



H.M.B. what is it ?

And why should I include it in my
Training, Health and wellbeing program?

HMB refers to: beta-Hydroxy beta-methylbutyric acid, a metabolite of the essential amino acid leucine,
(one of the Branch chain Amino's BCAAS)
synthesized in the human body,
it is an active component of 'mothers milk'

*Source of Information:

"Building Muscle Mass, Performance and Health with HBM"
by Richard A Passwater PHD and John Fuller ,Jr.,PhD

HMB (beta-hydroxy-beta-methylbutyrate)

This is a metabolite of the branch chain Amino acid Leucine
(like a super concentrated L-Leucine)

Its perfectly Safe and TGA approved in fact it is a Natural component of 'Mothers milk'
which substantiates HMB's nutritional Role.

HMB naturally occurs in our body and can be obtained from foods.

It has been used by Olympic Athletes 1996 (especially swimmers) also popular with
bodybuilders and professional footballers.

What does HMB do ?

- **Helps Melt Body fat**
by inversely consolidating muscle tissue repair and building it displaces body fat
in that extra muscle is built by using body fat as fuel and to build cell walls etc
- **Lowers Cholesterol**
Lowers LDL low density lipoproteins (the bad cholesterol) and increases
(the Good) HDL high density cholesterol
- **Enhances the IMMUNE SYSTEM**
HMB balances out the "Stress Hormones" (corticosteroids) which effect the thymus
and the T cells of the immune system, HMB provides a mechanism to consolidate

the body cell walls by making sure the HDL is readily available to build into the cell walls thus making the cell "resistant" to infections etc (where the cell differentiates and divides)

- **HMB increases AEROBIC CAPACITY DURING HIGH INTENSITY** (Vo2 max) and is a lactic acid buffer. Vo2 max is the Test for Peak cardiocascular fitness, lactic acid (the by product of metabolism) is the pain felt in muscles that stops or slows you down. HMB has been scientifically proven to Improve both Vo2 max and buffer Lactic Acid (tests done on cyclists) .
- **HMB can help Cancer, Aids, Dystrophies (muscle wasting diseases)** and other muscle wasting diseases

HMB in Detail:

HMB may be a precursor to an important component of cell membranes, which help with the rapid growth, and repair of muscle tissue.

More specifically, the intracellular synthesis of cholesterol which supports maximal cellular repair. This results in a faster return to positive protein synthesis and nitrogen sparing. Intracellular cholesterol is not the same as blood cholesterol. In fact, HMB has helped to lower total and LDL cholesterol, and there has been a trend for an increase in HDL cholesterol.

Professor Nissen proposes that HMB supplementation increases intracellular cholesterol, which sends a signal to the liver to suppress cholesterol synthesis via certain feedback mechanisms. His latest theory is that stressed and damaged cells may not be able to make sufficient HMG-CoA to support adequate cholesterol synthesis.

Supplemental HMB could then be used as a convenient source of HMG-CoA in these cells to maintain adequate cholesterol synthesis, which supports and maintains membrane function.

HMB may somehow protect the muscle protein from excessive breakdown during the repair stage that occurs with strenuous exercise.

So HMB seems to protect the muscle tissue and accelerate the repair process.

HMB causes a reduction in markers called 3-methylhistidine (3-MH), creatine phosphokinase (CPK), and lactate dehydrogenase (LDH). These markers are all indicators of muscle tissue breakdown. After an intense training session the levels of these indicators become elevated because of the stress placed on the tissue. After HMB supplementation, these levels were much lower, indicating HMB may somehow guard the muscle tissue from excessive breakdown. If you have a smaller amount of muscle tissue breakdown, you build more muscle.

Research done on HMB consistently shows a reduction in body fat. As long as food intake is not increased, muscle mass increases are often accompanied by decreases in fat loss. A reason for this may be that it is likely that an increase in calorie use for muscle building and/or greater energy expenditure by the larger muscle mass.

In most 'weight loss' diets a kg of muscle is lost for every kg of fat lost.

If the muscle loss could be stopped, the fat loss would be even higher. Since studies indicate that supplemented HMB may slow the loss of muscle, which should result in a faster loss of body fat.

The ultimate result should be a more permanent fat loss while preserving muscle, ie less of the typical yo-yo effect of weight loss and gain seen in the lives of many dieters.

HMB works irrespective of Age & Gender.

Panton et al 2000 studied 75 men and women who were given 3 grams of HMB or placebo and underwent resistance training 3 times a week for 4 weeks.

Increases in strength gains were the same regardless of age or sex.

The HMB group had a greater increase in upper body strength than the placebo group. The HMB group also increased fat free mass by 3.1 lbs and decreased % body fat by 0.5%. Plasma phosphokinase levels were suppressed in comparison to the placebo group, this indicates that HMB also minimises muscle damage.

ENDURANCE CARDIOVASCULAR:

A lot of sports supplements suffer from the fact that bodybuilders do use them a lot, which is great in one way, but not so good in others. The first thing an endurance athlete may say to HMB is 'Oh I've heard that's for putting on more muscle or bulking up isn't, I don't need to be carrying around any extra kilos over the distance I have to go!' Well, rest easy guys it's good for you too. And just to prove I'm not kidding here's the science! Vukovich and Dreifort 2001 tested 8 endurance cyclists over 2 weeks with either 3 grams of HMB, Leucine or placebo. There was a significant increase in VO2 peak and lactate threshold in the HMB group.

There was a 4.0+/- 1.4% increase in the HMB group in the VO2 peak.

The maximum lactate threshold was not affected a lot but was higher with the HMB group. The lactate threshold increased significantly with HMB (pre 75 +/- 2%, post 81+/- 3% of the VO2 peak).

It has been estimated that this could lead to an increase from 70ml/kg/min to 73ml/kg/min, this would represent enough of a difference to push the cyclist into the placings.

These figures indicate that the cyclist could work harder, produce more lactate and tolerate it better. **Vukovich concluded that HMB may have positive affects on performance by increasing VO2 peak and lactate threshold.**

Another study by Knitter et al 2000 gave athletes 3 grams a day of HMB as a supplement to their daily training regime. After 6 weeks of daily training and supplementation subjects participated in a 20km run.

The placebo group showed a significantly greater increase in creatine phosphokinase than the HMB group, and lactate dehydrogenase was also significantly lower in the HMB group. **The findings supported the hypothesis that HMB supplementation helps prevent exercise induced muscle damage**

Doping Tests ? :

Slater GJ et al 2000 found that HMB supplementation does not alter the urinary testosterone: epitestosterone ratio in healthy males.

This great news for athletes! There is increasing scrutiny by Official Bodies into what sportspeople are doing these days.

Some athletes have blown positive by taking supplements that were freely available, they thought that because they could buy them at a health store or sports shop they were ok.

You need to check those labels! Its good to know that unlike some American supplements that can contain banned stimulants or hormonal agents.

Taking Healy's Health Urban Muscle Supplements you have the assurance that we are TGA Australian Therapeutic Administration (The Federal Government body controlling supplements and medicines) refer: <https://www.tga.gov.au> and ASADA and WDA SAFE

(Australian Sports anti doping authority) <https://www.asada.gov.au> and World Anti Doping Agency 'SAFE' refer: <https://www.wada-ama.org>

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SAFETY TAKING HMB ?

When the subject of sporting supplements comes up, often the question of possible side effects comes up too.

This possibly results from confusion between the nature of a lot of dangerous illegal substances that are used by some athletes and natural legal performance enhancers.

They are **CLEARLY** not the same.

There seems to be the perception that if you are gaining some advantage from using a supplement there must be some 'down side' or drawback. It's the 'you can't get something for nothing' notion.

There can undoubtable be a lot of problems in taking illegal performance enhancers. But we are fortunate that, in the main, natural substances that can be found in foods have been found to produce very few problems.

When Professor Steve Nissen discovered HMB a number of years ago, the FDA required that it be subject to toxicity studies, these HMB passed very successfully.

Recently two articles have appeared which also passed HMB as being a safe supplement to take. Nissen et al 2000 for the first time reviewed and summarized the accumulated safety data: **Nine studies were reviewed in which humans were fed 3 grams of HMB per day. The duration of these studies was from 3 to 8 weeks and included males and females, young and old, exercising and non-exercising. Organ and tissue function was assessed by blood chemistry and haematology.**

Subtle effects on emotional perception were measured with an emotional profile test (Circumplex), and tolerance of HMB was assessed with an inventory of 32 health-related questions.

HMB did not adversely effect any surrogate marker of tissue health and function. The Circumplex indicated that HMB significantly decreased one indicator of negative mood. There was actually a decrease in LDL cholesterol and a decrease in systolic blood pressure, which decrease the risk of heart attack and stroke.

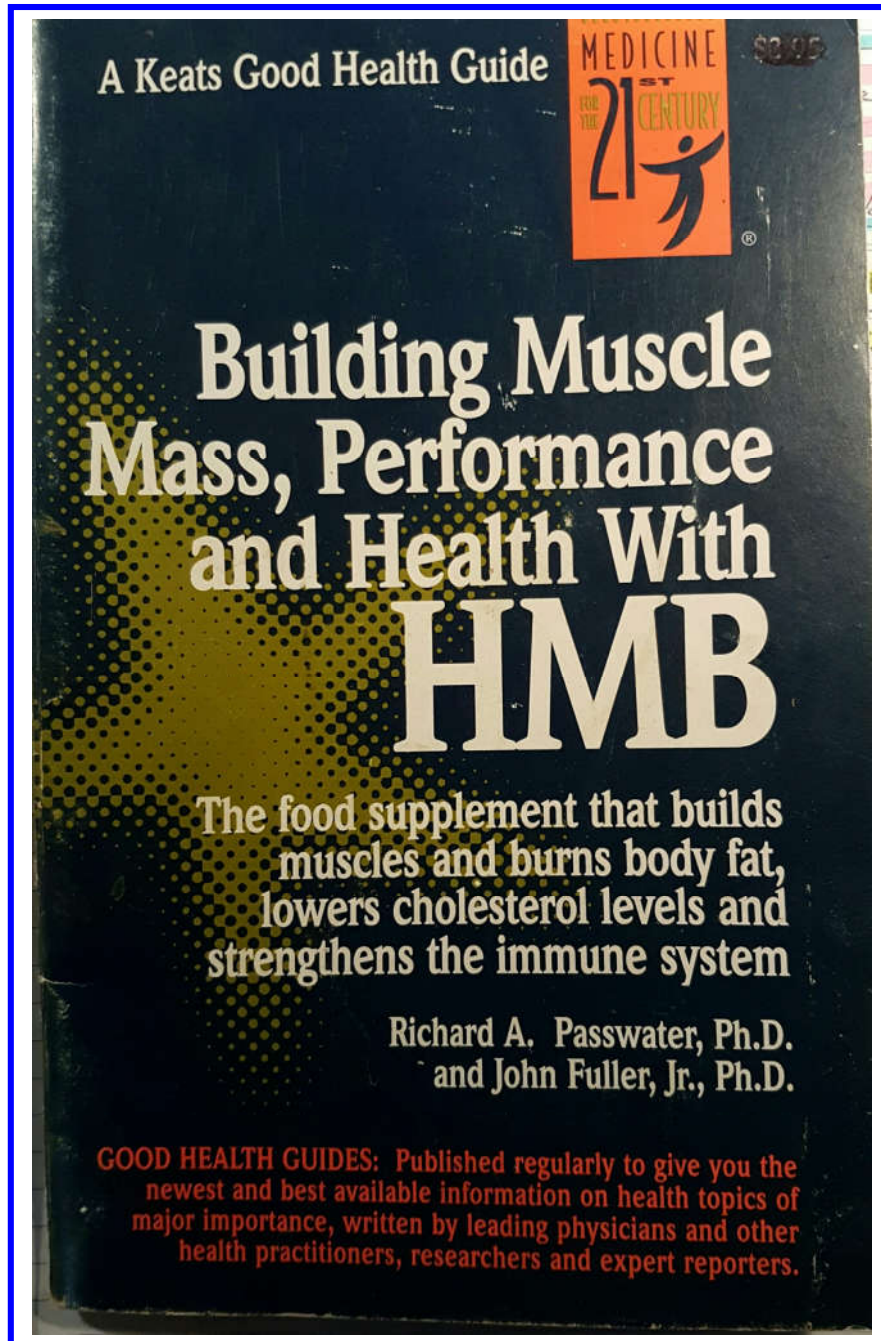
Gallagher et al (Part 2) 2000 conducted a new study, which used doses of up to 76mg per kg bodyweight over 8 weeks of resistance training. **This equates to doses of 6 grams a day that are often used by heavier strength athletes.** Blood was analysed for glucose, blood urea nitrogen, haemoglobin, hepatic enzymes, lipid profile, total leukocytes and individual leukocytes. Urine was analysed for pH, glucose, and protein excretion.

The data indicated that HMB had no adverse effects whatsoever on hepatic enzyme function, lipid profile, renal function, or the immune system.

So the good news is that it really does seem that we can use these natural substances and not suffer side effects.

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