

## University of Chicago Clinical Research Center

### Dietetic Internship Research Rotation

The University of Chicago Clinical Research Center (CRC) has an elective Dietetic Internship Research Rotation. This rotation is a 40-hour experience that is designed to develop the interns' competencies in nutrition research.

#### Rotation Objectives:

- To familiarize the dietetic intern with the role of the Registered Dietitian in a clinical research setting and the application of nutrition in research.
- To understand the typical activities, educational background and skills of a Research Bionutritionist.
- To learn the various tools and methods to perform nutrition research.
- To understand how to conduct research projects using appropriate research methods, ethical procedures and statistical analysis.
- To describe a current research protocol from the perspective of the investigator, staff and research subject.

#### Day 1 (7 hours)

- Introduction to the CRC
- Tour of the CRC
- Shadow CRC Team
- Process of how a protocol gets reviewed by the IRB & CRC
- Discuss requirements for a study to get started in the CRC
- Break
- Video: The Science of Sleep (60 Minutes) to give overview of a research study from a research subject perspective
- Read and review a protocol that requires weighed research meals
- Read and review informed consent for that research study
- Review published article from a CRC study with a controlled nutrient diet

#### Day 2 (7 hours)

- Calculate macronutrient goals for a controlled nutrient diet for 3 kcal levels
- Discuss dietary intake methodology
- Review and analyze food records from sample subject in ESHA Food Processor and NDSR
- Compare and contrast ESHA Food Processor and NDSR data entry and output
- Interview sample subject for food preferences to design an individualized research diet
- Determine kcal level for subject using food record analysis data and three different equations

### **Day 3 (7 hours)**

- Learn how to do metabolic kitchen inventory for upcoming research studies
- Calculate and plan a palatable research menu for one day that meets study requirements
- Compare portioning techniques such as weighing and using pre-portioned foods
- Describe the impact food preparation and weighing procedures can have on the visual appearance of research meals
- Discuss the precision needed to accurately provide specific amounts of certain nutrients
- Describe how the Metabolic Kitchen builds quality control checks into recipes and menus
- Discuss advantages and disadvantages of various types of research diets
- Understand how study requirements impact the design and provision of controlled nutrient research diets
- Identify situations when chemical analysis of a food or an entire diet is appropriate
- Explain the process of preparing a diet for laboratory analysis
- Discuss ways to reduce the variability of the nutrient content of a research diet
- Calculate and plan a palatable research menu for one day that meets study requirements for 2 kcal levels

### **Day 4 (7 hours)**

- Continue planning a research menu for one day that meets study requirements
- Prepare one weighed research meal in metabolic kitchen
- Consume prepared weighed research meal and learn how to weigh back
- Discuss indirect calorimetry and how to measure resting metabolic rate
- Explain why indirect calorimetry is more accurate than using equations to determine caloric needs
- Conduct a 20-minute resting metabolic rate measurement on a volunteer
- Understand how to clean RMR data to get rid of outliers

### **Day 5 (7 hours)**

- Calculate and plan a one mineral balance research meal for 2 kcal levels
- Discuss considerations for planning mineral balance meals
- Describe how to take anthropometric measurements
- Describe bioimpedance analysis (BIA) and when it is an appropriate choice for body composition
- Describe body components measured by Dual Energy X-Ray Absorptiometry (DEXA)
- Conduct a BIA and DEXA measurement on a volunteer

### **Day 6 (5 hours)**

- Finish planning a mineral balance meal

- Review and discuss planned weighed research meals
- Professional presentation
- Complete exit survey

## Curriculum Map

**Rotation Title:** UChicago Clinical Research Center (CRC) Research Rotation

The following competencies are met by completing this rotation:

Core Competencies	Supervised Practice Experience Learning Activities	Date Completed	Person/Department Assigned	Meets Expectations/ Needs Improvement/ NA
<b>Domain 1.</b> Scientific and Evidence Base of Practice: Integration of scientific information and translation of research into practice.				
<ul style="list-style-type: none"> <li>• <b>CRDN 1.5</b> Conduct projects using appropriate research methods, ethical procedures and data analysis.</li> </ul>	<ul style="list-style-type: none"> <li>• Review published article from a CRC study with a controlled nutrient diet</li> <li>• Calculate macronutrient goals for a controlled nutrient diet for 3 kcal levels</li> <li>• Calculate and plan a one mineral balance research meal for 2 kcal levels</li> </ul>			
<ul style="list-style-type: none"> <li>• <b>CRDN 1.6</b> Incorporate critical-thinking skills in overall practice.</li> </ul>	<ul style="list-style-type: none"> <li>• Determine kcal level for subject using food record analysis data and three different equations</li> <li>• Discuss indirect calorimetry and how to measure resting metabolic rate</li> <li>• Explain why indirect calorimetry is more accurate than using equations to determine caloric needs</li> <li>• Understand how to clean RMR data to get rid of outliers</li> </ul>			
<b>Domain 2.</b> Professional Practice Expectations: Beliefs, values, attitudes and behaviors for the professional dietitian nutritionist level of practice.				
<ul style="list-style-type: none"> <li>• <b>CRDN 2.4</b> Function as a member of interprofessional teams.</li> </ul>	<ul style="list-style-type: none"> <li>• Prepare one weighed research meal in metabolic kitchen</li> <li>• Consume prepared weighed research meal and learn how to weigh back</li> </ul>			
<ul style="list-style-type: none"> <li>• <b>CRDN 2.5</b> Assign duties to NDTRs and/or support personnel as appropriate.</li> </ul>	<ul style="list-style-type: none"> <li>• Learn how to do metabolic kitchen inventory for upcoming research studies</li> <li>• Compare portioning techniques such as weighing and using pre-portioned foods</li> </ul>			

<ul style="list-style-type: none"> <li>• <b>CRDN 2.10</b> Demonstrate professional attributes in all areas of practice.</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain professional attitude and demeanor throughout entire rotation</li> <li>• Professional presentation</li> </ul>			
<ul style="list-style-type: none"> <li>• <b>CRDN 2.11</b> Show cultural competence/sensitivity in interactions with clients, colleagues and staff.</li> </ul>	<ul style="list-style-type: none"> <li>• Interview sample subject for food preferences to design an individualized research diet</li> </ul>			
<ul style="list-style-type: none"> <li>• <b>CRDN 2.12</b> Perform self-assessment and develop goals for self-improvement throughout the program.</li> </ul>				
<p><b>Domain 3.</b> Clinical and Customer Services: Development and delivery of information, products and services to individuals, groups and populations.</p>				
<ul style="list-style-type: none"> <li>• <b>CRDN 3.3</b> Demonstrate effective communications skills for clinical and customer services in a variety of formats and settings.</li> </ul>	<ul style="list-style-type: none"> <li>• Interview sample subject for food preferences to design an individualized research diet</li> <li>• Conduct a 20-minute resting metabolic rate measurement on a volunteer</li> <li>• Conduct a BIA and DEXA measurement on a volunteer</li> </ul>			
<ul style="list-style-type: none"> <li>• <b>CRDN 3.9</b> Coordinate procurement, production, distribution and service of goods and services, demonstrating and promoting responsible use of resources.</li> </ul>	<ul style="list-style-type: none"> <li>• Explain the process of preparing a diet for laboratory analysis</li> <li>• Identify situations when chemical analysis of a food or an entire diet is appropriate</li> </ul>			
<ul style="list-style-type: none"> <li>• <b>CRDN 3.10</b> Develop and evaluate recipes, formulas and menus for acceptability and affordability that accommodate the cultural diversity and health needs of various populations, groups and individuals.</li> </ul>	<ul style="list-style-type: none"> <li>• Calculate and plan a palatable research menu for one day that meets study requirements</li> <li>• Calculate and plan a one mineral balance research meal for 2 kcal levels</li> </ul>			
<p><b>Domain 4.</b> Practice Management and Use of Resources: Strategic application of principles of management and systems in the provision of services to individuals and organizations.</p>				
<ul style="list-style-type: none"> <li>• <b>CRDN 4.2</b> Perform management functions related to safety, security and sanitation that affect employees, customers, patients, facilities and food.</li> </ul>	<ul style="list-style-type: none"> <li>• Learn how to do metabolic kitchen inventory for upcoming research studies</li> <li>• Describe the impact food preparation and weighing procedures can have on the visual appearance of research meals</li> <li>• Describe how the Metabolic Kitchen builds quality control checks into recipes and menus</li> </ul>			

<p><b>CRC Research Rotation Specific Competencies.</b> The curriculum must include at least one program-defined concentration that builds on the core competencies and develops additional depth necessary for future proficiency in a particular area. The concentration must include at least two program specific competencies with associated learning activities.</p>				
<ul style="list-style-type: none"> <li>• Perform comprehensive diet analysis using multiple types of dietary intake methodology and various diet analysis programs.</li> </ul>	<ul style="list-style-type: none"> <li>• Discuss dietary intake methodology</li> <li>• Review and analyze food records from sample subject in ESHA Food Processor and NDSR</li> <li>• Compare and contract ESHA Food Processor and NDSR data entry and output</li> </ul>			
<ul style="list-style-type: none"> <li>• Demonstrate understanding of the various types of research diets and how these diets are planned based on study requirements.</li> </ul>	<ul style="list-style-type: none"> <li>• Discuss advantages and disadvantages of various types of research diets</li> <li>• Understand how study requirements impact the design and provision of controlled nutrient research diets</li> <li>• Discuss ways to reduce the variability of the nutrient content of a research diet</li> <li>• Discuss considerations for planning mineral balance meals</li> </ul>			