L-Glutamine and Cancer

• An amino acid found in foods, naturally the most abundant one in the body.

• A topic that requires a balanced focus. Fast-proliferating cells share similar metabolic pathways. That is, the same thing that may fuel cancer cell growth allows fuels immune cells (to counter the cancer) and fuels gut mucosal cells (to absorb nutrition to counter the cancer). Patient priorities/need will be unique. This is a hot, current topic in cancer research.
  
  • Mucosal membrane cells use large amounts of glutamine (e.g. intestines, stomach), and supplementing with this amino acid helps to prevent/repair intestinal permeability and mucositis, common side effects of chemotherapy and radiation, as well as other potent medications. Regular use often decreases incidence of GI disturbance as a result of chemotherapy.
  
  • L-glutamine has been shown in animal studies of breast cancer to increase NK cell activity by 250%, along with a 40% decrease in tumor growth. This is largely attributed to its action in supporting cellular glutathione levels. *

• Cancer cells soak up glutamine, which can deplete levels elsewhere in the body. While theoretical research or in vitro study has raised valid concern over supplemental glutamine promoting cancer growth, in vivo research in humans has generally not shown this therapy to affect tumor growth/control. **

• Increased glutamine metabolism induces apoptosis in some cancers and inhibits it in others. Glutamine uptake by cancer cells varies dramatically by type and is complexly controlled by other dynamics as well (e.g. lactate levels). ##

• Glutamine may help to reduce chemotherapy toxicity and increase efficacy. #

• Some research is investigating the opportunity to use cancer cell’s glutamine uptake as a delivery route for chemotherapy and/or immunotherapy agents. ###

• L-glutamine is contraindicated in patients with any type of brain cancer or disease (e.g. Parkinsons, Alzheimers) as glutamine is converted to glutamate and may increase tumor growth or excitatory neural transmission.

• WS tip: Take on empty stomach for best absorption (capsules or loose powder), at least 3 grams twice daily. Some of the studies cited below used substantially more.

# http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3385273/ and http://pen.sagepub.com/content/16/6_supp/83S.short