1.1B: Phytochemicals, Zoochemicals & Functional Foods

Beyond macronutrients and micronutrients, there is a lot of interest in non-nutritive compounds found in foods that may be either beneficial or detrimental to health.

Phytochemicals

Phytochemicals are compounds in plants (phyto) that are believed to provide healthy benefits beyond the traditional nutrients. One example is lycopene in tomatoes, which is thought to potentially decrease the risk of some cancers (in particular prostate cancer). Diets rich in fruits and vegetables have been associated with decreased risk of chronic diseases. Many fruits and vegetables are rich in phytochemicals, leading some to hypothesize that phytochemicals are responsible for the decreased risk of chronic diseases. The role that phytochemicals play in health is still in the early stages of research, relative to other areas of nutrition such as micronutrients. The following 2 links contain good information on phytonutrients if you are interested in learning more about them.

Figure \(\PageIndex{1}\): Tomatoes and other plants contain phytochemicals.
Zoochemicals

Zoochemicals are the animal equivalent of phytochemicals in plants. They are compounds in animals that are believed to provide health benefits beyond the traditional nutrients that food contains. Hopefully the name is pretty easy to remember because you can find animals at a zoo. Some compounds can be both phytochemicals and zoochemicals. An example of compounds that can be classified as both are the yellow carotenoids lutein and zeaxanthin. Kale, spinach, and corn contain phytochemicals and are good sources of lutein and zeaxanthin. Whereas egg yolks contain zoochemicals and are also a good source of these carotenoids.

Functional Foods

There are a number of definitions of functional foods. Functional foods are generally understood to be a food, or a food ingredient, that may provide a health benefit beyond the traditional nutrients (macro and micronutrients) it contains. Functional foods are often a rich source of a phytochemical or zoochemical, or contain more of a certain nutrient than a normal food.

Links

- Linus Pauling Institute: Phytochemicals - [http://lpi.oregonstate.edu/infocenter/phytochemicals.html](http://lpi.oregonstate.edu/infocenter/phytochemicals.html)

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