

SAMUEL KIRK

FOOD TECHNOLOGY & NUTRITION RESEARCHER

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RESEARCH PROFILE

Food technology and nutrition researcher with interdisciplinary experience in food formulation, food analysis, human dietary interventions, sensory and consumer research, and statistical interpretation. Research interests centre on how ingredients, processing and food structure influence digestion, postprandial metabolism, dietary quality and sustainable food innovation.

RESEARCH INTERESTS

Postprandial metabolism and glycaemic response • Food structure and digestion • Plant-based foods and functional ingredients • Dietary-pattern analysis and nutrition modelling • Sustainable dietary guidance • Chemical food safety

EDUCATION

MSc, Food Technology and Nutrition (120 ECTS) | Lund University | Sweden | 2024

Thesis: Development of a Food Product Prototype Containing Added Plant Polar Lipids and Investigation of Its Postprandial Glycemic Properties

- Integrated prototype formulation and standardisation, enzymatic starch analysis, sensory observation, a randomised crossover dietary intervention, statistical analysis and scientific reporting.
- Analysed glycaemic and appetite outcomes using AUC and incremental AUC, normality testing, Box-Cox transformation, confidence intervals and general linear model ANOVA.

BSc, Nutrition and Dietetics | Acadia University | Canada | 2022

Training included advanced human nutrition, physiology, biochemistry, statistics, nutrition and disease, sensory evaluation, research methods and biomedical ethics.

RESEARCH AND ACADEMIC EXPERIENCE

MSc Thesis Researcher - Food Analysis and Human Nutrition | Lund University | Sweden | Jan-Jun 2024

- Developed and standardised treatment and control food prototypes through iterative formulation, controlled preparation trials and repeatability checks.
- Performed enzymatic starch analysis using thermostable alpha-amylase and amyloglucosidase digestion, glucose oxidase/peroxidase analysis, UV-Vis spectrophotometry and replicate calculations.
- Implemented controlled participant procedures, maintained traceable study records and documented data-quality checks, findings, limitations and recommendations.

Team Leader - Frozen Hemptation Product Development Project | Lund University | Sweden | 2023

- Participated across all workstreams in a seven-person team: formulation, ingredient-function assessment, sensory and consumer research, analytical measurements, statistics, academic process and food-safety design, sustainability and technical reporting.
- Contributed to team studies including a market survey (n=56), four-part 9-point hedonic testing (n=142, ages 18-76), one-way ANOVA, BOHLIN Visco rheometry, Mastersizer 2000 particle-size analysis, pH, dry matter, yield and melting-rate work.
- Integrated experimental and academic design evidence into a 94-page team report; completed KLG50 (15 ECTS) with distinction and received the departmental Most Innovative Food Product award.

ADDITIONAL RESEARCH AND TEACHING EXPERIENCE

Research Assistant - Human Nutrition | Acadia University | Canada | May-Sep 2021

- Supported literature review, experimental planning, participant-facing data collection, survey work and documentation within faculty-led nutrition research.
- Collected and organised anthropometric, physiological, dietary and survey data using defined protocols and quality checks.

Teaching Assistant - Research Methods and Sport Nutrition | Acadia University | Canada | Sep 2021-Apr 2022

- Led review sessions and occasional lectures, evaluated laboratory reports and research papers, and explained technical concepts to students.

RESEARCH METHODS AND TECHNICAL COMPETENCIES

FOOD ANALYSIS AND BIOCHEMISTRY

UV-Vis spectrophotometry; enzymatic starch analysis; alpha-amylase and amyloglucosidase digestion; glucose oxidase/peroxidase analysis; pH measurement; titration; dry-matter and compositional analysis; rheology; particle-size distribution; replicate measurement.

FOOD SCIENCE AND PROCESSING

Food formulation; ingredient functionality; plant polar lipids; plant-based foods; sensory evaluation; process standardisation; thermal processing; mixing and baking control; food structure and texture; troubleshooting; academic process-flow, mass-balance and equipment concepts.

HUMAN AND CONSUMER RESEARCH

Randomised crossover design; treatment-control comparisons; standardised meals; blood-glucose monitoring; appetite assessment; protocol adherence; participant communication; survey design; hedonic testing; data-quality checks.

STATISTICS AND DATA

Data preparation; descriptive statistics; normality testing; transformation; AUC and incremental AUC; general linear model and one-way ANOVA; confidence intervals; visualisation; interpretation of uncertainty and limitations.

MICROBIOLOGY AND FERMENTATION

Microbial plating and counting; liquid culture; fermentation; microscopy; aseptic-practice foundations; UASB bioreactor setup; sample identification and tracking.

SOFTWARE

R and RStudio • Microsoft Excel, Word, PowerPoint and Access • Minitab • GraphPad Prism

LEADERSHIP AND APPLIED COMMUNICATION

Head of Sports Nutrition | Acadia Athletics | Canada | Sep 2021-Apr 2022

- Delivered evidence-based nutrition education, collaborated with coaching staff and monitored nutrition and performance outcomes.

Lead Strength & Conditioning Coach | Acadia Performance Training | Canada | 2021-2022

- Designed programmes, led groups, monitored progress and communicated technical principles to athletes and interns.

SELECTED AWARDS

- Most Innovative Food Product, Department of Food Technology, Engineering and Nutrition, Lund University (2023)
- School of Nutrition and Dietetics Leadership Award, Acadia University (2022)
- Teaching Assistant Recognition Award, Acadia University (2022)
- Susie Golding Langley Award for Contributions in Sport Nutrition, Acadia University (2021)

LANGUAGES AND MOBILITY

English (native) | French (B1) | Swedish (A1) | Canadian citizen; open to relocation in Canada and Europe