



FIGURE 9.24. Mutagenesis screens in *Drosophila* have led to the identification of genes involved in the process of segmentation. At the *upper left* is a wild-type (WT) larva that is just about to hatch from the egg. Anterior is to the *left* and the ventral surface is visible. Each segment is clearly delineated by bands of denticles, stiff hairs that help the animals crawl through their food. The three thoracic segments (T1–T3) and eight of the abdominal segments (A1–A8) are clearly visible. In *Krüppel* (*Kr*) mutants (meaning embryos homozygous for **null alleles** of the *Kr* gene), the thoracic and anterior abdominal segments are deleted. In *fushi tarazu* (*ftz*) mutant embryos, every other segment is deleted. In *gooseberry* (*gsb*) mutant embryos, there is the correct number of segments, but patterning within each segment is altered so that the denticle bands have expanded into the regions that are normally free of denticles. Starting with these and other similar mutants, developmental biologists now understand in great detail how the *Drosophila* embryo becomes segmented.

9.24, photo courtesy of Nipam H. Patel