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Short Communication

Obesity and the Human Functions

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Abstract

In this paper, we attempt to understand better that causes of obesity. Only one patient is considered. We make use of AT Math to see why some people are apparently overweight, yet consume few calories. We calculate ideal body fat percentages.

Keywords: Obesity; Metabolism; R-value; Human Functions; Body Fat Percentage; AT Math

Introduction

Obesity is a growing problem among modern people. Worldwide obesity has tripled since 1975. Fifteen percent of youngsters are obese, while one-third of adults are obese. In this paper, we provide a mathematical solution to the obesity problem.

The Patient we consider here is grossly obese. She weighs approximately 350 lbs (159.1 kg). I have never seen her consume an ounce of food and I am with her 8 hours a day every day of the week. She is naturally obese. She swims for exercise yet remains fat. An ankle injury is made all the worse by the extra weight. She swims because she cannot walk very well.

Normal Body fat on a woman is 25-28%.

28% x 1590.1=44.55 kg

TE=M[1/2π]

=44.5(1/2π)

=0.709~1/√2

44.5kg-159.1)=114.6kg=252.1 lbs

350lbs-252.12=97.88 lbs=44.5 kg

The Insulation R-Value=(W/cmK).

RSI= (1/√2)/[100 x (273+ΔT)]

Normal Body Temperature=36.4°C

Room Temperature~20°C

ΔT=36.4-20=16.4°

RSI=(1/√2)/[100 ×(273+16.4)]

=0.02443

~0.0245

This is the same as Triple Insulated ¼ inch space Glazing.

2.45x 350 lbs=857.5 lbs/2.2=389.8 kg=1/2.5656~1/SF

F=Mg

389.8(9.806)

=3822N

3.822kN

Divide by 2 knees

=1.9111 N/Knee

Normal Wt=F_N=Mg=44.5(9.806)

=436.3 N=0.4362kN

1.9111-0.4362kN=1.475~0.1504kN=150.4N Excess force on each knee.

150.4=M(9.806)

M=15.34 kg/ knee

M total=30.68kg

The skeleton can be thought of as mathematics. It provides the structure that the flesh is supported by. Flesh can be thought of as mass. And blood can be compared to energy. The life is in the blood.

One equation for the skeleton is Gauss's Equation

$\mathrm{Lim}_{x\to\infty}\ \pi(x)/\ [x/\mathrm{Log}\ x]=1$

The equation that describes the flesh is the familiar

M=Ln t=Ln π=1+ $(1-\mathrm{Ln}\ \pi)^7$=1+0=1

The Blood can be thought of as the Total Energy TE=2

This is the Body [1].

Skelton

lim (π)(t)/[t/Ln t]=π(√2)/[(√2)(Ln √2)]=2.178~1 kg

Flesh

M=Ln t=Ln $(1-\mathrm{Ln}\ \pi)^7$

TE=1/0.707

E=1/t

t=√2

M=Ln √2=0.3465kg

M=0.3465 x 2=0.693=Ln 2

$t=2=d^2E/dt^2$

t^2-t-1=1=E

t^2-t-2=0

t=2:-1 ⇒ SE=SE'

E=5; t=3

TE=M(1/2π)

=5(2)π

=31.4

31.4-350=318.58

=1/3.138~1/π=1/freq=1/Period T=1/E=t

M=Ln t

=Ln(1/3.138)

=1.1435 kg

=251.6Lbs

=Period T

=E

TE=M(1/2Pi)

M=15.82

~15.34kg/knee

Normal Weight=165 lbs=82.5 kg

82.5/2knees=41.25 kg

15.82/(41.25)=38.4%

38.4% + 28% (Normal Body fat)

=66.35~ℏ

$E=\hbar\upsilon$

$=6.635(1/\pi)$

$=2.112$

$t=1/E=1/2.112=0.4735$

$t^2-t-1=E$

$(0.4735)^2-(0.4735)-1$

$=-1.249\sim-1.25$

$=E_{min}$ of the GMP.

Metabolism

$dE/dt=2t-1$

$=\int d^2E/dt^2=\int 2\ dt$

$=2t+\mathbb{C}$

$=\mathbb{C}=-1$

$t^2-t-1=1=E$

$t=2;\ -1$

So E=1 for a persons metabolism

$TE=M[1/2\pi]$

$1=M[1/2\pi]$

$M=2\pi$

$M=\text{Ln } t$

$=535.4$

$=1/1867$

$=1/\rho$

$dE/dt=2t-1$

$=2(2)-1=3$

$=2(-1)-1=-23$

$dE/dt=\pm3$

$t^2-t-1=E$

$E=5;\ 11$

$M=\text{Ln } t$

$=\text{Ln }(1/5)=-1609$

$=\text{Ln }(1/11)=-23.97$

$1609/23.97=14.90\sim150$ (see above)

Therefore there are two equilibrium points for Mass (Body Fat).

$TE=M[1/2\pi]$

Metabolism

$dE/dt=1/(2\pi)(dM/dt)$

$=1/(2\pi)(2)$

$=1/\pi$ (see above)

$M=251.6$

$\Delta M=251.6-165=86.6=1/\sin\theta$

$s=E\times t=|E||t|\sin\theta$

$s=t$

$E=1/\sin\theta=1/\sin 60°=1/t$

$t=\sin 60°$

$M=\text{Ln } t$

$\text{Ln }(0.866)$

$=0.1438$

$=0.695$

$=\text{Ln } 2$

=Ln t

t=2/1=1/cosθ

[1/cos60°]/sin 60°

=1.1347

=1/0.866

==1/sin 60

=1/t=E

|E|=|1/sin (-1)|=|-57.29|=57.29

1/sin (2)=28.6537

57.29/28.6537

=2.0

M=Ln t=Ln (1.1547) =0.1438=6.95=Ln 2

The ideal Body Fat Percentage for average Men =15.47% while for average women it is 30.9%

Metabolism=dE/dt=2t-1

$\int dE/dt=2t^2/2-t+\mathbb{C}$

$E=t^2-t+\mathbb{C}$

Let E=1; $\mathbb{C}$=-1

$t^2-t-1=E$

But M=Ln t

$e^{M=t}$

$e^{2M}-e^{M-1}=E$

2M-M-Ln 1=E

M-0=E

M=E

But E=1/t

Ln t=1/t

y=y'

Conclusion

We see that AT Math can be used to determine ideal body fat percentages.

Bibliography

1. Paul TE Cusack. "The Human and Universal Functions". *Current Trends on Biostatistics and Biometrics* 3.2 (2020).

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