



12 Nutrition for Dancers

By Jasmine Challis, 2014

As a dancer, to perform at your best you need to have the right amount of 'fuel' on board for classes, rehearsals and performances. A healthy diet will optimise your energy stores, enable you to train effectively, allow your immune system to fight off infections and illnesses as well as help you recover from injury.

As an overview, the roles of the main nutrient groups are:

- carbohydrate and fat, which provide energy
- protein, which is essential for muscle growth and repair
- vitamins and minerals, which have a huge number of functions – the immune system requires an assortment of vitamins and minerals from Vitamin A through to Zinc.

A lack of any one nutrient over time will affect your ability to dance. This information sheet summarises some of the theory behind dance nutrition, together with practical advice to help you formulate your own nutrition plan. Whilst this sheet focuses on food, the right amount of fluid is also crucial – see Dance UK Information Sheet Number 15 'Fluids for Dancers' for more information.

Fats and Carbohydrates

Both fat and carbohydrate are used for energy. Fat is mainly used for lower intensity endurance activity but dance consists of short bursts of high intensity activity, which is fuelled by carbohydrates. Carbohydrate is stored in the form of glycogen in the muscles and liver. Unfortunately, these stores are not large and will only last for about 1 ½ hours of intensive activity. After training or performance dancers should aim to 'refuel' with carbohydrates as soon as possible – research indicates that glycogen is replaced fastest in the hour after intensive exercise and it has been recommended to take on board around 50g carbohydrate during this time (or more precisely, 1g per kg of your body weight for those who know their weight). As a rule, dancers are advised that their overall diet should take at least 50-65% of its energy from carbohydrate; around 12-15% should come from protein; and less than 20-35% from fat. This advice is very similar to that given to other elite sportspeople.¹

Before it can be converted into glycogen, carbohydrate must be digested. Carbohydrates are digested and absorbed by the body at different rates – some are available much faster than others – this is known as the Glycaemic Index or GI. This is a complex topic and outside the scope of this information sheet. For more information on GI see the sources listed at the end of this information sheet. Whatever the absorption rate of various carbohydrates, they are still digested faster than fats, which sit for much longer in the stomach. This means that carbohydrates should be the main source of energy taken in before training sessions and performances.

If possible choose wholegrain breads, cereals, pasta and rice – not only do these contain more vitamins and minerals and have a lower GI than the white versions, they also will provide you with the fibre essential for health.

Our bodies contain a certain amount of essential fat and storage fat and we need a regular intake of essential fatty acids to stay healthy. Deficiency in these will lead to many health problems including dull flaky skin, poor circulation, poor blood clotting and hormone imbalances. Eventually the body may also become deficient in the fat soluble vitamins essential for health, Vitamins A, D, E and K. Daily fat intake should never be less than 20g (about 4 teaspoons in total from oils, spreads and contained in food). The best sources of the essential Omega-3 and Omega-6 fatty acids are oily fish, pumpkin seeds, walnuts, linseeds (flaxseeds), rapeseed oil, soybean oil and other vegetable oils.

Although alcohol also supplies energy, it is not an ideal energy source because of its negative effects on performance. It lowers the blood sugar, stimulates appetite and tends to impair judgement in all matters! If alcohol replaces food in the first hour or two after exercise, glycogen refuelling cannot occur. Even if food is then eaten, the refuelling process will be less efficient and fatigue is more likely the next day. Apart from the physical symptoms, a 'hangover' will reduce oxygen uptake the next day and again limit performance. It is extremely difficult to meet carbohydrate targets and avoid the risk of gaining weight as fat unless alcohol intake is well within health guidelines – currently a maximum of 14 units per week for women, 21 units per week for men. These amounts are maximum weekly units and to minimise your lifetime risk of cancer,

alcohol intake needs to be as low as possible. 1 unit contains 8g of alcohol, for example, a single pub measure of spirits, a standard glass of wine or ½ pint of beer each contain 1 unit ('alcopops' usually contain 1 ½ units each). As a final point, taking alcohol after an injury may worsen swelling and slow repair – it is advisable to avoid alcohol for 24 hours after muscle damage or soft-tissue injury.

Protein

Protein is a major component of all the body's cells. Muscles, tendons, enzymes involved in digestion, hair, fingernails and many hormones are largely or completely made up of proteins. An adequate supply of dietary protein is essential for the body to function. If we eat too much protein it will be broken down; the nitrogen released will be excreted in urine and the remainder used for energy. Too little protein will also lead to loss of muscle and haemoglobin levels in blood may fall: haemoglobin carries oxygen around the body so a low protein intake can reduce the body's capacity for endurance exercise – 'stamina'. A low carbohydrate intake results in protein being used for fuel instead of muscle repair, enzyme and hormone production etc.

Although the protein requirement for the general adult population is 0.75g/kg body weight/day, the recommendations for dance and sport is higher. Men should aim for 1.2-1.6g/kg/day, while women should aim for 0.9-1.2g/kg/day. Dancers who are still growing (girls up to age 18, boys sometimes beyond this) will require more than this – up to 2g/kg/day. As well as taking carbohydrate straight after exercise, protein should also be replaced: flavoured milk/soya milk, smoothies with milk/yoghurt or fruit and yoghurt are good choices as they provide both of these vital nutrients.

To meet protein needs, aim to include a reasonable portion of a good source of protein at least twice daily – good sources include meat, poultry, fish, eggs, cheese (preferably lower fat varieties), milk, yoghurt, pulses (beans and lentils) and other vegetarian proteins such as Quorn, tofu, and soya mince.

Micronutrients

While carbohydrate, protein and fat are referred to as macronutrients (main components of the diet), vitamins and minerals are referred to as micronutrients (essential but needed in very small amounts).

Vitamins can be divided into those soluble in water – the B group and Vitamin C, and those soluble in fat – A, D, E & K. The micronutrients have many important roles. They are essential for red blood cell formation, bone formation and maintenance and as anti-oxidants, which prevent cell damage. Many dancers worry that they are not getting enough micronutrients from their diet and take vitamin and/or mineral supplements to compensate. It is a good idea to look at your food intake first and try to improve it rather than taking supplements. Fruits and vegetables (fresh, frozen, tinned or dried) can be an excellent source of many vitamins and minerals including Vitamins A and C, potassium, folate and fibre. In addition they will provide phytonutrients (natural plant chemicals) that are increasingly known to be essential for health, prevention of illness, and aspects of performance. Aim for at least 5 portions of fruit, vegetables or salad each day – try them chopped onto breakfast cereal, added to stir fries, whizzed into soups or smoothies and boosting sandwich fillings.

As a general rule, micronutrients should be ingested through a fresh, healthy and varied diet. Vitamin D, which has a number of roles in health including bone health, is an exception. Vitamin D is made mostly from the action of sunlight on skin, with few good food sources. Recent research has highlighted the importance of Vitamin D in muscle function and injury prevention in dancers. For more information on this important topic please refer to Dance UK Information Sheet Number 11.

If your diet is not as good as it could be, taking a multivitamin/multimineral once daily is unlikely to harm you. However, taking individual supplements or those containing only a few vitamins or minerals unless specifically prescribed for you can be harmful. Doses of nutrients in these supplements are usually much higher than you would get from food, and excessive amounts of one can interfere with absorption of another. In addition mega doses of some vitamins and minerals can be toxic. With vitamins and minerals more is **not** better – for example Vitamin C in large doses can cause diarrhoea, and if fluid intake is poor may result in kidney stones; too much zinc reduces copper absorption which can lead to a type of anaemia.

As smoking increases micronutrient requirements, smokers need to be particularly aware of their micronutrient intake. Research suggests that smokers are best advised to get their long term micronutrient requirements through food rather than take supplements.

Eating Plans

There is a need for food at regular intervals through the day: this can be as three formal meals – breakfast, lunch and evening meal, or as regular meals and snacks – not unplanned continuous ‘grazing’ but **planned purposeful, regular ‘pit stops’**. Planned nutritious snacks can be very helpful to the dancer with a heavy workload and high energy requirements. Try to eat a light but balanced meal (containing some protein and carbohydrate plus vegetables/salad/fruit) 2-4 hours before performances. By the time you are due to perform, the aim is to be neither empty nor full. Refuel as soon as possible after the performance – definitely within an hour. This could be a light snack such as some milk with a banana followed by your normal meal, or it could be your normal-sized meal (if you are organised and able to eat in good time).

Breakfast

Eating breakfast helps concentration during the morning, reduces depression and anxiety, and improves memory and verbal skills. It will also provide essential fuel for morning classes or rehearsals.

Try to eat something from the following suggestions:

- Cereal with low fat milk or yoghurt – Weetabix, Shreddies, Raisin Wheats, Bran Flakes, muesli or porridge are all great choices. Add fruit or have fruit juice too. Dried fruit and/or seeds like pumpkin seeds and linseeds also boost the nutrient content of a cereal breakfast.
- Alternatively, choose wholemeal toast or a wholegrain bagel(s) with a small amount of butter/spread/nut butter and some jam/honey/marmalade/yeast extract. Add some dairy (milk or yoghurt) to boost protein and calcium.
- Depending on your appetite and requirements, fruit and yoghurt are great for breakfast with some oats/nuts or seeds/toast or a bagel.
- If you have a cooked breakfast available the best choices are poached or boiled eggs, grilled lean bacon, grilled tomatoes and mushrooms, baked beans and toast.

Steer away from the sausages, fried eggs, fried bread, fried mushrooms, fried tomatoes and black pudding as the high fat content not only means you may not eat enough carbohydrate, but the meal will take much longer than normal to leave your stomach – not the best way to start class perhaps.

If breakfast has to be very early it is wise to take a snack for later in the morning – a cereal bar (look for those lower in fat), fruit (fresh or dried) if possible mixed with some nuts, a honey sandwich or a scone or teacake are all good choices.

Lunch

Sandwiches are a great choice for an easy lunch – use wholemeal or rye bread to boost your vitamin and mineral intakes. Include a source of protein and some vegetables/salad or fruit, for example:

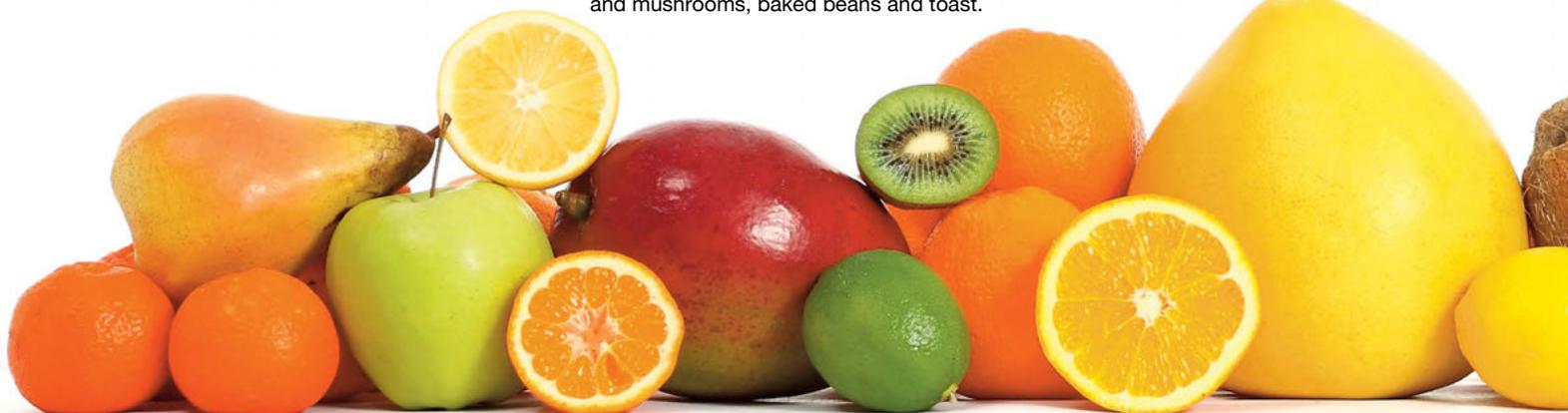
- Ham and tomato
- Tuna and cucumber (tinned in spring water, oil or brine and use a little salad cream or low fat dressing rather than mayonnaise)
- Sliced hard boiled egg with tomato
- Grilled back bacon with lettuce and tomato
- Cottage cheese with pineapple
- Edam/Gouda cheese and salad
- Sliced Brie/Camembert and grapes
- Mozzarella, sliced tomato and basil

Or make your own salad, for example:

- Mixed salad with feta cheese and a bread roll
- Pasta/couscous/quinoa/rice salad with chicken, tuna and sweetcorn or ham. You could add some tinned, drained chickpeas or red kidney beans for extra nutrients. Add as many extra vegetables or salad items as you can for best nutrition – raw peppers, tomatoes, cucumber and/or cooked peas go well with most salads. Different colours indicate different nutrients so aim for colourful meals!

Make sure sandwiches and salads are kept cool either in a fridge or a cool bag.

If you want something hot, jacket potatoes with a filling are a good option (see evening meal section for details). Soup can be a good choice, although vegetable soup and a bread roll will not provide much protein – including lentils,



beans, chicken or some grated cheese (preferably lower fat varieties) will solve this problem. If you can cope with the volume, having a large portion of yoghurt will also be a useful source of protein.

A piece of fruit or a handful of dried fruit are good additions to lunch, and if you need more carbohydrate, a scone, teacake, some malt loaf or fruitcake should meet the target.

Evening Meal

This meal is essential to replenish energy levels after the demands of the day. Despite the many myths that exist on this subject, food eaten later in the day is no more 'fattening' than at other times. Plan to include some carbohydrate rich foods - potatoes, sweet potatoes, rice, pasta, noodles, couscous or quinoa, as each contain a range of nutrients in addition to carbohydrate. Brown rice and wholemeal pasta are sources of B vitamins for a healthy nervous system and energy release, while potatoes contain Vitamin C and sweet potato contains Vitamin A. Add in some protein such as chicken, lean pork/beef, fish, tofu, eggs or cheese/low-fat cheese and vegetables/salad for a healthy meal. Avoid frying in large amounts of oil - grilling, poaching, stir-frying and steaming are all good cooking methods for a speedy meal. Try and plan evening meals in advance. You can then shop for the week with the meals in mind, and can start getting the meal ready as soon as you arrive home rather than having to start thinking when you are tired and hungry. A few standbys with reasonable shelf lives - frozen vegetables, frozen fish portions, eggs, ham or gammon, cheeses, potatoes, pasta, jars of tomato sauces - mean you can always put a healthy meal together.

Nutritious meals can be very simple:

- Jacket potatoes are a good standby - good fillings include: tuna and sweetcorn/peppers (easy on the mayo), chicken curry, chilli con carne or vegetarian chilli, baked beans, grated cheese, cottage cheese and bolognese. Serve with vegetables (frozen or fresh are both great) and/or a side salad.
- Stir-fried pork fillet, chicken or tofu with vegetables, served with noodles or rice is another healthy 'fast food'. Crack an egg into cooked rice and heat through until the egg is cooked to make protein rich egg (fried) rice.

- Pizza can be another good standby - add extra vegetables such as peppers, tomatoes, mushrooms and sweetcorn. Try to avoid high fat meats like sausage/pepperoni and oily and deep pan bases which are normally found in a takeaway.

Depending on your schedule a slow cooker can be useful - casseroles made with meat/poultry/beans with added vegetables and potatoes are complete meals and can be prepared in the morning and left cooking during the day.

If you have to eat out after a performance, Chinese, Thai, Italian, French or Indian restaurants will make it easier to choose a balanced meal than the fish and chip shop or the burger outlet. Choose dishes that you know won't be too oily, and ask for extra bread or chapatti to boost your carbohydrate intake if necessary.

Fruit and yoghurt are ideal desserts. Baked apples/pears/bananas or stewed fruit (fresh or dried) are alternatives to fresh fruit.

Weight(y) matters

Many dancers spend time thinking about their current weight and their desired 'ideal' weight - and often the two are not the same. Many dancers want to be lighter than they are - and alter their diets to lose weight. Most people also want an exact answer to the question 'how much should I eat'. Here are a few facts and figures:

- Being too thin has disadvantages: medically, for both men and women, having too little body fat reduces hormone levels and is bad news for bones. For women it is important to have periods and to find the right weight and healthy food intake to allow this to happen.
- Striving to keep at a weight that is below a healthy weight often results in persistent food cravings and hunger, which may lead to 'chaotic' over and then under-eating. Remember that if your energy intake (food and drink) is matched by your energy output (e.g. staying alive, dancing) your weight will be steady.
- If you consistently eat too little, your body will try and prevent weight loss by making your metabolism slow down - you will find it harder to dance and your body will 'tick over' more slowly.

- The average female dancer eats around 2000 kcal per day, and the average male dancer around 2650kcal per day. In general, the shorter and lighter you are at your natural healthy weight, the less 'fuel' you need - and men need more calories than women at the same weight and height due to their extra muscle mass. As you still need all the essential nutrients, the quality of your diet becomes crucial. This doesn't mean you can never eat chocolate, crisps or ice cream - but they need to be kept as appropriate extra treats once the protein, low fat carbohydrates, healthy fats, vegetables and fruit have been included.

If you need to change your weight - whether to gain or lose weight - it will be a slow process consisting of changes in both diet and exercise. To lose 0.5kg per week means a reduction in energy intake (or an increase in expenditure or exercise) of around 500kcal per day. Conversely, gaining this amount of weight requires you to consistently take in at least 500kcal extra per day. Your weight can change over the day, but this is less to do with loss or gain of fat or muscle and more to do with temporary changes in fluid balance and glycogen stores. To stay sane, **weigh yourself no more than once or twice each week**. If possible, seek guidance from teachers or friendly colleagues as to whether you have a true perception of your size - many women in particular tend to overestimate body size - see 'Your Body Your Risk'⁵ for further guidance on this subject.

Food is an essential fuel - but also an important, social aspect of our lives. As a dancer your body is your instrument and is your livelihood. If you don't take care of what you put inside it, no one else will. Use what the ever-evolving science of nutrition can offer to help keep your instrument in peak condition and performing at its best.



FURTHER READING

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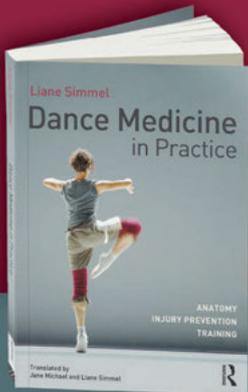
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