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Increase lean mass guidelines

Lean body mass is the total body weight without body fat. Training AND nutritional strategies have to be combined to increase lean muscle mass (hypertrophy).

This type of training damages the muscle and with recovery the muscle is repaired by synthesizing new muscle tissue which leads to the muscle growth. *Training programme must address the goals of specific individual and be realistic and achievable. Strategies to increase lean mass can be divided into strength and hypertrophy training.

*You can discuss the differences and your training program goals with your coach.

NUTRITION STRATEGIES DURING INCREASE IN LEAN MASS (STRENGTH TRAINING)

NUTRITION GOALS

1. **Ensure you consume enough energy:** 500-2000 extra kcal per day
2. **Ensure adequate protein intake for muscle synthesis:** 1.5 g – 2.2 g per kg actual body weight.
3. **Distribute the protein evenly throughout the day:** Add high quality protein sources to all your meals and snacks during the day. Aim for 0.3 g/kg/day per meal or snack.
4. **Drink enough water:** Training leads to water loss and metabolic growth processes require water therefore, an optimal state of hydration is required.
5. **Ensure you get enough sleep:** Muscle synthesis takes place during recovery therefore, it is important to get adequate rest.

ENERGY

To stimulate growth and increase lean mass, total energy (kcal/kJ) intake must be more than your total energy (kcal/kJ) expenditure.

Energy intake should be between **500-2000 kcal** (± 2000 – 8000 kJ) per day above your current energy expenditure.

Rapid weight gain increases the risk of gaining fat and not necessary gaining muscle, thus always start with 500 kcal to ensure you don't gain fat. This can easily be added to your current habitual diet by adding **2** of the following *carbohydrate portions. If you increase your protein intake you should only add **1** portion initially.

Table 1: Examples of 250 kcal portions

250 kcal portions	
½ Cup Muesli / Pronutro	2 Medium Rusks
1 ½ cup of All bran flakes	¾ cup Basmati/brown Rice
2 Thin slices of Bread with 2 tsp of Jam/Syrup	1 Cup Pasta
5 Provitas	1½ brown bread rolls
1 Large fruit	1 Medium baked potato
250 ml Fruit juice	½ Cup Baked beans
1 Large muffin	

PROTEIN

Ensure adequate protein intake for muscle synthesis to increase lean body mass. Protein intake should range between 1.5 g – 2.2 g per kg actual body weight. See the table below for daily protein guidelines according to your weight.

Table 2: Approximate protein requirements per weight category

80 kg Rugby Player 2.2 g x 80 kg = 176 g/day	100 kg Rugby player 2.2 g x 100 kg = 220 g/day	120 kg Rugby player 2.2 g x 120 kg = 264 g/day
• 2 cups milk = 16 g protein • 2 boiled eggs = 14 g protein • 400 g cooked meat = ± 110 g protein • PVM Fusion Mass = 33 g protein • 1 Cup rice = 2 g protein	• 3 cups milk = 24 g protein • 3 boiled eggs = 21 g protein • 500 g cooked meat = ± 138 g protein • PVM Fusion Mass = 33 g protein • 1 Cup rice = 2 g protein	• 3 cups milk = 24 g protein • 3 boiled eggs = 21 g protein • 550 g cooked meat = ± 150 g protein • PVM Fusion Mass = 66 g protein • 1 Cup rice = 2 g protein

Gains in muscle growth is limited by the timing and composition (that is, essential or nonessential amino acid content) of protein intake. The quality of the protein is also important to help activate muscle protein synthesis (MPS) and ensure adequate amino acid delivery to the muscle.

AFTER RESISTANCE TRAINING

After resistance exercise, muscle protein synthesis rate increases. Provision of protein after exercise can support muscle protein synthesis, enhance recovery/remodelling processes of damaged muscle fibres resulting in anabolic state.

Use a protein and carbohydrate drink directly after training: The combination enhances insulin secretion which stimulates the uptake of amino acids to start muscle remodelling and protein synthesis. The recommended carb: protein ratio is 3-4:1

Carbohydrates help with more efficient protein uptake and enhanced synthesis rate of muscle protein.

Only using protein leads to the utilization of amino acids to replace glycogen (stored glucose in muscles) and decreased muscle protein synthesis.

Use PVM Reignite for your initial recovery within 30 – 45 minutes after training

<90 minutes training – 50 g portion mixed with 400 ml water

>90 minutes training – 75 g portion mixed with 600 ml water

Prolonged recovery: 1-3 Hours post exercise

Protein synthesis is elevated up to 48h after exercise, however protein degradation is also increased. This can result in negative protein balance if additional nutrients are not supplied.

A protein supplement that can support immediate as well as prolonged recovery is recommended thus a combination of whey and casein protein.

Use PVM Fusion Mass for your prolonged recovery 1 hour after training: Mix 75 g with 350 ml water.

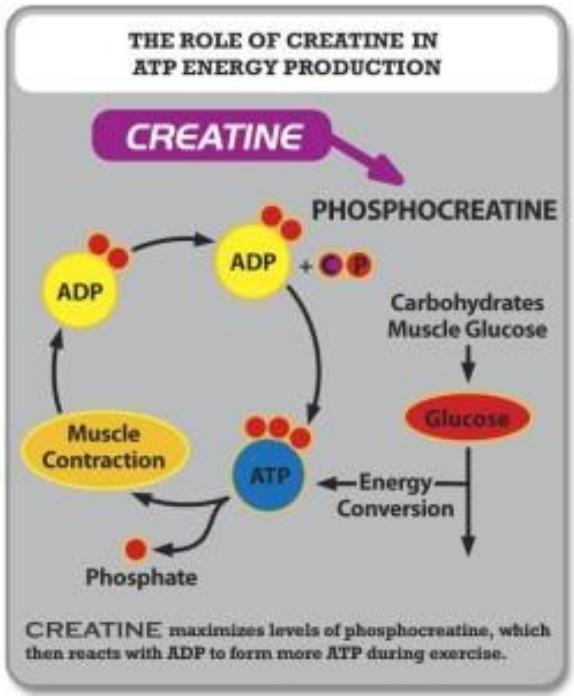
Optimal muscle protein synthesis will only occur if glycogen stores are replenished.

OTHER TIPS

1. Ensure your three main meals throughout the day contains protein. Choose good protein sources like eggs, dairy, beef, fish, chicken and pork.
2. Choose low fat portions to limit excess intake of saturated fats.
3. Drink at least 2.0 litre water per day.
4. Ensure you sleep at least 7 hour a night.
5. Strength train at least 2-3 sessions per week. Discuss this with your coach.
6. Ensure you still eat enough fruit and vegetables. Aim for 5/day.
7. Do not focus on your overall weight on the scale. You can measure the gauging muscle to track process.

CREATINE USE FOR STRENGTH TRAINING

Creatine is one of the most researched ergogenic aids. Creatine increases the phosphocreatine availability in your muscle increasing the amount of reps before exhaustion, thus increasing muscle stimulus.



Strength training is a low rep and high set range. This ensures that all the different types of muscle fibres (white, glycolytic fibres) becomes stimulated.

Rest intervals are longer (3-5 minutes) and the creatine phosphate and ATP stores have enough time to become fully restored before commencing the next set.

Extra creatine may benefit this replenishment of creatine phosphate stores between sets and support the performance of more sets which supports the method of **maximal strength training.**

The muscle is repaired during recovery. Protein synthesis increases the strength and the size of the muscle.

PVM Reactor contains a highly bioavailable source of creatine, creatine monohydrate. Reactor can be used during strength training to aid in maximal strength training. This requires a loading phase with creatine. Please refer to the label/PVM website for the loading phase instructions.

BODY WEIGHT	**SERVING SIZE TO BE TAKEN BEFORE AND AFTER TRAINING**
< 80 kg	4 level scoops (40 g) in 300 ml cold water.
80-99.9 kg	5 level scoops (50 g) in 350 ml cold water.
≥ 100 kg	6 level scoops (60 g) in 400 ml cold water.

Please note that this is only approximate guidelines. For a more individualised diet plan or any other nutritional enquiries, please contact our Registered Dietitian for assistance. dietitian@pvm.co.za