

Title: Effect of Exercise in Preventing Gestational Diabetes Mellitus in Racially Diverse Overweight Pregnant Women

Authors: Barry Francis¹, Ami Eho¹, Bre McDonald¹, Sadaf Dabeer, Ph.D.², Juliana Meireles, Ph.D.², Katherine H. Ingram, Ph.D.(mentor)²

Institution: ¹Department of Molecular and Cellular Biology, ²Department of Exercise Science and Sport Management, Kennesaw State University

Introduction: With the increase in unhealthy lifestyles in the Western world, obesity and other chronic diseases plague our current society. Gestational diabetes mellitus (GDM) remains a major complication affecting 7-10% of pregnancies. The fetus is affected by GDM which increases chances of having diabetes in their lifetime. Racial and ethnic minority populations especially American Indians and African Americans are at a higher risk of GDM. Some studies postulated that this might be due to the prevalence of obesity in these groups. Exercise has been shown to lower the risk for GDM in overweight pregnant women. Studies reviewed the necessity of exercise pre-pregnancy and during pregnancy, but the correct amount of exercise to see these effects in racially- diverse women remains to be determined.

Purpose: The aim of this study is to conduct a systematic review which evaluates the specific exercise volume required to prevent GDM in women of different races who are also overweight.

Methods: PubMed, Cochrane Library, EMBASE, and the Kennesaw State University library system will be searched to identify systematic reviews and randomized trials published until 2021. Key terms to be utilized include: pregnancy, GDM, at-risk, obesity, race, and exercise/physical activity. Using these terms but omitting “obesity,” the number of sources available on PubMed narrowed to 21 sources. Of these 21 sources, based on the criteria deemed necessary for the review, different races represented, at-risk women with GDM, and the volume of exercise deemed necessary, only five of those 21 articles matched the necessary guidelines. When key terms overweight, pregnant women, exercise, GDM were entered along with the Boolean operators with terms AND, OR in PubMed, excluding the focus on diet, 78 results were obtained. With the filters of English for language and human for species checked, 10 were deemed fit. Including the five sources from the search focusing on race and the 10 sources found from an obesity focus, 15 total sources were collected.

Conclusion: The findings from this study will provide more information about specific exercise volume that should be recommended as part of prenatal care to pregnant women based on their racial differences in order to decrease the prevalence of GDM in these groups.