

Management for Elderly Includes Adequate Exercise, Carbohydrate/Fat Diet and Self-Esteem for Significant Life

Hiroshi Bando*

Tokushima University, Tokushima, Japan

*Corresponding author: Hiroshi Bando, Tokushima University, Nakashowa 1-61, Tokushima 770-0943 Japan, Tel: +81-90-3187-2485; E-mail: pianomed@bronze.ocn.ne.jp

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Editorial

Recent medical problems in the world include the prevalence of obesity, diabetes and Metabolic syndrome (Met-S) in developed and developing countries [1]. In relation to this tendency, frailty and locomotive syndrome in the elderly have also increased, which are remarkable medical and social problems [2]. We have to develop urgent work for these matters. This article outlines and reviews the points of exercise, diet and psychology in the elderly.

In the United States, more than a third of persons 65 years of age or older are obese, and this group constitutes a population vulnerable to adverse outcomes, because obesity exacerbates the age-related decline in physical function and causes frailty, resulting sarcopenia and osteopenia [3].

In order to evaluate the effectiveness of exercise modes in reversing frailty and preventing decrease in muscle and bone mass, 160 obese older adults were classified into 4 groups [4]. They were a weight-management program plus one of three exercise programs - aerobic training, resistance training, combined aerobic and resistance training, to a control group [4]. Of the methods tested, weight loss plus combined aerobic and resistance exercise was the most effective in improving functional status of obese older adults.

Similarly, authors have investigated anti-aging medicine, such as frailty, practice of squatting and masters' athletes [5]. We have also developing the medical and social movement of 'New Elderly Association (NEA) [6]. It was established by Dr. Shigeaki HINOHARA, one of the most eminent physician in Japan lived up to 105, who was chairman emeritus of St. Luke's International University and honorary president of St. Luke's International Hospital. He was a pioneer in several fields with remarkable contribution. He developed human dry-dock and primary care medicine in 1950', proposed the medical term and life style related disease in 1970', developed exercise program in 1980', research on frailty in 1990' and NEA activities in 2000'. He taught how to live long with significant daily life with the excellent philosophy Hinohara-ism [7,8].

On the other hand, nutritional therapy and diet for weight reduction are important treatment for obese subjects, including preventing arteriosclerosis. Many nutritional researches were reported worldwide concerning the ratio of three major nutrients, influence to cardiovascular disease, saturated and unsaturated fatty acid.

There is a recent report that 15582 subjects were divided into nine groups based on carbohydrate and fat proportion for investigating the influence to Met-S [9]. Regardless of fat intake, the risk of Met-S was significantly increased in males with higher carbohydrate. On contrast, in females, the risk was significantly elevated only in the case with both the highest carbohydrate and lowest fat proportions [9].

In this field, the Prospective Urban Rural Epidemiology (PURE) study has been known as a large-scale epidemiological study. It plans to recruit approximately 135 thousands individuals for 7.4 years in median value in 17 low-, middle-, and high-income countries worldwide. As a series of PURE study, the consumption of fruit and vegetables was investigated [10]. Another PURE study was reported in 2017 [11]. They studied 125 thousands subjects from 18 countries, and showed that replacement of saturated fatty acids with carbohydrates was shown with the most adverse effects on lipids, whereas replacement of saturated fatty acids with unsaturated fats relieved some risk markers.

On succession, associations of fats and carbohydrate intake with cardiovascular disease and mortality in 18 countries were reported. It showed that higher carbohydrate intake was associated with an increased risk of total mortality (HR 1.28). On contrast, it showed that higher total fat was associated with lower total mortality (HR 0.77) and higher saturated fat intake was associated with lower risk of stroke (HR 0.79).

Consequently, lower intake of carbohydrate 50-55% and higher intake of fat about 35% were recommended [12]. However, enough amount of protein would be necessary. Consequently, less carbohydrate would be better for healthier life with adequate balance of 3 nutrients.

As similar reports, 2 types of meal were studied for patients with T2DM. The energy ratio of carbohydrate, protein and fat

was 55%, 18%, 27% in lower-fat diet, and 43%, 18%, 39% in lower-carbohydrate diet, respectively. From the obtained results, a lower-carbohydrate, higher-fat diet would reduce abdominal and intermuscular fat and increase insulin sensitivity, indicating beneficial effects [13].

Comparison of weight and metabolic outcomes after 2 years on low carbohydrate diet (LCD) vs. calorie restriction (CR) was investigated. Successful weight reduction can be achieved with either LCD or CR when coupled with behavioral treatment. LCD is associated with favorable changes in cardiovascular disease risk factors at 2 years [14].

These situations would have close relationship with continuing discussion about LCD and CR. Bernstein and Atkins have begun LCD with successful reducing weight in Western countries. There was Dietary Intervention Randomized Controlled Trial (DIRECT) study, in which weight reduction was studied in LCD, Mediterranean and low fat for 2 years [15]. Consecutively, the efficacy of LCD for 6 years in DIRECT study was reported [16]. There have been lots of reports concerning LCD and CR [17]. The focus and discussion of LCD has been the influences for arteriosclerosis and cardiovascular disease [18,19].

In Japan, authors and colleagues have firstly begun LCD and continued clinical research with about 2700 cases with remarkable weight reduction. We also studied the physiological role of elevated ketone bodies in the blood of fetus, placenta, newborn and mother, suggesting the production of energy from ketone bodies [20].

The beneficial effects of LCD would be summarized as follows: 1) remarkable weight reduction, 2) decrease of triglyceride level [21], 3) rapid decrease of daily profile of blood glucose in T2DM and Morbus (M) value indicating decreased average and fluctuation of glucose [22], 4) elevated ketone bodies with various beneficial effects to human organs [23], 5) useful three different LCD formular meals which are super, standard and petit with carbohydrate ratio in 12%, 26%, 40%, respectively.

From recent trend mentioned above, low carbohydrate and high lipid diet may become the main stream for healthy meal. Furthermore, the investigation of fermented food and intestinal bacterial flora would be involved in the nutritional research.

In addition to exercise and diet, psychological and social problems in older obese subjects have been valuable. Authors and NEA have investigated self-esteem of aged people for years [24]. One of the useful questionnaire for quality of life (QOL) would be Shortform 36 (SF-36). Using adequate tool and advices for obese elderly people, we should continue disease prevention and health promotion [25].

In summary, prevention of flailty with exercise, recommendation of low carbohydrate and more lipids, increase of self-esteem in social life would be informed broadly from now on.

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