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Review Article

Active ageing– Promotion of optimum health

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Abstract

The growing population, advance medical technology and increase life expectancy all over the world, at the same time pre-mature aging and increase the prevalence of chronic health problems in modern era is growing concern of health care delivery system today. Unhealthy lifestyles, faulty dietary habits, stress in life vis-à-vis decrease efficiency, energy and productivity and growing numbers of heart attacks, diabetes, hypertension and other non-communicable diseases is the global problems in developed and developing countries. Among the health care providers nurses are key resource persons in educating the population to help the community in maintains the optimum health. Find age young as long as one can keep physically and mentally fit. According to the World Health Organization (WHO), 605 million persons (20%) The life expectancy of the world population is increasing, and it is estimated that by 2025, 29% of the world population will be aged 60 years, and this will lead to an increase in the number of older people acquiring age-related chronic diseases. it is estimated that this number will have grown to 1.2 billion 29% to live these additional years independently and relatively disease and disability free will demand attention to promoting healthy lifestyles early and maintaining these throughout life. Growing old and getting sick simply are not inter-changeable. Aging may or may not be associated with disease states. Acquaint with knowledge of anti-aging, premature /signs of aging and measures to reduce its effect will beneficial to maintain wellness. In this study focused on promotion of optimum health.

Keywords: Active aging, Anti-aging, World Health Organization, Healthy lifestyles, Optimum health.

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1. Introduction

"You are never too old to reinvent yourself"-sir martin sorrel

Ageing is a life span. Everyone who born will age and died. It's a natural process. Ageing is a not a disease. Active ageing is a state of mind that developed on how one will assume about aging process. It's coping mechanism of individual with body changes and adopt with it. Meaning of active aging includes the involvement of a person actively in life to remain active and healthy, maximum independent to live meaningful life. It is said ageing start the moment you become inactive though it has chronological boundaries [1]. The oldest old are among the fastest growing segment of the population. It has been estimated that the number of centenarians will approach 3.2 million world-wide by 2050, a greater than 18-fold increase from the turn of the 21st century [2]. Additionally, the World Health Organization estimates that by 2025, 120 countries will have reached total fertility rates below the replacement level—compared

to 22 countries in the 1970s [3]. With the increasing emphasis on health and the progressive lengthening of the average life span, there is a need for examining new ways to improve well-being and to prevent disease at every stage of life. Globally, cardiovascular disease (CVD) and cancer are the leading causes of mortality and loss of disability-adjusted life years [4]. Active Ageing is a 21st century global approach to older people achieving healthy, productive, safe, and fulfilling lifestyles. According to the WHO [5], active ageing is the "process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age". Essentially it is about people being physically active, and continuing their participation in social, economic, cultural, spiritual, and civic affairs in older age. Recent Australian studies in this area include the Australian Active Ageing survey of National Senior members [6] and research by Western Australia Department for Community Development [7]. That has developed Active Ageing Benchmark Indicators. These studies conceptualize active ageing for older people in terms of being pro active in keeping healthy, eating well and being physically and mentally active, living in safe environments, working and actively participating in family and community life. However, these studies do not indicate how active ageing is conceptualized for older people with an intellectual disability. Indeed there is a general absence of literature on active ageing for this population of older people. 'Ageing', for older people with lifelong intellectual disability is a relatively new phenomenon and we are only now seeing the first substantial group of older adults with lifelong intellectual disability reach old age [8, 9]. Many are now surviving to their mid 60s, and some are living well beyond this age. Until more recent times, people with intellectual disability were not expected to survive past their 20s and certainly they were not expected to outlive their parents [10]. Traditionally, these groups were either cared for at home or lived 'separately' from society within institutions. In Australia, older people with lifelong intellectual disability represent a small but growing cohort of our ageing population and today, many are living independently in the community, or are cared for at home or in supported living accommodation. With these changes has come a host of new challenges in terms of lifestyle support issues as they move through this new 'unknown' phase of their lives. The aim of this paper is to present the issues of active ageing of a subset of older people with intellectual disability, based on their experiences in older age and their goals/expectations for the future. Seeking the views of the people themselves is significant, as much of the research in the disability field has traditionally drawn upon the perspectives of others, rather than including those of the people themselves [11]. Aging is a natural and multi-factorial phenomenon characterized by the accumulation of degenerative processes that are in turn underpinned by multiple alterations and damage within molecular pathways. The alterations and damaged ultimately compromise cell and tissue functions [12, 13]. As such, aging is the most profound risk factor for almost all non-communicable diseases, including cardiovascular diseases, cancer, diabetes and neurological diseases. The proposed mechanisms that contribute to the aging process and the development of these chronic, age-associated diseases include DNA damage, alterations in gene and non-coding RNA expression, genotoxicity, oxidative stress, and the incidence of shorter telomeres [14–16]. Despite the many theories that have been proposed to explain the phenomenon of aging, as yet none has been able to fully explain the mechanisms that drive the fundamental process of aging [17]. Indeed, the understanding of aging has increased markedly, with current knowledge highlighting the importance of "network" theories of aging [18]. Based on these integrative theories, aging is best described as a multi-factorial process involving complex interactions between biological and molecular mechanisms [19–21]. Given this, it is unlikely that any single or readily defined set of biomarkers will provide a valid measure of biological aging. However, it remains an important goal to provide increasingly accurate measures or predictors of the onset of ill health. Conversely, and of equal importance, is the ability to characterize the maintenance of age-appropriate optimal health. The ability to distinguish between what is normal biological aging and when health is

adversely compromised is an important area for which little experimental data exists. As such, there is no gold standard tool for assessing healthy aging and no single measure has yet qualified as a sensitive and specific biomarker of aging. This results in some panels of markers that are associated with survival, health at old age, frailty, age-related (multi-) morbidity or disability. More recent attempts have aimed to statistically link multiple biomarkers that operate in different physiological networks using techniques such as principal component analysis to generate a more comprehensive insight of age-related health [22, 23]. These strategies, when combined with recently identified molecular and DNA based markers, have the future potential to improve the prediction of healthy aging [24, 25]. The definition of a biomarker for aging follows the guidelines of the American Federation of Aging Research [26].

The process of aging

Aging is an overall deterioration process of the body. Carmona JJ Machen. A comprehensive understanding of the molecular and cellular mechanisms that underlie age-related deterioration and repair, and how these pathways interconnect, remains a major challenge for uncovering interventions to slow human aging while extending molecular and physiological youthfulness, vitality, and health [27].Measures of physical capability remain important markers of current and future health. Objective and standardized tests of physical capability have been developed and increasingly used in population-based studies. Functional assessments for physical performance such as handgrip strength, chair stand, gait speed, timed up and go, and six-minute walk tests are frequently used for monitoring the biological aging process. A weaker grip strength, slower walking speed, less repetitions in chair stand test, and poorer standing balance performance are all associated with significantly greater Nutrients 2016, 8, 338 3 of 12 mortality rates, independent of age in older community-dwelling populations. These finding have now been further confirmed with meta-analyses highlighting the strength of the association between slower walking speed and increased mortality rates [28, 29]. More recent studies indicate that, in addition to grip strength and walking speed, standing balance and chair rise speed in middle-age predict mortality rates over 13 years of follow-up [30]. Weaker grip strength was also found to be associated with functional decline as assessed by self-reported difficulties performing activities of daily living (ADLs) [31]. Various studies and systematic reviews evaluating the risk for subsequent disability (by assessing ADLs) showed that older adults performing poorly in tests of physical capability are more likely to become functionally disabled [32, 33]. There is also some evidence that poorer performance in grip strength, walking speed, strength of lower extremities and standing balance is associated with a higher risk for cardiovascular disease (CVD), dementia and institutionalization (as a marker for the loss of independence). In the UK Newcastle 85+ study, low handgrip strength was associated with multi-morbidity, cognitive impairment and disability [34]. Independent from the association with physical capacity, there is a significant decline in many aspects of cognitive functioning with aging, including memory processing, attention and visual-spatial abilities, whereas some other aspects of cognitive functioning, such as vocabulary, may increase with age [35]. However, cognitive dysfunction is associated with higher risk of mortality in patients regardless of the underlying diagnosis. In this respect it has been shown that a score below 25 in the Mini-Mental State Examination is associated with the highest mortality rate [36]. Aging is also associated with body composition changes including increased body fat, reduced muscle mass, and reduced organ mass (with the exception of the heart). Higher abdominal adiposity is a risk factor for aging and for age-related diseases with the lowest mortality risk for those with waist circumferences below 94 cm for Caucasian men and 77 cm for Caucasian women. The relative risk of mortality is doubled for those with waist circumferences above 132 and 116 cm in men and women, respectively [37]. The body mass index (BMI) is a useful measure of overall adiposity since each 5 kg/m2 increase in BMI is associated with a 30% higher overall mortality, a 40% higher vascular mortality, and a 60%–120% higher diabetic, renal, and

hepatic mortality [38]. In addition, high BMI, independent of gender and other confounding factors, is a risk factor for cognitive decline [39]. Irrespective of the definition of sarcopenia, the age-related loss of skeletal muscle mass and strength [40, 41] both low muscle mass and poor muscle function are highly prevalent and important risk factors for disability and mortality in aging [42, 43]. Cross-sectional and prospective studies examining the relationship between regional muscle mass and health outcomes consistently reported that a low skeletal muscle index (skeletal muscle mass/body mass expressed as percentage) is associated with an increased likelihood of functional impairment and disability [44, 45]. Collectively these studies all continue to point towards the importance of physical measures, including mobility and body composition as important biomarkers of aging. Further refinement will be required, as newer imaging methodologies become commonly applied, including magnetic resonance imaging (MRI) and peripheral quantitative computer tomography for the measurement of body composition and muscle mass with improved precision. Future technologies including wearable devices will increasingly provide accurate and real-time data on movement patterns, distinguishing the onset and severity of age-related ill health.

Aging -disability and disease

A study by Sonya Vasto, sbuscemi, Annalisa Barera, Marta di Carlo, Giulia Accardi, Calogero Caruso “Traditional Mediterranean diet and healthy ageing: The example of healthy life style like The Mediterranean lifestyle has been proven healthy and referred as an example. A study reported, for many millennia a daily habit for people in Western civilizations living around the Mediterranean Sea who worked intensively and survived with very few seasonal foods. Mediterranean diet include high consumption of vegetables, fruits, legumes, and grains; moderate consumption of milk and dairy products, mostly in the form of cheese; and low consumption of meat and meat products and moderate form of wine. Reports indicate that some dietary components, such as olive oil, antioxidants,omega-3 and -6, polyunsaturated acids, poly-phenols and flavonoids, mediate beneficial anti-aging effects (anti-chronic diseases and increased longevity). A high adherence to the traditional Mediterranean diet is associated with low mortality (higher longevity) and reduced risk of developing chronic diseases, including cancer, the metabolic syndrome, depression and cardiovascular and neurodegenerative diseases [46, 47]. WHO (2014) According to government data, the prevalence of heart failure in India due to coronary heart disease, hypertension, obesity, diabetes and rheumatic heart disease ranges from anywhere between 1.3 to 4.6 million, with an annual incidence of 491,600 to 1.8 million [48]. Active aging concept may use for both preventive as well as therapeutic treatment or care to remain active and maintain the energy or power for healthy living. Common theories of aging, where age linearly correlates with and/or is caused by the accumulation of reactive oxygen species (ROS), DNA damage, mitochondrial dysfunction, impaired antioxidant defense and shortening of the telomeres [49], are well established in humans. However it has been reported that many of these markers increase up to a certain age, most commonly coinciding with the statistical life-expectancy. Thereafter, a plateau or even a decrease in the level of some of these biomarkers has been described. Supported by the free radical theory of aging, it is widely accepted that the production of ROS by mitochondria accumulates over the lifespan leads to a state of chronic oxidative stress at old age. As antioxidant defense mechanisms and DNA repair capacity seem to be impaired in the elderly, DNA damage has been proposed to be a consequence of aging [50]. Impaired DNA stability increases the frequency of cytogenetic aberrations, which in turn is highly linked to age-related diseases such as cancer, diabetes, cardiovascular diseases and cognitive decline [51, 52]. However, after linearly increasing until the age of 60–70 years [53, 54] chromosomal damage tapers and the rate of damage diminished with increasing age (over 85 years) [55]. Notably, the same seems to be true for telomeres, the protective ends of the chromosomes [56]. Longer telomeres and higher telomerase activity contribute to the stability of the

genome, to DNA integrity and are positively correlated with the aging process [57]. Both, the "regular" aging process and the development of chronic diseases are accompanied by increased DNA damage, chromosomal damage, and telomere shortening [58]. Importantly, people exceeding the statistical life-expectancy, and especially the very oldest age-groups including nonagenarians (90–99 years), centenarians (100–109 years) and super-centenarians (110 years and older), demonstrate a different picture of age-related diseases compared to study cohorts at or below life-expectancy [59]. Furthermore, an increasing amount of data suggests that chromosomal stability, DNA repair activity, and antioxidant defense capacity in successfully aged subjects is comparable to younger cohorts [60, 61].

Active aging nutrition for optimum health (anti-aging)

BMR reduces after the age of 20. To achieve balance diet, Variety in food is not only the spice of life but also the essence of nutrition and health. Cereals, millets and pulses are major sources of most nutrients. Multigrain, multi-pulses use in recipes and a diet consisting of foods from several food groups provides all the required nutrients. In addition, a balanced diet should provide other non-nutrients such as dietary fiber, antioxidants and phytochemicals like flavonoids-Flavones. Quercetin (Fruits and vegetables are the primary dietary sources of Quercetin), particularly citrus fruits, apples, onions, parsley tea, and red wine. Olive oil, grapes, dark cherries, and dark berries such as blueberries, blackberries are also high in Quercetin and other flavonoids. Red and yellow onions, tea, wine, apples, cranberries, buckwheat, and beans which best of positive health benefits. Antioxidants such as vitamins C and E, beta-carotene, riboflavin protect the human body from free radical damage. Eat complex carbohydrates, low glycemic foods and fiber rich diets. Increase consumption of fruits and vegetables, legumes, whole grains and nuts. Use of yogurt (curd) in many preparations of menus is healthy. Dry fruits if possible add daily in diet to get quality nutrients. Selection of foodstuffs with variety of colors, like red, green yellow purple and tastes provides many nutrients required for the body. Adults should choose low-fat, protein-rich foods such as lean meat, fish, pulses sprouts and low-fat milk. Eat small meals regularly at frequent intervals. Cut down sugar, salt, fatty foods, refined foods, soft drinks and alcohol. Limit fat intake and maintain saturated to unsaturated fats. Avoid trans-fatty rich foods (Vanaspati, bakery products and sweets) Eat require amount of nutritious food at regular interval only. In addition, one should follow a nutritious eating plan and consume fewer calories. To have safe food, avoid eating out-side food. Indian cooking method like heating with high temperature (use of pressure cooker) is good that kills the harmful bacteria. Develop healthy eating habits and exercise regularly to achieve energy balance and appropriate weight for height. Physical activity is essential to maintain ideal body weight by burning excess calories and is of vital significance for health major modifiable risk factor in prevention of non- communicable diseases. Exercise is a prescriptive medicine Physical activity may reduce the risk of falls and injuries in the elderly. Move body as much as one can. It is recommended to carry out at least 45 minutes of physical activity of moderate-intensity for at least 5 days in a week. This amount of physical activity may reduce the risk of some chronic diseases. To lose weight, experts recommend that at least 60 minutes of moderate- to vigorous-intensity on most days of the week along with low carbohydrate low fat diet. Physical activities likes Aerobic activities like risk walking, jogging, and swimming this speed up heart rate and breathing while improving heart and lung fitness. Weight-bearing activities help to build and maintain bones and muscles by working them against gravity. Lifting weights, walking are a few examples. Martial arts Dancing, gentle stretching, yoga, improves physical stability and flexibility. Equally physical activity displays a positive effect, producing caloric consumption and regulation of adipose and pancreatic function. Yoga and pranayama drains the stress, recharge energy. Health Benefits of Physical Activity Controls body weight and composition reduces risk of chronic diseases, such as Type 2 diabetes, high blood pressure, heart

disease, osteoporosis, arthritis and certain types of cancers [62].The objective to attain healthy aging could be achieved by practicing stress-free lifestyle enriched with moral code of conducts and healthy dietary habits to make the aging healthy and happy. Principles of living based on Positive attitude and a moral value is a basis of Self-satisfaction utmost important in acquiring wellness life. Developments the understanding and importance of moral social and spiritual values in life that provides 'inner strength' and self-satisfaction. Is Goal oriented? Prepare the other goals of life, if one is achieved. Always engage in activities with or without expecting the fruit that will teach the real meaning of life and will help to maintain active life. Identify own potentials and limitations necessary for our all-round development. Join the social groups. Keep learning the methods socially healthy that keep physically mentally active and positive. Help others whenever possible that gives you real satisfaction. Think rational logicaland live systematically to keep away stress. Stress can affect the adrenal glands and accelerate the aging process. Plan day to day activities and analyses and evaluate at the end of the day. Think positively about the situation by different angles. Find the various alternatives solutions for problems. Try for it. If failed, learn the messages from situation. Learn to enjoy life out of difficulties. Bring a discipline in your life but it should not be much rigid. Be flexible but should be goal oriented. Learn about growth and developmental task that will prepare mind to face the geriatric problems. Observe the environment in a more realistic manner. Utilize energy in a productive way. Recognize the different 'roles' that have to play in the family and Society. Bring up children in such way that they will follow and enjoy maximum optimum healthful health. Develop knowledge and skill in job at work – place that call 'most competent' to get satisfaction and bliss. Plan for retirement Life including finance leisure activities, social activities. Make every effort to become independent at all time. Do not forget human rights that one entitled to enjoy life by own way. Live and let live happily. Don't feel guilty if dependent on others for an instances. Never lose own confidence courage. Have a self- control on situation. Plan for retirement Life including finance leisure activities, Social activities. Qualities to be developing caring, compassionate. Be more self-compassionate may improve well-being including old age. Aging is most complex biological process. Aging can simply refer to the passage of time of life-expectancy in which the collection of physiological changes takes place. If the generation of free radicals exceeds the protective effects of antioxidants, and some co-factors, this can cause oxidative damage which accumulates during the life cycle, and has been implicated in aging, and age dependent diseases such as cardiovascular disease, cancer, neurodegenerative disorders, and other chronic conditions. The life expectancy of the world population is increasing, and it is estimated that by 2025, 29% of the world population will be aged 60 years, and this will lead to an increase in the number of older people acquiring age-related chronic diseases. This will place greater financial burden on health services and high social cost for individuals and society. In order to achieve healthy aging the older people should be encouraged to acquire healthy life styles which should include diets rich in antioxidants. The aim of this review is to highlight the main themes from studies on free radicals, antioxidants and co-factors, and to propose an evidence based strategy for healthy aging [63].

Conclusion

In this review article strongly focused on active ageing- promotion of optimum health. In this review article study survey showed; many service users, their current circumstances do not reflect an active engagement in life and fail to meet their 'dreams' or 'expectations'. It has been highlighted that many service users have had different experiences in the latter part of their lives that have led to new expectations on their part. The findings suggest that safe environments and personalized lifestyle planning that reflect individual needs and aspirations, will help empower them to achieve a more meaningful and active lifestyle in the future. The expected life span is increasing gradually and this confers a number of challenges. In order to spend the years of older age with optimal health there are a number of individual options that may

be used including use of healthy dietary and exercise habits. Aiming at preventing obesity without malnourishment through the use of for example; components from the Mediterranean type of diet is probably of value and is associated with reduced risk of CVD and some types of cancer, in the elderly. Exercise has been shown to prevent a number of health threatening diseases including CVD, a number of cancers as well as mental disturbances. To decrease a sedentary life style seems at least as important as regular exercise. For example, watching TV has been shown to decrease expected life time significantly, and on average, every single hour of TV viewed after the age of 25 reduces the viewer's life expectancy by 21.8 (95% UI: 0.3-44.7) minutes. Exercise could probably be tailored to increase cardiovascular health or to prevent bone loss. It is of great importance for health care providers to recommend slowly increased frequency, duration and intensity and to help find activities that suit the individual in order to increase compliance. Much research has to be made in order to find the ideal doses of exercise and to increase long-term adherence to the kind of exercise recommended. By all means dietary and exercise modifications seem to be strong promoters of healthy ageing. Due to the complexity of the many biological and molecular mechanisms of aging, no single biomarker will provide a valid measure of healthy aging. Based on the available evidence, there is yet to emerge any newly identified measures of molecular function that out-perform the existing lipid, peptide and hormonal biomarkers routinely analyzed in blood. Often overlooked is the value of combining such measures with the well-established markers of physical and functional parameters. Currently many novel markers are under evaluation, made possible with new analysis technologies or greater insights into the fundamental molecular basis of the loss of functionality and onset of dysfunction at the cellular level. Thus the number of potential candidates is anticipated to grow markedly. It remains to be elucidated which markers will achieve the status as reliable predictors of biological aging and provide a measure of ongoing optimal health.

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