

This book is the 82nd volume of the Nestlé Nutrition Institute Workshop series. This is a compilation of the papers discussed during the 12th Nestlé Clinical Nutrition course in New Delhi, India. The papers presented are organized in 12 chapters.

The first chapter discusses the role of inflammation in malnutrition. It gives an overview of the best tools for screening and assessment of nutritional status including inflammatory activity. To counter the effects of malnutrition the concept of nutrition intervention including immunonutrition is discussed. In the next chapter, the author provides an introduction to the different metabolic events in starvation, stress starvation and addition of sepsis to these. It highlights how the metabolic arrangements help in wound healing and maintaining the immune system. It also highlights new concepts of beneficial effects of insulin resistance and the important role of glucose as a building stone in starvation and stress starvation. Amino acids are similarly important to limit (muscle) protein losses, glucose (in starvation predominantly derived from protein) needs to be utilized only for those purposes that only glucose can fulfill. This complex arrangement requires a nutritional mix containing liberal amounts of carbohydrate and protein, and addition of lipid to cover energy requirement.

The noncaloric benefit of fibers (polysaccharides) is discussed in the third chapter. Bacterial degradation of soluble fibers yields energy in the presence of an intact colon and rectum but, in addition, fibers promote the absorption of micronutrients, stimulate motility and improve the immune status of the gut probably by influencing the microbiome of the gut and producing short-chain fatty acids serving as fuel for the large intestine. Chapter 4 addresses the dynamics of protein intake and utilization, the role of 'slow' proteins like casein and a balanced meal containing whey protein on efficient utilization of protein, minimizing urea formation. 'Anabolic resistance', is seen in aged people requiring more protein per day to maximize muscle protein synthesis due to an increase in the uptake and utilization of protein-derived amino acids in central tissues like liver, spleen, immune system, gut and wounds. This is caused by age-related inflammatory activity associated with comorbidity or the ageing process itself which utilizes higher proportion of protein in the meal than in younger people, diminishing the amount of amino acids that can be utilized by muscles. The significance of exercise to preserve muscle mass is emphasized. Chapter 5

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encompasses enteral/oral nutrition and emphasizes its beneficial effects on intestinal and systemic organs. Enteral nutrition activates the intestine stimulating motility, maintains intestinal integrity, and decreases mucosal permeability and inflammation in association with preserving a healthy microbiome.

All over the world, including South Asia, there is a spate Metabolic syndrome which is dealt with in the next chapter. The syndrome develops at a lower body mass index than in the Western world. This chapter discusses the management of the metabolic syndrome, including the benefit and harm of drugs, and the crucial role of the prevention of obesity. Chapter 7 highlights the benefits and hazards of parenteral nutrition in patients with intestinal failure. The parenteral route is weighed down with infectious, thrombotic and metabolic complications and substantially inhibits mobility, though lifesaving and adding years of life to these patients. Pharmacological means have been explored to optimize regeneration of the remaining bowel, optimizing the diet and slowing down motility of the intestine. Especially the glucagon-like peptide-2 analogue has been shown to decrease the intravenous caloric need by optimizing gut function.

The number of patients being treated and recovering from cancer is increasing. The nutritional intake is compromised due to both cancer and its treatment. Nutrition is an often neglected aspect of cancer treatment, despite the reported beneficial effects of continuous and adequate implementation of nutritional support and maintenance of physical fitness before and after different types of therapy, as discussed in chapter 8. Nutritional practices in critical illness have shifted from support to therapy as detailed in the next chapter. Metabolism can be altered by mitigating the stress-induced immune and hyperdynamic responses by

nutritional measure. Many doubts still exist, including whom to nourish, what is the best nutritional formula and how to optimize enteral nutrition.

Chapter 10 outlines different measures that can be taken to improve the nutritional status before and after operation. A high protein intake, probiotics, immunonutrition, carbohydrate loading, rapid resumption of nutritional intake after operation and exercise contribute to enhanced recovery and improved outcome. Chapter 11 describes the modern trend of application of the health economic theory for medical nutrition. Financial considerations play a role in deciding to treat or withhold treatment. With the increasing number of aged people, frailty is increasing in prevalence and requires assessment as discussed in the last chapter. Physical and mental frailty has major negative effects on quality of life, which should be distinguished from Alzheimer's disease. A multidisciplinary approach including physical exercise, cognitive exercise and social services is necessary in which nutrition plays a central role.

The chapters in this book deal with a wide variety of diseases, however, these are brief and at best provide a bird's eye view of the topics covered. The book gives a good up-to-date knowledge of nutrition related issues in a wide spectrum of diseases. Overall, this will be of interest to clinicians and clinical nutritionists in better understanding the importance of nutrition in improving patient outcome.

Namrata Singh & Anoop Saraya*

Department of Gastroenterology and Human
Nutrition, All India Institute of Medical Sciences,
New Delhi 110 029, India

**For correspondence:*
ansaraya@yahoo.com