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**TITLE:** Linking Cancer and Twin Registry Data to Evaluate Cancer Risk in a United States Sample

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**KEYWORDS:** twin registry, cancer registry, cancer risk

**ABSTRACT:** Familial clustering has been observed for a number of cancers, such as that of the breast, colon, prostate, and lung<sup>1</sup>. However, it can be difficult to distinguish between genetic and environmental factors contributing to risk for cancer within family studies, due to the aggregation of both environmental and cultural influences within families. Prior research has focused on individual data obtained from Nordic countries<sup>2</sup>, which might not be generalizable to other populations. To address this limitation, we looked towards linking historical twin registry survey data and cancer registry data spanning from 1970 to 2019. Virginia Commonwealth University maintains the Mid-Atlantic Twin Registry (MATR), one of the largest twin registries in the United States. We were able to link data across 16,343 individual twins with confirmed zygosity (excluding higher order multiples) and cancer status. From those for whom we had cancer

status, 2,627 had ever been diagnosed with cancer in their lifetime. Two of the most prevalent cancers among this population were gastrointestinal (15.8%) and respiratory (10.7%) cancers. Univariate twin analyses were conducted to estimate causes of variation in cancer status and co-twin control analyses were done to evaluate the association of environmental risk factors with different types of cancer. Results demonstrate the unique opportunity provided by linking twin and cancer registry data to describe factors that drive cancer risk among the population and advance cancer control science and research.

### **References**

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