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LACTOWHEY powder: Provides body's defense against cancer

Govind Shukla, Nagalakshmi Yaparthy, D.Sruthi Rao, C.J. Sampath Kumar

*Oncowellness by Lactonova Nutripharm (P) Ltd, (Makers of LACTOWHEY Powder), 81/3, IDA
Mallapur, Hyderabad, Telangana, India-500*

Corresponding Author: Govind shukla

***E-mail: govindbbd@gmail.com**

ABSTRACT

Whey protein concentrates have been researched extensively in the prevention and treatment of cancer. Glutathione stimulation is thought to be the primary immune-modulating mechanism. The amino acid precursors to glutathione available in whey might increase glutathione concentration in relevant tissues, stimulate immunity, and detoxify potential carcinogens. The iron-binding capacity of whey may also contribute to anticancer potential, as iron may act as a mutagenic agent causing oxidative damage to tissues. This article reviews the current available scientific literature regarding the effect of Lactowhey powder in promoting immune function & as a supportive therapy to prevent muscle loss, weight loss and protein calorie malnutrition in cancer patients

Keywords: LACTOWHEY Powder, body's Defense, Free Radicals and Carcinogens.

INTRODUCTION

Whey is a term that generally refers the translucent liquid part of the milk which remains in the process of cheese manufacturing. Proteins are the nitrogen-containing substances which are formed by the amino acids. Whey proteins are separated and also purified by using various techniques to obtain different concentrations of whey proteins. Whey protein provides high level of branched and essential chain amino acids. In addition to these, whey protein is rich in minerals and vitamins. This protein provides various advantages to the individuals of different applications like cancer treatment.

Whey is a complex protein derived from milk as a by-product of curd and cheese manufacturing. Milk contains casein and whey as protein source, after processing casein protein turn into curd while whey protein remains in an aqueous environment. The main constituents of whey protein include Essential, sulphur and branched chain amino acids, beta-lactoglobulin, alpha-lactalbumin, lacto-peroxidase enzymes, immunoglobulins, lactoferrin, bovine serum albumin and minerals. Whey acts as an antioxidant, anti tumor, hypolipidemic, antiviral, antibacterial, anti-hypersensitive, immune modulator and chelating agent [1].

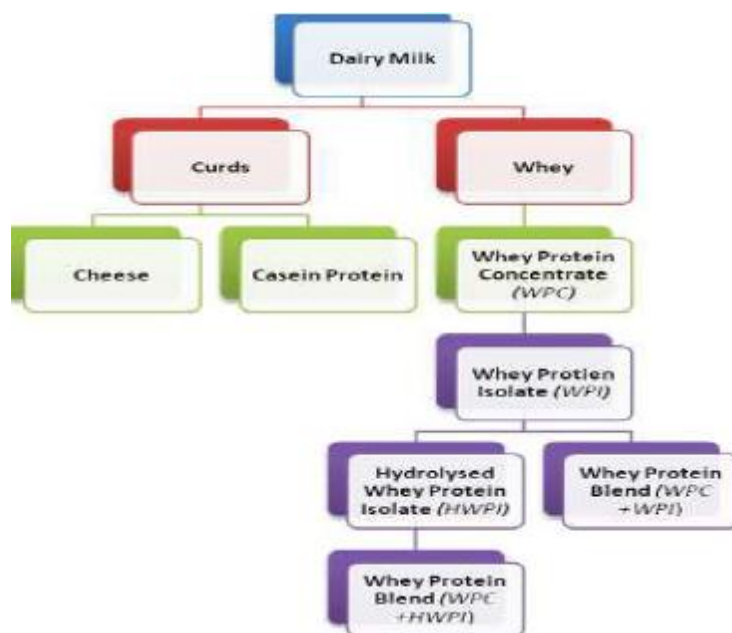


Fig. 1 Making of whey protein

Patho physiology of chemotherapy- Induced oxidative stress

Chemotherapy- Induced oxidative stress appears to be associated with **doxorubicin** (DOX) and cisplatin. Reduction of DOX by one electron via mitochondrial reductases may generate anthracycline semiquinone free radicals under aerobic conditions; these unstable radicals readily reduce molecular oxygen to reactive oxygen species (ROS) super oxide anion and hydrogen peroxide (H₂O₂). Also redox reaction between iron and DOX generate free radical, which is capable of reducing molecular oxygen in turn leading to oxidative stress [3].

Cisplatin is a chemotherapy drug which acts as anti neoplastic agent used in the treatment of testicular bladder, lung, gastrointestinal and ovarian cancers has exhibited multi organ toxicity. Both in vivo and in vitro cisplatin has shown to increase oxidative stress by increasing levels of super oxide anion, H₂O₂ and hydroxyl radical causing oxidative stress [3].

Oxaliplatin chemotherapeutic agent commonly used in treatment of colon cancer has shown to have severe side effects such as neuropathy, ototoxicity, gastrointestinal toxicity, and hematological toxicity. It alters the levels of anti oxidants and non enzymatic anti oxidants by rising mitochondrial oxidative stress, lipid per oxidation and protein carbonyl [2].

Mechanism of action

Whey protein in LACTOWHEY has potent antioxidant likely to be contributed with cysteine rich protein serving as active reducing agent in preventing oxidation and tissue damage. Cysteine also aids in synthesis of glutathione (GSH), plays a central role in body's defense against infection, free radicals and carcinogens. Practitioners use whey protein products as a source of cysteine to increase intracellular glutathione levels [7]. Whey protein concentrate (WPC) in lacto whey has immunoenhancing, anti carcinogenesis and anti cancer properties. WPC contains amino acid precursors to regenerate intracellular glutathione concentration in relevant tissues [8]. Glutathione antioxidant system stimulates immunity. The effect of GSH on free radical detoxification could be important in inhibiting carcinogenesis [9].

Lactoferrin one the active constituent of whey protein acts as chelating agent by binding to heavy metals like iron (mutagenic agent causing oxidative stress) contributing to anti cancer property [1].

lactoferrin is another main constituent of whey protein, as shown to chelate heavy metals like iron by reducing oxidative stress to activate natural killer(NK) cells and neutrophils, induce colony-stimulating factor activity and enhancing macrophage cytotoxicity.

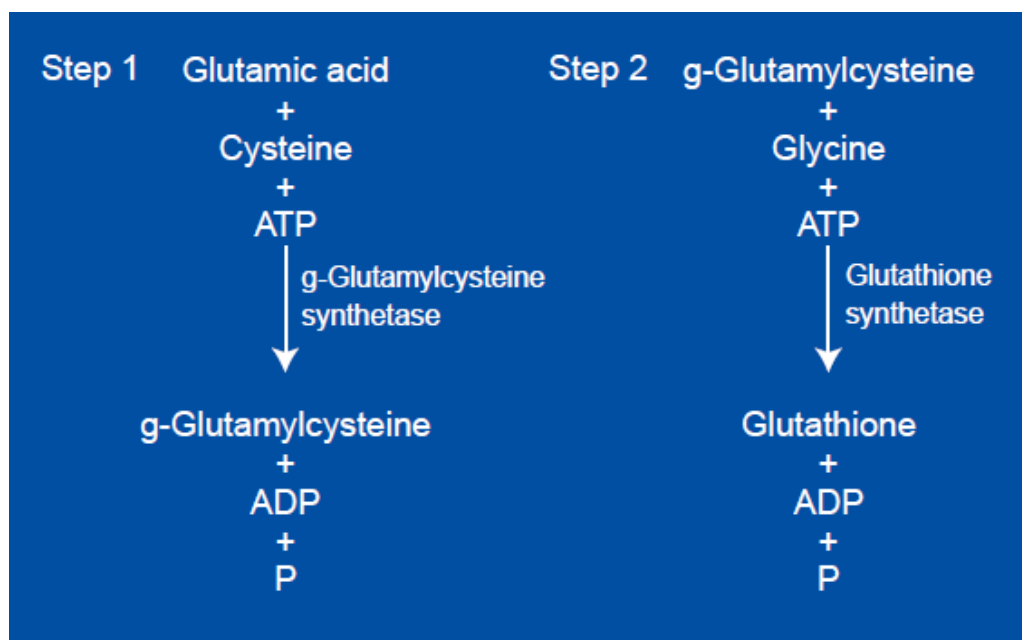


Figure 2. Synthesis of Glutathione from Cysteine, Glutamate, and Glycine.

COMPOSITION OF LACTOWHEY POWDER

LACTOWHEY™

Each 30g powder contains:

Dadhi mastu ghan (Whey protein isolate)	24.0g
Anannasa ghan fruit [As Pine apple extract 38mg]	0.5g
Erandakarkati phala fruit pulp [As Papaya fruit latex 25mg]	0.5g
Starch & its derivatives	2.0g
Sugar (Sita) & Excipients	Q.S.

Pre-Clinical study Reports of whey protein in Lacto whey powder

Study on mouse proves the anti-inflammatory property, revealing lactoferrin had the ability to regulate tumor necrosis factor (TNF) and interleukin 6(IL-6) thus decreasing inflammation, and ultimately, mortality.

In vivo study of A/J mice choked on 1,2-dimethylhydrazine (DMH) induced colon carcinoma were compared with different milk proteins (20gm/100gm for 28 weeks) inhibiting the development of DMH malignancy. Mice treated with whey protein in LACTO WHEY have shown a decrease in tumor burden, increase in body growth

indicating anticancer effect of whey protein in LACTO WHEY [3, 4].

An in vitro study demonstrated that an isolate of whey protein in LACTO WHEY when compared to casein based protein, increased glutathione synthesis and protected human prostrate cells against oxidant-induced cell death [1].

Many animal studies induced with colon cancer have demonstrated anti cancer effect of whey protein in LACTO WHEY by significantly lowering tumor incidence as well as fewer aberrant crypts [5, 6].

Clinical study Reports of whey protein in Lacto whey powder

A case study on 77 year old male with metastasis carcinoma of prostate with excessive bone metastases and localized spread to rectal area was treated with only prednisone 10mg daily due to cardiac toxicity of standard therapies and chemotherapy along with whey protein (20gm a day) and radiation therapy to bone metastases have shown to decrease in prostate specific antigen (tumor marker) indicating its anti cancer effect [9].

52 year old Caucasian female on CT scan examination demonstrated with metastasis renal cell carcinoma underwent left radical nephrectomy. The patient declined the recommendation of pelvic external beam radiation and chemotherapy, later experienced metastases to pulmonary, bone and liver cancer. The patient was treated with whey protein in LACTO WHEY (3 pouches of 10g per day). The patient results have shown to resolve nausea; vomiting and improved appetite and CT scan of abdomen and liver metastasis were diminished in size and improved in her energy levels with continuous treatment of whey protein in LACTO WHEY [9].

Absorption of lactowhey powder

Whey protein is considered as fast proteins as they reach jejunum quickly coagulate under acidic condition and with stand the action of chymosin in stomach. After reaching the small intestine (SI) hydrolysis is slower than casein allowing for greater absorption over the length Small Intestine.

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SUMMARY & CONCLUSION

Cancer patients are undergoing chemotherapy or radiation may have difficulty in meeting their nutritional requirements and this is because of lack of appetite. So, this may lead to muscle loss, weight loss and protein calorie malnutrition. LactoWhey protein is considered as an excellent protein for the choice of cancer patients of all ages for healthy diet and also to improve and maintain their health. Whey protein helps to increase the serotonin activity and helps to promote restful sleep.Whey protein helps enhance energy levels; it helps to decrease the stress; it helps to keep the metabolic rate high; it helps to reduce body fat and build the lean body mass; and it helps to improve the memory loss under stress.it provides immunity support, increase muscle mass, boost metabolism, and helps to improve overall health. Whey proteins promotes Muscle strength,Improved immune system,Muscle synthesis,Performanc. Thus the use of Lactowhey protein powder provides excellent protein choice for the cancer patients. In addition to these, it helps them very easy to digest.

Recommended Usage

1-2 table spoon per day or As Directed by Health care Practioner.