Physical inactivity is one of the leading contributors to global mortality and is linked to 5 million deaths annually worldwide. This relationship especially impacts low-income and racialized communities, who are disproportionately burdened by cardiovascular disease, hypertension, and some cancers. Physical activity research predominantly focuses on individual-level behavior change, which leaves out larger factors that affect behavior, such as environmental and community influences. Additionally, most physical activity research doesn't track the effects of the intervention over time, which leads to knowledge gaps in the long-term effects of an intervention. My research works with high-need communities to create tailored interventions that address higher levels of influence to change the cultural norms of activity in their community and create sustainability through time. Using community-based participatory research, mixed methods, and biological assessments, I aim to increase the understanding of how to best work together with communities on tailored solutions for increased active living. My ultimate goal is to mitigate disparities in chronic illness and individual and community-wide quality of life. My program of research contributes to this goal in at least in two ways: 1) testing the efficacy of physical activity interventions in high-need communities, 2) Exploring the effects of physical activity intervention co-creation on implementation and sustainability in high-need communities.

During my doctoral program, I obtained a minor in health equity through the University of Minnesota School of Public Health to understand health for at-risk communities, and I came to understand the unique barriers to access that communities face in pursuing positive health behavior. I was dismayed to see how little the field of exercise psychology and some areas of health promotion focused on the needs of high-risk populations beyond acknowledging existing disparities. I decided during my doctoral program that the most meaningful contribution I could make as a researcher would be to focus on mitigating persistent racial/ethnic and socioeconomic disparities. This led me to my first research objective, to test the effect of evidence-based physical activity research on high-risk communities. I conducted an analysis of a large randomized controlled trial of 450 postpartum women, which looked at the effect of a phone-based counseling intervention on physical activity measured via accelerometer and postpartum fatigue (Swinney et al., 2024). Results found that the intervention group were more active than the control group at the post-assessment point, providing evidence that tailored interventions toward a population with unique challenges, in this case postpartum women, can improve health behavior. This further sparked my interest in community health and each community's unique challenges. I am currently working on a manuscript that will report the results of a study testing the effect of a large natural experiment of school infrastructure changes on physical activity outcomes for elementary school students using accelerometry, GPS data (Salvo et al., *In preparation*), in which preliminary results indicate that schools that received infrastructure improvements reported more physical activity. Additionally, I am preparing a manuscript conducting an equity analysis on built environment factors, such as crosswalk amenities, intersection control, and number of parks and playgrounds by proportion of minority residents (Swinney et al., *In preparation*). Preliminary results show an association with access to built environment amenities with proportion of minority residents, indicating a need for interventions that work with their environmental assets and obstacles. However, this project did not follow participants past the short-term follow-up period. Infrastructure improvements often take years to show changes in the surrounding community, making sustainability a top priority for my research program.

My second research objective is to engage in community-based participatory research (CBPR) with low-income and racialized communities to build interventions to increase active

living that is sustained through time. My dissertation project was a pilot study testing the feasibility and acceptability of a strength training physical activity intervention for Black women in the Twin Cities (Swinney et al., 2025, *In Review*). I engaged in CBPR through formative focus groups in which I asked participants about their lived experiences and values regarding active living, and this information was used to develop the material and delivery of the intervention. Results of this study indicated that the women in the intervention group enjoyed the intervention but felt the element of community investment was missing from the intervention. This led me to my T32 postdoctoral fellowship, where I aimed to learn more about CBPR methodology and practice to create a stronger sense of community and buy-in from participants in the study, and learn more about the process of co-creation. I am currently collaborating on an R01 grant that is using co-creation, community-based participatory research, citizen science, and youth-participatory action research to improve physical activity levels among low-income communities in Austin. For this project, I am engaging in a variety of CBPR methods, such as Group Concept Mapping (GCM), Public Participation Geographic Systems (PPGIS), and Delphi to assess the needs, assets, and obstacles of active living in their communities. I have also been involved in co-creation techniques such as Data Walks, Photovoice, and La Ventana. This project, after the co-creation of the intervention, will allow the communities to lead the intervention for the last year of the grant, making it the first study of this scale to look at the beginning processes of sustainability.

In ten years, I see myself as an independent investigator at a research-focused institution that focuses on community health and chronic illness prevention for high-risk populations. I hope to expand my program of research to examine the effects of these community-based active living interventions on key biological markers of chronic disease, such as cholesterol, heart rate, and blood pressure. To do this, I aim to assemble a team of multidisciplinary scholars in the medical and healthcare fields to ensure correct assessment, timing of assessment, and delivery. While the psychosocial benefits of increased physical activity in high-risk communities have been researched, the effect of these interventions on biological markers is less understood. Attending to these factors could provide evidentiary support for policy changes, whether that be environmental changes, structural changes, or healthcare access improvements. I also hope to delve deeper into the links between physical activity interventions and their effect on long-term health outcomes - an area that needs more exploration and focus. To achieve this, I plan on working across disciplines to create teams that speak to different aspects of an individual's life experience, such as those in architecture, policy, healthcare, and sociology. I would like to continue to be on the breaking edge of new methods that create space for communities to voice what they need to increase physical activity. Finally, I want to hone my expertise in biological assessments and examine their links to community-based participatory interventions to serve as a prevention measure against chronic disease. I plan to achieve this through pursuing numerous NIH and private grants, such as the American Heart Association (AHA) Innovate Project Award, the American Institute for Cancer Research (AICR) Investigator-Initiate Research Grant Award, and the Cancer Prevention and Research Institute of Texas (CPRIT) research awards. These funding sources would expand my opportunities to explore different types of chronic disease and further develop knowledge on active living for high-need communities. As a faculty member, I would bring the experience of working on an interdisciplinary team of scholars that works on large-scale infrastructure, community, and interpersonal changes to active living for high-needs communities, the understanding of the policy landscape, and the analytic skills to carry out high-level projects.