Latin hypercubes are the following generalization of latin squares: a d-dimensional latin hypercube of order n is a multidimensional matrix of the same order filled by n symbols so that each symbol appears in each line exactly once. A transversal is a set of n entries hitting each hyperplane and each symbol exactly once. This talk aims to overview known results and open problems on transversals in latin hypercubes. We pay special attention to latin hypercubes of small sizes and to reducible hypercubes that can be obtained as a composition of several quasigroups.