



Anti-Aging Medicine Combined with Adequate Axes of Physiotherapy, Nutrition and Psychology would Bring Best-Aging

Hiroshi Bando*

Medical Research, Tokushima University, Tokushima, Japan

*Corresponding author: Hiroshi Bando, Medical Research, Tokushima University, Nakashowa 1-61, Tokushima 770-0943, Japan, Tel: +81-90-3187-2485; Fax: +81-88-603-1030; E-mail: pianomed@bronze.ocn.ne.jp

Received date: October 04, 2017; Accepted date: October 7, 2017; Published date: October 11, 2017

Copyright: © 2017 Bando H. 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.

Editorial

There was the meaningful book “The Third Wave” published in 1980 by Alvin Toffler [1]. He described three types of societies, based on the concept of waves.

The first wave was agricultural revolution, which came about 10,000 years ago after the Neolithic period. Before that, human race had always fought with hunger, and hunt animals and could sometimes ate meat, bone, visceral organ and bone marrow. These were mainly protein and fat with less carbohydrate. This is why human has only insulin that decreases blood glucose. The population on the earth increased explosively due to much cereal, and people had more carbohydrate and usually worked with sweat.

The second wave was Industrial society. It began in Western Europe with the Industrial Revolution in 18th century. As machines developed more, people tended to work with less physical labor.

The third wave has been information revolution due to prevalence of the computer. During this period, people in developed countries have suffered from obesity and metabolic syndrome due to less exercise and lifestyle.

Currently, we are in the fourth wave, which may be an era of integration and responsibility far beyond [2], and conceptual society. Because of covering almost kinds of work by the computer, only creative people might survive to work in the future. Then, adaptation disorders from various stress would increase in our complex society.

Taking these circumstances into consideration, clinical and medical problems in recent years may be classified into 3 fields. They would be 1) metabolic syndrome in internal medicine, 2) locomotive syndrome with frailty in surgery or orthopedic medicine, 3) stress-induced disorders of young - middle generation and cognitive problem of the aged in psychosomatic medicine, in developed countries.

The author has majored in anti-aging medicine for years with continuing various clinical and research in 3 fields. The useful information and recent new topic would be described in this Editorial.

First axis is physiotherapies. We have investigated masters’ athletes and subjects with type 2 DM (T2DM) and showed the effect of squat training for several months [3,4]. Masters’ athletes with regular lifestyle seem to be the model of anti-aging medicine.

From the point of protective medicine, there are five exercises to protect against disease of aging including squatting, overhead press, deadlift, bench press and pull-up/chin-up [5]. Especially, squatting is a full-body exercise that is the basic movement around which all training should be centered [5].

Furthermore, “stronger for long – a functional training elixir” includes six primal movement patterns with variations/progression [6]. Those are squat, lunge, pull/dead lift/row, push/plank/hover, twist, gait, in which the squat is the most fundamental and valuable [6].

The difference in the effects among sitting, standing and stepping was investigated [7]: sitting-to-stepping showed significant 11% lower BMI, 7.5 cm lower waist circumference, 11% lower 2-h plasma glucose, 14% lower triglycerides, and 0.10 mmol/L higher HDL-cholesterol per 2 h/day.

Recent topic includes body mass-based squat exercise. Starting after 5 min of squatting with moderate intensity, aerobic energy supply has predominantly induced [8].

Heavy back squat training caused significant increase in strength but reduction in flexibility of hamstring muscle group, suggesting the appropriate training protocols [9].

As a new apparatus from Information Communication Technology (ICT), we can evaluate bodyweight squat technique with wearable sensors [10]. Wearable inertial measurement units (IMUs) are small, inexpensive sensors that consist of accelerometers, gyroscopes and magnetometers. It will offer the potential to bridge the gap between laboratory and day-to-day “real-world” acquisition and assessment of human movement.

Second axis is nutrition therapy. The discussion between calorie restriction (CR) and low carbohydrate diet (LCD) has been continued for long years. LCD has been estimated for useful nutritional therapy for weight reduction and decrease of blood glucose [11-16].

Authors and colleagues have started LCD in Japan and studied clinical practice in thousands of cases with remarkable effect for obesity and diabetes [17,18]. Furthermore, we investigated ketone bodies, Morbus (M) value and lipid influences concerning LCD [19-21].

The important point for LCD would be the correct understanding of ketone bodies (KB). Blood KB is elevated in starvation, dehydration and LCD, in which elevated KB would not indicate risky situation pathophysiologically, associated with generating energy and various beneficial effects to human organs [18,22,23].

Third axis is psychosomatic care. It includes management for stress and cognitive disorders for the young and aged people. Author have investigated psychological aspects using anti-aging questionnaire for QOL (AAQOL) and self-esteem for health [24,25]. In the latter research, we clarified that the factors influencing health self-esteem [26]. They are constipation, abdominal fullness, insomnia, age, hypnagogic disorder, fatigue-related symptom, and forgetfulness [26]. Self-efficacy in the aged would be crucial problem from now [27].

In summary, practicing three axes for years would lead to anti-aging medicine. There was an eminent Japanese physician Shigeaki Hinohara, MD, PhD who lived up to 105 years (1911-2017) [28]. He was chairman emeritus of St. Luke's International University and honorary president of St. Luke's International Hospital [29]. He continued 3 axes and developed New Elderly Association (NEA) with the philosophy of best-aging [29-31]. By the Hinohara-ism, we can give adequate treatment with broad various cares to all people and patients how to get best-aging [32].

References

1. Alvin Toffler (1981) *The Third Wave*, Pan Books Ltd, London.
2. Herman Maynard and Susan Mehrtens (1996) *The Fourth Wave - Business in the 21st Century* Berrett-Koehler Publishing, Oakland, California, United States.
3. Bando H, Kan M, Takenaka Y, Yokoyama H, Nakamura T (2016) Effective training of squat exercise -- HiSquat trial for patients with diabetes. *Glycat Stress Res* 3: 65-73.
4. Bando H, Nakamura T, Yonei Y, Takenaka Y, Seki K (2015) Lipid profile of masters athletes in ice-skating, a model of anti-aging research. *Glycat Stress Res* 2: 52-57.
5. Osborn B (2014) *Get serious, a neurosurgeon's guide to optimal health and fitness - for men and women of all ages*. Book Publishers Network, USA.
6. Hagan M (2008) *Goodlife fitness: 6 weeks to a new body*. Penguin Canada Publishing, Toronto, Canada.
7. Healy GN, Winkler EA, Owen N, Anuradha S, Dunstan D (2015) Replacing sitting time with standing or stepping: Associations with cardiometabolic risk biomarkers. *Eur Heart J* 36: 2643-2649.
8. Haramura M, Takai Y, Yoshimoto T, Yamamoto M, Kanehisa H (2017) Cardiorespiratory and metabolic responses to body mass-based squat exercise in young men. *J Physiol Anthropol* 36: 14.
9. Shariat A, Lam ETC, Shaw BS, Shaw I, Kargarfard M (2017) Impact of back squat training intensity on strength and flexibility of hamstring muscle group. *J Back Musculoskelet Rehabil* 30: 641-647.
10. O'Reilly MA, Whelan DF, Ward TE, Delahunt E, Caulfield BM (2017) Technology in Strength and Conditioning: Assessing Bodyweight Squat Technique with Wearable Sensors. *J Strength Cond Res* 31: 2303-2312.
11. Atkins RC (2002) *Dr. Atkins' new diet revolution*. Avon Books, New York.
12. Westman EC, Yancy WS Jr, Humphreys M (2006) Dietary treatment of diabetes mellitus in the preinsulin era (1914-1922). *Perspect Biol Med* 49: 77-83.
13. Shai I, Schwarzfuchs D, Henkin Y, Shahar DR, Witkow S, et al. (2008) Weight loss with a low-carbohydrate, mediterranean, or low-fat diet. *N Engl J Med* 359: 229-241.
14. Feinman RD, Pogozelski WK, Astrup A, Bernstein RK, Fine EJ, et al. (2015) Dietary carbohydrate restriction as the first approach in diabetes management: Critical review and evidence base. *Nutrition* 31: 1-13.
15. Mansoor N, Vinknes KJ, Veierød MB, Retterstøl K (2016) Effects of low-carbohydrate diets vs. low-fat diets on body weight and cardiovascular risk factors: a meta-analysis of randomised controlled trials. *Br J Nutr* 115: 466-479.
16. Kwon YJ, Lee HS, Le JW (2017) Association of carbohydrate and fat intake with metabolic syndrome. *Clinical Nutrition*.
17. Ebe K, Ebe Y, Yokota S, Matsumoto T, Hashimoto M (2004) Low Carbohydrate diet (LCD) treated for three cases as diabetic diet therapy. *Kyoto Med Ass J* 51: 125-129.
18. Bando H, Ebe K, Nakamura T, Bando M, Yonei Y (2016) Low Carbohydrate Diet (LCD): Long and short-term effects and hyperketonemia. *Glycat Stress Res* 3: 193-204.
19. Muneta T, Kawaguchi E, Nagai Y, Matsumoto M, Ebe K (2016) Ketone body elevation in placenta, umbilical cord, newborn and mother in normal delivery. *Glycat Stress Res* 3: 133-140.
20. Bando H, Ebe K, Muneta T, Bando M, Yonei Y (2017) Effect of low carbohydrate diet on type 2 diabetic patients and usefulness of M-value. *Diabetes Res Open J* 3: 9-16.
21. Ebe K, Bando H, Muneta T, Bando M, Yonei Y (2017) Effect of low carbohydrate diet (LCD) for diabetic patients with hypertriglycemia. *Endocrinol Metab* 1: 104.
22. Watanabe S, Hirakawa A, Aoe S, Fukuda K, Muneta T (2016) Basic ketone engine and booster glucose engine for energy production. *Diabetes Res Open J* 2: 14-23.
23. Watanabe S, Hirakawa A, Utada I, Aoe S, Moriyama S (2017) Ketone body production and excretion during wellness fasting. *Diabetes Res Open J* 3: 1-8.
24. Bando H, Yoshioka T, Yonei Y, Nakamura T (2006) Investigation of quality life in athletes from an anti-aging perspective. *Primary Care Japan* 4: 47-51.
25. Bando H, Takenaka Y, Nakamura T, Kounoike K, Yonei Y (2015) Investigation for Quality of Life (QOL) and self-esteem for health in masters' athletes. *Glycat Stress Res* 2: 174-181.
26. Schwartz SH (1992) Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. In Zanna MP (Ed.), *Advances in experimental social psychology*. London: Academic Press, London, UK.
27. Doba N, Tokuda Y, Saiki K, Kushiro T, Hirano M, et al. (2016) Assessment of self-efficacy and its relationship with frailty in the elderly. *Intern Med* 55: 2785-2792.
28. Roberts S (2017) Dr. Shigeaki Hinohara, Longevity Expert, Dies at (or Lives to) 105. *New York Times*, USA.
29. Bando H, Yoshioka A, Iwashimizu A, Iwashita M, Doba N (2017) Development of primary care, lifestyle disease and New Elderly Association (NEA) in Japan - common philosophy with Hinohara-ism. *Prim Health Care* 7: 281.
30. Hinohara S, Doba N (2005) The future profile of health promotion and disease prevention in Japan based on the study of seniors over age 75. *Method Inform Med* 44: 342-347.
31. Doba N, Hinohara H, Yanai H, Saiki K, Takagi H (2011) The new elder citizen movement in Japan. In: *Faces of Aging, the Lived Experience of the Elderly in Japan*. Matsumoto Y, Ed. Stanford University Press, USA.
32. Avlund K1, Holstein BE, Mortensen EL, Schroll M (1999) Active life in old age: Combining measures of functional ability and social participation. *Dan Med Bull* 46: 345-349.