

ALERTNESS GUIDE... BMI (Body Mass Index)

Guide Objective: Use discussion topic on the BMI (Body Mass Index) to educate on how to measure and evaluate the information from the BMI and the Coast Guard's use of the BMI in the Medical and Physical Evaluation Guidelines.

Discussion:

WHAT IS BMI (Body Mass Index)

The body mass index or BMI is a statistical measurement which compares a person's weight and height. Though it does not actually measure the percentage of body fat, it may be a useful tool to estimate a healthy body weight based on how tall a person is. It provides a reliable indicator of body fatness for most people and is used to screen for weight categories that may lead to health problems. It's the most widely used diagnostic tool due to its ease of measurement and calculation.

HOW TO MEASURE YOUR BMI

The calculation for BMI is based on the following formula:
weight (lb) / [height (in)]² x 703

Example: weight = 150 lbs, height = 5'5" (65")
Calculation: 150 divided by (65)² x 703
150 ÷ 4225 x 703 = 24.96
24.96 = BMI

<u>Classification</u>	<u>BMI</u>
Underweight	Below 18.5
Normal	18.5 – 24.9
Overweight	25.0 – 29.9
Obese Class I	30.0- 34.9
Obese Class II	35.0 – 39.9
Obese Class III (Extreme Obesity)	40.0

(Note – There may be slight variations from different sources with the above numbers.)

Body Mass Index (BMI) Chart for Adults

Obese (>30)
 Overweight (25-30)
 Normal (18.5-25)
 Underweight (<18.5)

HEIGHT in feet/inches and centimeters

WEIGHT	4'8"		4'9"		4'10"		4'11"		5'0"		5'1"		5'2"		5'3"		5'4"		5'5"		5'6"		5'7"		5'8"		5'9"		5'10"		5'11"		6'0"		6'1"		6'2"		6'3"		6'4"		6'5"						
	lbs	(kg)	142cm	147	150	152	155	157	160	163	165	168	170	173	175	178	180	183	185	188	191	193	196	196	196	196	196	196	196	196	196	196	196	196	196	196	196	196	196	196	196	196	196						
260 (117.9)	58	56	54	53	51	49	48	46	45	43	42	41	40	38	37	36	35	34	33	32	32	31	31	30	38	37	36	35	34	33	34	33	32	33	32	31	32	31	30	31	30	31	30	31	30	31			
255 (115.7)	57	55	53	51	50	48	47	45	44	42	41	40	39	38	37	36	35	34	33	32	31	30	30	29	38	37	36	35	34	33	34	33	32	33	32	31	32	31	30	31	30	31	30	31	30	31	30	31	
250 (113.4)	56	54	52	50	49	47	46	44	43	42	40	39	38	37	36	35	34	33	32	31	30	30	29	38	37	36	35	34	33	34	33	32	31	32	31	30	31	30	31	30	31	30	31	30	31	30	31	30	31
245 (111.1)	55	53	51	49	48	46	45	43	42	41	40	38	37	36	35	34	33	32	31	30	30	29	28	38	37	36	35	34	33	34	33	32	31	32	31	30	31	30	31	30	31	30	31	30	31	30	31	30	31
240 (108.9)	54	52	50	48	47	45	44	43	41	40	39	38	37	36	35	34	33	32	31	30	30	29	28	38	37	36	35	34	33	34	33	32	31	32	31	30	31	30	31	30	31	30	31	30	31	30	31	30	31
235 (106.6)	53	51	49	47	46	44	43	42	40	39	38	37	36	35	34	33	32	31	30	30	29	28	27	38	37	36	35	34	33	34	33	32	31	32	31	30	31	30	31	30	31	30	31	30	31	30	31	30	31
230 (104.3)	52	50	48	46	45	43	42	41	39	38	37	36	35	34	33	32	31	30	30	29	28	27	26	38	37	36	35	34	33	34	33	32	31	32	31	30	31	30	31	30	31	30	31	30	31	30	31	30	31
225 (102.1)	50	49	47	45	44	43	41	40	39	37	36	35	34	33	32	31	30	30	29	28	27	26	25	38	37	36	35	34	33	34	33	32	31	32	31	30	31	30	31	30	31	30	31	30	31	30	31	30	31
220 (99.8)	49	48	46	44	43	42	40	39	38	37	36	35	34	33	32	31	30	30	29	28	27	26	25	38	37	36	35	34	33	34	33	32	31	32	31	30	31	30	31	30	31	30	31	30	31	30	31	30	31
215 (97.5)	48	47	45	43	42	41	39	38	37	36	35	34	33	32	31	30	30	29	28	27	26	25	24	38	37	36	35	34	33	34	33	32	31	32	31	30	31	30	31	30	31	30	31	30	31	30	31	30	31
210 (95.3)	47	45	44	42	41	40	38	37	36	35	34	33	32	31	30	30	29	28	27	26	25	24	23	38	37	36	35	34	33	34	33	32	31	32	31	30	31	30	31	30	31	30	31	30	31	30	31	30	31
205 (93.0)	46	44	43	41	40	39	37	36	35	34	33	32	31	30	30	29	28	27	26	25	24	23	22	38	37	36	35	34	33	34	33	32	31	32	31	30	31	30	31	30	31	30	31	30	31	30	31	30	31
200 (90.7)	45	43	42	40	39	38	37	35	34	33	32	31	30	30	29	28	27	26	25	24	23	22	21	38	37	36	35	34	33	34	33	32	31	32	31	30	31	30	31	30	31	30	31	30	31	30	31	30	31
195 (88.5)	44	42	41	39	38	37	36	35	33	32	31	31	30	29	28	27	26	25	24	23	22	21	20	38	37	36	35	34	33	34	33	32	31	32	31	30	31	30	31	30	31	30	31	30	31	30	31	30	31
190 (86.2)	43	41	40	38	37	36	35	34	33	32	31	30	30	29	28	27	26	25	24	23	22	21	20	38	37	36	35	34	33	34	33	32	31	32	31	30	31	30	31	30	31	30	31	30	31	30	31	30	31
185 (83.9)	41	40	39	37	36	35	34	33	32	31	30	30	29	28	27	26	25	24	23	22	21	20	19	38	37	36	35	34	33	34	33	32	31	32	31	30	31	30	31	30	31	30	31	30	31	30	31	30	31
180 (81.6)	40	39	38	36	35	34	33	32	31	30	30	29	28	27	27	26	25	24	23	22	21	20	19	38	37	36	35	34	33	34	33	32	31	32	31	30	31	30	31	30	31	30	31	30	31	30	31	30	31
175 (79.4)	39	38	37	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	38	37	36	35	34	33	34	33	32	31	32	31	30	31	30	31	30	31	30	31	30	31	30	31	30	31
170 (77.1)	38	37	36	34	33	32	31	30	29	28	27	27	26	25	24	24	23	22	21	20	19	18	17	38	37	36	35	34	33	34	33	32	31	32	31	30	31	30	31	30	31	30	31	30	31	30	31	30	31
165 (74.8)	37	36	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	38	37	36	35	34	33	34	33	32	31	32	31	30	31	30	31	30	31	30	31	30	31	30	31	30	31
160 (72.6)	36	35	33	32	31	30	29	28	27	27	26	25	24	23	23	22	21	20	19	18	17	16	15	38	37	36	35	34	33	34	33	32	31	32	31	30	31	30	31	30	31	30	31	30	31	30	31	30	31
155 (70.3)	35	34	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	38	37	36	35	34	33	34	33	32	31	32	31	30	31	30	31	30	31	30	31	30	31	30	31	30	31
150 (68.0)	34	32	31	30	29	28	27	27	26	25	24	23	23	22	21	20	19	18	17	16	15	14	13	38	37	36	35	34	33	34	33	32	31	32	31	30	31	30	31	30	31	30	31	30	31	30	31	30	31
145 (65.8)	33	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	38	37	36	35	34	33	34	33	32	31	32	31	30	31	30	31	30	31	30	31	30	31	30	31	30	31
140 (63.5)	31	30	29	28	27	26	26	25	24	23	22	21	20	19	18	17																																	

LIMITATIONS OF THE BMI

The BMI may not necessarily translate precisely to the individual. Unfortunately, it tends to convey that people that exercise regularly, for example, are overweight, when they are not actually overfat. A fit person tends to have more muscle, so their body weight is a reflection of body fat as well as muscle and other lean tissue.

The correlation also can vary by sex, race, and age. These variations include the following examples:

- At the same BMI, women tend to have more body fat than men.
- At the same BMI, older people, on average, tend to have more body fat than younger adults.
- Highly trained athletes may have a high BMI because of increased muscularity rather than increased body fatness.

USCG MEDICAL AND PHYSICAL EVALUATION GUIDELINES

The Physical Ability Guidelines in the USCG NVIC 04-08 state:

1. Credential applicants should be physically able to perform assigned shipboard functions and meet the physical demands that would reasonably arise during an emergency response.
2. If the examining medical practitioner doubts the applicant's ability to meet the guidelines contained within this table, and for all applicants with a Body Mass Index (BMI) of 40.0 or higher, the practitioner should require that the applicant demonstrate the ability to meet the guideline.

Individuals should use the formula on page 1 or BMI Chart on page 2 to determine their BMI. Even if you're physically fit but your height / weight ratio shows a BMI of 40 or above you'll be flagged by these medical guidelines. If your BMI is 40 or above, steps can be taken to reduce this number prior to applying for, or renewing, your license or MMD. Basically, losing some weight through healthy eating and exercising should lower your BMI.

HEALTH ISSUES CONCERNING THE BMI

BMI ranges for overweight and obese individuals are at increased risk for many diseases and health conditions, including the following:

- Hypertension
- Type 2 diabetes
- Coronary artery disease
- Stroke
- Gallbladder disease
- Osteoarthritis
- Sleep apnea & respiratory problems
- Some cancers (endometrial, breast, & colon)
- Dyslipidemia (for example, high LDL cholesterol, low HDL cholesterol, or high levels of triglycerides)

Summary:

If your BMI falls in the obese or extremely obese categories consult your physician about ways to reduce these numbers, especially if you aren't one of those exceptions where you have a high muscle ratio because of your physical activities. Reducing these numbers may not only help you when you go for your license or MMD but will improve your general health and quality of life.

The sources of information for this Alertness Guide on the Body Mass Index are the following websites:

www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/index.html

http://en.wikipedia.org/wiki/Body_mass_index

www.vertex42.com

<http://www.uscg.mil/hq/cg5/nvic/2000s.asp#2008>