

## Nutrition and Cardiology: An Interface not to be Ignored

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Food and nutrition constitute a field of knowledge with inherent characteristics. In the first half of the twentieth century, the major objectives of the nutritional sciences consisted in discovering essential nutrients, characterizing their physiological and biochemical roles, and describing the consequences of their deficiencies<sup>1</sup>. Very frequently, the fundamental model of the study was animal growth<sup>2</sup>.

However, in the past 50 years, the spread of knowledge expanded the objectives related to food and nutrition, which were inserted in an organizational complexity focused on cells, organs, organisms and communities, ranging, therefore, from molecules to populations. The challenges to understand the physiopathological mechanisms involved and to prevent and occasionally solve consequent clinical problems constitute a decisive stimulus to the development of new fields of knowledge within that of food and nutrition. Of those, the relationship between food, obesity and diseases frequently associated with obesity, the so-called chronic diseases, such as arterial hypertension, coronary artery disease, diabetes mellitus, dyslipidemias, and cancer, is noteworthy<sup>3</sup>.

In addition, there were changes regarding micronutrients. In the past, they were considered nothing more than cofactors in biochemical reactions. Currently they are seen as antioxidants, acting in cell communication and having regulatory effects on genes<sup>4</sup>. Within that context, nutrigenomics, which studies the interaction between genes and nutrients at the molecular level, has arisen<sup>5</sup>.

In addition to essential macro/micronutrients, some chemical compounds, mostly present in fruits and vegetables, exert a potent biological activity. They are called bioactive or, sometimes, phytochemical compounds, and can play several beneficial roles in human health<sup>6</sup>.

The comments show the expressive amount of objects of study in the area of food and nutrition. Considering that many of those objects have an interface with cardiology, we believe that it is relevant to assess whether this field of

knowledge has been duly represented in articles recently published in the *Arquivos Brasileiros de Cardiologia*, in the basic/experimental research area.

Analyzing the articles recently published in the *Arquivos Brasileiros de Cardiologia*, we could identify studies on changes related to nutritional deficiencies. Another aspect worthy of note is that the most recurring topics were obesity and dyslipidemia as risk factors and modulators in cardiovascular disease. In that context, the basic/experimental research area showed obesity as an experimental model of changes in gene expression of the proteins that regulate calcium homeostasis<sup>7</sup>, leading to changes in type I and II collagens, inducing cardiac remodeling<sup>8</sup>.

The relationship of food and cardiovascular diseases is shown in the 'Original Clinical Study', 'Systematic Review' and 'Viewpoint' sections. Similarly, bioactive compounds were not forgotten. Thus, substances such as polyphenols and beta-carotene were approached in some experimental studies.

The name polyphenols or phenolic compounds refer to a wide and numerous group of molecules found in vegetables, fruits, cereals, teas, coffee, cocoa, wine, fruit juices and soy bean<sup>9</sup>. Resveratrol is a polyphenolic compound found in fresh grapes, grape juice and wine, whose anti-inflammatory and antiatherogenic effects have been studied in rabbits fed with a hypercholesterolemic diet<sup>10</sup>. Similarly, the study by Brito et al. has shown that the use of fermented coffee residues with a greater polyphenolic compound content than that of non-fermented coffee residues has reduced the aortic damage area in Apo E knockout mice and can have a potential beneficial effect on cardiovascular diseases, mainly atherosclerosis<sup>11</sup>.

Beta-carotene is a carotenoid with provitamin A activity and other functions, present in the human diet in colored fruits and vegetables. The study by Novo et al. has shown that supplementation with beta-carotene to rats has beneficial effects, characterized as increased intercellular communication, with a potential to reduce arrhythmias and to enhance the antioxidant defense system<sup>12</sup>.

Briefly, the food and nutrition area provided many contributions in our journal. It is worth noting that those publications were both experimental and clinical, approaching different topics, in different sections and different formats. However, many gaps regarding food and nutrition in cardiology are yet to be filled. Thus, we believe that this topic will continue to be object of study in the *Arquivos Brasileiros de Cardiologia*, including in the basic/experimental research area, remaining as a promising field for new studies.

### Keywords

Food; Cardiovascular Diseases; Polyphenols; Carotenoids.

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