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Session Code KHEPA :
Health Evaluation Related to Obesity and Anti-Aging

Normal Weight Obesity Is a Risk for Life Style Related Diseases: from Over Viewing of Antiaging Health Check-up System in Tokai University Tokyo Hospital

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SICOM & AOCO 2024

COI Disclosure

Yasuhiro NISHIZAKI, M.D., Ph.D.

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Antiaging Health Check-up Systems, Tokai University Tokyo Hospital, Yoyogi, Tokyo

Contents

1. What is the Anti-aging Medicine?
2. Anti-aging Heaalth check up system
3. The importance of daily physical fitness : from the NWO study

What is anti-aging medicine?

The term “anti-aging” means an attempt to slow the process of the aging-induced decline of the physiological function leading to illness.

Aging is inevitable, but pathological aging can be delayed by lifestyle modification and stress management.

Anti-aging medicine challenges the inevitable aging processes in order to reduce aging-related physical and mental problems.

The goal of anti-aging medicine

The goal of anti-aging medicine is the extension of the healthy lifespan and realization of **successful aging ! .**

Anti-aging medicine is regarded as primary prevention

Primary prevention	Health promotion, anti-aging medicine, prevention of diseases
Secondary prevention	Early detection, early treatment, prevention of aggravation
Tertiary prevention	Rehabilitation, prevention of recurrence

Anti-aging medicine focuses on the tendency for the development of aging-related diseases, and intervenes and counters this tendency

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（第３種郵便物認可） Japan Medicine 総合 2006年（平成18年）５月15日

東海大医学部付属東京病院

「抗加齢ドック」を設立

根拠に基づく抗加齢医学を実践

東海大医学部は11日、予防医療を提供する「抗加齢ドック」を同大付属東京病院に６月20日に開設すると発表した。現在の老化度、健康を損なう可能性のある兆候についてさまざまな角度から検査を行い、医師や専門家が生活習慣や食事、運動療法を含めたアドバイス、医学的サポートを提供する。同大付属病院の香取草之助本部長は同日の会見で、「抗加齢医学はこれまで組織的な取り組みが不十分だった。医学部を持つ総合大学として科学的根拠に基づいた抗加齢医学を実践し、アカデミックな立場から貢献したい」と意欲を語った。

予防医学の１領域である抗加齢医学（アンチエイジング）は、米国で1990年ごろから注目され始めた新たな疾患領域。日本でも2001年に抗加齢研究会が発足するなど、社会的な関心が高まっている。年齢を重ねることで発生しやすくなる疾病や身体的不都合などを予防、軽減する医学で、さらなるエビデンス収集の必要性が指摘されている。

● 検査項目の数に応じ２コース

同大付属東京病院の抗加齢ドックは、検査項目の数で「アドバンスコース」と「ベーシックコース」の２つを用意する。アドバンスコースは現在の老化度を調べる項目に加えて、将来的な進行を予見して回避するためのデータを取るための検査項目を盛り込んだのが特徴。ベーシックコースは、現在の老化度を知るための検査項目が中心となる。両コースでは細部の検査項目の設定で違いがあるものの、検査項目は、①血管老化度②血液老化度③活性酸素・抗酸化力④ホルモンバランス⑤免疫バランス⑥一般検査⑦身体の構成―が柱となる。検査を受けて４週間後に医師が面談で結果を説明する。

● 定員は１日６人、完全予約制

抗加齢ドック受診後には、栄養・運動指導やサプリメント相談のほか、検査結果によっては外来受診、抗加齢外来治療なども提供していく。アドバンスコース（所要時間約４～５時間）は12万1800円、ベーシックコース（同約３時間）は８万8200円。通常ドックとセットで検査を受ける場合はアドバンスコース16万1700円、ベーシックコース13万4200円に設定した。抗加齢ドッグは、同大の看護学部、体育学部などとの共同研究所「東海大ライフケアセンター」を軸に運営する。当面は１日６人を定員とした電話による完全予約制。将来的には他の付属病院での立ち上げも視野に入れている。

東海大・久保教授
「日本の医療を質的に変える第一歩」

東海大医学部の久保明教授は11日、同大付属東京病院の抗加齢ドッグ設立記念講演会で講演し、抗加齢医学は「医学としては確立していない」と述べ、診断基準や治療方法、疫学データに関するエビデンスを積み重ねる必要があるとの考えを示した。来月からスタートする抗加齢ドックでは、脳卒中や冠動脈疾患などにつながる血管障害に進展具合が把握できるとした上で、「大学発の抗加齢ドックは日本の医療を質的に変える記念すべき第一歩」と強調した。

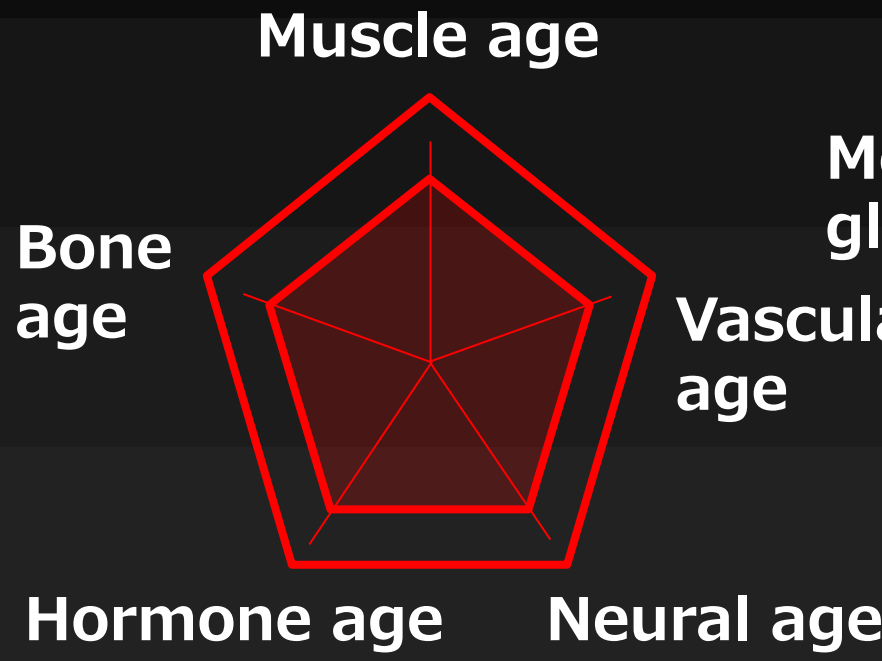
一方、同医学部の石井直明教授は、抗加齢研究の成果として「すべての動物で腹八分目が長寿効果を持つこと

Japan Medicine 2006.5.15

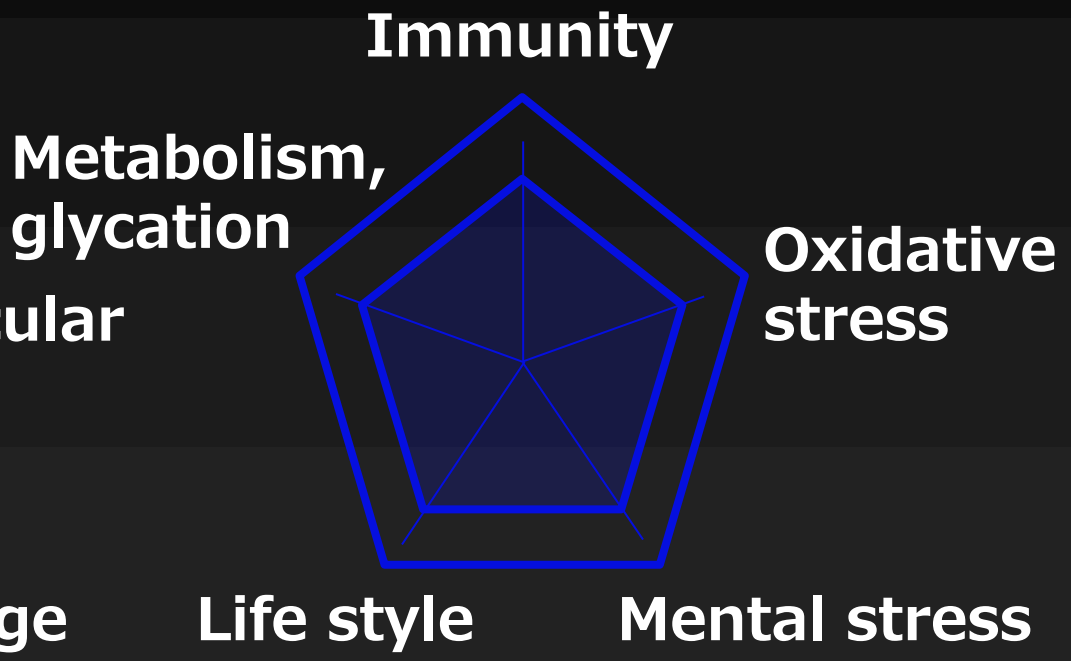
Antiaging Health Check-up Systems, Tokai University Tokyo Hospital, Yoyogi, Tokyo

Two major components in the anti-aging health check-up system

Degree of aging



Aging risk factors



Examination items in Antiaging Health Check-ups

1. Degree of Arterioscrelosis:
   IMT, baPWV, ABI, etc
2. Serum lipids and arteriosclerosis-related items :
   Detail Serum lipids profile、Adiponectine, Homocystein, hsCRP, etc
3. Balance of oxidation and anti-oxidation :
   8OHdG, Isoprostane, Vitamines（A, C, E）etc
4. Hormonal balance :
   IGF-1, DHEA-s, Cortisole, free T4, free testosterone,Estradiol, etc
5. Immunological status:
   NK cell activity, hs-IL6
6. General items : liver function, kidney function, Anemia, H.pylori, Beta-criptoxanthine, Minerals (K, Na, Cl, Mg, Cu, Zn), etc
7. Body composition analysis: BMI, BFR, Bone mineral, Grip power, etc

Health guidance after the anti-aging health check-ups

Antiaging is achieved only after appropriate health guidance is given based on the results of anti-aging health check-ups and the expected improvements are produced.

1. A guidance day is set up approximately one month after the examination date
2. Individual guidance is given over 30 minutes by an anti-aging specialists based on the results of the anti-aging health check-up.

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Backgrounds

Normal BMI with higher body fat is so-called "*kakure-himan*" as the same meaning of normal weight obesity (NOW). The major problem of this group is the visceral fat type obesity with poor muscle mass, leading to a low basic metabolism and relatively lower in insulin resistivity.

Aim

This study was performed to determine various abnormalities of *"Kakure-himan"* as a high-risk condition in connection with metabolic syndrome and lifestyle diseases in contrast with normal and real obesity subjects.

Subjects and Methods

Subjects： Men and women aged between 40 to 79 years old whom underwent anti-aging health check-up system in Tokai University Tokyo hospital （339 men and 298 women） were included。

Groups： Subjects were divided into 3 groups according to BMI and body fat rate measured by body composition analyzer 'In Body' (BIOSPACE) with 8 points impedance method 。

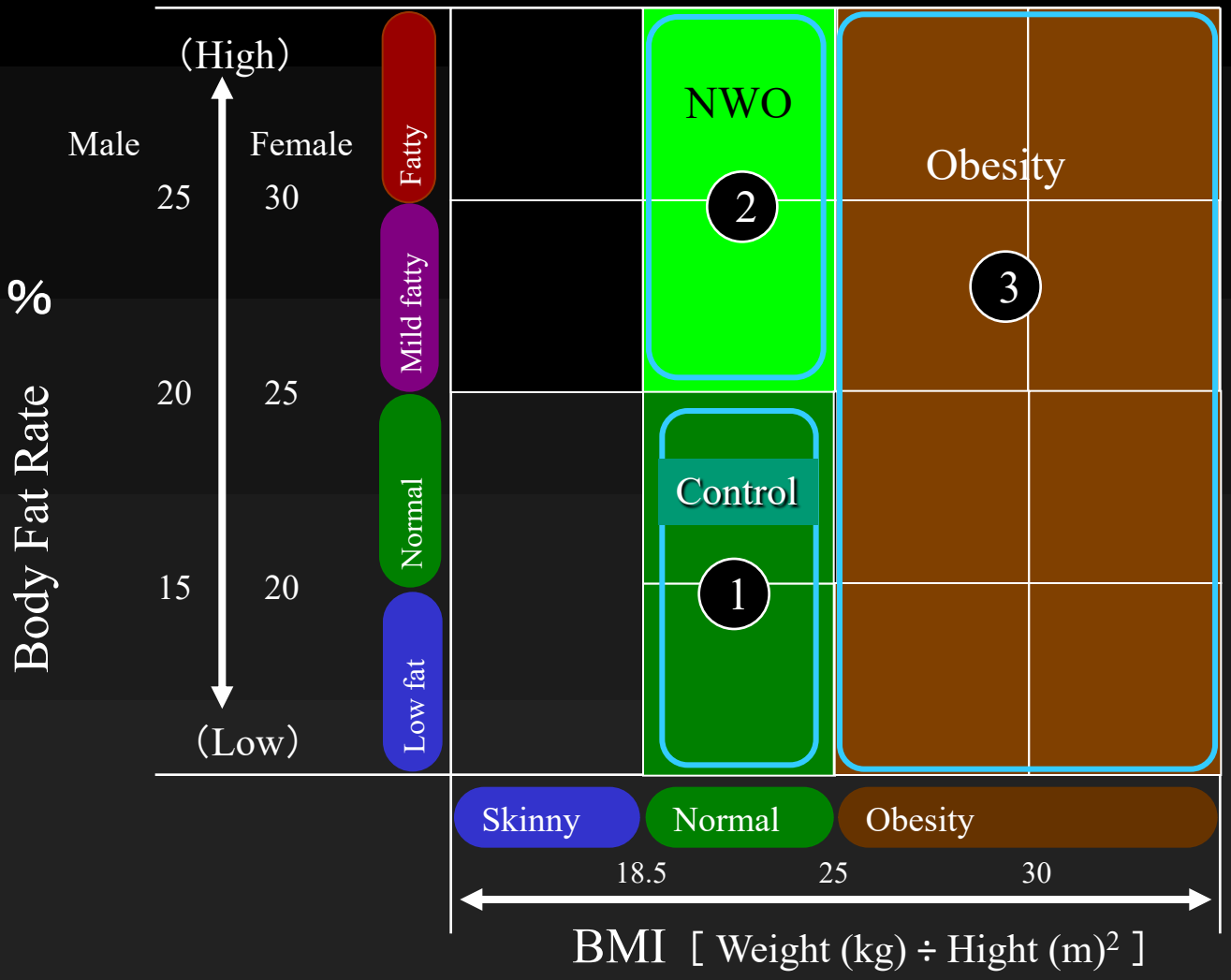
1) Control group : Normal BMI (18.5-24.9) with normal BFP (less than 20% in men and 25% in women).

2) NWO group : Normal BMI with higher BFP (greater than 20% in men and 25% in women).

3) Obesity group: Higher BMI (greater than 25.0) with higher BFP

Analysis： Gender specific every 10 years population in percentages were caliculated. Parameters associated with metabolic syndrome, lifestyle related diseases and arterial sclerosis were analyzed.

Study Groups divided by BMI & BFR



Gender and Age Specific Numbers of Subjects

	40 y/o	%	50 y/o	%	60 y/o	%	70 y/o	%	Total	%
Male	39	*11.5*	75	*22.1*	133	*39.2*	92	*27.1*	339	*100*
Female	34	*11.4*	90	*30.2*	105	*35.2*	69	*23.2*	298	*100*

Basic Data of Each Groups

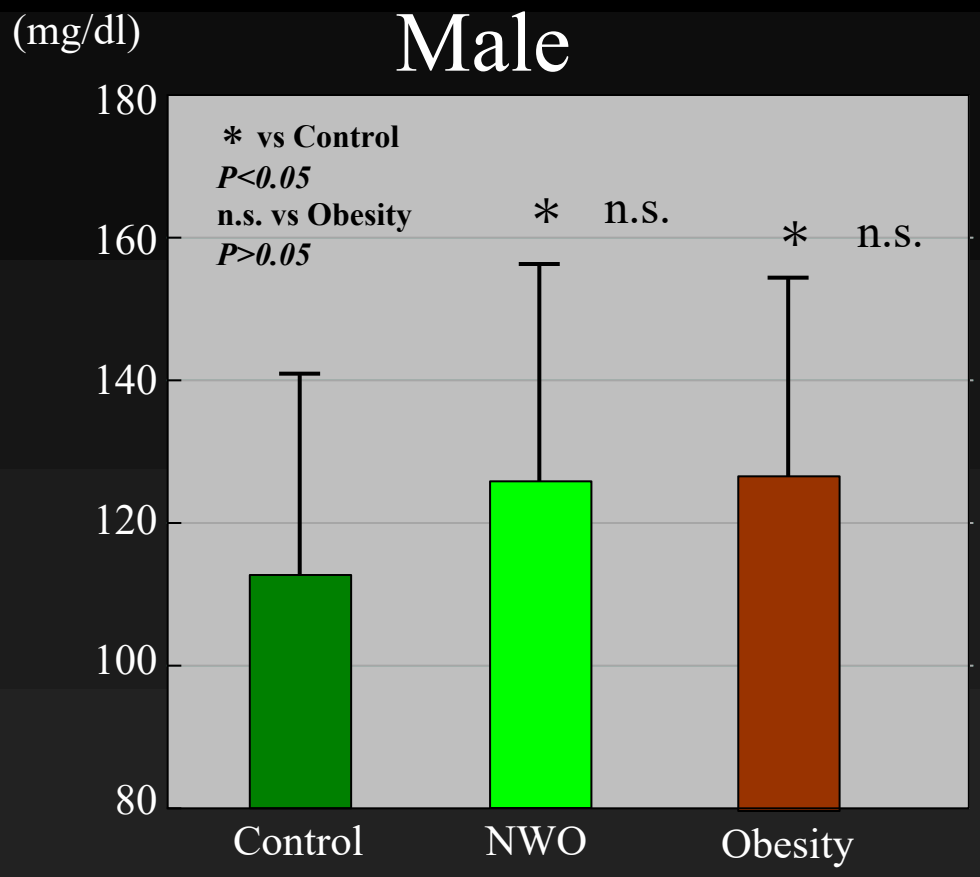
＜Male＞

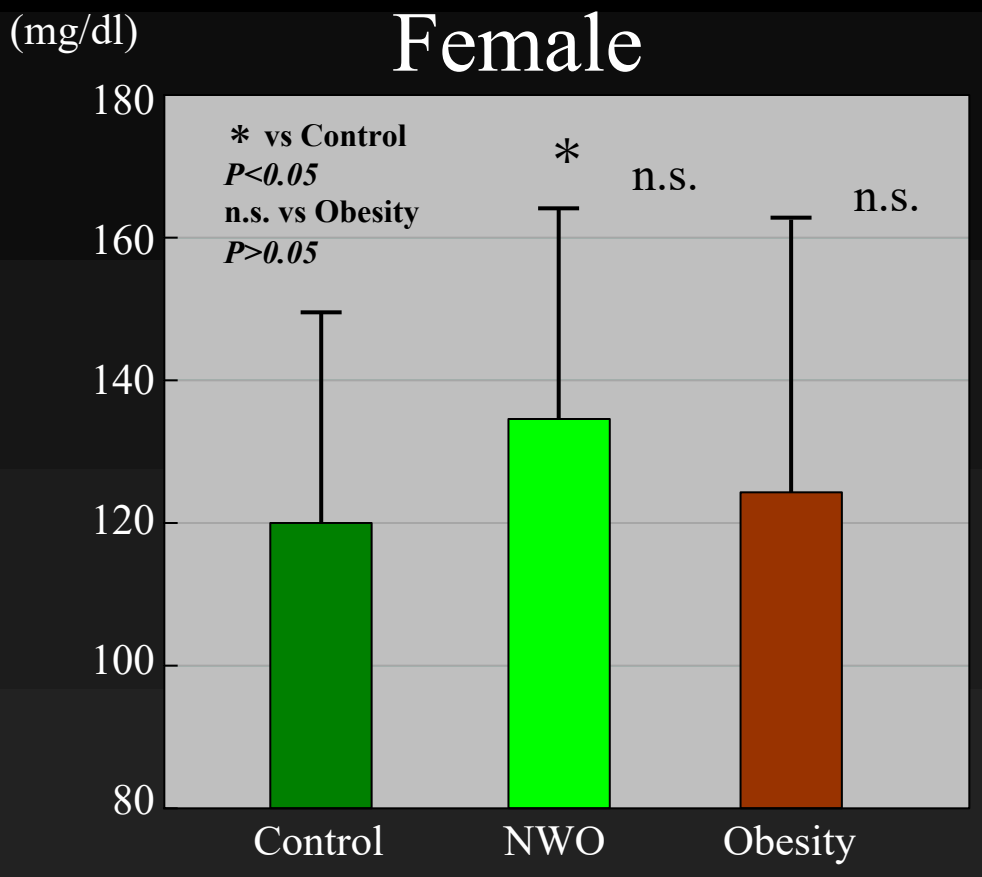
	Number		Age (y/o)	BMI	Body fat (%)	Abdominal circumference
Control	109 (32.1)	Mean	59.7	21.3	16.9	79.2
		SD	10.6	1.4	2.2	9.1
NWO	141 (41.6%)	Mean	64.6	23.2	24.0	85.6
		SD	8.6	1.1	2.7	5.52
Obesity	89 (26.3%)	Mean	62.4	27.5	27.8	95.2
		SD	9.9	2.7	4.2	7.3

＜Female＞

	Number		Age (y/o)	BMI	Body fat (%)	Abdominal circumference
Control	80 (26.9%)	Mean	59.1	20.0	21.8	73.9
		SD	9.5	1.1	2.6	5.7
NWO	180 (60.4%)	Mean	62.4	22.0	30.4	80.5
		SD	9.2	1.5	3.8	11.0
Obesity	38 (12.8%)	Mean	62.5	28.9	38.1	94.2
		SD	10.4	9.4	4.4	8.6

LDL-C


(mg/dl)
Male
180
160
140
120
100
80
* vs Control
P<0.05
n.s. vs Obesity
P>0.05
*
n.s.
*
n.s.
Control
NWO
Obesity


(mg/dl)
Female
180
160
140
120
100
80
* vs Control
P<0.05
n.s. vs Obesity
P>0.05
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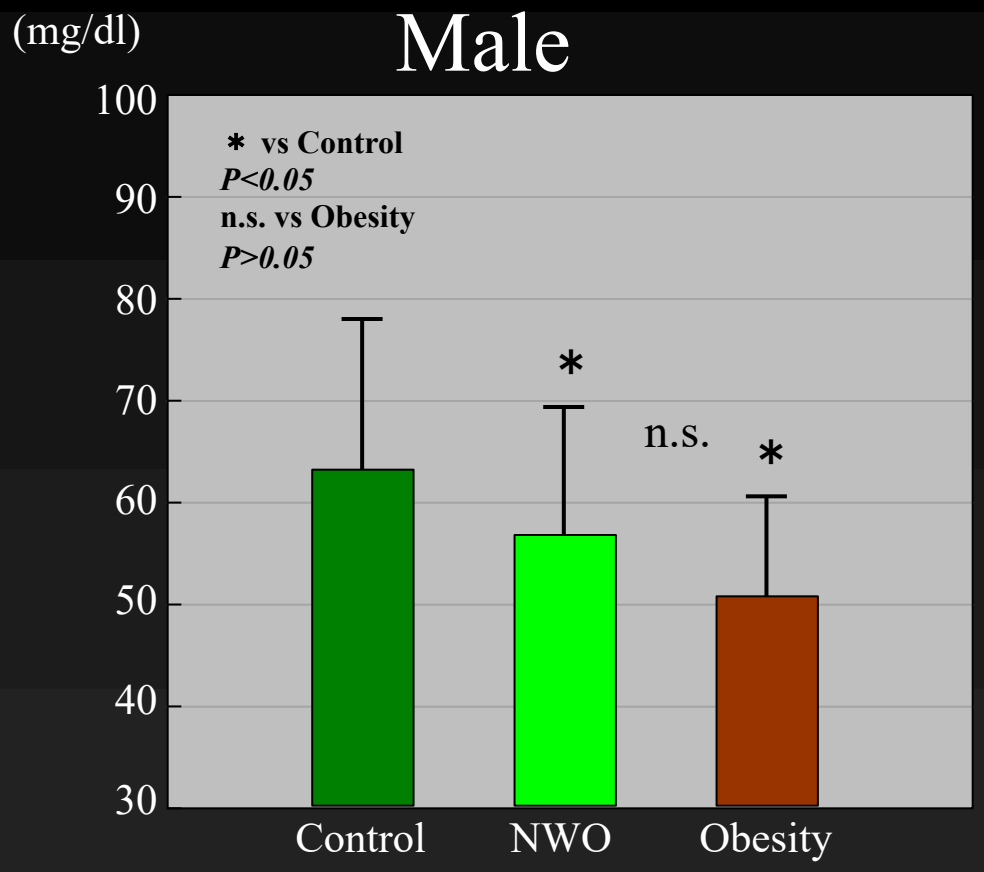
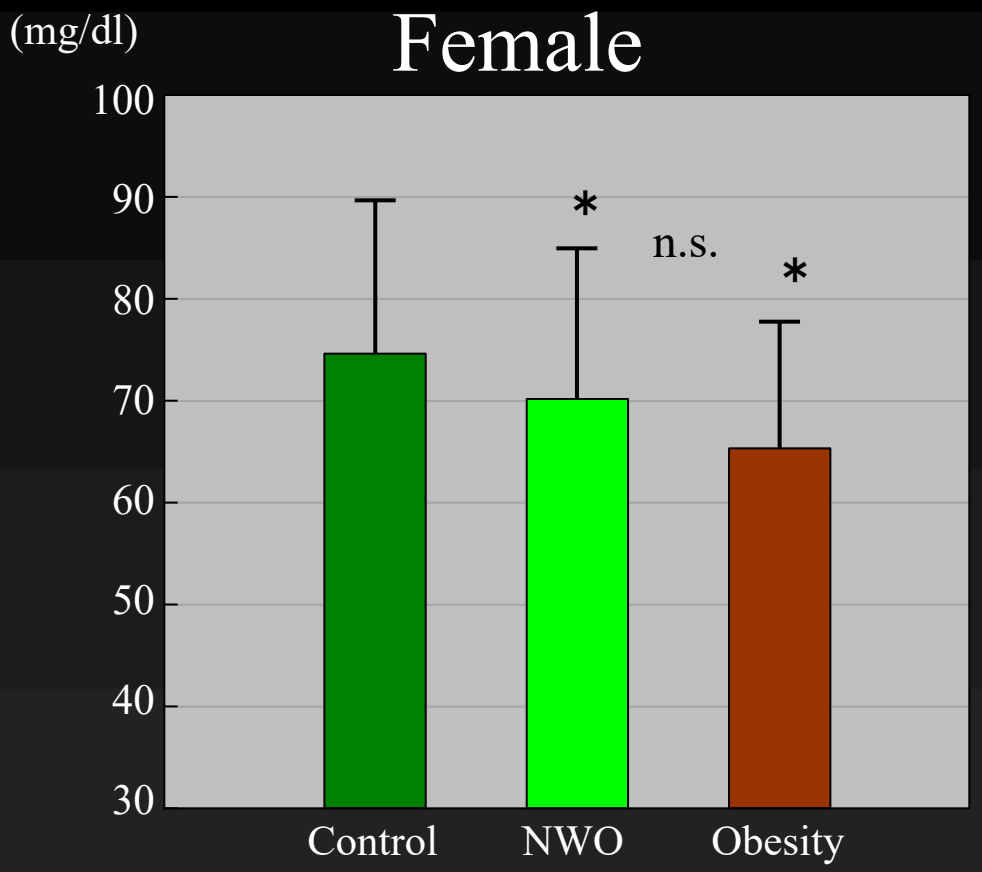
n.s.
n.s.
Control
NWO
Obesity

HDL-C


(mg/dl)
Male
100
90
80
70
60
50
40
30
* vs Control
P<0.05
n.s. vs Obesity
P>0.05
*
n.s.
*
Control
NWO
Obesity


(mg/dl)
Female
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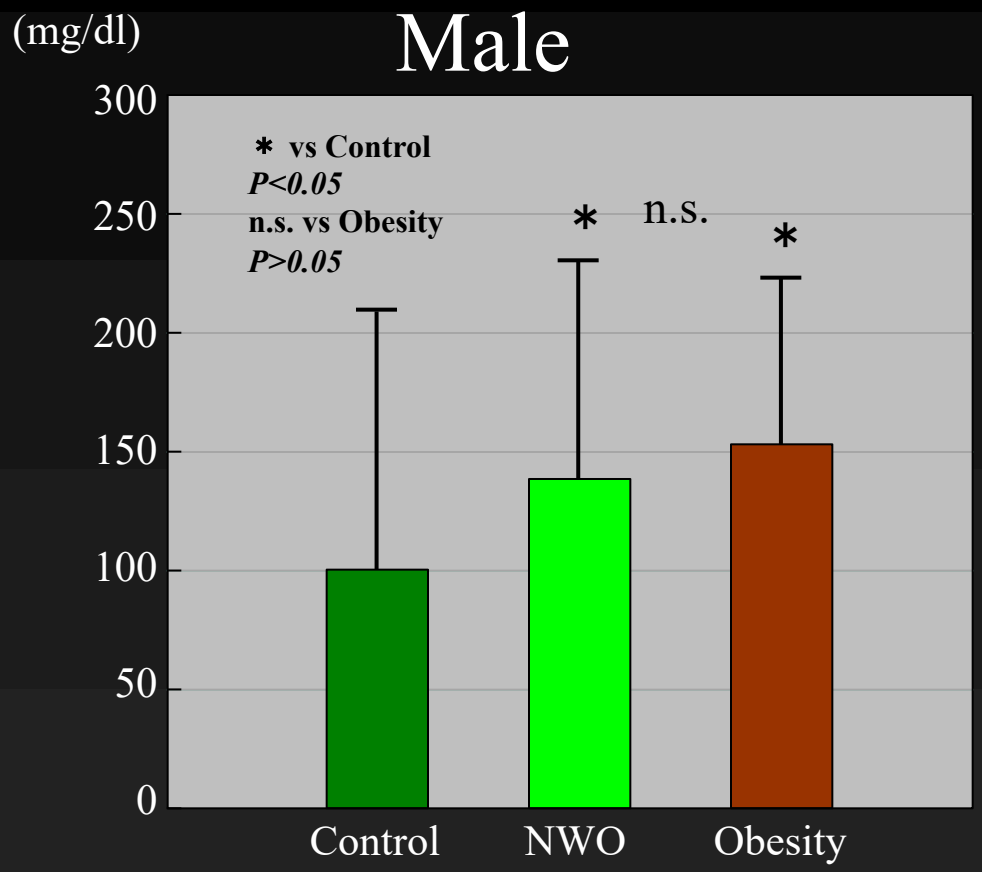
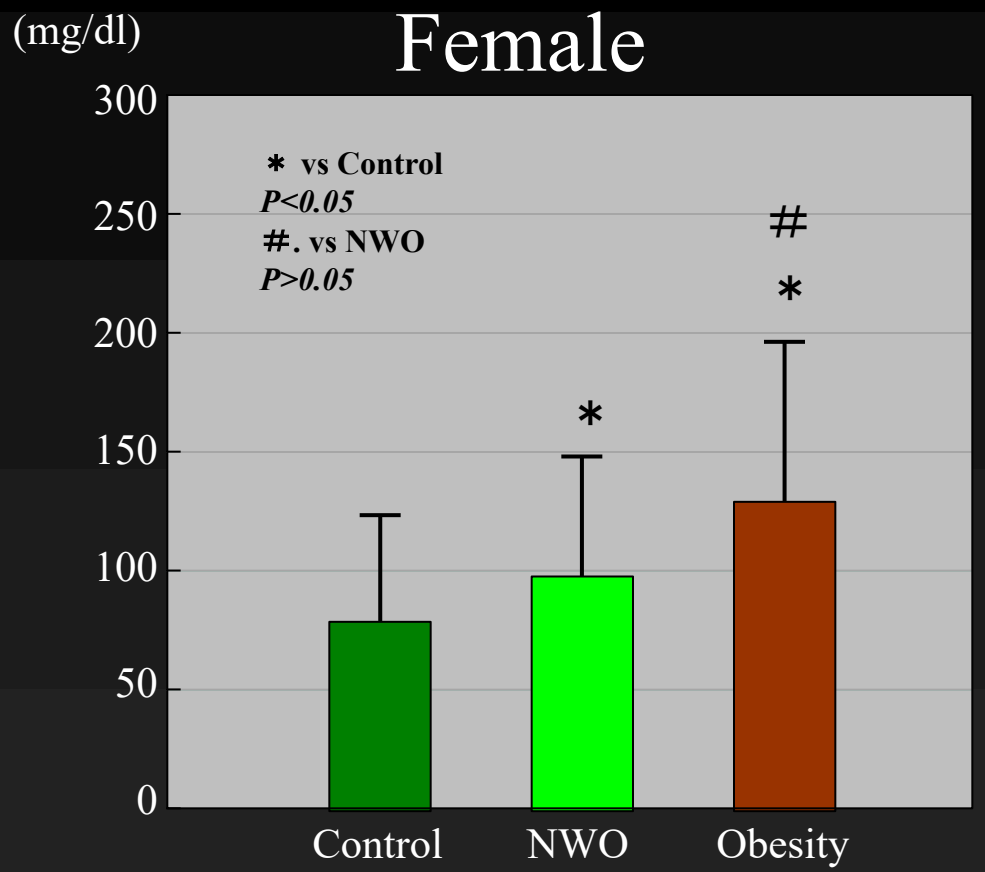
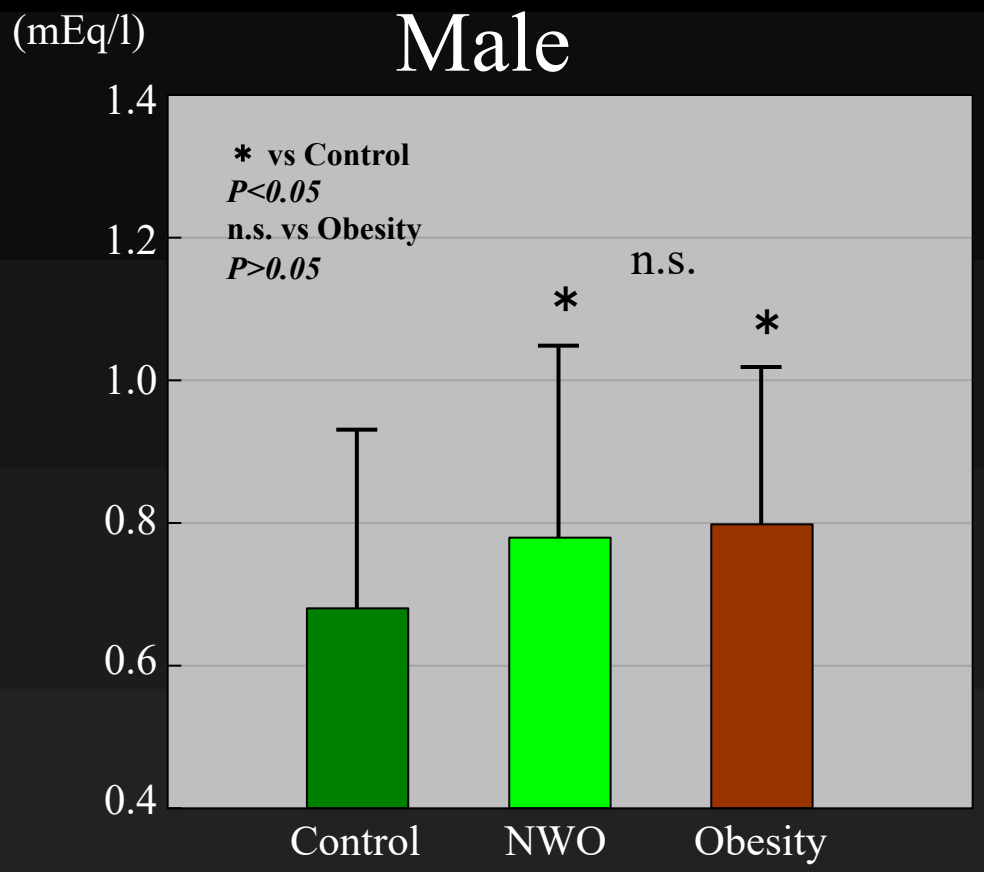
n.s.
*
Control
NWO
Obesity

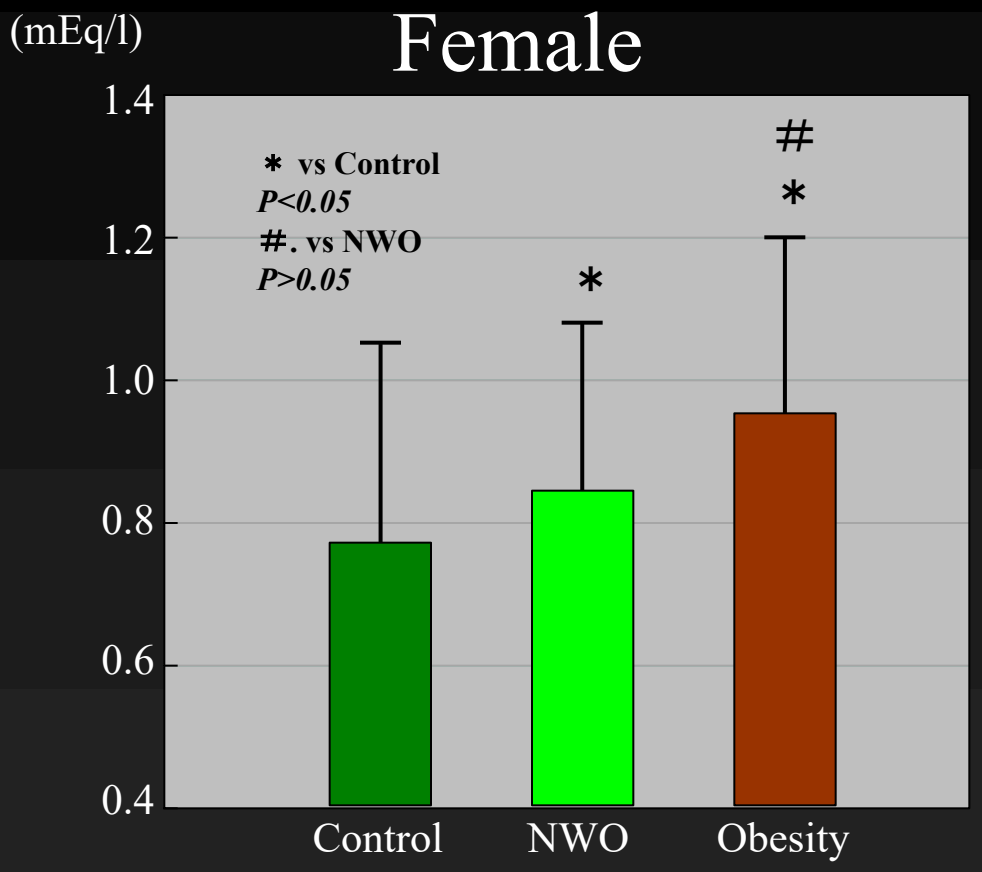
Triglyceride





FFA


(mEq/l)
Male
1.4
1.2
1.0
0.8
0.6
0.4
* vs Control
P<0.05
n.s. vs Obesity
P>0.05
n.s.
*
*
Control
NWO
Obesity


(mEq/l)
Female
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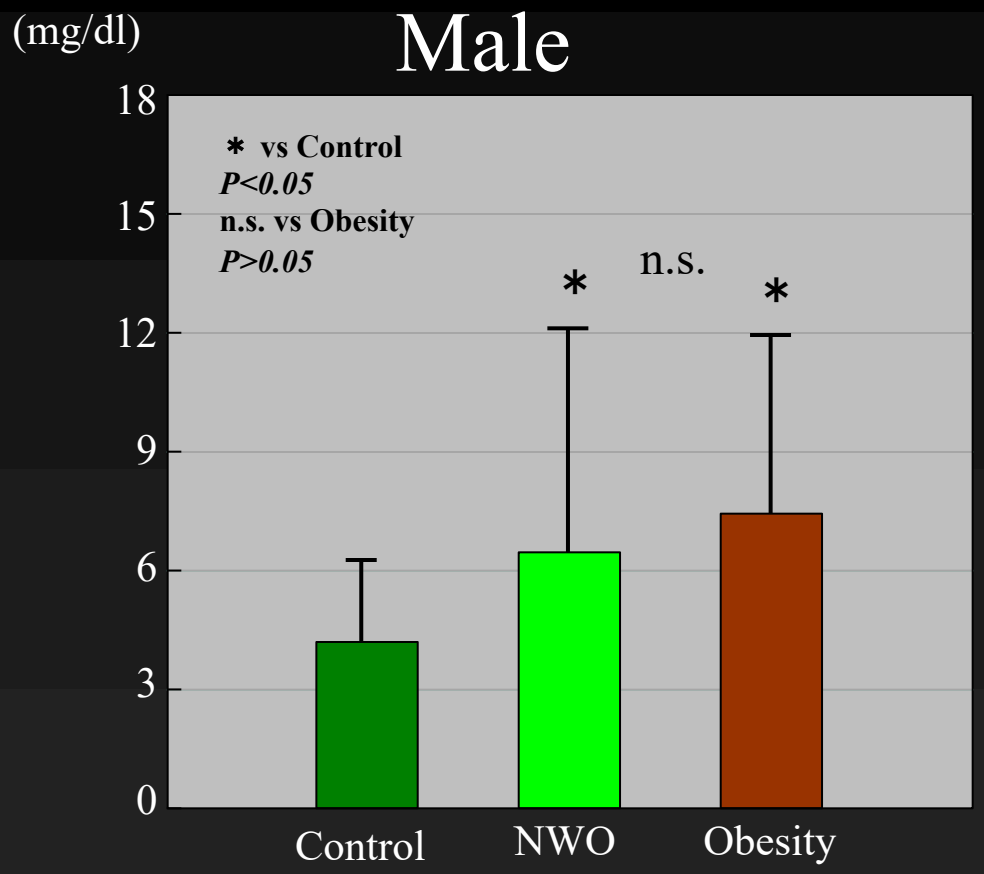
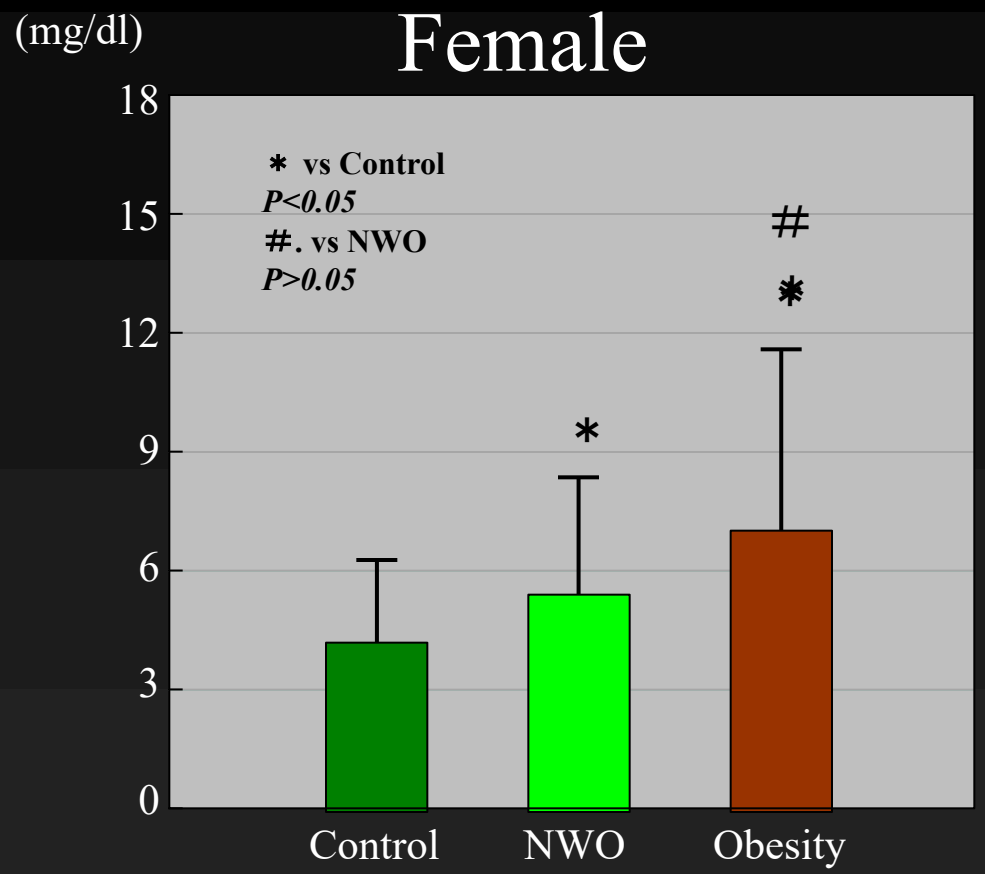
1.2
1.0
0.8
0.6
0.4
* vs Control
P<0.05
#. vs NWO
P>0.05
*
#
*
Control
NWO
Obesity

RLP-C


(mg/dl)
Male
18
15
12
9
6
3
0
* vs Control
P<0.05
n.s. vs Obesity
P>0.05
*
n.s.
*
Control
NWO
Obesity


(mg/dl)
Female
18
15
12
9
6
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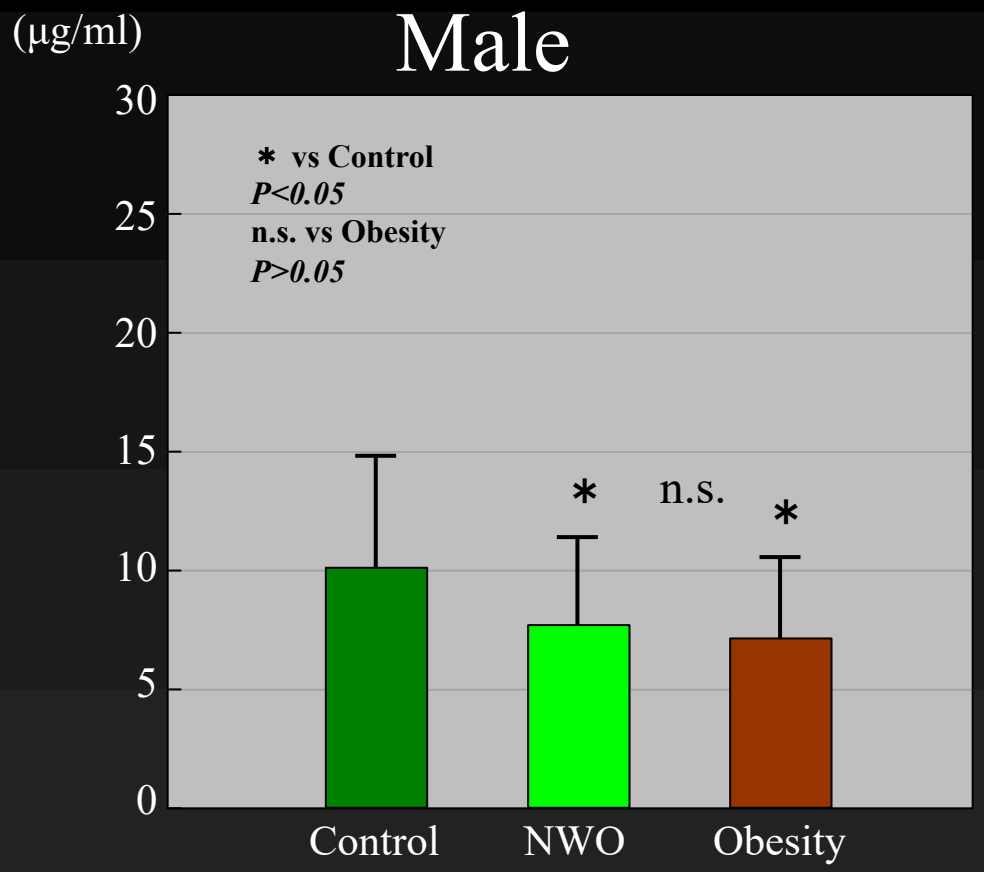
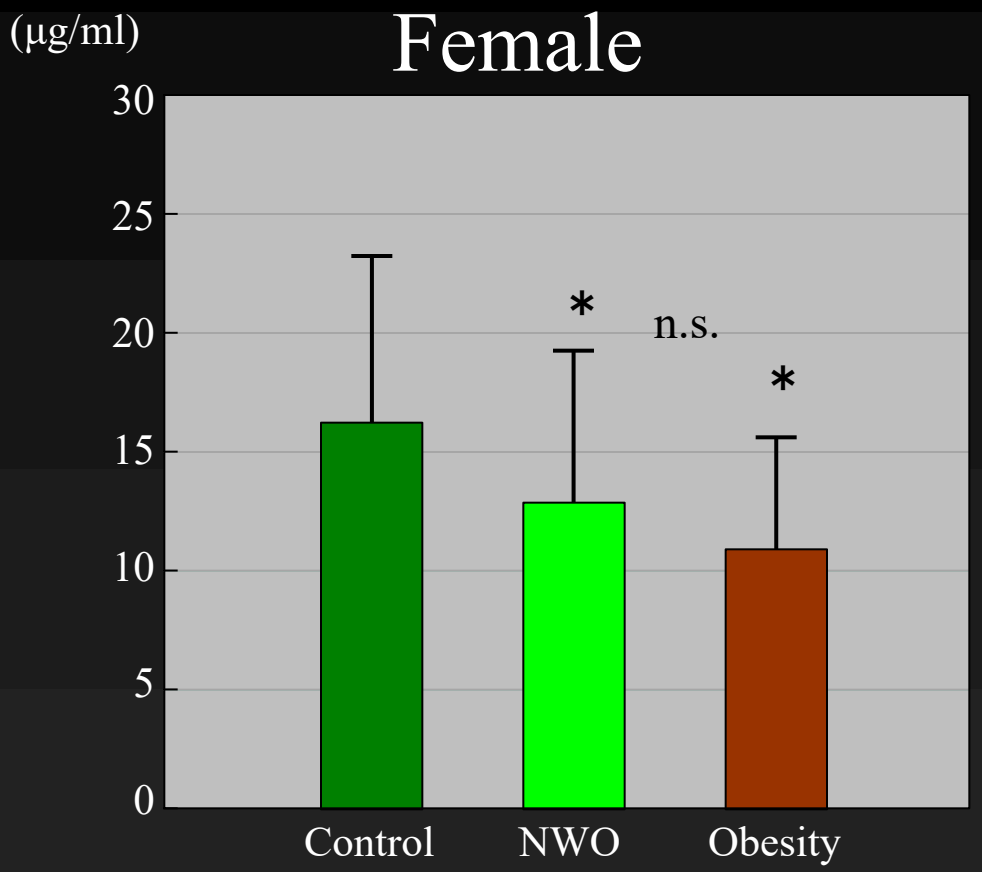
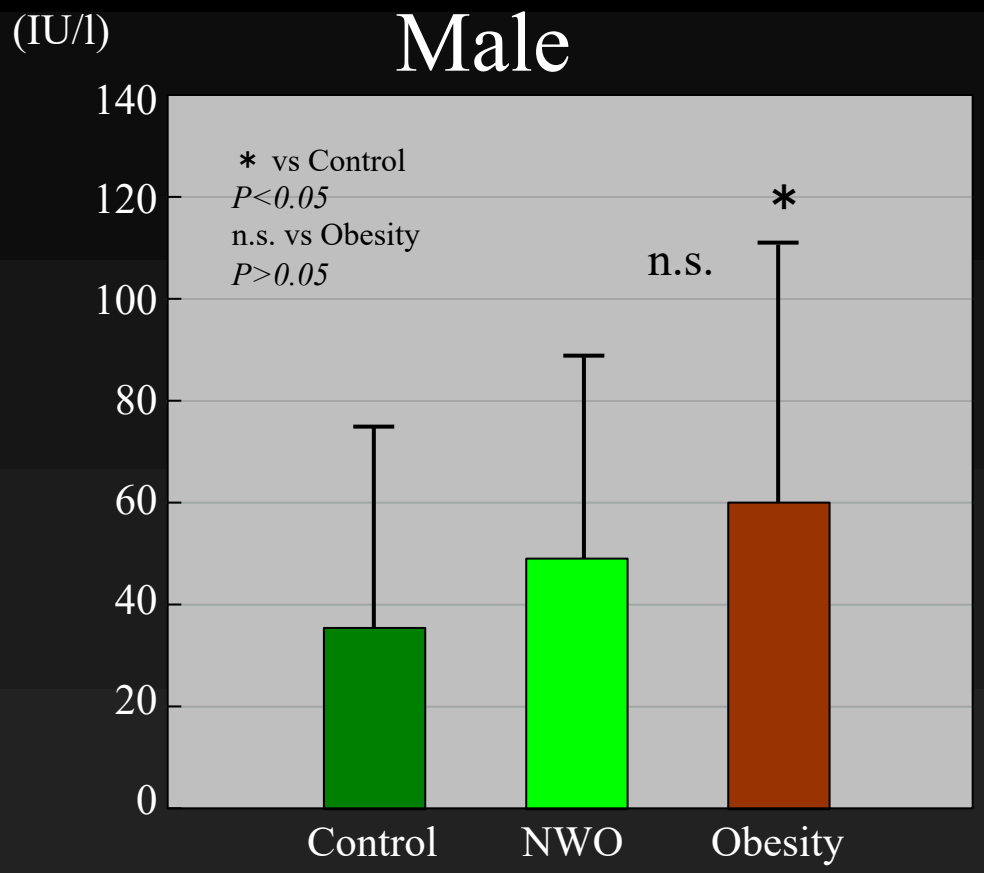
* vs Control
P<0.05
#. vs NWO
P>0.05
#
*
*
Control
NWO
Obesity

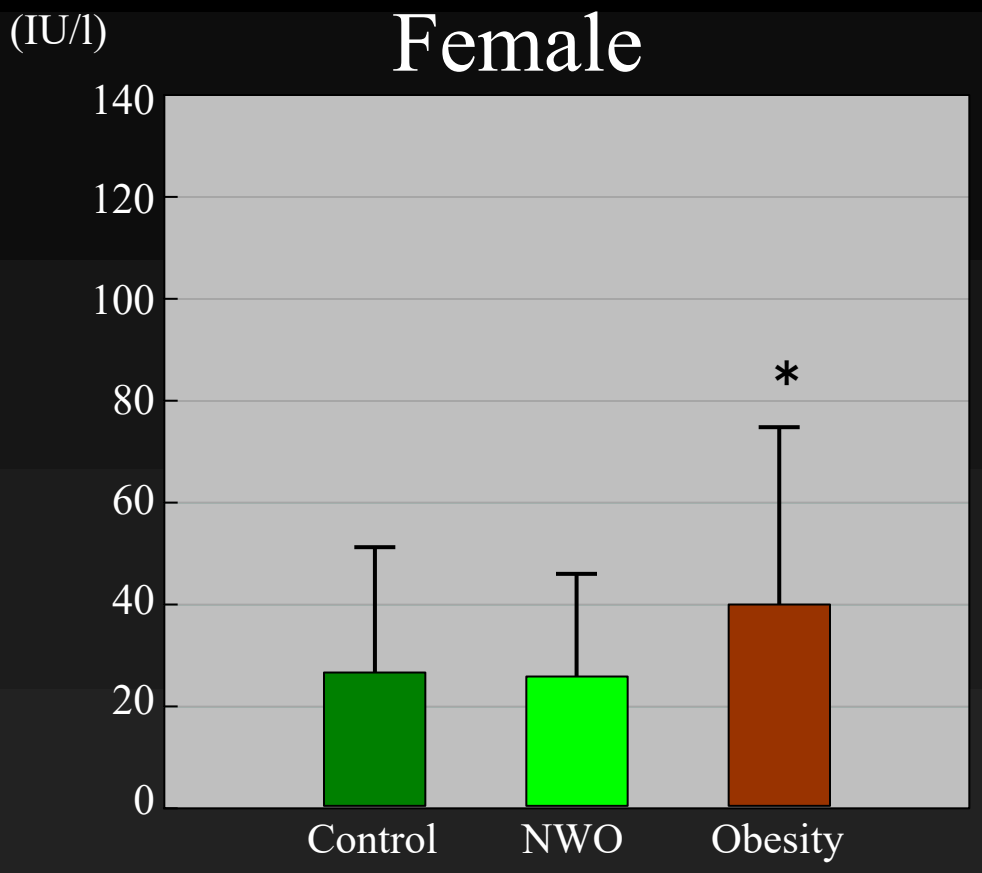
Adiponectine





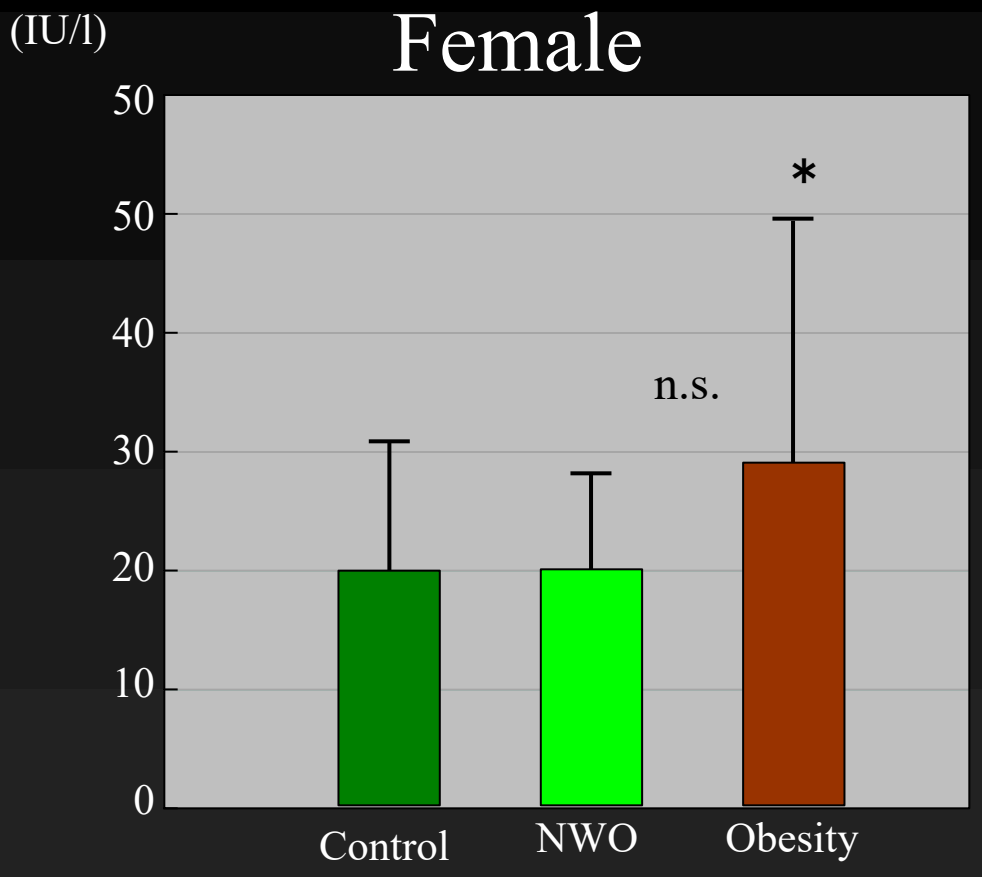
γ-GTP


(IU/l)
Male
140
120
100
80
60
40
20
0
* vs Control
P<0.05
n.s. vs Obesity
P>0.05
n.s.
*
Control
NWO
Obesity

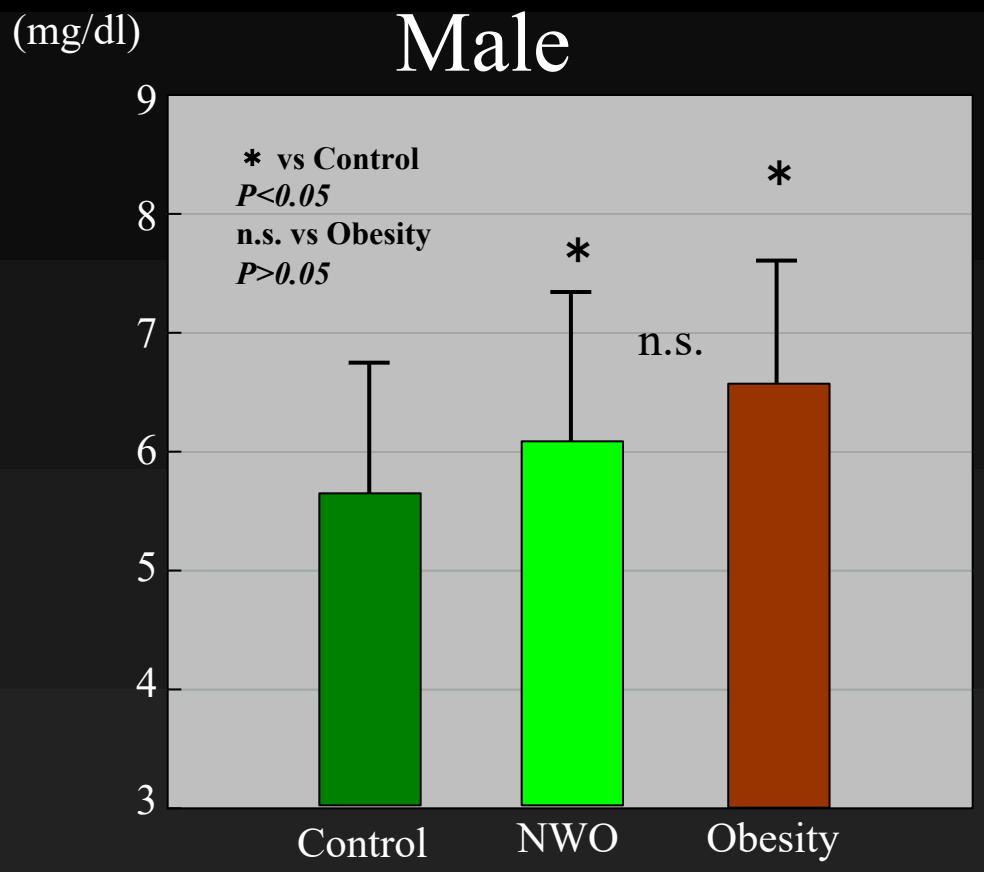

(IU/l)
Female
140
120
100
80
60
40
20
0
*
Control
NWO
Obesity

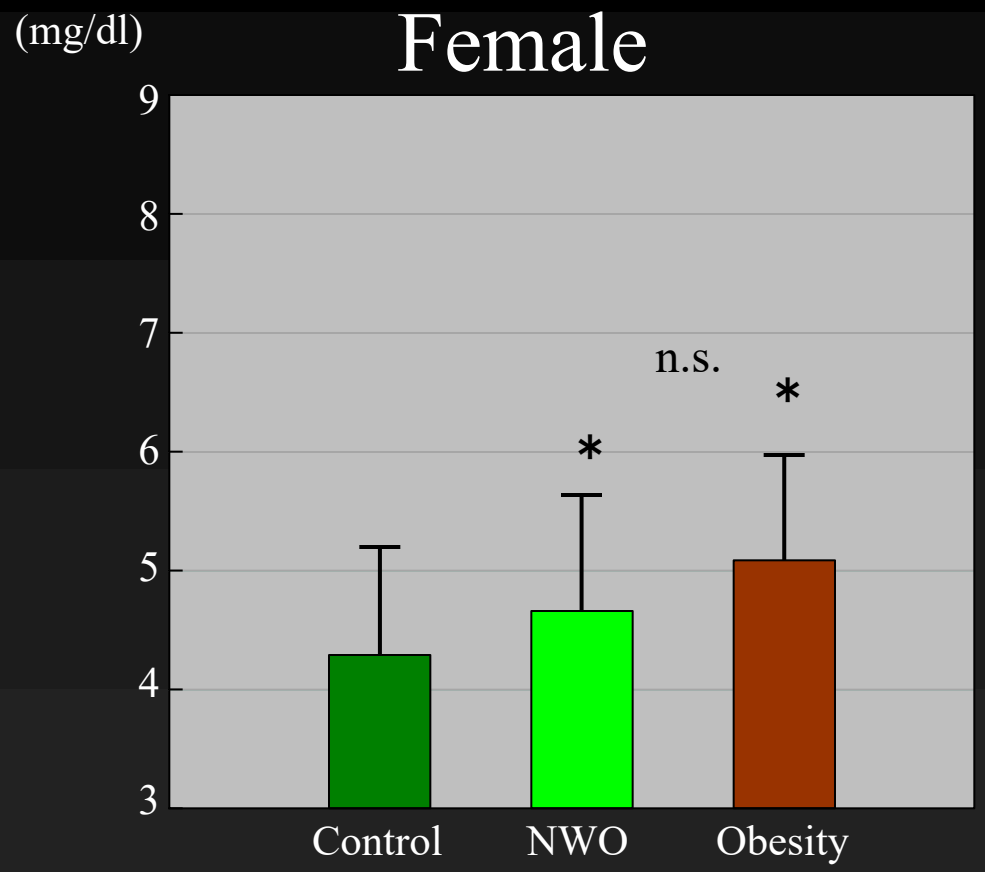
GPT


(IU/l)
Male
* vs Control
P<0.05
n.s. vs Obesity
P>0.05
60
50
40
30
20
10
0
*
n.s.
*
Control
NWO
Obesity


(IU/l)
Female
50
40
30
20
10
0
n.s.
*
Control
NWO
Obesity

Urinary Acid





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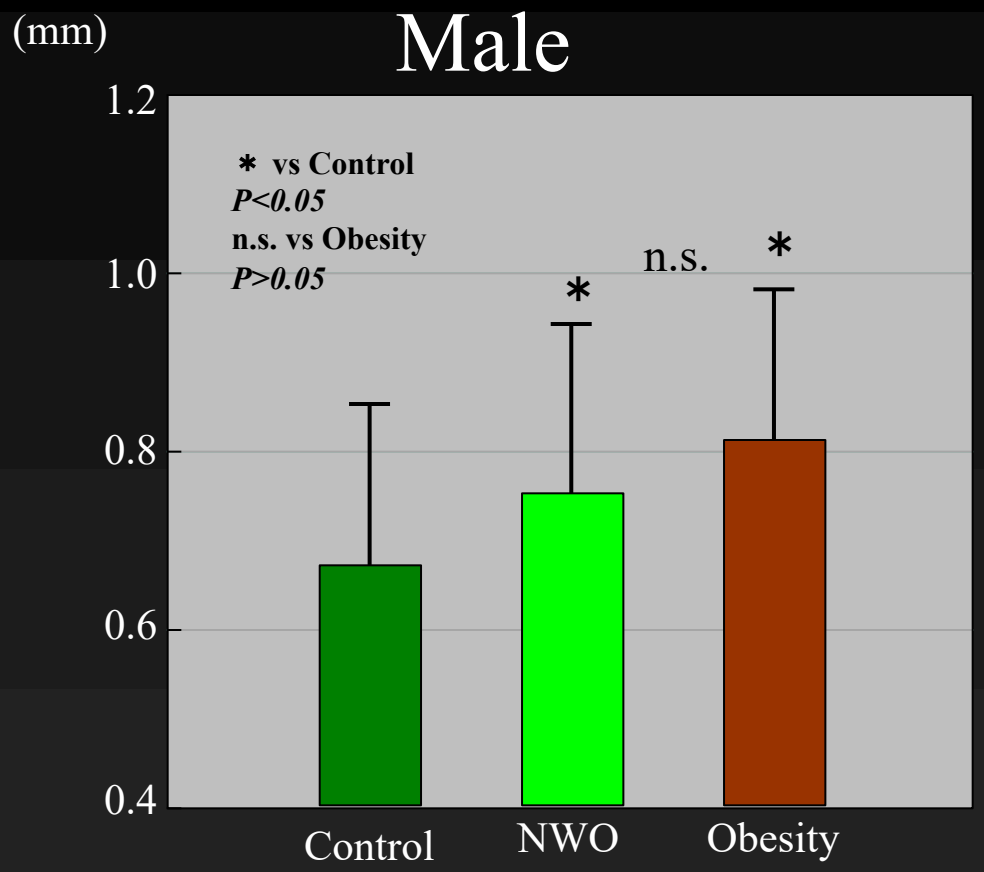
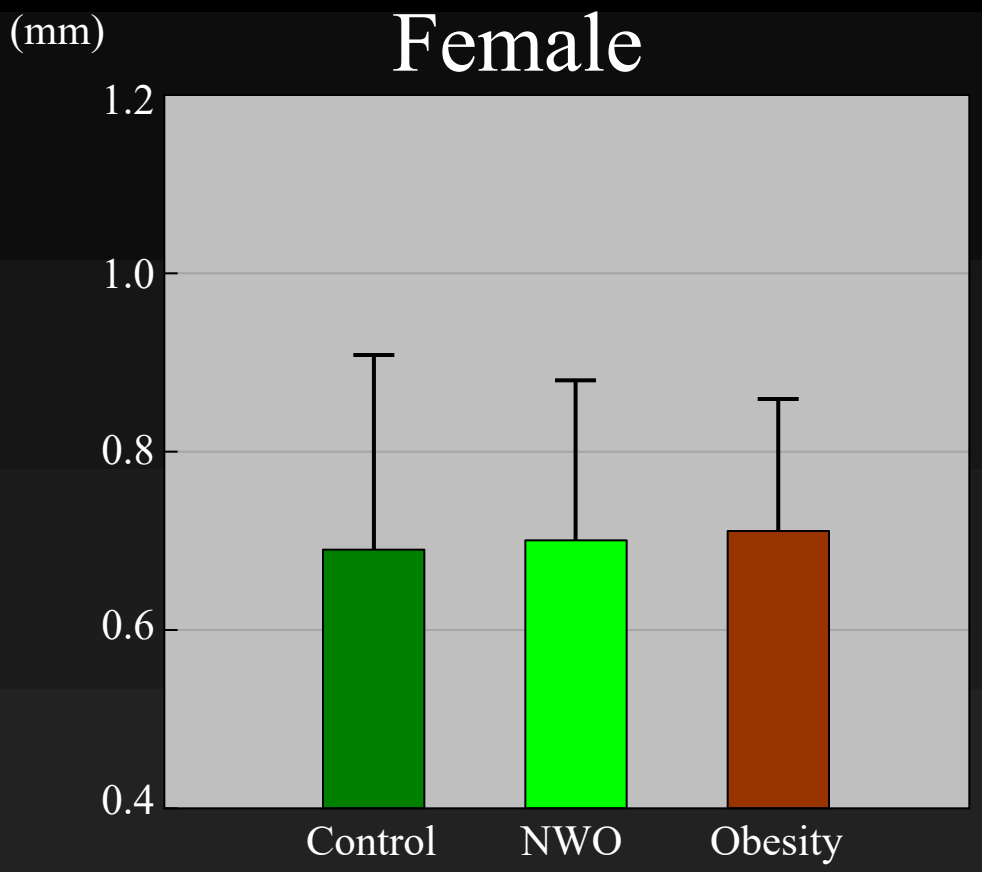
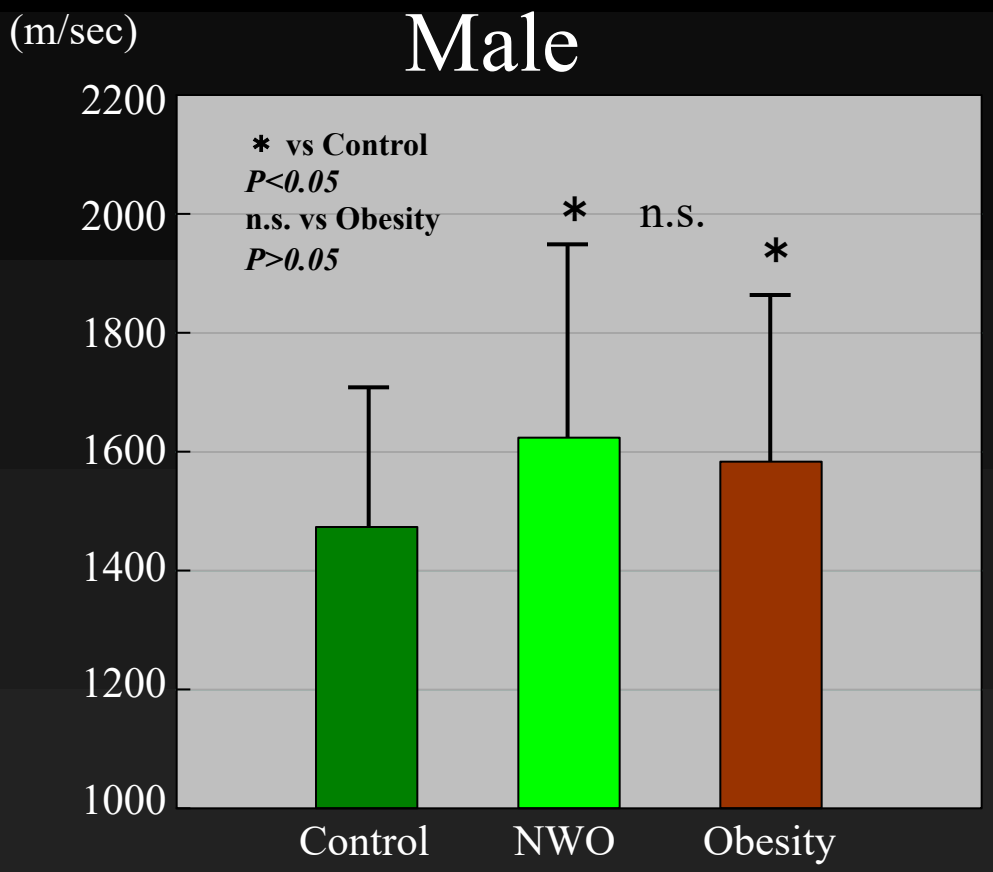
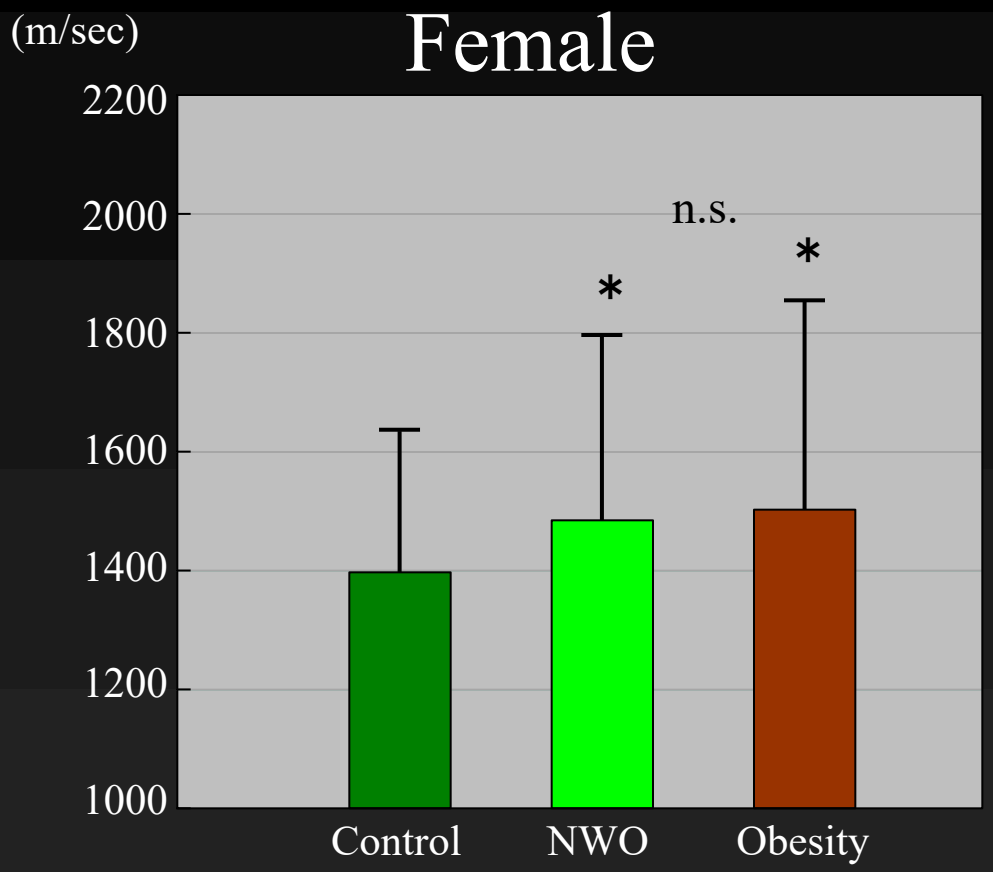

(mm)
Male
1.2
1.0
0.8
0.6
0.4
* vs Control
P<0.05
n.s. vs Obesity
P>0.05
*
n.s.
*
Control
NWO
Obesity

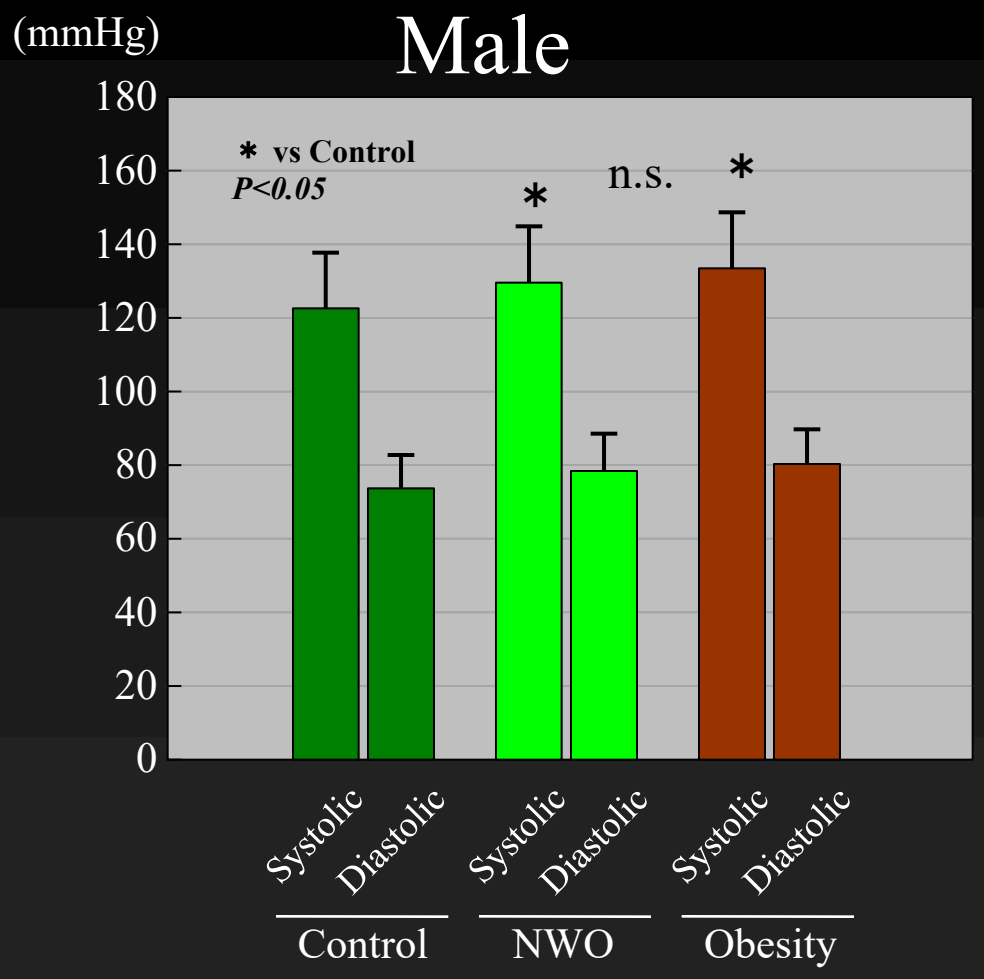

(mm)
Female
1.2
1.0
0.8
0.6
0.4
Control
NWO
Obesity

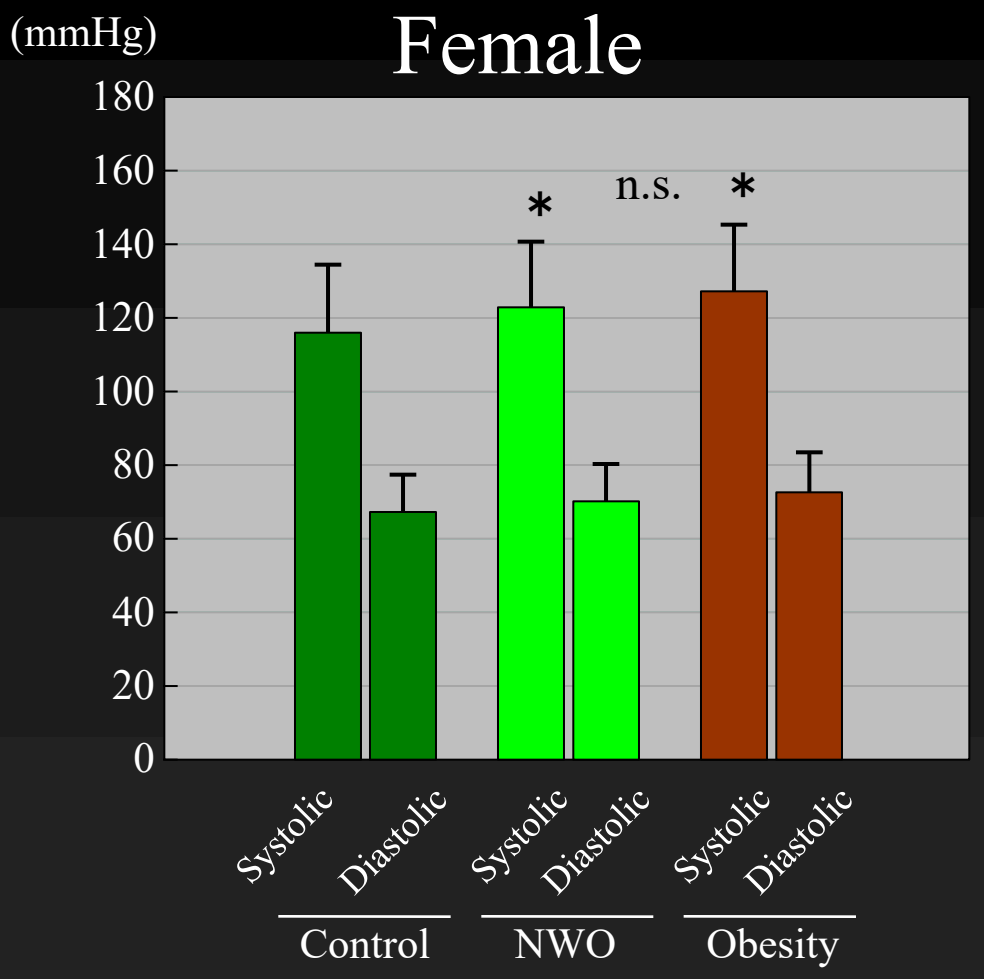
baPWV (lt)


(m/sec)
Male
2200
2000
1800
1600
1400
1200
1000
* vs Control
P<0.05
n.s. vs Obesity
P>0.05
*
n.s.
*
Control
NWO
Obesity


(m/sec)
Female
2200
2000
1800
1600
1400
1200
1000
n.s.
*
*
Control
NWO
Obesity

Blood Pressure





Conclusion

NWO was recognized in 42% of men and in 60% of women. The percentages of population in NOW were increased along to aging in both male and female.

Many subjects associated with Met-S and lifestyle related diseases were worsened in NWO at almost same level as obesity.

These results strongly suggest that Kakurehiman is a major risk and maintaining of muscle volume is surely important to the elderly population.

What I would like to suggest from this study

1. Body composition changes with age. This is inevitable.
2. Maintaining muscle keeps individuals healthy.
3. Even if BMI is normal, general people needs to know that loss of muscle mass put in danger.
4. DXA is accurate method, but impedance analysis is not officially recognized for the analysis of obesity.
5. However, body composition analysis using impedance analysis is easy and inexpensive. Especially it is useful for individual before-and-after comparisons.

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