

Summary

Women with a BRCA1 or BRCA2 mutation have a 6- to 8-fold increased risk of developing breast cancer as compared to the general Dutch population. BRCA1/2 mutation carriers weighing their options for cancer risk reduction strategies make very different choices about how to manage their cancer risks, depending on their age, family history, reproductive history, concurrent diagnoses, and personal preferences. Currently, the risk reducing strategies for carriers are prophylactic surgery and screening for early detection. Other preventive approaches are chemoprevention and risk avoidance behaviour (i.e. hormonal and lifestyle factors) but due to lack of knowledge these approaches are currently not part of the genetic counseling process.

The studies described in this thesis suggest that diagnostic radiation, lack of physical activity, and increased body weight increase the risk of breast cancer in BRCA1/2 mutation carriers. Because BRCA1/2 mutation carriers are frequently screened by mammography from a relatively young age onwards, the potential hazardous effect of mammographic screening at young ages is a major concern and should be balanced against its potential benefit. As physical activity and body weight are among the few modifiable risk factors for breast cancer, they may provide a target to add to breast cancer prevention in this high risk population.