



## Image Article

## Open Access

## Food Pyramid for Low Carbohydrate Diet (LCD) with its Efficacy and Actual Intake

Hiroshi Bando<sup>1,2</sup>, Koji Ebe<sup>2,3</sup>, Takumi Nakamura<sup>2,4</sup> and Takako Manabe<sup>5</sup>

<sup>1</sup>Tokushima University, Medical Research, Tokushima, Japan

<sup>2</sup>Japan Low Carbohydrate Diet Promotion Association, Kyoto, Japan

<sup>3</sup>Takao Hospital, Kyoto, Japan

<sup>4</sup>Nakamura Orthopedic Clinic and Anti-Aging Center, Kawanishi, Hyogo, Japan

<sup>5</sup>Kagawa Yoga Association, Kagawa, Japan

**Corresponding author:** Hiroshi Bando, Medical Research, Tokushima University, Nakashowa 1-61, Tokushima, Japan, Tel: +81-90-3187-2485; Fax: +81-88-603-1030; E-mail: pianomed@bronze.ocn.ne.jp

**Received date:** March 05, 2018; **Accepted date:** March 06, 2018; **Published date:** March 10, 2018

**Copyright:** © 2018 Bando H, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

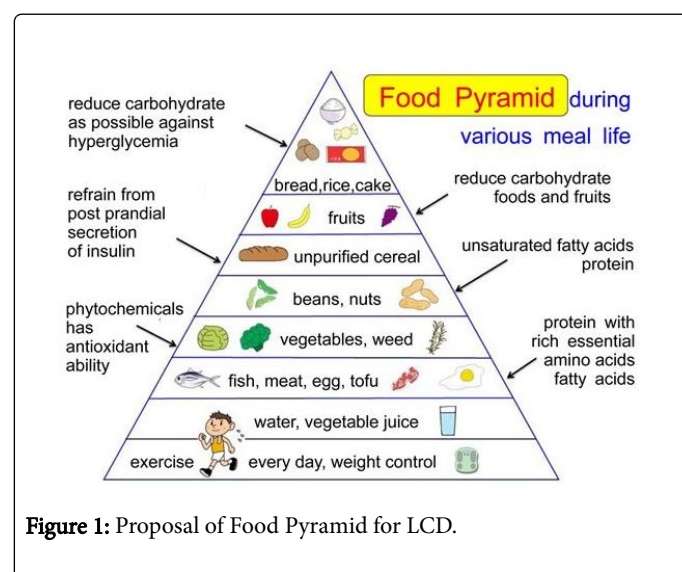
**Keywords:** Food Pyramid; Low Carbohydrate Diet (LCD); Weight Reduction; Ketone Bodies (KB); Metabolic Syndrome (Met-S)

5.0–9.9% in 701 cases (32.1%) and 2.5–4.9% in 442 cases (20.2%). The results seem to be satisfactory, suggesting that actual continuation of LCD would be effective and useful.

### Case

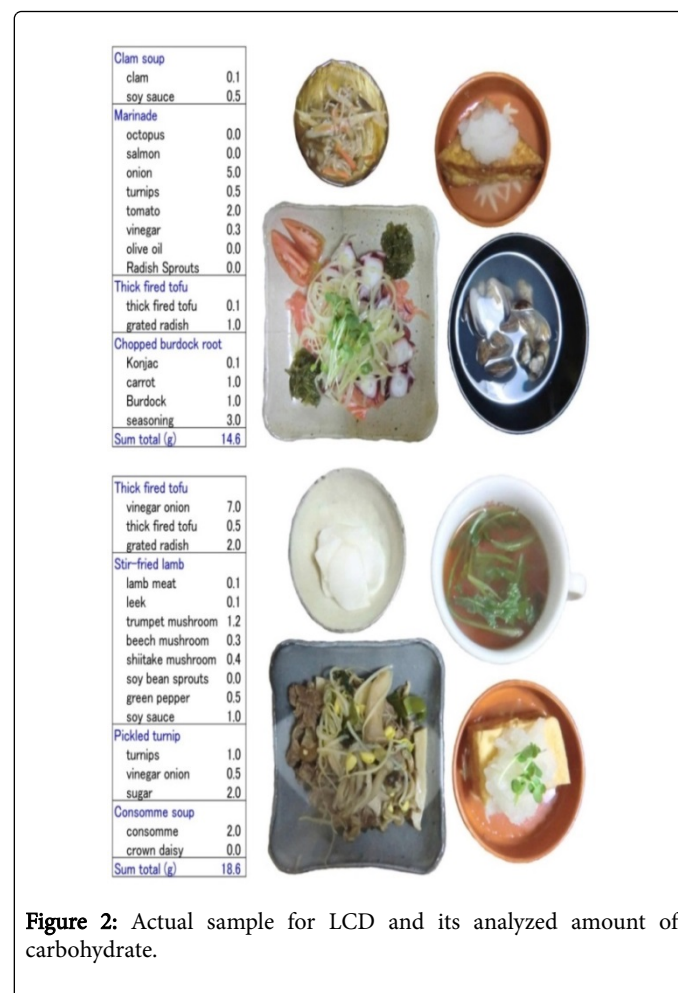
Metabolic syndrome (Met-S) has been the medical and social problem, and urgent nutritional therapy is crucial. There are many discussions concerning Calorie Restriction (CR) and low carbohydrate diet (LCD). LCD has been originated by Atkins and Bernstein in western countries. Successively in Japan, authors started LCD and developed clinical studies and social movement through books, seminars and Japan LCD Promotion Association.

For successful weight reduction and treatment for Met-S, we have proposed 3 kinds of LCD. They are super-LCD, standard-LCD, petit-LCD, including carbohydrate of 12%, 26%, 40%, respectively. Super-LCD is calculated as follows. When calorie intake is 1400 kcal/day, the carbohydrate amount becomes 168 kcal as 12% of 1400 kcal. Then, carbohydrate amount per day becomes 42 g, as 168 kcal divided by 4 g/kcal. Figure 1 shows actual food intake per day for LCD, including rather Japanese food and spice with useful reference.



**Figure 1:** Proposal of Food Pyramid for LCD.

We investigated 2184 patients on LCD for weight reduction rate during 6-12 months. Data were more than 10% in 597 cases (27.3%),



**Figure 2:** Actual sample for LCD and its analyzed amount of carbohydrate.

Super-LCD induces early normalization of blood glucose and remarkable weight reduction. Furthermore, super-LCD would cause elevated ketone bodies (KB) in blood, which is physiological ketosis from ketogenic diet. KB has the important role as an energy source, with several beneficial effects such as metabolic, renal, cardiovascular

and anti-cancer aspects. Through our clinical practice, experience and research, we have developed original food pyramid for LCD (Figure 2).

Many patients using this had satisfactory results. We believe that its characteristic point is rather based on Japanese food habit, but it would

be useful for every patient and medical staff worldwide for Met-S, healthier life and significant life.