Facing fats

Fats are all around us

Fat: the gunk clogging up the world's arteries and sewers. We try to reduce our fat intake, or burn it off by doing exercise. We wash it down the drain. We regard fat as bad, but it isn't always. Most of the time, actually, it's useful. We might think of fat as oil, grease or just waxy yellow stuff, but like proteins and carbohydrates it's made up of molecules that are nutrients and give structure to our cells.

Fats are lipids: molecules that dissolve in ethanol but not in water. As well as fats (made of fatty acids and glycerol), lipids include sterols like testosterone and cholesterol. Perhaps the most fundamental role of lipids is in compartmentalising life into cells – all living things from bacteria to humans use phospholipids to make up their cell membranes. Even viruses, which do not make their own lipids, use the fatty membranes of their host cells to multiply.

But lipids have far more wide-ranging functions. They are energy stores and thermal insulation for hibernating bears, fuel for marathon runners, and protective coatings that limit evaporation from plants. They are hormones, water repellents, and electrical insulation for nerve transmission. Lipids play such important roles that we and most other things in nature couldn't survive without them.

ABOUT THIS RESOURCE

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