My primary research interest concerns breast and prostate cancer prevention. In particular I am interested in serum magnesium and calcium.

**Project 1** - Breast cancer is the most commonly diagnosed cancer among US women. Established risk factors for breast cancer explain only about 13% of new diagnosis of breast cancer among women in the US. Thus, the etiology of most cases of breast cancer is still unknown.

Unfortunately, there are no biomarkers of breast cancer risk in standard use for either normal or high risk women. Our team is investigating the ratio of serum calcium to magnesium as a risk factor for new or recurrent postmenopausal breast cancer. Furthermore, Transient Receptor Potential Melastatin 7 (TRPM7) channel is known to be permeable to both Ca2+ and Mg2+ entry to cells. We hypothesized that low Mg2+ concentration allows greater calcium influx and breast cell proliferation by increasing calcium-adenosine triphosphate (ATP). This research has already generated two publications ([Abstract 1](#), [Abstract 2](#)). A grant proposal is in its final stage for submission.

**Project 2** - The risk of prostate cancer increases with increasing age, black race, and family history. Observational studies have identified only a few modifiable risk factors. Furthermore, Prostate-Specific Antigen is an imperfect screening test, since it cannot reliably distinguish the minority of potentially fatal cancers from the majority of clinically insignificant prostate cancers that would not be fatal. We have shown that hypercholesterolemia may increase the risk for prostate cancer. Currently the epidemiological literature supports an inverse association between longer-term use of statin drugs and advanced prostate cancer. We plan to better characterize the association between statin use and high-grade prostate cancer.

**Peer Reviewed Journals**


**Other Publications**


**Presentations**

Invited as a speaker at a symposium on Data Envelopment Analysis Methods, 26-28 June 1997, France.

Invited as a speaker at the North Dakota Rural Health Conference on April 24-26, 2004 in Fargo, ND.


Invited as a speaker to the 25th Annual Frank Low Research Day on April 7, 2005 at the UND School of Medicine and Health Sciences facilities in Grand Forks, ND.

Invited as a speaker by the Centers for Disease Control and Prevention to the 2006 BRFSS Conference on March 18-21, Cathedral City, California.

Invited as a speaker by Altru Hospital on October 29, 2008 Grand Forks, North Dakota.