

RENAL DIETETICS AND CLINICAL NEPHROLOGY NUTRITION SPECIALIZATION COURSE

6 Month Advanced Specialization Course

A structured specialization for nutrition and dietetics students, graduates and practicing dietitians who want to develop advanced competence across chronic kidney disease, acute kidney injury, kidney failure, dialysis, renal electrolyte and mineral disorders, kidney stones, glomerular disease, inherited kidney disease and kidney transplantation.

Who This Course Is For

Nutrition and dietetics students, graduates and practicing dietitians who want focused training in renal medical nutrition therapy, kidney disease assessment, dialysis nutrition, electrolyte management, kidney nutrition support and complex nephrology case management.

Specialization Approach

The course begins with renal physiology, kidney function and CKD classification before moving into individualized renal nutrition, electrolyte and mineral management, AKI, critical care, hemodialysis, peritoneal dialysis, disease specific renal nutrition and kidney transplantation.

Clinical Focus

Participants learn to avoid the idea of one universal renal diet. Protein, sodium, potassium, phosphorus, fluid and energy are considered according to kidney function, treatment modality, nutritional status, laboratory pattern, medications, comorbidities and patient goals.

Overall Aim

To develop dietitians who can assess renal nutrition problems

systematically, design individualized interventions, monitor changing clinical data, document care professionally and work appropriately with nephrology, dialysis, pharmacy, transplant and acute care teams.

COURSE ROADMAP

Month

Primary Development Area

What the Participant Should Gain

Month 1

Renal Physiology, Kidney Function and Comprehensive Assessment

Understand how the kidneys regulate fluid, electrolytes, acid base balance and waste removal and learn how kidney disease is evaluated from a nutrition perspective.

Month 2

CKD Medical Nutrition Therapy and Renal Complications

Learn individualized management of energy, protein, sodium, fluid, potassium, phosphorus, metabolic acidosis, anemia and CKD related malnutrition.

Month 3

Acute Kidney Injury, Acute Kidney Disease and Critical Care Nutrition

Develop competence in rapidly changing renal requirements, acute electrolyte disturbances, critical illness and kidney replacement therapy.

Month 4

Kidney Failure, Hemodialysis and Peritoneal Dialysis Nutrition

Learn how nutrition requirements, fluid balance and biochemical monitoring change with different dialysis modalities.

Month 5

Specific Kidney Disorders and Kidney Transplantation

Apply nutrition reasoning to glomerular disorders, nephrotic syndrome, kidney stones, ADPKD, inherited disease and transplantation.

Month 6

Advanced Renal Dietetic Practice and Complex Case Management

Integrate assessment, nutrition diagnosis, prescription, intervention, monitoring, documentation, referral and advanced case defense.

MONTH 1: RENAL PHYSIOLOGY, KIDNEY FUNCTION AND COMPREHENSIVE RENAL ASSESSMENT

Theme: Understand what the kidneys do before trying to modify the diet.

Purpose: To build the physiological and clinical foundation required for renal dietetic practice.

Week

Focus

Learning Content

Practical Application

1

Renal Anatomy and Physiology for Dietitians

Nephron structure. Glomerular filtration. Tubular reabsorption and secretion. Water balance. Sodium and potassium regulation. Calcium and phosphorus regulation. Acid base homeostasis. Renin related regulation. Erythropoietin. Vitamin D activation concepts.

Participants map normal kidney functions to nutrition problems that may appear when kidney function declines.

2

Understanding Kidney Function Tests

Serum creatinine and its limitations. Estimated GFR. Cystatin C concepts. Urea. Albuminuria and proteinuria. Urine output. Sodium. Potassium. Bicarbonate. Phosphorus. Calcium. Albumin and other clinically relevant information.

Participants review several renal laboratory profiles and identify which findings matter for nutrition assessment and which require medical interpretation.

3

CKD Classification and Progression

Understanding chronic kidney disease as medical context. GFR categories. Albuminuria categories. Common causes including diabetes, hypertension, glomerular disorders and inherited disease. Progression risk. Complications that affect nutrition.

Participants classify simulated CKD cases from medically supplied information and identify likely nutrition priorities.

4

Comprehensive Renal Nutrition Assessment

Dietary intake. Energy and protein sources. Sodium, potassium and phosphorus sources. Fluid intake. Weight history. Edema. Dry weight concepts. Appetite. nausea. vomiting. taste changes. bowel symptoms. urine output. physical function. medications. supplements. food access. culture and health literacy.

Participants complete a comprehensive renal nutrition assessment and identify missing information before recommending dietary modification.

Development Outcome: Participants should move from reacting to a high creatinine value toward understanding the kidney diagnosis, level of function, albuminuria, nutritional status, laboratory pattern, medication profile and actual nutrition problem.

MONTH 2: CKD MEDICAL NUTRITION THERAPY AND RENAL COMPLICATIONS

Theme: There is no single CKD diet.

Purpose: To develop individualized renal medical nutrition therapy while protecting nutritional adequacy and avoiding unnecessary cumulative restriction.

Week

Focus

Learning Content

Practical Application

5

Energy, Protein and Protein Energy Wasting

Energy needs according to age, activity, nutritional status and clinical condition. Protein strategy across CKD stages. Protein quality. Risk of excessive restriction. Reduced intake. inflammation. catabolism. muscle loss. food fortification and oral nutrition support where indicated.

Participants compare energy and protein priorities for stable CKD, CKD with malnutrition and dialysis related scenarios.

6

Sodium, Fluid, Blood Pressure and Edema

Dietary sodium sources. Processed food contribution. Fluid intake. Urine output. edema. thirst. blood pressure. heart failure overlap. diuretics as medical context. Practical sodium reduction without compromising total intake.

Participants develop different sodium and fluid strategies according to urine output, edema, blood pressure and nutritional status.

7

Potassium and Acid Base Management

Potassium physiology. Hyperkalemia and hypokalemia awareness. Dietary potassium sources. Potassium additives. Medication effects. bowel habits. individualized dietary modification. Bicarbonate and metabolic acidosis concepts relevant to renal nutrition.

Participants compare patients with similar kidney function but different potassium profiles and design different nutrition approaches.

8

Phosphorus, CKD Mineral Bone Disorder and Anemia

Organic phosphorus. phosphorus additives. bioavailability. calcium. parathyroid hormone as clinical information. vitamin D metabolism. phosphate binder timing. CKD related anemia. iron deficiency. dietary iron and the distinction between nutrition support and medical anemia treatment.

Participants interpret a renal biochemical profile and identify appropriate dietetic priorities without treating isolated laboratory values.

Development Outcome: Participants should stop prescribing low protein, low potassium, low phosphorus, low sodium and fluid restriction automatically and instead identify which modification is genuinely indicated for each patient.

MONTH 3: ACUTE KIDNEY INJURY, ACUTE KIDNEY DISEASE AND CRITICAL CARE NUTRITION

Theme: AKI nutrition changes quickly because the clinical condition changes quickly.

Purpose: To develop competence in dynamic nutrition care during acute kidney injury, critical illness, kidney replacement therapy and renal recovery.

Week

Focus

Learning Content

Practical Application

9

Understanding AKI and Acute Kidney Disease

Acute deterioration of kidney function as medical context. Prerenal, intrinsic and postrenal concepts. Urine output. fluid depletion and fluid overload. persistence of kidney abnormalities after an acute event. recovery and transition toward chronic kidney disease.

Participants follow a simulated patient from AKI onset through changing kidney function and recovery.

10

Nutrition Assessment and Prescription in AKI

Energy needs in acute illness. Protein in catabolic states. Fluid balance. sodium. potassium. phosphorus. magnesium. nutrition route. enteral and parenteral considerations. nutritional status. refeeding risk awareness in severely depleted patients.

Participants develop nutrition priorities for different phases of AKI rather than using one static plan.

AKI in Critical Care and Kidney Replacement Therapy

Sepsis. mechanical ventilation. high catabolic stress. intermittent kidney replacement therapy. continuous kidney replacement therapy concepts. nutrient and electrolyte losses. enteral nutrition. fluid balance. glucose and protein considerations within multidisciplinary ICU care.

Participants review a critical care case receiving continuous kidney replacement therapy and identify nutrition monitoring priorities.

AKI Recovery and Transition of Care

Reassessment as kidney function changes. Removing restrictions that are no longer required. Recovery from poor intake. rehabilitation. muscle loss. adequate protein and energy. follow up when kidney function remains impaired.

Participants modify a patient nutrition plan from ICU AKI through hospital discharge and outpatient follow up.

Development Outcome: Participants should understand that an AKI nutrition plan must change as kidney function, urine output, dialysis status, fluid balance and critical illness change.

MONTH 4: KIDNEY FAILURE, HEMODIALYSIS AND PERITONEAL DIALYSIS NUTRITION

Theme: Starting dialysis changes the nutrition problem.

Purpose: To develop modality specific competence in nutrition assessment, prescription, counseling and longitudinal monitoring for kidney failure.

Week

Focus

Learning Content

Practical Application

13

Kidney Failure and Hemodialysis

Advanced CKD and kidney replacement therapy as medical context. Hemodialysis process relevant to nutrition. Dry weight. interdialytic weight change. protein requirements. potassium trends. phosphorus. sodium. fluid. phosphate binder coordination. appetite and treatment burden.

Participants complete a full hemodialysis nutrition assessment and identify priority problems.

14

Peritoneal Dialysis

How peritoneal dialysis differs from hemodialysis. Glucose absorption from dialysate. Protein losses. potassium differences. residual kidney function. fluid balance. weight interpretation. appetite and peritoneal dialysis related practical concerns.

Participants compare nutrition priorities for a hemodialysis patient and a peritoneal dialysis patient.

15

Dialysis Complications and Nutritional Deterioration

Poor appetite. protein energy wasting. hyperkalemia. hyperphosphatemia. fluid overload. constipation. treatment burden. inadequate protein and energy intake. medication adherence as context. recognizing when dietary restriction worsens malnutrition.

Participants prioritize several simultaneous nutrition problems in a complex dialysis case.

Dialysis Counseling, Monitoring and Follow Up

Monthly dietary review concepts. weight and dry weight trends. protein and energy adequacy. electrolyte trends. phosphorus sources. additives. binder use. fluid behavior. thirst management. physical function. culturally realistic counseling and behavior change.

Participants conduct a simulated dialysis follow up and decide what should be maintained, modified or liberalized.

Development Outcome: Participants should understand that dialysis requires a different nutrition strategy from nondialysis CKD and that treatment modality, residual kidney function and nutritional status matter.

MONTH 5: SPECIFIC KIDNEY DISORDERS AND KIDNEY TRANSPLANTATION

Theme: Not every kidney patient has the same disease mechanism.

Purpose: To apply renal nutrition reasoning to disease specific nephrology conditions and the transplant pathway.

Week

Focus

Learning Content

Practical Application

Glomerular Disease, Proteinuria and Nephrotic Syndrome

Glomerular disease overview for dietitians. Proteinuria. nephrotic syndrome. edema. lipid abnormalities. protein intake. sodium

management. steroid and immunosuppressive therapy as clinical context. maintaining nutritional adequacy while avoiding inappropriate high protein intake.

Participants develop nutrition priorities for a medically diagnosed nephrotic syndrome case.

18

Kidney Stones and Nutrition

Stone composition and clinical evaluation. Hydration. sodium. calcium. oxalate. citrate. animal protein. dietary pattern. urinary risk factors as medical context. avoiding indiscriminate calcium restriction. tailoring nutrition to stone type and history.

Participants develop different stone prevention strategies for simulated stone profiles.

19

ADPKD and Inherited Kidney Disease

Autosomal dominant polycystic kidney disease as medical context. CKD progression. blood pressure. sodium. hydration guidance according to medical plan. cardiometabolic health. inherited kidney disease awareness and family centered counseling.

Participants complete an individualized nutrition assessment for a patient with ADPKD and declining kidney function.

20

Kidney Transplant Nutrition

Pretransplant nutritional status. dialysis related concerns. early postoperative recovery. food safety. immunosuppressive medication implications. weight gain. diabetes risk. lipids. cardiovascular health. bone health. long term dietary quality and ongoing kidney function monitoring.

Participants follow a simulated patient from dialysis through

transplantation and long term post transplant care.

Development Outcome: Participants should understand how the underlying kidney disorder and treatment phase influence nutrition priorities rather than applying generic CKD restrictions to every renal diagnosis.

MONTH 6: ADVANCED RENAL DIETETIC PRACTICE AND COMPLEX CASE MANAGEMENT

Theme: Treat the nutrition problem, not the creatinine value.

Purpose: To integrate assessment, nutrition diagnosis, prescription, intervention, counseling, monitoring, documentation, referral and multidisciplinary renal practice.

Week

Focus

Learning Content

Practical Application

21

Renal Nutrition Diagnosis and Clinical Prioritization

Intake, clinical and behavioral environmental nutrition diagnoses. Building evidence supported PES statements. Prioritizing malnutrition, excessive or inadequate intake, electrolyte related nutrition problems, fluid related issues, disease progression risk and patient goals.

Participants develop and defend renal PES statements for CKD, AKI and dialysis cases.

22

Renal Nutrition Prescription and Intervention

Individualized energy and protein. sodium. potassium. phosphorus. fluid. food source and additive considerations. oral nutrition support. enteral nutrition. selected parenteral nutrition concepts. patient education. counseling and culturally appropriate food translation.

Participants build and defend a complete renal intervention rather than handing over a generic food avoidance list.

23

Documentation, Medication Awareness and Multidisciplinary Renal Practice

Renal ADIME documentation. medication awareness including phosphate binders, potassium affecting medicines, diuretics, diabetes treatments and transplant medicines. collaboration with nephrologists, nurses, pharmacists, dialysis teams, transplant teams and acute care services. referral and red flag communication.

Participants prepare a renal ADIME note and multidisciplinary case communication.

24

Advanced Renal Case Defense

Integration of kidney diagnosis, eGFR, albuminuria, AKI or CKD status, urine output, dialysis modality, weight and fluid status, energy and protein, potassium, phosphorus, sodium, acid base status, anemia, diabetes, cardiovascular disease, medications, nutritional status and patient preferences.

Participants present and defend one advanced CKD case, one AKI case and one dialysis or transplantation case, explaining why each restriction or liberalization is appropriate.

Development Outcome: Participants should finish the specialization able to provide individualized renal nutrition care across changing kidney function and treatment settings while recognizing when immediate medical reassessment or specialist input is required.

RENAL SPECIALIZATION CASE PORTFOLIO

Case Area

Practical Competency

Early CKD

Develop nutrition care without unnecessary restriction and identify modifiable nutrition priorities.

Progressive CKD

Modify nutrition according to changing kidney function, albuminuria, complications and nutritional status.

Diabetic Kidney Disease

Integrate glucose, cardiovascular and renal nutrition priorities.

CKD With Hyperkalemia

Investigate dietary and nondietary contributors before modifying potassium intake.

CKD With Hyperphosphatemia

Evaluate additives, food sources, binder use and total dietary adequacy.

CKD With Malnutrition

Protect energy, protein and muscle while managing renal complications.

CKD Mineral Bone Disorder

Interpret mineral related information within multidisciplinary renal care.

Anemia in CKD

Differentiate dietary support from medical anemia evaluation and treatment.

AKI

Adapt nutrition to changing kidney function, urine output, fluid status and catabolic stress.

Critical Care AKI

Integrate ICU nutrition and kidney replacement therapy considerations.

Hemodialysis

Complete assessment, intervention, fluid management and longitudinal monitoring.

Peritoneal Dialysis

Account for dialysis glucose exposure, protein losses, fluid and residual kidney function.

Nephrotic Syndrome

Address proteinuria, edema, lipid concerns and nutritional adequacy.

Kidney Stones

Develop individualized prevention nutrition according to stone evaluation.

ADPKD

Apply disease specific renal nutrition reasoning and long term cardiovascular risk reduction.

Kidney Transplant

Manage nutrition across pretransplant, early recovery and long term

follow up.

Renal Multimorbidity

Prioritize care when CKD, diabetes, cardiovascular disease and malnutrition coexist.

Final Case Defense

Defend the complete renal nutrition care process from assessment through monitoring.

PROFESSIONAL SCOPE INTEGRATION

Situation

Renal Dietitian Role

CKD Diagnosis

Work from medically established kidney diagnosis, kidney function and clinical data rather than independently diagnosing kidney disease.

AKI

Provide dynamic nutrition care within acute medical management and adjust nutrition as renal function and treatment change.

Hyperkalemia

Assess nutrition related contributors while severe or rapidly changing abnormalities remain medical priorities.

Hyperphosphatemia

Assess dietary phosphorus, additives, intake adequacy and binder use within the treatment plan.

Anemia

Address nutritional contributors while diagnostic evaluation and medical treatment remain physician led.

CKD Mineral Bone Disorder

Support appropriate dietary management while medical treatment remains multidisciplinary.

Edema and Fluid Overload

Modify sodium or fluid when clinically indicated without independently diagnosing the cause.

Hemodialysis

Provide individualized renal nutrition therapy and longitudinal monitoring within the dialysis team.

Peritoneal Dialysis

Account for modality specific energy, protein, fluid and electrolyte considerations.

Kidney Stones

Provide nutrition intervention according to medically evaluated stone type and risk factors.

Glomerular Disease

Support nutritional status and disease related dietary needs without treating immune mediated disease through food.

Kidney Transplant

Support recovery, metabolic health, food safety and long term renal nutrition within transplant care.

Medication

Understand nutrition implications and adherence issues without independently changing prescribed therapy.

Complex Kidney Disease

Work collaboratively with nephrology, dialysis, pharmacy, transplant and acute care teams and recognize urgent referral needs.

FINAL SPECIALIZATION PORTFOLIO

Portfolio Component

Final Output

Renal Assessment Form

Complete renal specific nutrition assessment framework.

Kidney Laboratory Interpretation

Structured nutrition focused review of renal laboratory patterns.

CKD Case Portfolio

Cases across different CKD stages and clinical presentations.

Protein Prescription Exercise

Individualized protein reasoning across nondialysis CKD, malnutrition and dialysis.

Electrolyte Case

Potassium and phosphorus decision making based on clinical context.

Fluid Case

Sodium, urine output, edema and dialysis related fluid assessment.

CKD Malnutrition Case

Energy, protein and oral nutrition support framework.

AKI Case

Dynamic nutrition intervention and reassessment across acute kidney injury.

Critical Care Renal Case

ICU nutrition and kidney replacement therapy considerations.

Hemodialysis Case

Full dialysis nutrition assessment, intervention and monitoring.

Peritoneal Dialysis Case

Modality specific nutrition plan and monitoring framework.

Kidney Stone Case

Stone specific prevention nutrition strategy.

Glomerular Disease Case

Nutrition care within specialist nephrology management.

ADPKD Case

Disease specific nutrition assessment and long term strategy.

Transplant Case

Pretransplant and post transplant nutrition pathway.

Renal ADIME Portfolio

Complete professional documentation across renal cases.

Referral Framework

Nephrology, dialysis, transplant, pharmacy and acute care referral pathways.

Final Case Defense

Advanced renal nutrition presentation with full clinical justification.

EXPECTED SPECIALIZATION TRANSFORMATION

At Entry

At Completion

Every kidney patient needs a renal diet.

I individualize nutrition according to kidney disease, treatment, nutritional status and laboratory findings.

High creatinine means low protein.

I consider CKD stage, dialysis status, nutritional status and clinical goals before determining protein strategy.

CKD means avoiding potassium.

I modify potassium only when clinically justified and investigate the complete reason for abnormal serum potassium.

Phosphorus means avoiding dairy.

I evaluate total intake, food additives, bioavailability, binder use and nutritional adequacy.

AKI and CKD follow the same nutrition plan.

I understand the rapidly changing nutrition needs of acute kidney injury and renal recovery.

Dialysis patients simply need stricter renal diets.

I understand that dialysis creates different protein, energy, electrolyte and fluid considerations.

Edema means the patient drank too much water.

I interpret fluid status within kidney function, sodium intake, urine output, dialysis and medical condition.

Kidney stones require avoiding calcium.

I understand that nutrition depends on stone type, urinary risk factors and complete clinical evaluation.

After transplant the renal diet ends.

I understand transplant specific metabolic, food safety, medication and cardiovascular nutrition considerations.

Renal nutrition means a list of foods to avoid.

I can conduct, document and defend a complete individualized renal medical nutrition therapy process.

FINAL LEARNING PATHWAY

Stage

Learning Progression

Stage 1

Understand renal physiology and nephron function.

Stage 2

Interpret kidney function, albuminuria and clinically relevant laboratory information.

Stage 3

Understand CKD classification and progression.

Stage 4

Conduct a comprehensive renal nutrition assessment.

Stage 5

Individualize energy and protein according to renal status and nutrition risk.

Stage 6

Manage sodium, fluid, potassium and acid base related nutrition issues.

Stage 7

Manage phosphorus, CKD mineral bone disorder and anemia related nutrition concerns.

Stage 8

Provide dynamic nutrition care during AKI, acute kidney disease and critical illness.

Stage 9

Manage hemodialysis and peritoneal dialysis nutrition.

Stage 10

Apply nutrition reasoning to glomerular disease, nephrotic syndrome and kidney stones.

Stage 11

Understand ADPKD, inherited kidney disease and kidney transplant nutrition.

Stage 12

Develop renal nutrition diagnoses and individualized interventions.

Stage 13

Monitor outcomes, document care and defend advanced renal cases within multidisciplinary nephrology practice.

COURSE PHILOSOPHY

This specialization is designed to develop renal dietetic reasoning rather than provide a fixed list of foods to restrict. Participants learn to connect kidney function, treatment modality, laboratory trends, nutritional status, medications, comorbidities, food access and patient priorities so that every recommendation has a clear clinical reason and every unnecessary restriction can be questioned.