

increased again from T2 to T3, suggesting a possible role for these lipids during the later stages of pregnancy. The fatty acids showing this trend included key fatty acids- Linoleic Acid, Arachidonic Acid, Alpha-linolenic acid, Eicosapentaenoic acid, Docosapentaenoic acid, Docosahexaenoic acid. **DISCUSSION/SIGNIFICANCE:** Mapping lipid trends during pregnancy could lend support to a precision health approach to reduce perinatal health disparities among pregnant Black women. The findings from this study will be used to identify biomarkers and study associations with social and environmental factors responsible for adverse perinatal outcome in pregnant Black women.

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### Depression Moderates Independent Effects of Daily Natural Light Exposure and Activity on Daily Mood

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**OBJECTIVES/GOALS:** Ambulatory methods are useful tools to study physical and mental health in everyday life. While many studies show daily activity improves mood, the effects of daily light exposure on mood remain unknown. This study evaluated the effects of daily natural light exposure and activity on daily mood and evaluate whether depression moderate effects. **METHODS/STUDY POPULATION:** 82 adults with lifetime major depression disorder (25 current) and 49 healthy controls were recruited from the greater Chicago community (N = 131, 62% female, age M = 30.15, SD = 9.94). At baseline, participants completed the Inventory of Depression and Anxiety Symptoms to measure depression symptoms of anhedonia, or loss of pleasure. Positive and negative affect were then measured 3x daily for 14-days via self-report using smartphones while light exposure and activity were continuously recorded from a wrist-worn actigraphy device. Following prior studies, daily natural light exposure was measured as the total number of white light samples greater than 1000 lux each day. Multilevel models were used to separate within-person (daily level) from between-person (subject level) effects. **RESULTS/ANTICIPATED RESULTS:** Results revealed daily within-person activity ( $p < .001$ ) and natural light exposure duration ( $p = .035$ ) were independently associated with increased positive affect. Effects were significantly moderated by baseline anhedonia symptoms (3-way interaction:  $p = .004$ ). Natural light exposure duration only increased positive affect on lower activity days for high anhedonia and higher activity days for low anhedonia ( $ps < .018$ ). Significant results remained controlling for between-person light and activity, time of year, age, sex, negative affect, and baseline general depression symptoms. Compared to one's own daily averages, daily activity and natural light exposure may be independent pathways to boost positive affect, especially for individuals with high anhedonia symptoms. **DISCUSSION/SIGNIFICANCE:** Results suggest daily natural light exposure may be an accessible, low-cost alternative to independently increase positive affect in depression on days when activity is low. Translational applications are discussed focusing on transdiagnostic implications for physical and mental health conditions that disrupt mood and limit activity.

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### Creating Pragmatic Tools for Reliable Kidney Function Measurement in Patients with Kidney Impairment

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**OBJECTIVES/GOALS:** Estimating kidney function for drug dosing poses safety and efficacy concerns with critical medications. This study aims to develop a pragmatic method for measuring kidney function, ensuring that critical clinical decision points based on kidney function are universally applicable to all patients, leading to improved health outcomes. **METHODS/STUDY POPULATION:** This is a single-dose pharmacokinetic (PK) study to evaluate the concordance between iopamidol- and iohexol-measured glomerular filtration rate (mGFR), as determined by their respective serum clearances, in a cohort of 24 adults with varying kidney function. Participants with estimated glomerular filtration rates (CKD-EPI eGFRcr) ranging from  $>30$  to 120 mL/min will be recruited from the Michigan Medicine health system. Enrolled participants will be stratified into 3 kidney function groups based on conventional kidney dosing considerations. IV micro doses of iohexol and iopamidol will be administered, followed by blood sampling. PK analysis will be used to compare the clearance of these substances. The agreement between iohexol and iopamidol in measuring GFR will be assessed via bioequivalence analysis. **RESULTS/ANTICIPATED RESULTS:** We expect no statistically significant difference between iopamidol and iohexol CL due to the high similarity of iopamidol and iohexol molecular and PK properties. We also expect that the ordinary least square regression analysis of iopamidol mGFR and iohexol mGFR will show limited variability across GFR measurements. These expected results will support the use of iopamidol as a marker of mGFR and its interchangeability with the gold standard iohexol. **DISCUSSION/SIGNIFICANCE:** Addressing eGFR errors is crucial for accurately dosing critical medications. This study aims to develop a novel mGFR methodology that accommodates various kidney function levels. This will enable precision dosing and streamline clinical trials. It also eliminates biological variability, enhancing generalizability and health outcomes.

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### Development of Machine Learning Algorithms to Predict Symptomatic VTE at Time of Admission and Time of Discharge after Severe Traumatic Injury

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**OBJECTIVES/GOALS:** Clinical indicators predictive of venous thromboembolism (VTE) in trauma patients at multiple time points are not well outlined, particularly at time of discharge. We aimed to describe and predict inpatient and post-discharge risk factors of VTE after trauma using a multi-variate regression model and best of class machine learning (ML) models. **METHODS/STUDY POPULATION:** In a prospective, case-cohort study, all trauma