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Blood Group Diet Research is the Key to get Precise Results to Improve Human Health

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ABSTRACT

Blood group diet research is gaining popularity among scientists and they are exploring new reasons to preferences of diet in four blood group type individuals. The concept of balanced diet and nutrition seems not to be working properly because diseases like obesity, diabetes, CVD, and cancer are causing millions of deaths in the world. Many scientists still did not pay any attention to the strong correlation between diet and diseases except few in the world. There are strong evidences that these four blood group individuals have different taste buds which are the bases for selection of foods which ultimately become nutrition of that individual. Blood group "A" has bland, "B" has sweet, "O" has saltish, and "AB" has bitter and astringent taste. Distribution of blood group types in different regions of the world indicates that there are strong variations in blood group diet because all four blood group types have four different types of tissues (A- nervous, B-epithelial, O-muscular and AB-connective). Macro and micronutrients are also specific to these blood group types (A-Zinc and Magnesium, B-Iron, O-Iodine and AB need additional calcium). Pakistan has blood groups population as "B" 36%, "O" 33%, "A" 21%, and "AB" 9%. USDA Diet pyramids were designed to guide about the diet of Human beings living in different regions of the world. These diet pyramids are no more valid because of the reason that they are nutritionally and biochemically unsound, but still in many countries these pyramids are being used for the assessment of diet without any positive effects. A diet pyramid based on blood groups is designed to guide about the diet of individuals based on blood groups. Diet charts formulated for four blood group types are based on scientific correlation to prevent diseases and remain healthy.

INTRODUCTION

Blood group diet research is gaining popularity among scientists, and they are finding new clues to resolve the issues of human health and prevent diseases. The concept of balanced diet and nutrition seems not to be working properly because diseases like obesity, diabetes, CVD, and cancer are causing millions of deaths in the world. Dr Peter D' Adamo is pioneer in blood group diet research and has written many books on this topic. Similarly, Dr Michael Lam has also excelled in this field (DrLam.com). The distribution of ABO blood systems vary in different populations of the world. Among Western Europeans the blood type "O" has largest part of the population that is 46% and group "AB" is the rarest group that is 3% [1]. In Asians, group "O" is most common blood type and exists in 43% and the rarest blood type is AB blood group that is 5%.

The ABO blood group system was discovered in 1901. The frequency and purity of the four main ABO blood groups varies in populations throughout the world. Unfortunately the reliability of the blood data for assessing relationships between population groups is very limited. This is mostly due to the lack of availability and interchange of this important data. The data is compiled and

maintain through often times through confidential sources. Every blood gathering entity in the world must gather this information to stay in business, but the data is not published due to racial and ethnic differences in blood types, given the emotionally charged political climate.

Blood group “B” is dominant in the Himalayas, in the region of today's India and Pakistan ^[2,3]. In Pakistan these blood groups are present in the proportions as “B” 36%, “O” 33%, “A” 21%, and “AB” 9%.

Work of Dr. Peter D'Adamo is based on the idea of lectins, Lectins are proteins that are widespread in the plant kingdom with the unique property of binding to carbohydrate-containing molecules, particularly toward the sugar component. Lectins are characterized by their hemagglutinating activities. Blood type is determined by small chains of specific sugars attached to the surface of blood cells. However, biological and pharmacological activities differ among the respective lectins. Stillmark first discovered that seed extracts of castor-oil plant agglutinate red blood cells from various animals. Since then, several different hemagglutinins were discovered in seeds of various plants ^[4]. Lately, it was found that the respective hemagglutinins have binding specificities and their hemagglutinating activities are generally inhibited by monosaccharides or oligosaccharides. Boyd and Shapleigh in Boston University discovered ABO (blood group type A, B and O) blood type-specific hemagglutinins ^[5] among these plant hemagglutinins and then proposed to name these hemagglutinins as lectins after the Latin, ‘legere,’ which means to choose. Thereafter, various kinds of lectins or lectin-like substances were isolated from bacteria and animals in addition to those isolated from plant seeds. Therefore, Goldstein et al. proposed the following definition of lectins to clarify their characteristic features: Lectins are sugar-binding proteins or glycoproteins ^[6] of non-immune origin which agglutinate cells and/or precipitate glycoconjugates. Properties of lectins as follows: ‘Lectins bear at least two sugar-binding sites, agglutinate animal and plant cells (most commonly erythrocytes, unmodified or enzyme-treated) and/or precipitate polysaccharides, glycoproteins and glycolipids. The specificity of a lectin is usually defined in terms of the monosaccharide(s) or simple oligosaccharides that inhibit lectin-induced agglutination, or precipitation, or aggregation reactions ^[6]. Based on their sugar-binding specificities, lectins are generally classified as follows: fructose-binding lectins, galactose-binding lectins, N-acetylglucosamine-binding lectins.

All seasonal fruit which are available in the season have some nutraceutical importance. Appropriate balanced nutrition not only play important role in normal growth, development, health and fitness but also help to prevent diseases in majority of cases. Proper nutrition therapy also delays the signs and symptoms of disease. In addition to proper medical care, therapeutic diets have an important role to play in modern medicine. The advice on diet based therapy should be relevant to the nature of the illness and its effects on the body. Food Scientists recommend that we should avoid medicines until food can help to remain healthy because prevention is always better than cure.

Healthy people rely 100% on diet, but when someone fell ill still relies 50% on diet, 25% on medicine and 25% on environment and psychology ^[7]. In 1991, Japan moved away from the term functional foods and introduced the concept of Foods for Specified Health Use (FOSHU). There were 295 foods approved in the list of FOSHU which represented collaboration between the food industries of Japan and the Japanese government for self-regulation of food products for promotion of special health messages ^[8].

A continuous increasing demand was observed by Wilson and Norman. Market for health foods reported statistics about market size of The Japanese Health Food and Nutrition Food Association for Specified Health Uses during the years 1997, 1999, and 2001, in billion yen as: Gastrointestinal condition (Oligosaccharide; 10.4, 9.1 and 5.6. Dietary fiber; 11.9, 11.6 and 12.8. Lactic acid bacteria; 97.9, 186.3 and 317.1). Blood pressure 1.4, 7.2, and 10.0. Blood cholesterol; 0, 0.4, and 2.8. Blood lipids and body fat 0, 7.0, and 15.2. Mineral absorption; 9.2, 4.5, and 11.4. Blood glucose; 0.7, 0.5, and 18.4. Tooth decay; 0, 0.4 and 18.7. With total of 31.5, 226.9 and 412.1 ^[9].

Blood group research however, specified Macro and micronutrients to specific blood group types as “A” need Zinc and Magnesium, “B” needs Iron, “O” needs Iodine and AB needs additional calcium to maintain good health ^[10].

Four types of tissues have been reported by many scientists and health workers which need to be specifically cared for as “A” Nervous tissues, “B” Epithelial tissues, “AB” Connective tissues and “O” Muscular tissues ^[10]. Bernard ^[11] has recommended health cocktails for common disorders, and special foods, drinks and herbs for twelve body systems to function properly including skeletal (AB), muscular (O), respiratory, endocrine, digestive, reproductive, integumentary, lymphatic, excretory, nervous (A) and urinary systems. He used to prescribe foods instead of medicines to cure his patients.

Babar Sultan Qadri reported that four blood groups have different taste buds, which help to select various foods which latter on become nutrition of that individual ^[12]. Diet charts given in Appendix-III, IV, VI, are having strong relation to their liking and disliking and particular effects on health. These diets are formulated on the basis keeping in view the changing climatic conditions during the year. Najmul Ghani (Undated) have revealed remarkable characteristics of sweet, saltish, bitter, tart, alkaline and savoury foods/juices and their effect on body to cure diseases, which are really appreciating.

REQUIREMENT OF CALCIUM BY BLOOD GROUP “AB”

There are over 40 essential nutrients supplied by food, which are used to produce literally thousands of substances necessary for life to maintain physical fitness ^[13]. Calcium is one of the essential macro minerals required for good nutrition and bone health of young women ^[14].

Sir Humphry Davy isolated the calcium for the first time^[15]. It has numerous vital functions in human body^[16]. It plays a central role in blood clotting, wound healing, maintaining blood pressure, transmission of nerve, and discharge of neurotransmitters. It also plays a vital role in the synthesis of enzymes and hormones that control fat metabolism, digestion, and regulates energy. It helps in the maintenance of connective tissues and all cells of the body^[17,18].

It is necessary for our body that even supply of calcium must be maintain throughout in the life of every individual, but it is particularly essential for the periods of growth, for normal health of women during pregnancy, and lactation^[16,19]. This mineral is stored more than 99% in the bones, teeth and 1% in the blood, nerves, and muscles^[17]. Approximately 27.5 g of calcium is present in infant body whereas 1000 to 1200 g is present in the adult human body^[16].

Calcium absorption depends on amount of calcium in the body, status of vitamin D, age and pregnancy. Its absorption and utilization also depend on some other factors such as phosphorus, parathyroid, estrogen and calcitonin hormones^[20]. Almost 15-20% of calcium absorption gradually reduces in maturity and even more reduction takes place in old age.

Recommendations for intake of calcium are higher for growing persons, but it reduces markedly in ages from year 51 and over^[21]. Malnutrition is the state that consequences from taking an unbalanced diet in which certain nutrients are missing, surplus or in the incorrect magnitude^[22]. Malnutrition is usually taken as under nutrition^[14].

EXCRETION OF CALCIUM FROM BODY

High intake of sodium, potassium, caffeine, protein and also high consumption of phosphate included in diet (carbonated soft beverages) and alcohol influence excretion of calcium from the body^[23].

If intake of calcium is inadequate, less calcium absorption occur then high calcium losses occur and net calcium level reduces in the body that results the occurrence of the calcium deficiency in the individual. If an individual have the problem of calcium deficiency due to above mentioning factors, then calcium is withdrawn from their bones in order to maintain calcium levels in the blood^[16].

Generally in developing countries, over one billion humans have inadequate levels of vitamin D and dietetic scarcity of calcium^[24]. It is found that calcium is deficient in Pakistani diet^[25].

Calcium deficiency is basically due to under nutrition or any other issue is involved.

SYMPTOMS OF CALCIUM DEFFICIENCY

Symptoms of calcium deficiency include too much tightening of muscles, causing tetany, hyperparathyroidism, hypomagnesaemia, malabsorption, deficiency of vitamin D, cardiac arrhythmias^[14]. There are also some diseases that relate to calcium deficiency, also known as major symptoms of calcium deficiency. These include abnormalities of body skeleton i.e bones like osteomalacia^[26], Osteopenia, rickets^[27] and osteoporosis^[28].

Different diseases are observed in different people in different nations worldwide. These diseases are even related to under nutrition and obesity. The incidences of certain diseases are related to blood groups^[29,30].

The nutrition of young women residing in university hostels depends largely on the availability, amount and quality of food that is provided in hostels. Surveys related to nutrition exposed that the major part of young women diets consists of cereals and also insufficient consumption of protective foods. The results due to little intake of protective foods are nutritional problems such as vitamin A, B complex, ascorbic acid deficiency as well as anaemia disease^[31]. The dietary inadequacy of energy has been reported in this section of population^[32]. Food frequency questionnaire are used to estimate the calcium in young women. Food frequency questionnaire method has been broadly used for measuring intake of nutrient in the aged people as well^[33].

Bone marrow density (BMD) test determines the calcium level in body of individuals from calcareous bones of the foot and show calcium deficiency as osteopenia or osteoporosis^[34]. Deficiency of calcium is one of the major deficiencies that are related to malnutrition^[35] and is major cause of osteoporosis^[36]. There are various symptoms of calcium deficiency and certain diseases related to it, such as rickets^[37] osteopenia^[38], and osteoporosis. Due to low intake of dietary calcium, there are high chances of osteoporosis, especially in postmenopausal women of Asia and America^[39].

In a similar study, Calcium level was determined by using ultra sound bone densitometer (Sonometer®) in female students having different blood groups living in hostels of University of Sargodha, Pakistan. The nutritional status of blood group "AB" was compared with other blood group individuals. Results confirmed that the blood group "AB" subjects were having lesser calcium levels i.e. t-statistic of (A-AB) was -6.80 highly significant, (O-AB) and (B-AB) were -6.72 and -5.61 respectively, also highly significant. Subjects having blood group "AB" were found to be calcium deficient as compared to other blood groups. It was concluded that major deficiency of calcium is prevailing in population having blood group "AB" and should be taken care for additional calcium intake. In other blood groups individuals a problem of over load may have deleterious effects on health. Studies also emphasized that diet relevant to blood groups should be promoted^[40].

There are four types of tissues which have been reported by many scientists and health workers as "A" blood group is

required to care about diet for nervous tissues, “B” about epithelial tissues, “AB” about connective tissues (bones) and “O” about muscular tissues^[10]. Babar has also mentioned that people with blood group “A” are deficient in Zinc and Magnesium, “B” in Iron, “AB” in calcium and blood group “O” individuals are deficient in Iodine. Two of these hypotheses were tested during M.Sc. research studies at Institute of Food Science and Nutrition, University of Sargodha about blood group “A”, “AB”, and paper of blood group “O” about iodine is recently published^[41], hypotheses were found correct^[42,43]. Bernard^[11] has recommended health cocktails for common disorders, and special foods, drinks and herbs for twelve body systems to function properly including skeletal, muscular, respiratory, endocrine, digestive, reproductive, integumentary, lymphatic, excretory, nervous and urinary systems. He used to prescribe foods instead of medicines to cure his patients.

These tissues also need some specific nutrient requirements including some minerals to carry out functions of body smoothly. People with blood group “A” are deficient in Zinc and Magnesium^[44-47], “B” in Iron, “AB” in calcium and blood group “O” individuals are deficient in Iodine^[10,41].

Research work carried out at Harvard School of Public Health shows that there is a strong correlation between blood group and heart diseases. Findings were based on two large US analytical studies in which 62,073 women from nurses and 27,428 subjects from health profession were studied between the age of 30 and 75 years and followed for 20 years. The work was published in an American Heart Association Journal. It was claimed that blood group “AB” individuals were more vulnerable to heart attack and people having blood group “O” were 20% more resistant to heart disease based on lifestyle, and diet^[48]. Faiz^[49] reported many diseases which were correlated to blood groups through modern literature. It is also reported by him that atherosclerosis, thrombosis are prevail in blood group “AB” (Appendix-II). While, diet of blood group “O” contain all such foods which make the blood thin and more flowing to prevent heart diseases e.g. tomato, dates, onion, ginger, and garlic, cloves, etc.^[50].

According to one of our nutrition survey on preferences of diet indicated that blood group “B” individuals like buffalo milk and milk products as yoghurt, lassi (yoghurt water shake), buffalo cheese, whey products, milk shake with relevant fruits (Strawberry, apple, banana). It is further noted that “Lactic acid” present in milk products is also beneficial for blood group “B” to keep these individuals healthy and provide energy. Similarly, milk sugar “Lactose” is also good sugar for this particular blood group. Recent work on development of “An Ultimate Diet Pyramid Based on Blood Groups” has been introduced which reflects complete diet patterns of all four blood groups (Appendix- I-IV)^[51].

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