Highlights

* Food chains in nature are short, and therefore most species occupy a relatively low trophic position (rarely higher than 5)
* While many hypotheses have been tested to understand the limitations on food chain length they typically offer conflicting evidence
* Using simple, random, and niche model webs we test whether there is a relationship between the longest chain in the web and the stability of the web
* We find that webs with longer food chains, and therefore more trophic levels, are less likely to be stable suggesting that dynamic constraints may be limiting food chain length