

## Impact of Poor Nutrition on TB Relapse

Reference: Lack of Weight Gain and Relapse Risk in a Large Tuberculosis Treatment Trial: Awal Khan, Timothy R. Sterling, Randall Reves, Andrew Vernon, C. Robert Horsburgh and the Tuberculosis Trials Consortium; *American Journal of Respiratory and Critical Care Medicine* Vol 174. pp. 344-348, (2006)

**“Weight gain of 5% or less during the first 2 months of therapy is associated with an increased risk of relapse, even after controlling for other factors.”**

**Consultation to healthcare providers at 1-800-TEX-LUNG**

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### WEIGHT AS A RISK FACTOR FOR TB RELAPSE

#### Underweight at Diagnosis

≥ 10% Below Ideal Body Weight

	Weight gain after 2 months Rx	Relapse (%)	Cavitary AND Positive 2 months culture
Yes	≤ 5%	20.3%*	50.5%**
	> 5%	11.9%	18.5%
No		4.2%	18.3%

\*p=0.06

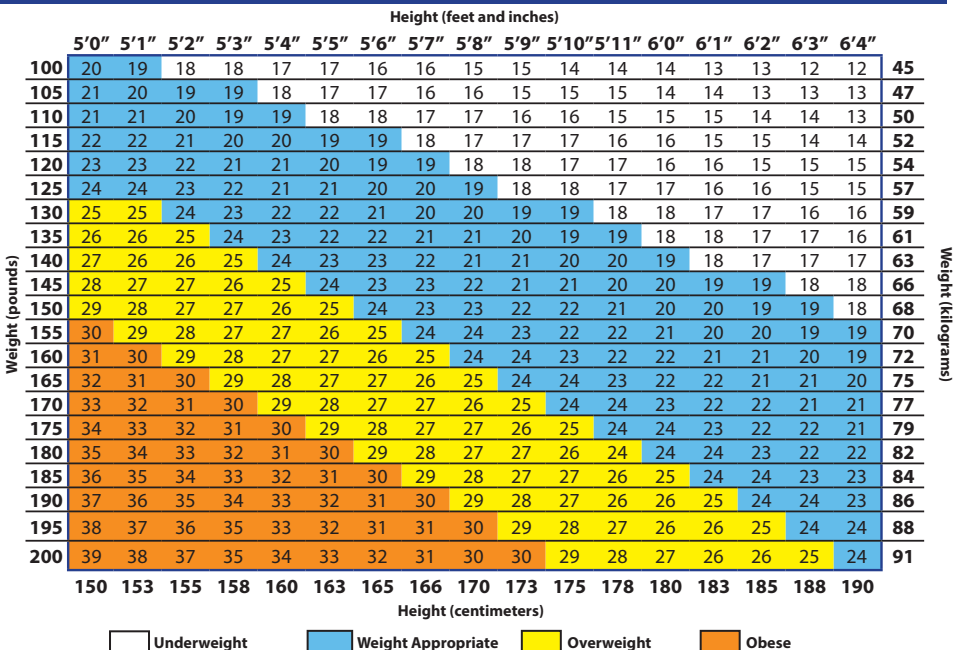
\*\*p=0.02

BMI	RELAPSE (5)
< 18.5	19.5%
18.51-19.0	10.7%
>19.0	6.1%

Body Mass Index (BMI) is optimal weight for health. Adults with a BMI between 19 and 24 have less risk for illnesses such as heart disease and diabetes than individuals with a BMI between 25 and 29. A BMI greater than 30 indicates greatest risk for obesity-related diseases. (See Chart 1.)

Adapted from The National Institute of Health, NHLBI Clinical Guidelines on Overweight and Obesity June 1998. [www.nhlbi.nih.gov/guidelines](http://www.nhlbi.nih.gov/guidelines).

### CHART 1. BODY MASS INDEX (BMI)



# METROPOLITAN LIFE TABLE FOR MEDIUM FRAME ADULT

## Ideal Weight for Women

Height in Shoes	Medium Frame
6'	148 to 162 lb
5'11"	145 to 159 lb
5'10"	142 to 156 lb
5'9"	139 to 153 lb
5'8"	136 to 150 lb
5'7"	133 to 147 lb
5'6"	130 to 144 lb
5'5"	127 to 141 lb
5'4"	124 to 138 lb
5'3"	121 to 135 lb
5'2"	118 to 132 lb
5'1"	115 to 129 lb
5'	113 to 126 lb
4'11"	111 to 123 lb
4'10"	109 to 121 lb

## Ideal Weight for Men

Height in Shoes	Medium Frame
6'4"	171 to 187 lb
6'3"	167 to 182 lb
6'2"	164 to 178 lb
6'1"	160 to 174 lb
6'	157 to 170 lb
5'11"	154 to 166 lb
5'10"	151 to 163 lb
5'9"	148 to 160 lb
5'8"	145 to 157 lb
5'7"	142 to 154 lb
5'6"	139 to 151 lb
5'5"	137 to 148 lb
5'4"	135 to 145 lb
5'3"	133 to 143 lb
5'2"	131 to 141 lb

From height and weight tables of the Metropolitan Life Insurance Company, 1983. The ideal weights given in these tables are for ages 25 to 59. The weights assume you are wearing shoes with 1-inch heels and indoor clothing weighing 3 pounds.

### English

Weigh in Pounds x703  
Height squared (inches)

## BMI FORMULA

### Metric

Weight in Kilograms  
Height in meters squared

\*BMI is a more accurate marker of nutritional status than weight because it also takes height into account.

## DEFINITIONS

### \*Body Mass Index (BMI):

Weight in kilograms divided by height in meters squared (Kg/Meters<sup>2</sup>)

### \*Under Weight:

≥ 10% or below ideal body weight using Metropolitan Life Table for Medium Frame Adult

### \*Low BMI:

BMI ≤ 18.5

## NUTRITIONAL FORMULAS

### \*Formula for Maintenance of Ideal Body Weight:

30 Calories/Kilogram

Example: 120 LBS ÷ 2.2 = 54 KG

54 x 30 = 1620 Calories/Day

### \*Formula for Weight Gain:

35 Calories/Kilogram

Example: 54 x 35 = 1890 Calories

### \*Formula for weight gain for severely malnourished (more than 10% below ideal body weight):

40 calories/kilogram

Example: 54 x 40 = 2160 with a maximum of 2400 Calories/Day

### \*Ideal Weight Gain:

One pound Per Week

## DEFINITION OF TB RELAPSE

Relapse refers to the circumstance in which a patient becomes and remains culture-negative while receiving anti TB drugs, but, at some point after completion of therapy, either becomes culture-positive again or experiences clinical or radiographic deterioration consistent with active tuberculosis.† MMWR CDC Guideline: *Treatment of Tuberculosis, June 20, 2003. Page 66.*

## MEDICAL CONSULTATION

Relapse of TB disease frequently requires consultation with a TB expert to appropriately treat and manage the relapsed patient. Medical and nursing consultation is available at no cost to physicians, nurses and other health care professionals in the Heartland Region and can be accessed by:

**1-800-TEX-LUNG (1-800-839-5864)**

For a complete list of medical consultative services offered by Heartland, please visit our website:

**[www.HeartlandNTBC.org/medical.asp](http://www.HeartlandNTBC.org/medical.asp)**