

Dietary supplement use among *BRCA1/2* mutation carriers

Ryan Rogers, BS¹, Tara Rangarajan, MPH, CCRP³, Kristina Ivan, MS, CGC³, Virginia Uhley, PhD, RDN¹, Dana Zakalik, MD^{1,2,3}



¹Oakland University William Beaumont School of Medicine
²Beaumont Cancer Institute, Beaumont Health
³Nancy and James Grosfeld Cancer Genetics Center, Beaumont Health



INTRODUCTION

- Women who carry *BRCA1/2* mutations are at significantly increased risk of breast, ovarian, pancreatic and other cancer.
- Cancer survivors have reported higher dietary supplement use than the general population, but little is known regarding the use of dietary supplements among women harboring *BRCA1/2* mutations who are predisposed to cancer.

OBJECTIVE

- To characterize the utilization of and attitudes toward dietary supplement use in women who carry *BRCA1/2* mutations.

MATERIALS/METHODS

- *BRCA1/2*-positive women identified through a cancer genetics clinic were invited to complete an electronic survey.
- Inclusion criteria:
 - Female sex
 - Age 21 years or older
 - Confirmed *BRCA1/2* pathogenic/likely-pathogenic variants
 - No active cancer treatment
- The questionnaire utilized a multiple-choice format and a 10-point Likert-scale was used to measure the motivations for supplement use.

RESULTS

- 208 *BRCA1/2* mutation carriers were invited to participate, 68 surveys were completed.
- Table 2 shows participant demographics, indicating a more advanced education level, active participation in exercise, and a significant uptake of risk-reducing surgery.
- 49 participants (84%) reported using some type of dietary supplement. B vitamins, multivitamins, magnesium, zinc, fish oil, and turmeric were the most commonly reported.
- Motivating factors included: enhancing the body's immune system, reducing inflammation, and improving mood, stamina, and energy.
- The majority of participants expressed an awareness that dietary supplements could be harmful and interact.
- 27 participants (59%) reported that their supplements were not prescribed by a physician. Table 1 reports responses to other physician engagement-related questions.



Table 1: Attitudes Regarding Physician Engagement (N = varies)

Survey Question and Response Options*	No. (%)
Do you think that it is important for doctors to know what types of dietary supplements their patients are taking?	
Yes, it is important for doctors to know	55 (100.0%)
Do you feel that you are comfortable to talk with your physician about your dietary supplement use?	
Yes	47 (85.5%)
No	1 (1.8%)
N/A - I don't use dietary supplements	7 (12.7%)
Is your primary care physician aware of your dietary supplement use?	
Yes	38 (70.4%)
No	5 (9.3%)
N/A - I don't use dietary supplements	11 (20.4%)
Do you feel that your physician is knowledgeable about dietary supplements?	
Very knowledgeable	18 (34.6%)
Somewhat knowledgeable	28 (53.9%)
Not at all knowledgeable	6 (11.5%)

*Participants were not required to answer every question.

Table 2: Participant Demographic Information (N = 68)

Characteristic	No. (%)
Age	
18-25	3 (5.0%)
26-34	12 (20.0%)
35-39	7 (11.7%)
40-49	10 (16.7%)
50+	28 (46.7%)
Education Level	
High School or GED	2 (3.3%)
Some College	11 (18.3%)
College Degree	23 (38.3%)
Graduate/Professional Degree (PhD, MD)	24 (40.0%)
Past Breast Cancer or Ovarian Cancer Diagnosis	
Breast Cancer	22 (36.7%)
Ovarian Cancer	2 (3.3%)
Risk-Reducing Surgery	
Mastectomy	32 (53.3%)
Salpingo-Oophorectomy	34 (56.7%)
Moderate Exercise	
Every Day	15 (25.9%)
2-3 Times per Week	26 (44.8%)
Once a Week	10 (17.2%)
Once or Twice a Month	2 (3.5%)
Rarely/Never	5 (8.6%)

CONCLUSIONS

- Our results show a high rate of dietary supplement use in women who carry a *BRCA1/2* mutation.
- The majority of these supplements were not prescribed by a physician.
- Participants placed high value on physician involvement with their supplement use.
- Primary motivators for use of dietary supplements included benefit to the body's immune system and positive impact on mood, stamina, and energy.
- The results of this study underscore the significant interest in nutritional supplements in this high-risk population, but also reveal that there is room to improve upon physician engagement.

REFERENCES

Kuchenbaecker, K. B., Hopper, J. L., Barnes, D. R., Phillips, K. A., Mooij, T. M., Roos-Bloom, M.-J., ... Olsson, H. (2017). Risks of Breast, Ovarian, and Contralateral Breast Cancer for *BRCA1* and *BRCA2* Mutation Carriers. *JAMA*, 317(23), 2402.

Velicer CM, Ulrich CM. Vitamin and mineral supplement use among US adults after cancer diagnosis: a systematic review. *J Clin Oncol*. 2008;26(4):665-73.