11.8	10
Animal	5.6±3.8	8.0±5.5	6.8±4.8	—
Vegetable	14.5±8.8	16.6±6.4	15.5±7.7	—
Zn (mg)	15.3±7.4	20.2±8.6 [*]	17.7±8.3	10
Cu (mg)	1.6±0.8	1.9±0.7	1.7±0.8	800
Mn (mg)	5.3±3.1	6.1±2.1	5.7±2.6	≒4.0
Se (μg)	137.7±68.9	173.1±68.4	155.4±70.3	60

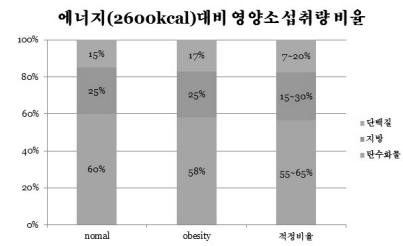
*P<0.05

Food intake IV

Nutrients	normal (n=28)	obesity (n=28)	total (n=56)	male (19~29세)
				(From Korean DRI, 2015)
Vitamin A (μg RE)	1431.9±1396.7	1436.4±817.9	1434.1±1134.1	800
Thiamin (mg)	2.1±1.2	2.7±1.1	2.4±1.2	1.2
Riboflavin (mg)	1.9±1.2	2.4±1.1	2.2±1.2	1.5
Niacin (mg)	20.7±11.6*	28.8±12.9*	24.8±12.8	16
Vitamin C (mg)	193.1±180.5	227.4±143.1	210.3±162.3	100

*P<0.05

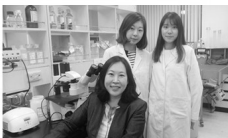
CHO: Fat: Protein ratio in energy intake



Acknowledgement

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Park Lab members



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