

Diptera

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Flies, gnats, maggots, midges, mosquitoes, keds, bots, etc. are all common names for members of the order Diptera.

These insects are distinctive because their hind wings are reduced to small, club-shaped structures called halteres - only the membranous front wings serve as aerodynamic surfaces. The halteres vibrate during flight and work much like a gyroscope to help the insect maintain balance.

All Dipteran larvae are legless. They live in aquatic (fresh water), semi-aquatic, or moist terrestrial environments. They are commonly found in the soil, in plant or animal tissues, and in carrion or dung -- almost always where there is little danger of desiccation. Some species are herbivores, but most feed on dead organic matter or parasitize other animals, especially vertebrates, molluscs, and other arthropods. In the more primitive families (suborder Nematocera), fly larvae have well-developed head capsules with mandibulate mouthparts. These structures are reduced or absent in the more advanced suborders (Brachycera and Cyclorrhapha) where the larvae, known as maggots, have worm-like bodies and only a pair of mouth hooks for feeding.

Adult flies live in a wide range of habitats and display enormous variation in appearance and life style. Although most species have haustellate mouthparts and collect food in liquid form, their mouthparts are so diverse that some entomologists suspect the feeding adaptations may have arisen from more than a single evolutionary origin. In many families, the proboscis (rostrum) is adapted for sponging and/or lapping. These flies survive on honeydew, nectar, or the exudates of various plants and animals (dead or alive). In other families, the proboscis is adapted for cutting or piercing the tissues of a host. Some of these flies are predators of other arthropods (e.g., robber flies), but most of them are external parasites (e.g., mosquitoes and deer flies) that feed on the blood of their vertebrate hosts, including humans and most wild and domestic animals. (General Entomology - 2016 by John R. Meyer -Last Updated: 28 March 2016 Disclaimer).

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- Flies belong to the Order Diptera and have only a pair of membranous wings corresponding to the previous wings, hence the name of the order (di, two; ptera, wings).
- The posterior pair has become two small-sized structures called dumbbells or rockers, which balance the insect during flight.
- Diptera belong to one of the four largest groups of living organisms, with more flies than vertebrates.
- They are not found in the Arctic and Antarctic regions.
- Adult flies are important mechanical and biological vectors of pathogenic organisms.
- Larvae of certain species can parasitize humans and other vertebrates causing myiasis.
- These dipterans are of special medical-sanitary interest and their occurrence, distribution and predominance in metropolitan areas are factors of great importance in Public Health.

Figure: Summary of the main features of the Diptera.