

Aging Research Institute Newsletter

Tabriz University of Medical Sciences (TUOMS)

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Happy Nowruz!¹⁴⁰¹

Editor-In-Chief's Message;

Spring's around the corner and everything's about to take on a new tint and scent. This charming and ever-lasting legend will remain engraved in hearts ; leaving every person with the sensation that the first day of spring is somehow a simulation of the first day of creation; letting them see the New Year and the New Spring as a fresh start to revive and ponder over how to live their lives and to not take what they've already been through for granted; since it's been all these years that have made us who we are now. Without the steps of the past, we could've never even had a prospect of the future! So let's give it a try to cast a more delicate glance on the the little things in life and immerse in the joy of all the intricate details ! Because there comes a day when we look back and realize how grand these little tiny things were, while we had no inkling of them being this much worthwhile . We wish you a year brimming with joy , happiness and prosperity and hope that in this new year of the new century, all your efforts will come to fruition . May you live lives of eternally blooming days . happy New Year



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Top Article

Editorial

Functional foods for older adults

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The number and proportion of older adults are increasing globally; as reported by World Health Organization (WHO), 1 in 6 people in the world will be aged ≥ 60 years by 2030, and the world's population of people aged ≥ 60 years will double by 2050 (1). Various studies have shown that healthy eating is essential for better nutritional status and quality of life in older adults. Consumption of healthy foods rich in antioxidants and anti-inflammatory flavonoids, polyphenols, and retinoids as a lifestyle modification strategy seems to be an effective and cost-benefit way for the prevention of chronic diseases in older adults. In this regard, functional foods can bring specific components with health benefits beyond those of basic nutrition. Functional food is defined as a "food or food ingredient that may provide a health benefit beyond the traditional nutrients it contains" (2). Some examples include foods fortified with vitamins, minerals, probiotics, or fiber. Moreover, nutrient-rich ingredients like vegetables, fruits, grains, nuts, and seeds are often considered functional foods. Some of the most common bioactive components of functional foods include fiber, isoflavonoids, carotenoids, allicin, sulforaphane, flavonoids, and omega-3 fatty acids. These foods can help to address the challenges in the older population by promoting healthy aging, decreasing the incidence of non-communicable diseases, and reducing the economic burden on health care (3).

A fast-growing group of these foods is the food supplemented with prebiotics, probiotics, or synbiotics which are associated with gut health and well-being of the aging population. We know that aging is associated with mitochondrial dysfunctions leading to membrane leakage and consequently release of reactive species. Free radicals induce cell death and tissue loss, which in turn contribute to cardiovascular, neurodegenerative, and carcinogenic processes. Dietary bioactive compounds from functional foods can prevent these processes and protect from chronic diseases of aging by their mitochondrial stabilizing functions, antioxidant activities, cancer cell apoptosis induction, and vital cells apoptosis inhibition (4). Consuming a balanced diet supplemented with bioactive compounds is one of the best ways to avoid nutrient deficiencies, maintain good health, and manage or even prevent chronic disease in older adults (5). In conclusion, functional foods constitute a great promise to improve health and avoid aging-related chronic diseases. Use of functional foods impacts specific health outcomes, such as improving gut health and gastrointestinal functions, preventing cardiovascular disease and metabolic diseases such as diabetes type 2, improving bone health, and cognitive support.

Keywords: Functional Foods, Older Adults, Nutrition, Gut.

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Healthy Aging Congress (5th International Alavi Meeting)

Population structure is going towards aging, and management of the increasing problems and needs of the aging requires the development of knowledge and research as well as the strengthening of inter-sectoral cooperation, and the expansion of scientific communication between researchers in the field of aging. Thus, as the first aging research institute in the country, Aging Research Institute of Tabriz University of Medical Sciences intends to hold the Healthy Aging Congress (5th international Alavi meeting) on 10-12 May 2022. Holding this congress while unveiling research activities can provide the way for scientific interaction and communication between researchers and share the latest scientific findings and experiences of researchers and activists in aging. The congress will award five grants for international projects of the academic staff besides five grants for student projects. Moreover, five projects from other universities of Iran will be awarded. Meanwhile, a Continuous Medical Education (CME) program for specialists and various workshops will be held in addition to reviewing research projects to award the grants.

The priorities are as follows:

- Environmental and social components of healthy aging
- Chronic non-communicable diseases
- Integrative medicine in aging
- Musculoskeletal diseases
- Regenerative medicine
- Cognitive impairment
- Covid-19 and aging
- Mental health
- Stroke
- Pain

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Constipation in older adults and its treatment

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One of the most common ailments in old age is constipation which occurs for various reasons including eating dry and constipating foods such as rice and also malnutrition, numbness and poor bowel function, and jobs such as blacksmithing. (1)

Laxatives are among the drugs used to treat constipation in older adults. Available fruits and vegetables such as figs, plums, mallow, fleawort, purgative manna, almond oil, cassia, senna, flaxseed, quince seeds, and tamarind can be used as well.

Figs

Figs have a warm and wet temperament and are laxative. Fresh figs are more effective than dried ones, and eating them before meals or with walnuts or almonds has laxative effects (2 and 3). Figs, containing high amounts of fiber, increase bowel movements, reduce defecation time and improve abdominal pain, which makes them a good option for treating constipation. (4)

Plums

Plums have a cold and wet temperament and are laxative. Sweet plum has a more laxative properties and relieves constipation due to its moisture. Cooking it with sugar causes diarrhea without side effects. (2 and 3) Plums are rich in fiber and consuming them before meals, causes soft stools and reduces difficulty in defecation. (5)

Mallow

This plant tends to have a cold and wet temperament and is laxative. When boiled, the water can be used to cleanse the intestines. The periderm of the root is highly laxative. The decoction of Mallow is useful for relieving constipation. (2 and 3)

It should be noted that in case of being taken along with other drugs, the absorption of other drugs is delayed and it is better to consider at least a 2-hour interval between their consumptions. (6 and 7)

Psyllium

The temperament of psyllium is cold and wet. The white type-which is the best type, is laxative and improves intes-

tinal ulcers and treats constipation. Its mucilage alone or in combination with almond oil also has the already-mentioned properties. To pose diarrhea and laxation, Psyllium seeds are soaked in warm water so that the mucilage is removed and the viscosity is eliminated. Afterwards, it can be consumed with white sugar or oxymel. (2 and 3) By increasing the water content of feces, Psyllium makes feces soft, the volume increases and reduces colon transit time. (6) When consumed, it should be noted that it causes obstruction in the esophagus and intestines if taken with little amount of water, especially in older adults. In addition, It is contraindicated in patients with ileus as well as the ones with uncontrolled diabetes. (6 and 8)

Purgative manna

It has warm temperament, is laxative and removes waste products from the body. Purgative manna is used to cause diarrhea, without the slightest complications. This feature makes purgative manna very suitable for consumption in children and older adults, especially if consumed with non-alcoholic beer. (2 and 3)

Cassia fistula

It has a warm and wet temperament and is laxative. This plant is suitable for both pregnant women and children. It is also used for digestive problems along with extracts from mallow root, quince seed, fleawort and almond oil. (2 and 3) This drug should not be used in people with acute inflammatory bowel disorders and appendicitis and it is better not to be used in long term. (6)

Flaxseed

Flaxseed is hot and dry in terms of temperament. It is a laxative and consuming 2 grams daily is useful for laxative effects. (2 and 3) However, it should not be used in patients with esophageal stricture, ileus and acute inflammatory bowel disorders. It should be taken with lots of water and a proper interval taken into consideration when used with other drugs. (6)

Senna

It is hot and dry, it eliminates waste from the whole body.

This plant should be used with roses and almond oil. (2 and 3) By inhibiting the reabsorption of water and electrolytes from the large intestine, the volume and the pressure of the contents inside the intestines increase, which stimulates bowel movements and excretory contractions. However, it is contraindicated in people with inflammatory bowel problems and appendicitis, and it is better not to be used in long term. (6) Given that Senna, theoretically, interferes with drugs, it is best for people taking corticosteroids, potassium-sparing diuretics, digoxin, and quinidine not to use Senna. (9)

Tamarind

Tamarind has cold and dry temperament. It is more subtle than plums with less moisture. It is a laxative and eliminates waste products in body. Moreover, it is unique laxative with sour taste. It should be noted that tamarind should not be rubbed too much in water because it causes nausea and vomiting; instead, it should be soaked in water long enough for the extract to be completely absorbed in the water. After being filtered, it can be consumed with a little sugar or rock candy. (2 and 3) Tamarind increases the bioavailability of aspirin and may increase gastrointestinal bleeding. (7)

Quince seeds

The seeds of the fruit quince have cold and wet temperament and are laxative. It's mucilage is also used in lung problems such as dry cough. (2 and 3)

Almond oil

Sweet almonds have mild temperament and are laxative especially when consumed with hot water. Bitter almond oil is warm and wet and cleanses the stomach. (2 and 3) However, bitter almond oil should be consumed with caution due to the presence of a cyanogenic glycoside. (6)

In addition to medicinal plants effective in treating constipation, honey syrup can be used as well; as it has laxative effects and is also effective in relieving bloating and eliminating waste products. (11)

Keywords: Constipation, Older Adults, treatment.

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COVID-19

A glance on the published articles about aging

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Protective Effects of Exercise Has Become Especially Important for the Aging Immune System in the Covid-19 Era

Aging is a complex, multi-etiological process and a major risk factor for most non-genetic, chronic diseases including geriatric syndromes that negatively affect healthspan and longevity. In the scenario of “healthy or good aging”, especially during the COVID-19 era, the proper implementation of exercise as “adjuvant” or “polypill” to improve disease-related symptoms and comorbidities in the general population is a top priority(1-3).

Age-related disorders account for ~25% of the global burden of disease and continue to increase(4). From a biological perspective, aging is associated with cellular senescence.

Diploid cells (fibroblasts) invariably undergo a finite and predictable number of cell divisions due to telomere shortening. This process was termed as “replicative senescence”. Some processes seem particularly important foraging in the context of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic.

First, older adults with immunosuppressed or weak immune defense are susceptible to coronavirus disease 2019 (COVID-19), caused by SARS-CoV-2. Recently, there have been more concerns directed toward this group since the latest studies confirm a dramatic decrease in their engagement in physical activity (PA) in outdoor green settings (5, 6).

It is important to note that physical inactivity is the 4th most important risk factor for global mortality(7).

Unfortunately, ~1/3 of adults worldwide are currently physically inactive(8), which got further exacerbated by COVID-19 and resulted in pandemic sedentariness/physical inactivity.

Second, the public health service has been ineffective in many countries since the surge of the COVID-19 pandemic and older adults have died due to the inability to be admitted to hospitals, and many suffered from an acute or chronic condition such as stroke and heart attack, that can normally be treated. Moreover, according to recent

data, COVID-19 should be referred to as a “gero-lavic” (from Greek, geros “old man” and epilavis, “harmful”) disease, because the global statistics show that, substantially, more severe symptoms and lethality occur in the population aged >60 years old (9).

Exercise and viral infections

The intensity of exercise plays an important role in the clinical resistance to infections. Short-term exercise of low intensity, as recommended by the American College of Sports Medicine (10)for individuals of a low physical fitness level, has a slight effect on changes in blood antibody concentrations. Martin et al put forward a hypothesis that it is regular exercise in moderate-intensity and duration that leads to an increase in stress hormone concentrations at any age, at the same time reducing inflammation in the airways, thus promoting activation of innate antiviral resistance(11).

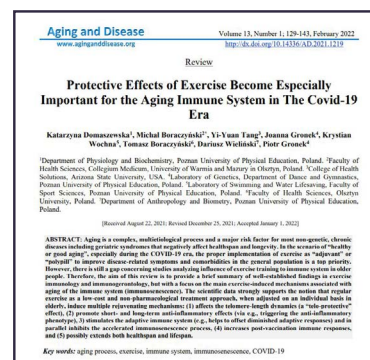
From this perspective, such exercise is associated with a reduced incidence, duration, and severity of upper respiratory tract infections (URTIs), especially respiratory viruses such as influenza and rhinovirus(12).

Unfortunately, the application of excessively intensive exercise resulted in increased morbidity and mortality rates caused by viral respiratory infections (13).

Exercise and vaccine efficacy

Multicentre randomized studies within the last 15 years have shown that exercise taken both before and after vaccination induces a higher antibody titer to the administered antigen. Those studies concerned the efficacy of vaccinations against influenza, tetanus, meningitis, diphtheria, meningococci, or pneumococci (14-16).

In another study, the immunoglobulin M (IgM) and immunoglobulin G (IgG) antibody titers and immune response to a /the flu vaccine were assessed in the period of 2 weeks after immunization. It was shown that a higher titer of antibodies was recorded in physically active older adults .(17)Therefore, it seems highly promising to apply regular PA to older people, who will be vaccinated against



SARS-CoV-2 in the nearest future.

In brief, the scientific data strongly supports the notion that regular exercise as a low-cost and non-pharmacological treatment approach, when adjusted on an individual basis in the elderly, induces multiple rejuvenating mechanisms: (1) affects the telomere-length dynamics (a “telo-protective” effect), (2) promote short- and long-term anti-inflammatory effects (via e.g., triggering the anti-inflammatory phenotype), (3) stimulates the adaptive immune system (e.g., helps to offset diminished adaptive responses) and in parallel, inhibits the accelerated immunosenescence process, (4) increases post-vaccination immune responses, and (5) possibly extends both healthspan and lifespan.

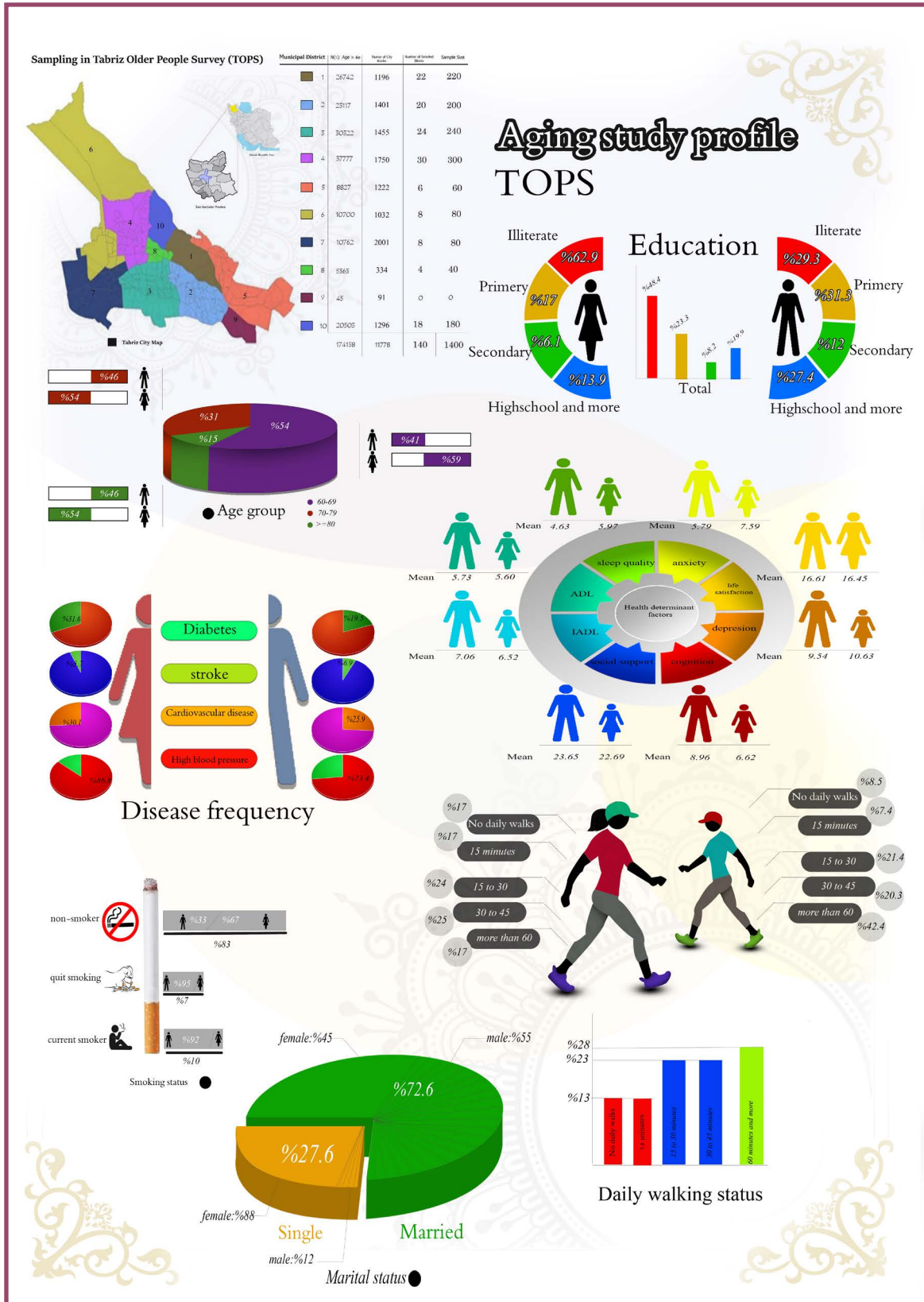
Keywords: COVID-19, Older Adults, SARS-CoV-2.

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Infographic



* Designed by Siros Samei Sis.



Top Article

Congratulations to Dr.Sarvin Sanaie, on having her article entitled: "A comparison of nasogastric tube insertion by SORT maneuver (sniffing position, NGT orientation, contralateral rotation, and twisting movement) versus neck flexion lateral pressure in critically ill patients admitted to ICU: a prospective randomized clinical trial", published in Annals of Intensive Care (IF=6.925), which has been selected as the top article of this issue. Aging Research Institute expresses the warmest greeting to her.

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