

	stress	strain
engineer.	$\sigma_e = \frac{F}{A_0}$	$\epsilon_e = \frac{\Delta l}{l_0}$
true	$\sigma_t = \frac{F}{A_i}$	$\epsilon_t = \ln \frac{l_i}{l_0}$

assumes A_0 constant
considers the l_0

takes instantaneous A_i
takes continuous change in length

eng. curve assumes the max stress is lower than the actual, this creates a natural safety factor. in elastic region, there is almost no difference.

Total def = Elastic def + Plastic def.

after unloading, elastic def. disappears.
therefore, yield stress could be increased by loading/unloading (until ultimate yield)