**“Fish, chicken, lean meat and eggs can be eaten daily”**

Meat is the flesh and organs of animals and fowls, and legal definitions of meat exist in different countries. The flesh of cattle, pigs and sheep is distinguished from that of poultry, with the exception of ostrich, by the term “red meat”, while the flesh of poultry (chicken, turkeys, ducks, pigeons and guinea fowl) is termed “white meat”. Red meat mostly refers to beef, veal, pork, mutton and lamb (fresh, minced and frozen), but also includes goat, ostrich and venison. Other animal products include offal, fish, eggs, and dairy products such as cheese. South African meat and processed meat products with less than, or equal to, 10% of total analysed fat, can be classified as “lean”. Meat with less than, or equal to, 5% of total analysed fat, can be classified as “extra lean”.

Undernutrition remains a persistent problem in the developing world. Compared with what is recommended many diets in developing countries are deficient in energy, protein and other nutrients. The food-based dietary guideline (FBDG): “Fish, chicken, lean meat and eggs can be eaten daily”, was formulated based on the valuable nutritional contribution that these foods make to a balanced diet. In appropriate amounts, these foods are important sources of many essential nutrients.

Meat from animals as well as eggs provide significant quantities of high quality protein to the human diet. According to the World Health Organization, dietary protein intake in developing countries fell significantly short of the recommended 0.66 g/kg body weight/day. Research has shown that adding even small amounts of animal-derived protein to a plant-based diet can yield significant improvements in maternal health and child development.

Meat is a well-recognised source of bioavailable iron and zinc. In light of the current low levels of iron and zinc intake in South Africa, particularly in women and children, meat has the potential to make an important contribution to the intake of these nutrients. Fish, meat, and eggs also contain a range of B vitamins, although levels vary between the different food products. Red meat and fish, in particular, are a good source of vitamin B12. As this vitamin is naturally found only in foods of animal origin, subgroups of the population who do not consume meat or animal products may have an inadequate intake of vitamin B12. In many developing countries, including South Africa, there is a particular focus on iron and vitamin A deficiencies, especially in vulnerable groups such as children and women of childbearing age. In South Africa, mandatory fortification of cereal-based staple foods with a combination of micronutrients has not been successful in eradicating vitamin A or iron deficiencies. Animal sources of food tend to be richer sources of nutrients of concern (e.g. those that are lacking in the diet), such as iron and zinc. Fish, meat and eggs provide many other important nutrients, particularly long-chain n-3 fatty acids, selenium, vitamin D and vitamin B12.

By contrast to the beneficial nutrients provided, the overconsumption of foods, and specifically those which are high in saturated fat and cholesterol, has been linked to overweight, obesity and subsequent diseases of lifestyle. Originally, dietary fat was considered to be a source of energy only, yet later research introduced the concept of essential fats which need to be provided by the diet to prevent deficiencies. Although meat and eggs are seen as contributors to saturated fat intake, lean meat contains a higher proportion of unsaturated fatty acids. Fish contains high levels of the long-chain n-3 fatty acids, EPA, DPA and DHA. Work is currently underway to identify methods through which the fatty acid profile of meat can be altered, in order to reflect a more positive fatty acid profile in terms of heart health. Various research studies have been conducted to establish if there is link between red and processed meat intake and the risk of chronic disease. Obtaining definitive evidence to confirm diet-risk relationships is a challenging process because of complex interactions and confounding factors, including genetics, lifestyle, and infectious and environmental factors.

The high nutrient density of lean animal food has an advantage in food-based interventions that target vulnerable groups such as infants, children and people living with human immunodeficiency virus/acquired immune deficiency syndrome, who may have difficulty consuming large volumes of plant sources of food needed to meet their nutritional requirements. Furthermore, animal sources of food provide multiple micronutrients simultaneously, which may be important in diets that are marginally lacking in more than one nutrient.

However, some individuals choose to avoid certain types or all animal products for a variety of reasons, including taste, ethical or religious reasons, health concerns about additives, hormones, fat and cholesterol, or because of socio-economic factors. The consequences of production and consumption, such as greenhouse gas emissions, the water footprint and land use, are also receiving considerable attention. The delicate balance between adequate, over and under consumption of animal sources of food remains a very complicated aspect of ensuring healthy and nutritionally adequate, yet sustainable, diets.

Well planned vegetarian diets can be both nutritious and healthy. These have been associated with a lower risk of heart disease, type 2 diabetes, obesity, certain types of cancer and lower blood cholesterol levels. However, restrictive or unbalanced vegetarian diets may lead to nutritional deficiencies, particularly in situations of high metabolic demand. The nutrients of major concern in a vegetarian diet are protein, iron, calcium, vitamin B12 and n-3 fatty acids.

Globally, guidelines on the consumption of these foods also differ, but remain consistent in terms of the message that protein foods such as chicken, fish, lean meat and eggs should form part of a diet that is varied and balanced and which provides adequate amounts of fibre and other nutrients from alternative food groups, such as vegetables, pulses and whole grains.

Based on evidence on nutritional considerations which advocate the inclusion of these products as part of a healthy, balanced diet, together with a review of current international FBDGs, it is therefore recommended that “Fish, chicken, lean meat and eggs can be eaten daily”. It should be noted that generally, the recommendations include the preparation of food without the addition of fat. Diets should include:

* Two to three fish servings per week, and preferably oily fish, such as sardines, pilchards, tuna, anchovy and mackerel (including tinned versions).
* Approximately four eggs per week.
* A serving of lean meat, as defined by the regulations, can be eaten daily, but should be limited to 90 g/day. Trim the visible fat from red meat and remove the skin and fat from chicken. Prepare the meat with little or no added fat and salt.

*140 characters tweet: Fish, chicken, lean meat and eggs can be eaten daily, including 2 to 3 fish servings per week, 4 eggs per week and up to 90g cooked lean meat per day.*