

subprocesses of conflict processing and performance evaluation, respectively. **RESULTS/ANTICIPATED RESULTS:** Those with higher alexithymia, as measured by the difficulty identifying feelings (DIF) facet of the TAS-20, had lower right anterior cingulate cortex (ACC)-left superior frontal gyrus (SFG) connectivity in the P300 window, suggesting impaired performance evaluation. Further, in females specifically, those with higher DIF had greater right inferior frontal gyrus (rIFG)-bilateral ACC connectivity in the N200 window than those with lower DIF, suggesting greater resources were allocated for conflict processing and inhibition. Right ACC-rIFG connectivity also correlated with better stop accuracy and faster stop-signal reaction time, supporting this network's role in successful inhibition. **DISCUSSION/SIGNIFICANCE:** Overall, during successful inhibition, higher DIF was associated with reduced performance monitoring efficiency as well as greater resource allocation for conflict processing during motor stopping in women only. Thus, alexithymia (via DIF) may exacerbate age-related EF dysfunction and risk for future cognitive decline, especially for females.

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### Addressing the Gaps in Diabetic Foot Ulcer Management: Prediction and Prevention

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**OBJECTIVES/GOALS:** Globally, diabetes affects 537 million people and 15-25% will develop a foot ulcer in their lifetime. Diabetic foot ulcers (DFU) tend to be chronic and non-healing due to the poor wound healing environment, leading to infection or amputation. Our study aims to develop a method to predict and prevent DFU formation. **METHODS/STUDY POPULATION:** Our preliminary plan is to develop a method to detect high plantar pressures, coupled with the ability to automatically adjust an orthotic device to offload excess pressure. Our current aim is to create a "smart orthotic" which will link with foot mapping technology to automatically offload high pressure areas, reducing the need for a separate clinic visit for orthotic adjustment. We aim to prove that our device will normalize plantar pressure distribution, which will prevent callus and subsequent DFU formation. The current target population includes those with diagnosed diabetes and are ambulatory. **RESULTS/ANTICIPATED RESULTS:** With our technology, we anticipate normalization of plantar pressure distribution in a more frequent fashion than is currently done. Because annual orthotic fittings, which is current standard of care, do not provide regular enough adjustments to match the rate of diabetic foot structural changes and peak plantar pressure redistribution, our device will address two gaps in management. One, patients will receive near-instantaneous changes in plantar pressure offloading, allowing for near continuous orthotic customization. Secondly, our device would reduce the clinical appointment burden, which would be especially important for patients with multiple medical comorbidities or experience other barriers to accessing healthcare. **DISCUSSION/SIGNIFICANCE:** While DFUs are commonplace and their complications are well recognized, there still exists a gap in ulcer prevention. Our proposed solution will redistribute pathologic plantar pressures, allow for more frequent monitoring, automatic therapy, and aid in the management of high ulcer risk patients.

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### Effects of GLP-1 Agonist on Pediatric Populations in a Real-World Setting

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**OBJECTIVES/GOALS:** Compare metabolic health of type 2 diabetics on GLP-1 to those on traditional therapy **METHODS/STUDY POPULATION:** Outcomes of interest of this study include analyzing GLP-1 agonists on overall metabolic health, focusing primarily on weight loss and ability to wane off insulin without rebounding metabolic health. The data will be collected in a retrospective chart review from medical records of type II diabetics from Children's of Alabama and will follow patients over two years. The charts have been narrowed to those patients prescribed GLP-1 agonists who have been on the medication for at least one year with consistent visits to the endocrinology clinic. The following data will be collected from the charts: race/ethnicity, date of visit, BMI/weight, A1C, insulin therapy, lipids, LFTs (AST/ALT), and insurance coverage **RESULTS/ANTICIPATED RESULTS:** With these results, we hope to study the metabolic health effects of GLP-1 agonists on type II diabetes in the pediatric population. It is known that obesity is a risk factor for type II diabetes, and that GLP-1 agonists aid in weight-loss in adults. Further research is needed to see the real world health effects, and with these results we hope to assess if GLP-1 agonist have an affect on metabolic health within the pediatric population by collecting data on values aforementioned. We also hope to compare and contrast the different GLP-1 agonists being used based on adherence, insurance coverage, adverse effects, and patient preference. Currently, only Liraglutide and Exetanide are approved for pediatric type II diabetics. **DISCUSSION/SIGNIFICANCE:** Insulin use can lead to weight gain; metformin does not aid in weight reductions. If GLP-1 agonists aid in weight loss, it could potentially help slow complications of diabetes in the pediatric population. B-cell function in children declines more rapidly; and, as a result, insulin resistance occurs more rapidly.

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### Can Exogenous Ketones Prevent the Effects of High Salt Intake on Renal Vascular Resistance During Sympathoexcitation?

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**OBJECTIVES/GOALS:** Renal vascular resistance (RVR) is the opposition to blood flow by renal arteries. At the population level, dietary salt increases RVR and blood pressure (BP), which are associated with cardiovascular disease. Recent data indicate exogenous ketones may offset adverse cardiorenal effects of salt. **METHODS/STUDY POPULATION:** Our registered clinical trial (NCT05545501) is a double-blinded, placebo-controlled, crossover study. Participants are being randomized to three 10-day conditions: A) control; B) high salt; C) high salt and ketone