Torsional strain or eclipsing strain is the increase in potential energy of a molecule due to repulsion between electrons in bonds that do not share an atom.

Consider two conformations of ethane:

\[\text{1} \quad \text{2}\]

The smallest dihedral angle is 60° in 1; it is 0° in 2. Thus, two C-H bonds not sharing a carbon atom that are closest to each other (ex: C-H\textsubscript{1} and C-H\textsubscript{4}) are closer in 2 than in 1. The repulsion between electrons in bonds that do not share a carbon atom is, therefore, greater in 2 than in 1. Consequently, torsional strain is greater in 2 than in 1.

- see also angle strain, steric strain

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