Thesis for grading to IV DAN

The Importance of Nutrition to a Taekwondoists

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CONTENT

1. The importance of Nutrition to a Taekwondo player

a) I'm back! Slimmer! Healthier!!

Few years ago, when I would like to start back my training in Taekwondo I found myself unable to do so. As that time my body weight is 106kg, with 170cm height and I had stopped training for more than 10 years. My body weight climbed and couldn't be control even I would like to start back training, my body could not take the exercise for a normal Taekwondo training.

I had tired so many ways to lose my weight including diet, exercise (such as jogging & swimming). The more I diet/exercise the more I felt hungry and I couldn't stop eating more after my diet/exercise. One day, my sister and I was having a chat regarding our health condition, as per our family doctor had warn us, our blood pressure could no longer be stable with the medicine we were having right now. Extra dose is needed to control our blood pressure. And that lead us to consider we should do something before it is too late.

From that time onwards, we consult a weight management coach who is an independence distributor of Herbalife. She provide us a meal plan and with extra exercise, in 3 months' time, I successfully lost more than 25kg. And with a bonus result, my hypertension is not only can be controlled but with consultancy by doctor, I no longer needed to take any hypertension medicine anymore in future. Now, I am 77.2kg and I finally could start to do my Taekwondo training.

From what I been through I understand that nutrition is so much importance not only to a Taekwondo player but to all people who are looking for healthier life. To understand more about Nutrition, first of all we will need to understand some importance nouns, such as calories, Metabolism, BMR (Basic Metabolic Rate), AMR (Active Metabolic Rate), water, fat, protein, fibres, carbohydrate etc.

b) Calories (kCal)

The definition of a calorie is a measure of energy in food, specifically the measure of heat needed to raise a kilogram or a gram of water by one degree Celsius. "Simply put, a calorie is the unit of energy our food supplies," says Stacey Pence, RD, a registered dietician at The Ohio State University Wexner Medical Centre. "Our bodies use energy derived from the foods we consume, similar to how a car uses gallons of gas per mile."

c) Metabolism

Your metabolism is responsible for converting food into the energy needed to do everything you need to live. How many calories someone needs to survive depends on their weight, height, age, gender, and medical status. This information helps determine your basic metabolic rate (**BMR**). It is normal for your measurement to be different from your partner's or best friend's.

Here are the calculations to determine your BMR:

Women: BMR = 655 + (4.35 x weight in pounds) + (4.7 x height in inches) – (4.7 x age in years)

Men: BMR = 66 + (6.23 x weight in pounds) + (12.7 x height in inches) – (6.8 x age in years)

Then use these numbers to find your AMR:

Sedentary (little or no exercise): your AMR = BMR x 1.2

Lightly active (light exercise/work 1-3 days per week): your AMR = BMR x 1.375

Moderately active (moderate exercise/work 3-5 days per week): your AMR = BMR x 1.55

Very active (hard exercise/work 6-7 days a week): your AMR = BMR x 1.725

Extra active (very hard exercise/work 6-7 days a week): your AMR = BMR x 1.9

AMR represents the total amount of calories you expend through the day. With regard to calories, AMR also represents the number of calories you need to consume each day to stay at your current weight.

With all the information we gained we could make a meal plan for a personal who would like lose/gain weight. We normally will recommend a personal to add/cut 500kCal per day if they are below 40 years old. For personal who is more than 40 years old, add/cut 300kCal per day is recommended.

d) Water

Human body is made up of almost 60%-70% water. Beverages like Tea, Coffee and all alcoholic drinks are all dehydrating fluids and will eliminate water from your body. So if you are thirsty make sure you are not drinking any dehydrating fluid. Drinking enough water helps you to lose weight because without water the body can't metabolize fat adequately. The symptoms of dehydration include headache, stomach-ache, behavioural changes, and depression. Consume enough water helps our body to function normally, it will increase our metabolism and as we know improve metabolism will keep our body young.

Below is a simple calculation for the water needed by our body:

Male/Female (lose weight)

Water needed (litre) = Body weight (kg)*0.06 or 0.07

Male/Female (maintain weight)

Water needed (litre) =Body weight (kg)*0.05

e) Fat

Too much fat in your diet, especially saturated fats, can raise your cholesterol, which increases the risk of heart disease. We are advised cutting down on all fats and replacing saturated fat with some unsaturated fat.

However, small amount of fat is an essential part of a healthy, balanced diet. Fat is a source of essential fatty acids, which the body cannot make itself. Fat helps the body absorb vitamin A, vitamin D and vitamin E. These vitamins are fat-soluble, which means they can only be absorbed with the help of fats.

Any fat that's not used by your body's cells or turned into energy is converted into body fat. Likewise, unused carbohydrates and proteins are also converted into body fat. All types of fat are high in energy. A gram of fat, whether it's saturated or unsaturated, provides 9kcal (37kJ) of energy compared with 4kcal (17kJ) for carbohydrate and protein.

The main types of fat found in food are: saturated fats & unsaturated fats Most fats and oils contain both saturated and unsaturated fats in different proportions. As part of a healthy diet, you should try to cut down on foods and drinks that are high in saturated fats and Trans fats and replace some of them with unsaturated fats.

Saturated fats are found in many foods, both sweet and savoury. Most of them come from animal sources, including meat and dairy products, as well as some plant foods, such as palm oil and coconut oil.

Foods high in saturated fats: fatty cuts of meat, meat products, including sausages and pies, butter, ghee, and lard, cheese, especially hard cheese like cheddar, cream, soured cream and ice cream, some savoury snacks, like cheese crackers and some popcorns, chocolate confectionery, biscuits, cakes, and pastries, palm oil, coconut oil and coconut cream

f) Cholesterol and saturated fats

Cholesterol is a fatty substance that's mostly made by the body in the liver.

It's carried in the blood as:

ow-density lipoprotein (LDL)

high-density lipoprotein (HDL)

Eating too much saturated fats in your diet can raise "bad" LDL cholesterol in your blood, which can increase the risk of heart disease and stroke. "Good" HDL cholesterol has a positive effect by taking cholesterol from parts of the body where there's too much of it to the liver, where it's disposed of.

Children should have less Trans fats. Trans fats are found naturally at low levels in some foods, such as meat and dairy products. They can also be found in partially hydrogenated vegetable oil. Hydrogenated vegetable oil must be declared on a food's

ingredients list if it's been included. Like saturated fats, trans fats can raise cholesterol levels in the blood.

g) Unsaturated fats

If you want to reduce your risk of heart disease, it's best to reduce your overall fat intake and swap saturated fats for unsaturated fats. There's good evidence that replacing saturated fats with some unsaturated fats can help to lower your cholesterol level. Mostly found in oils from plants and fish, unsaturated fats can be either monounsaturated or polyunsaturated. Monounsaturated fats help protect your heart by maintaining levels of "good" HDL cholesterol while reducing levels of "bad" LDL cholesterol in your blood.

Monounsaturated fats are found in: olive oil, rapeseed oil and spreads made from these oils

Avocados, some nuts, such as almonds, brazils, and peanuts.

Polyunsaturated fats can also help lower the level of "bad" LDL cholesterol in your blood.

There are 2 main types of polyunsaturated fats: omega-3 and omega-6.

Some types of omega-3 and omega-6 fats cannot be made by your body, which means it's essential to include small amounts of them in your diet.

Omega-6 fats are found in vegetable oils, such as: rapeseed, corn, sunflower, some nuts, etc.

Omega-3 fats are found in oily fish, such as: kippers, herring, trout, sardines, salmon, mackerel, etc.

Most people get enough omega-6 in their diet, but it's recommended to have more omega-3 by eating at least 2 portions of fish each week, with 1 portion being an oily fish. Vegetable sources of omega-3 fats are not thought to have the same benefits on heart health as those found in fish. Find out more about healthy eating as a vegetarian.

Also, foods that are lower in fat are not necessarily lower in calories. Sometimes the fat is replaced with sugar and the food may end up having a similar energy content to the regular version. To be sure of the fat and energy content, remember to check the nutrition label on the packet. Cutting down on fat is only one aspect of achieving a healthy diet.

h) **Protein**

Protein is a nutrient your body needs to grow and repair cells, and to work properly. Protein is found in a wide range of food and it’s important that you get enough protein in your diet every day. How much protein you need from your diet varies depending on your weight, gender, age and health.

Meeting your protein needs is easily achieved from eating a variety of foods. Protein from food comes from plant and animal sources such as: meat and fish, eggs, dairy products, seeds and nuts, legumes like beans and lentils.

Proteins are made of amino acids. Proteins are made up of building blocks called amino acids. There are about 20 different amino acids that link together in different combinations. Your body uses them to make new proteins, such as muscle and bone, and other compounds such as enzymes and hormones. It can also use them as an energy source.

Some amino acids can be made by your body – there are 11 of these and they're known as non-essential amino acids. There are 9 amino acids that your body cannot make, and they are known as essential amino acids. You need to include enough of these in your diet so that your body can function.

i) Nutritional value of protein

The nutritional value of a protein is measured by the quantity of essential amino acids it contains. Different foods contain different amounts of essential amino acids. Generally: Animal products (such as chicken, beef or fish and dairy products) have all of the essential amino acids and are known as 'complete' protein (or ideal or high-quality protein). Soy products, quinoa and the seed of a leafy green called amaranth (consumed in Asia and the Mediterranean) also have all of the essential amino acids.

Plant proteins (beans, lentils, nuts and whole grains) usually lack at least one of the essential amino acids and are considered 'incomplete' proteins. People following a strict vegetarian or vegan diet need to choose a variety of protein sources from a combination of plant foods every day to make sure they get an adequate mix of essential amino acids.

Protein foods

Some food sources of dietary protein include:

lean meats – beef, lamb, veal, pork, kangaroo

poultry – chicken, turkey, duck, emu, goose, bush birds

fish and seafood – fish, prawns, crab, lobster, mussels, oysters, scallops, clams

eggs

dairy products – milk, yoghurt (especially Greek yoghurt), cheese (especially cottage cheese)

nuts (including nut pastes) and seeds – almonds, pine nuts, walnuts, macadamias, hazelnuts, cashews, pumpkin seeds, sesame seeds, sunflower seeds

legumes and beans – all beans, lentils, chickpeas, split peas, tofu.

Some grain and cereal-based products are also sources of protein, but are generally not as high in protein as meat and meat-alternative products.

The 2 main food groups that contribute to protein are the:

‘lean meat and poultry, fish, eggs, tofu, nuts and seeds and legumes/beans’ group

‘milk, yoghurt, cheese and/or alternatives (mostly reduced fat)’ group.

As part of a healthy diet, the Guidelines recommend particular serves per day from each of the 5 food groups.

The human body can’t store protein and will excrete any excess, so the most effective way of meeting your daily protein requirement is to eat small amounts at every meal.

Daily recommended serves of ‘lean meat and poultry, fish, eggs, tofu, nuts and seeds and legumes/beans’ and ‘milk, yoghurt, cheese and/or alternatives (mostly reduced fat)’ for adults

So, what is a serve? A standard serving size of ‘lean meat and poultry, fish, eggs, nuts and seeds, and legumes/beans’ is one of:

65 g cooked lean meats such as beef, lamb, veal, pork, goat or kangaroo (about 90 to 100 g raw)

80 g cooked lean poultry such as chicken or turkey (100 g raw)

100 g cooked fish fillet (about 115 g raw weight) or one small can of fish

2 large eggs

1 cup (150 g) cooked dried beans, lentils, chickpeas, split peas or canned beans (preferably with no added salt)

170 g tofu

30 g nuts, seeds, peanut or almond butter or tahini or other nut or seed paste (no added salt).

A serve of ‘milk, yoghurt, cheese and/or alternatives (mostly reduced fat)’ could include:

250 ml (1 cup) fresh, UHT long life, reconstituted powdered milk or buttermilk

120 ml (1/2 cup) evaporated milk

200 g (3/4 cup or 1 small carton) yoghurt

40 g (2 slices) hard cheese such as cheddar

120 g (1/2 cup) ricotta cheese.

Protein requirements for children and teenagers change as they grow. Read about the recommended number of serves for children, adolescents and toddlers for all 5 food groups.

j)Protein – maintaining muscle mass as you age

From around 50 years of age, humans begin to gradually lose skeletal muscle. This is known as sarcopenia and is common in older people. Loss of muscle mass is worsened by chronic illness, poor diet and inactivity.

Meeting the daily recommended protein intake may help you maintain muscle mass and strength. This is important for maintaining your ability to walk and reducing your risk of injury from falls.

To maintain muscle mass, it's important for older people to eat protein 'effectively'. This means consuming high-quality protein foods, such as lean meats.

k) Protein and exercise

Soon after exercising, it's recommended that you have a serve of high-quality protein (such as a glass of milk or tub of yoghurt) with a carbohydrate meal to help maintain your body's protein balance. Studies have shown this is good for you, even after low to moderate aerobic exercise (such as walking), particularly for older adults.

People who exercise vigorously or are trying to put on muscle mass do not need to consume extra protein. High-protein diets do not lead to increased muscle mass. It's the stimulation of muscle tissue through exercise, not extra dietary protein, which leads to muscle growth.

Studies show that weight-trainers who do not eat extra protein (either in food or protein powders) still gain muscle at the same rate as weight-trainers who supplement their diets with protein.

l) Healthy & balanced diet plan

By understanding all knowledge about nutrients and the balanced meal plan, every old timers who are facing overweigh or underweight could join back to a Taekwon-do training after a few months of healthy & balanced diet plan. And I'm glad to share these knowledge to all Taekwon-Do coaches and players.

Every players and coaches should learn more about the importance of Nutrient, it's not only important to Taekwon-Do players but to all people that would like to get a healthier life.

Taekwon.