[연수강좌]

소아 · 청소년에서 비만도의 평가지침

유 선 미

인제의대 상계백병원 가정의학과

. plethysmography (ADP) .

(fat mass, kg)

(%) . (2) (Dual energy X-ray absorptiometry: .

DEXA, DXA)

, .

. ,

, .

, 0.8%, 1.7%, 2%

. .

.

. ,

. .

1. 체지방을 어떻게 측정할 것인가?

.

(3) CT or MRI

. X-ray source detect assembly 360

. X-ray

. .

, .

1) 직접 측정법 CT MRI ,

(1) .

.

2-compartment model CT

. 1940 .

(gold standard) .

,

residual lung volume . , ,

, , , 2) 간접 측정법

(1) (Bioelectrical Impedance Analysis: BIA)

. ,

Air-displacement .

,

.

, .

. 4 .

.

50KHz , .

. 90°

BIA , (acromion process) (olecranon

DXA , process) . 2-3

- .[1] (1, 2).

BIA DXA

12% , .[2]

( ) .

BIA ,

.[3] .

BIA .

. . 2-3

(1).

(2) (Anthropometry)

BMI (body mass index, Quetelet's index)

(kg)/ ^{2}(m) . BMI DXA

.[4]

BMI BMI

.

BMI , , adiposity

.[5]

Weight for height

-

. (50

) 120%

.

,

.

.

.

그림 1. 삼두박근과 견갑골하부 피부두께 재는 부위

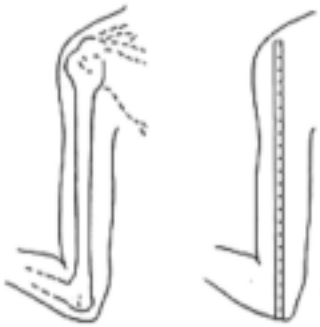

그림 2. 삼두박근 피부두께 측정을 위해 팔중간부위를 재는 부위

(mid-upper arm circumference)
.

.

.

/ , /
(ratio)

.

2. 소아 · 청소년 비만의 정의

. (WHO), CDC,
.

1) WHO

WHO National Center for Health Statistics(NCHS)/WHO
+2 Z-score (overweight)
. BMI 85
, BMI 85
90 .[6]

.

,

(cut-off value) .

,
.

2) 미국 CDC/NIH

20 ,
BMI .
BMI 85-94 ‘ (at risk for overweight)’, 95 ‘
(overweight)’ .[7] 95
BMI 30

. 85-94 BMI 25 .

BMI .
14-19 1963-1975
31 BMI 85-94
25-75 30%
95 80% .
BMI 85-94 30%, 95
100% .[8]

3) 국제비만특별위원회 (International Obesity Task Force: IOTF)

IOTF , , , , ,
6 BMI
, centile
. 18 25 30 BMI
.[9](1) 25 30
, 18
. IOTF
BMI 85 18
25 .

표 1. 2-18세의 과체중과 비만의 기준이 되는 체질량지수. 6개국의 자료를 통합하여 18세의 BMI 25와 30으로 정의함.

Age (years)	Body mass index 25 kg/m²		Body mass index 30 kg/m²	
	Males	Females	Males	Females
2	18.41	18.02	20.09	19.81
2.5	18.13	17.76	19.80	19.55
3	17.89	17.56	19.57	19.36
3.5	17.69	17.40	19.39	19.25
4	17.55	17.28	19.29	19.15
4.5	17.47	17.19	19.26	19.12
5	17.42	17.15	19.30	19.17
5.5	17.45	17.29	19.47	19.34
6	17.55	17.54	19.78	19.65
6.5	17.71	17.93	20.23	20.08
7	17.92	17.76	20.63	20.51
7.5	18.16	19.03	21.09	21.01
8	18.44	18.39	21.60	21.57
8.5	18.76	18.69	22.17	22.18
9	19.10	19.07	22.77	22.81
9.5	19.46	19.45	23.39	23.46
10	19.84	19.86	24.03	24.11
10.5	20.20	20.29	24.67	24.77
11	20.55	20.74	25.18	25.42
11.5	20.89	21.28	25.58	26.05
12	21.22	21.68	26.02	26.67
12.5	21.56	22.14	26.43	27.24
13	21.91	22.58	26.84	27.76
13.5	22.27	22.98	27.25	28.20
14	22.62	23.34	27.63	28.57
14.5	22.96	23.68	27.98	28.87
15	23.29	23.94	28.30	29.11
15.5	23.60	24.17	28.60	29.29
16	23.90	24.37	28.88	29.43
16.5	24.19	24.54	29.14	29.56
17	24.46	24.70	29.41	29.69
17.5	24.70	24.85	29.70	29.84
18	25	25	30	30

Cole TJ et al. Establishing a standard definition for child overweight and obesity worldwide; international survey. BMJ 2000;320:1240-3.

4) 대한소아과학회

1999 ‘ .

, .

120% BMI

, , , 85

.[10] 1998 .

. BIA

=( )/ .

×100(%)

50 . BMI 95

20% , 20-30% , , ,

30-50% , 50% .

. .

= / ^{2} (kg/m^2)

95 , 84-95 .

. ,

CDC/NIH . .

95 .

95 .

.

4 BMI

.

,

.

3. 어느 기준이 가장 적절한가?

. 5-18 596

DXA

BMI ≥20 kg/m2, BMI z-score ≥1, BMI ≥ 85

.[11]

6-11 623 BMI

BIA , IOTF BMI

83.3%, 66.7%

93.9%, 97.9% .

120%

91.7%, 84.8%, 88.6%

.[12] IOTF

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