

PULMONARY DIETETICS, RESPIRATORY NUTRITION AND CRITICAL CARE 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 in nutrition care across chronic respiratory disease, pulmonary related malnutrition, cystic fibrosis, interstitial lung disease, pulmonary hypertension, respiratory failure, mechanical ventilation, nutrition support and rehabilitation.

Who This Course Is For

Nutrition and dietetics students, graduates and practicing dietitians who want focused training in pulmonary nutrition, respiratory related malnutrition, chronic lung disease, cystic fibrosis, critical care nutrition, mechanical ventilation and respiratory rehabilitation.

Specialization Approach

The course begins with respiratory physiology, pulmonary disease and specialized nutrition assessment before progressing into COPD, malnutrition, muscle health, asthma, bronchiectasis, cystic fibrosis, interstitial lung disease, pulmonary hypertension, acute respiratory illness, critical care, mechanical ventilation and nutrition support.

Clinical Focus

Participants learn to connect respiratory diagnosis, disease severity, nutritional status, weight and muscle change, breathlessness, appetite, swallowing, oxygen or ventilation support, medications, fluid status, comorbidities, functional capacity and rehabilitation goals when making nutrition decisions.

Overall Aim

To develop dietitians who can provide safe, individualized and

evidence informed pulmonary nutrition care, recognize professional boundaries, escalate nutrition support appropriately, collaborate with respiratory and critical care teams and defend clinical decisions rather than relying on generic respiratory diets.

COURSE ROADMAP

Month

Primary Development Area

What the Participant Should Gain

Month 1

Respiratory Physiology, Pulmonary Disease and Specialized Assessment

Understand respiratory physiology, major pulmonary conditions, respiratory related nutrition risk and comprehensive pulmonary nutrition assessment.

Month 2

COPD, Malnutrition, Muscle Health and Pulmonary Rehabilitation

Develop advanced competence in COPD nutrition, nutritional depletion, sarcopenia, practical meal adaptation and rehabilitation support.

Month 3

Asthma, Bronchiectasis, Cystic Fibrosis, ILD and Pulmonary Hypertension

Apply disease specific nutrition reasoning across common chronic respiratory disorders and understand when requirements and priorities differ.

Month 4

Acute Respiratory Disease, Infection and Critical Illness

Understand nutrition care during pneumonia, COPD exacerbation, respiratory failure, sepsis, ARDS and intensive care admission.

Month 5

Mechanical Ventilation, Nutrition Support and Advanced Respiratory Care

Develop competence in enteral nutrition, mechanical ventilation related nutrition, refeeding risk, tracheostomy, dysphagia and recovery.

Month 6

Advanced Pulmonary Dietetic Practice and Complex Case Management

Integrate nutrition diagnosis, intervention, monitoring, ADIME, rehabilitation, multidisciplinary care and complex pulmonary case defense.

MONTH 1: RESPIRATORY PHYSIOLOGY, PULMONARY DISEASE AND SPECIALIZED NUTRITION ASSESSMENT

Theme: Understand breathing physiology before trying to prescribe pulmonary nutrition.

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

Week

Focus

Learning Content

Practical Application

Respiratory Anatomy and Physiology for Dietitians

Airways, lungs, alveoli and respiratory muscles. Gas exchange. Ventilation and perfusion concepts. Respiratory muscle function. Work of breathing. Relationship between respiratory limitation, energy demand, exercise capacity and food intake.

Participants map how impaired respiratory function can influence appetite, energy expenditure, muscle function and nutritional status.

2

Understanding Pulmonary Disease

Obstructive and restrictive respiratory disease. Chronic and acute respiratory illness. COPD. Asthma. Bronchiectasis. Cystic fibrosis. Interstitial lung disease. Pulmonary fibrosis. Pulmonary hypertension. Respiratory infection. Respiratory failure and mechanical ventilation as medical context.

Participants compare major respiratory diagnoses and identify the nutrition questions that become relevant in each condition.

3

Comprehensive Pulmonary Nutrition Assessment

Medical and respiratory history. Exacerbations. Oxygen use. Breathlessness. Dietary intake. Appetite. Meal duration. Weight history. Body composition. Muscle status. Swallowing. Gastrointestinal symptoms. Medications. Fluid status. mobility. rehabilitation and social barriers.

Complete a structured pulmonary nutrition assessment from a simulated patient record.

4

Respiratory Malnutrition, Sarcopenia and Clinical Prioritization

Unintended weight loss. Reduced intake. Low muscle reserve.

Sarcopenia concepts. Functional decline. Inflammation. Catabolic burden. Obesity with reduced muscle mass. Nutrition screening versus comprehensive assessment.

Participants compare patients with similar body weight but different muscle, intake and functional profiles and identify who requires urgent intervention.

Development Outcome: Participants should be able to connect respiratory disease, nutritional status, muscle health, symptoms and functional capacity before choosing an intervention.

MONTH 2: COPD, MALNUTRITION, MUSCLE HEALTH AND PULMONARY REHABILITATION

Theme: In COPD, nutritional status and physical function need to be considered together.

Purpose: To develop advanced competence in COPD nutrition, respiratory related malnutrition, muscle preservation and practical meal management.

Week

Focus

Learning Content

Practical Application

5

COPD Nutrition Assessment

COPD disease burden. Breathlessness. Fatigue. Reduced activity. Appetite. Meal duration. Weight loss. obesity. Muscle depletion. Exacerbations. Medication effects and nutritional deterioration during hospitalization.

Compare a weight losing COPD patient with a patient who has

COPD, obesity and reduced functional capacity.

6

Energy, Protein and Nutritional Depletion

Individualized energy assessment. Protein adequacy. Meal fortification. Small frequent meals when helpful. Oral nutrition supplements when indicated. Muscle preservation. Micronutrient adequacy. Avoiding overfeeding and unnecessary macronutrient restriction.

Build a complete nutrition strategy for COPD with reduced intake, progressive weight loss and declining muscle strength.

7

Breathlessness, Eating Difficulty and Practical Meal Management

Smaller manageable meals. Nutrient dense foods. Meal pacing. Moist foods for dry mouth. Simplified food preparation. Caregiver support. Early satiety. constipation and practical adaptations for fatigue and breathlessness during meals.

Redesign an unrealistic healthy eating plan for a patient who becomes breathless and exhausted during meal preparation and eating.

8

Pulmonary Rehabilitation and Nutrition

Energy and protein adequacy. Muscle recovery. Resistance and exercise rehabilitation. Meal timing around rehabilitation. Hydration. Functional monitoring. Weight and body composition. Collaboration with physiotherapy and respiratory rehabilitation teams.

Develop a nutrition and rehabilitation support plan with measurable functional and dietary outcomes.

Development Outcome: Participants should learn to connect nutrition, muscle, respiratory function, exercise capacity, independence and quality of life rather than assessing COPD through body weight alone.

MONTH 3: CHRONIC RESPIRATORY DISORDERS AND DISEASE SPECIFIC NUTRITION

Theme: Different lung diseases create different nutrition problems.

Purpose: To apply individualized nutrition reasoning across asthma, bronchiectasis, cystic fibrosis, interstitial lung disease, pulmonary fibrosis and pulmonary hypertension.

Week

Focus

Learning Content

Practical Application

9

Asthma, Obesity and Nutrition

Asthma as medical diagnosis. Weight status. obesity related respiratory burden. Overall dietary quality. Food allergy versus unnecessary avoidance. Supplement evidence. Steroid related metabolic and bone concerns. Nutrition supports treatment but does not replace prescribed asthma therapy.

Develop nutrition priorities for a patient with asthma, obesity and multiple unsupported food restrictions.

10

Bronchiectasis and Recurrent Respiratory Disease

Chronic sputum production. Repeated infections. Appetite decline. Weight loss. Hydration. Energy and protein adequacy. Exercise

capacity. Comorbidities and nutritional deterioration during exacerbation.

Follow a simulated patient from stable bronchiectasis through an exacerbation and nutritional recovery.

11

Cystic Fibrosis Nutrition

Energy and nutritional complexity. Pancreatic insufficiency. Maldigestion and malabsorption. Pancreatic enzyme replacement therapy as prescribed medical treatment. Fat soluble vitamin monitoring. Pediatric growth. Adult body composition. Excess weight and cystic fibrosis related diabetes awareness.

Develop different nutrition priorities for two cystic fibrosis patients with different pancreatic function, body composition and treatment profiles.

12

Interstitial Lung Disease, Pulmonary Fibrosis and Pulmonary Hypertension

Breathlessness. Fatigue. Weight change. Functional decline. Steroid related metabolic effects. Edema. appetite. sodium and fluid considerations within medical treatment. Rehabilitation and quality of life.

Compare an interstitial lung disease patient losing weight with a pulmonary hypertension patient experiencing edema and reduced appetite.

Development Outcome: Participants should understand how disease mechanism, treatment, malabsorption, body composition, fluid status and functional capacity alter nutrition priorities.

MONTH 4: ACUTE RESPIRATORY DISEASE, INFECTION AND

CRITICAL ILLNESS

Theme: Nutrition priorities change when chronic respiratory disease becomes acute respiratory failure.

Purpose: To develop competence in nutrition assessment and support during acute respiratory infection, exacerbation, respiratory failure, sepsis and critical illness.

Week

Focus

Learning Content

Practical Application

13

Pneumonia and Acute Respiratory Infection

Reduced intake during infection. Fever and acute illness. Hydration. Energy and protein adequacy. Swallowing risk where relevant. Older adult vulnerability. Recovery nutrition and signs requiring escalation of care.

Develop an acute nutrition and recovery plan for an older patient admitted with pneumonia and poor intake.

14

COPD Exacerbation and Acute Respiratory Deterioration

Increased respiratory burden. Breathlessness and fatigue reducing oral intake. Hospitalization. steroid related hyperglycemia. Immobilization related muscle loss. discharge planning and recovery.

Compare stable outpatient COPD nutrition with nutrition care during an acute hospitalized exacerbation.

15

Respiratory Failure and ICU Nutrition

Acute respiratory failure. Intensive care nutrition assessment. Hemodynamic stability as medical context. Energy assessment. Protein strategy. Enteral and parenteral nutrition concepts. Fluid balance. Electrolytes. glycemic monitoring and refeeding risk.

Build nutrition priorities for a patient admitted to intensive care with respiratory failure.

16

ARDS, Sepsis and Multiorgan Respiratory Critical Care

Severe respiratory illness. Sepsis related catabolism. Fluid balance. Renal dysfunction. Gastrointestinal function. Feeding tolerance. sedation. organ support and rapidly changing clinical status.

Review a complex critical care case and identify which nutrition variables must be reassessed each day.

Development Outcome: Participants should understand how acute illness, catabolism, fluid balance, organ dysfunction and intensive care treatment change nutrition decisions from day to day.

MONTH 5: MECHANICAL VENTILATION, NUTRITION SUPPORT AND ADVANCED RESPIRATORY CARE

Theme: A ventilated patient requires clinical nutrition management, not simply a formula calculation.

Purpose: To teach energy assessment, enteral nutrition, feeding tolerance, dysphagia, tracheostomy related nutrition and transition toward rehabilitation.

Week

Focus

Learning Content

Practical Application

17

Mechanical Ventilation and Energy Assessment

Basic ventilation terminology for dietitians. Ventilator dependent feeding considerations. Metabolic stress. Indirect calorimetry concepts. Avoiding underfeeding and overfeeding. Carbon dioxide production concepts. Daily reassessment.

Review a mechanically ventilated patient across several ICU days and adjust nutrition priorities according to changing clinical status.

18

Enteral Nutrition in Respiratory Critical Care

Gastric and post pyloric feeding concepts. Energy and protein density. Fluid considerations. Formula selection. Feeding tolerance. aspiration risk awareness. positioning protocols and multidisciplinary monitoring.

Develop an enteral nutrition prescription and monitoring framework for a ventilated respiratory patient.

19

Tracheostomy, Dysphagia and Transition to Oral Feeding

Tracheostomy as respiratory care context. Dysphagia awareness. Specialist swallowing assessment. Dietitian role in nutrition adequacy within prescribed texture. Tube feeding support and progressive return to oral intake.

Develop a tube feeding to oral nutrition transition pathway while maintaining swallowing and nutrition safety.

20

Long Term Ventilation, Home Nutrition and Respiratory Rehabilitation

Long term oxygen or ventilation related limitations. Home enteral nutrition where indicated. Caregiver education. Weight monitoring. Muscle recovery. pulmonary rehabilitation. meal preparation capacity. quality of life and hospital to home transition.

Create a discharge and home nutrition pathway for a patient recovering from prolonged respiratory critical illness.

Development Outcome: Participants should be able to plan, monitor and adjust nutrition support while recognizing refeeding risk, respiratory status, gastrointestinal tolerance and functional recovery.

MONTH 6: ADVANCED PULMONARY DIETETIC PRACTICE AND COMPLEX CASE MANAGEMENT

Theme: Treat the nutrition problem within the respiratory condition, not the lung diagnosis alone.

Purpose: To integrate pulmonary nutrition diagnosis, intervention, monitoring, ADIME documentation, referral and advanced multidisciplinary case management.

Week

Focus

Learning Content

Practical Application

21

Pulmonary Nutrition Diagnosis and PES

Nutrition diagnoses related to inadequate energy or protein intake, malnutrition, unintended weight loss, altered gastrointestinal function, swallowing related inadequate intake, fluid concerns, knowledge problems and obesity where clinically relevant.

Write and defend PES statements for COPD, cystic fibrosis and critical care respiratory cases.

22

Pulmonary Nutrition Intervention and Monitoring

Individualized energy and protein prescription. Meal adaptation. oral nutrition supplements. enteral nutrition. micronutrient deficiency correction. rehabilitation integration. Monitoring of intake, weight, muscle, function, symptoms, biochemical data and feeding tolerance.

Build a complete intervention that directly addresses the prioritized nutrition diagnosis and includes measurable monitoring indicators.

23

ADIME and Multidisciplinary Pulmonary Practice

Pulmonary specific ADIME documentation. Collaboration with pulmonologists, respiratory therapists, critical care physicians, nurses, physiotherapists, speech and language therapists, pharmacists, cystic fibrosis teams and palliative care teams. Referral and escalation.

Prepare a specialized pulmonary ADIME note and concise multidisciplinary referral communication.

24

Advanced Pulmonary Case Defense

Integration of pulmonary diagnosis, disease severity, acute or chronic status, nutritional status, weight trajectory, muscle status, functional capacity, dietary intake, swallowing, oxygen or ventilation support, medications, fluid status, laboratory information, comorbidities and goals of care.

Present and defend one chronic pulmonary case, one disease specific case and one critical care or mechanically ventilated case, explaining why each major nutrition decision is appropriate.

Development Outcome: Participants should finish the specialization able to justify pulmonary nutrition decisions according to respiratory status, nutritional risk, muscle and function, treatment, feeding route and goals of care.

PULMONARY SPECIALIZATION CASE PORTFOLIO

Case Area

Practical Competency

COPD With Weight Loss

Assess and manage respiratory related nutritional depletion while protecting muscle and functional capacity.

COPD With Obesity

Balance cardiometabolic health, respiratory function and muscle preservation rather than focusing on body weight alone.

COPD Exacerbation

Adapt nutrition during acute deterioration, hospitalization and recovery.

Pulmonary Rehabilitation

Coordinate energy, protein, meal timing and monitoring with functional recovery.

Asthma and Obesity

Provide appropriate metabolic nutrition support without claiming dietary treatment of asthma.

Bronchiectasis

Manage nutrition through stable disease, repeated infection and

exacerbation.

Cystic Fibrosis

Integrate nutrition, pancreatic status, body composition and treatment context.

Cystic Fibrosis With Pancreatic Insufficiency

Coordinate diet with prescribed pancreatic enzyme therapy and monitor nutritional adequacy.

Cystic Fibrosis With Excess Weight

Move beyond the historic assumption that every patient requires unrestricted high energy feeding.

Interstitial Lung Disease

Support intake, muscle, functional capacity and symptom adapted eating.

Pulmonary Fibrosis

Address breathlessness related eating barriers and progressive nutritional decline.

Pulmonary Hypertension

Integrate nutrition with fluid status, cardiovascular care and medication considerations.

Pneumonia

Support intake, hydration and nutritional recovery during acute infection.

Respiratory Failure

Complete acute nutrition assessment and prioritize route, energy, protein and monitoring.

Mechanically Ventilated Patient

Develop nutrition support and monitoring within intensive care protocols.

Tracheostomy

Manage nutrition during prolonged respiratory care and transition toward oral intake where appropriate.

Dysphagia

Maintain nutritional adequacy within specialist swallowing recommendations.

Enteral Nutrition

Develop feeding prescription, tolerance monitoring and progression strategy.

Respiratory Rehabilitation

Support muscle and functional recovery after hospitalization.

Complex Multimorbidity

Prioritize pulmonary, renal, cardiac, metabolic and nutritional concerns without creating conflicting restrictions.

Final Case Defense

Defend the complete pulmonary nutrition care process using clinical reasoning and multidisciplinary scope.

PROFESSIONAL SCOPE INTEGRATION

Situation

Pulmonary Dietitian Role

COPD

Assess nutritional status and provide individualized medical

nutrition therapy within respiratory care.

Respiratory Malnutrition

Diagnose and treat the nutrition problem while pulmonary disease remains medically managed.

Breathlessness

Adapt meals and intake while respiratory symptoms and medical treatment remain under the pulmonary team.

Asthma

Support overall nutrition and metabolic health without replacing prescribed asthma therapy.

Cystic Fibrosis

Provide specialized nutrition as part of multidisciplinary cystic fibrosis care.

Pancreatic Insufficiency in Cystic Fibrosis

Coordinate nutrition with prescribed pancreatic enzyme replacement therapy without independently changing medication.

Interstitial Lung Disease and Fibrosis

Support nutrition, muscle and functional status within specialist respiratory treatment.

Pulmonary Hypertension

Address nutritional adequacy and relevant sodium or fluid issues within the medical plan.

Respiratory Infection

Support intake, hydration and recovery while infection diagnosis and treatment remain medical.

Mechanical Ventilation

Provide clinical nutrition within intensive care and ventilation protocols.

Dysphagia

Maintain nutritional adequacy within specialist swallowing recommendations rather than independently determining swallowing safety.

Enteral Nutrition

Calculate and monitor feeding within multidisciplinary critical care or respiratory practice.

Critical Illness

Continuously reassess nutrition according to clinical change, organ support and feeding tolerance.

Advanced Lung Disease

Align nutrition with treatment goals, rehabilitation, symptom burden and quality of life.

Complex Respiratory Disease

Collaborate with pulmonary, critical care, rehabilitation, pharmacy, swallowing and other relevant teams.

FINAL SPECIALIZATION PORTFOLIO

Portfolio Component

Final Output

Pulmonary Nutrition Assessment

Complete specialized respiratory nutrition assessment framework.

Respiratory Malnutrition Case

Complete nutrition care process from assessment through monitoring.

COPD Case Portfolio

Stable COPD, malnourished COPD and acute exacerbation cases.

Pulmonary Rehabilitation Plan

Nutrition and functional recovery framework.

Cystic Fibrosis Case

Disease specific nutrition management with pancreatic and body composition considerations.

PERT Exercise

Nutrition assessment and monitoring within prescribed pancreatic enzyme therapy.

Interstitial Lung Disease Case

Nutrition and functional support strategy.

Pulmonary Hypertension Case

Nutrition, fluid status and medication awareness framework.

Acute Respiratory Case

Hospital nutrition assessment and intervention.

ICU Nutrition Case

Critical care nutrition assessment and prioritization.

Mechanical Ventilation Case

Feeding prescription and monitoring plan.

Enteral Nutrition Case

Complete nutrition support strategy.

Dysphagia Case

Nutrition plan within prescribed texture and swallowing recommendations.

Respiratory Recovery Plan

ICU to ward to home transition framework.

Pulmonary ADIME Portfolio

Complete professional pulmonary nutrition documentation.

Referral Framework

Pulmonary, critical care, rehabilitation, cystic fibrosis and swallowing referral pathways.

Final Case Defense

Advanced pulmonary nutrition presentation with clinical reasoning.

EXPECTED SPECIALIZATION TRANSFORMATION

At Entry

At Completion

COPD patients need high calorie food.

I determine nutritional status, muscle depletion, intake and clinical condition before prescribing energy.

Breathlessness means avoid carbohydrates.

I avoid simplistic macronutrient rules and individualize nutrition according to complete clinical assessment.

Normal BMI means the COPD patient is nutritionally fine.

I assess weight trajectory, muscle, intake and function rather than BMI alone.

Cystic fibrosis patients always need unrestricted high energy diets.

I account for pancreatic status, treatment, body composition, metabolic health and individual nutritional status.

Pulmonary hypertension requires low salt and low fluid.

I individualize sodium and fluid advice within the medical plan and actual volume status.

Ventilated patients just need calories through a tube.

I understand critical care metabolism, route, timing, protein, fluid, tolerance and daily reassessment.

More calories always help a malnourished ICU patient.

I recognize refeeding risk and the need for controlled nutrition advancement.

Tracheostomy automatically means tube feeding.

I understand that respiratory support, swallowing safety and nutrition route must be assessed separately.

Pulmonary nutrition is COPD meal planning.

I can reason across chronic respiratory disease, cystic fibrosis, interstitial lung disease, pulmonary hypertension, acute respiratory illness and critical care.

I know respiratory diets.

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

FINAL LEARNING PATHWAY

Stage

Learning Progression

Stage 1

Understand respiratory physiology and major pulmonary disease patterns.

Stage 2

Conduct a comprehensive pulmonary nutrition assessment.

Stage 3

Identify malnutrition, muscle loss, sarcopenia and functional decline.

Stage 4

Manage COPD nutrition and integrate pulmonary rehabilitation.

Stage 5

Apply disease specific reasoning to asthma and bronchiectasis.

Stage 6

Manage cystic fibrosis nutrition and pancreatic insufficiency within specialist care.

Stage 7

Support interstitial lung disease, pulmonary fibrosis and pulmonary hypertension.

Stage 8

Manage nutrition during acute respiratory infection and exacerbation.

Stage 9

Understand respiratory failure, sepsis and intensive care nutrition.

Stage 10

Apply nutrition principles during mechanical ventilation.

Stage 11

Provide and monitor enteral nutrition while recognizing refeeding risk.

Stage 12

Manage tracheostomy, dysphagia and transitions toward oral feeding.

Stage 13

Support respiratory recovery, home nutrition and functional rehabilitation.

Stage 14

Develop nutrition diagnosis, intervention, monitoring and ADIME documentation.

Stage 15

Collaborate with pulmonary teams and defend advanced pulmonary cases.

COURSE PHILOSOPHY

This specialization is designed to develop pulmonary dietetic reasoning rather than provide a collection of respiratory meal plans. Participants learn to connect respiratory physiology, disease severity, nutritional status, muscle and functional decline, breathlessness, swallowing, fluid status, nutrition support, rehabilitation and patient goals so that intervention remains individualized, clinically appropriate and professionally defensible.