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## RESEARCH UPDATES 2018 VOLUME 2

### FOR THE LATEST IN WORLDWIDE SUPPORTIVE CANCER CARE

**IN THIS ISSUE:** D'Egidio and colleagues explore the impact of counseling interventions among women with breast cancer. Fan's team reviews the possible impact that an inflammatory diet may have on colorectal cancer risk. Koll et al. discuss exercise motivation interventions among older adults. Grassi and colleagues investigate the role of person-centered medicine in chronic disease conditions. And lastly, Zou et al. review the role that Tai Chi may have on attenuating bone loss.

## COUNSELING INTERVENTIONS

D'Egidio, V., Sestili, C., Mancino, M., et al.

### Counseling interventions delivered in women with breast cancer to improve health-related quality of life: a systematic review

*Quality of Life Research* (2017) 26, 2573–2592

**ABSTRACT | Background:** Higher survival rates for breast cancer patients have led to concerns in dealing with short- and long-term side effects. The most common complications are impairment of shoulder functions, pain, lymphedema, and dysesthesia of the injured arm; psychological consequences concern: emotional distress, anxiety, and depression, thereby, deeply impacting/affecting daily living activity, and health-related quality of life. **Objective:** To perform a systematic review for assessing the efficacy or effectiveness of interventions aiming at improving health-related quality of life, return to daily activity, and correct lifestyles among breast cancer patients. **Methods:** A literature search was conducted in December 2016 using the databases PubMed and Scopus. Search terms included: (counseling) AND (breast cancer) AND (quality of life). Articles on counseling interventions to improve quality of life, physical and psychological outcomes were included. **Results:** Thirty-five articles met the inclusion criteria. The interventions were grouped in five main areas: concerning lifestyle counseling interventions, related to combined interventions (physical activity and nutritional counseling), physical therapy, peer counseling, multidisciplinary approach, included psychological, psycho-educational interventions, and cognitive-behavior therapy (CBT). Exercise counseling as well as physical therapy are effective to improve shoulder mobility, healing wounds, and limb strength. Psychological therapies such as psychoeducation and CBT may help to realize a social and psychological rehabilitation. **Conclusion:** A multidisciplinary approach can help in sustaining and restoring impaired physical, psychosocial, and occupational outcomes of breast cancer patients.

**INSPIREHEALTH'S INTERPRETATION:** This article reviewed counseling programs to assess if they are effective at improving health-related quality of life among breast cancer survivors. It evaluated various counseling interventions (psychological, peer, nutrition, exercise, physical therapy, and lifestyle) with a focus on returning to normal activity, improving health-related quality of life, or overall health behaviours. The 35 studies included in this review were composed of randomized controlled trials, reviews, and observational studies. This review found that lifestyle counseling improved a large number of factors that influence quality of life such as functional wellbeing, physical activity, weight loss, nutrition, mood, body image, sexuality, and fatigue. One article found that physical therapy counseling improved shoulder mobility and wound healing (via wound drainage) and that it was most effective when begun early post-operatively. The physical therapy study adds to a growing body of scientific evidence that supports the conclusion that appropriate exercise does not increase risk of lymphedema. Peer counseling was found to improve overall health-related quality of life. Psychological interventions provided improved marital satisfaction, health-related

quality of life, adaptive coping strategies, and psychological wellbeing. Cognitive behavioural therapy improved quality of life and fatigue levels. The authors found that combined interventions (e.g., exercise and psychological counseling) may be more effective than single intervention types at improving overall quality of life. Only one intervention was focused on return to work and it found that psychological counseling produced high return to work rates (75-85%). One limitation of this review is that it was challenging for the authors to compare studies that had differing study designs. The authors highlighted that a strong team of health professionals and social network within an appropriate environment lays the foundation for improved health-related quality of life. A multidisciplinary approach to counseling that spans various aspects of lifestyle behaviours is recommended. While this review focused on breast cancer survivors, it is reasonable that counseling programs may correspondingly benefit people with other cancers.

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## EFFECTS OF INFLAMMATORY DIET

Fan, Y., Jin, X., Man, C., et al.

### Meta-analysis of the association between the inflammatory potential of diet and colorectal cancer risk

*Oncotarget* (2017), 18(35), 59592-59600

**ABSTRACT | Objectives:** The inflammatory potential of diet has been inconsistently linked to colorectal cancer (CRC) risk. This meta-analysis aimed to evaluate the association of the inflammatory potential of diet, as estimated by the dietary inflammatory index (DII) score, with CRC risk. **Materials and Methods:** The PubMed and Embase databases were searched for relevant studies from inception to February 2017. All cohort and case-control studies investigating the association of the DII score with CRC risk were selected. **Results:** Four prospective cohorts and four case-control studies, which enrolled a total of 880,380 participants, were included. The pooled adjusted risk ratio (RR) of CRC for the highest DII score versus the lowest category was 1.43 (95% confidence interval [CI]: 1.26–1.62). When stratified by study design, the RRs for the case-control and cohort studies were 1.27 (95% CI: 1.16–1.38) and 1.81 (95% CI: 1.48–2.22), respectively. Subgroup analysis showed that individuals with the highest category of DII score were independently associated with CRC risk in men (RR=1.51; 95% CI: 1.29–1.76), women (RR=1.25; 95% CI: 1.10–1.41), colon cancer (RR=1.39; 95% CI: 1.19–1.62), and rectal cancer (RR=1.32; 95% CI: 1.01–1.74). However, the pooled RR was 1.07 (95% CI: 0.87–1.31) for rectal cancer among the prospective cohort studies. **Conclusions:** As estimated by a high DII score, pro-inflammatory diet is independently associated with increased CRC risk. This finding confirms that low inflammatory potential diet may reduce CRC risk. However, the gender- and cancer site-specific associations of the DII score with CRC risk need to be further investigated.

**INSPIREHEALTH'S INTERPRETATION:** Chronic inflammation, that is, the presence of higher levels of pro-inflammatory or inflammatory molecules in our bodies, has been linked to a myriad of chronic illnesses including cancer, diabetes, heart disease, Alzheimer's dementia and many others. Chronic inflammation is a risk factor for the development of many cancers and it is believed that the adoption of an "anti-inflammatory lifestyle" may play a role in both the prevention and treatment of cancer. Healthy diet and regular moderate exercise are two key components of an anti-inflammatory lifestyle. Many foods promote inflammation while other foods reduce it. The authors of this research paper pooled the results of eight well designed studies to examine the relationship between the inflammatory potential of diet and colorectal cancer risk. Four prospective studies and four case-control studies were included in their analysis with a total of over 800,000 participants. Both prospective and case-control studies are observational studies that aid in evaluating association between diseases and exposures or risk factors. For prospective (also known as prospective cohort) studies, data is collected on a group of individuals who are then followed over time for the development of various illness. Those who develop illnesses are compared to those who do not to see if any particular exposures are associated as risk factors (e.g. age, gender, diet, exercise, weight, smoking status, genetic risk etc.). In case-control studies those with a given illness are "matched" to those without the illness but with similar characteristics (age, gender, smoking status etc.) to try to tease out risk factors.

In general, results of prospective studies are thought to be more robust than those of case-control studies. The studies examined for this review paper used food frequency questionnaires or historical dietary records to compute the dietary inflammation index (DII) of an individual's diet. The dietary inflammation index is a population-based score that reflects the inflammatory potential of an individual's diet. A higher DII score indicates a more pro-inflammatory diet while a lower DII score represents a more anti-inflammatory diet. Results of this meta-analysis showed that those individuals with the highest DII score had a 43% increased risk of developing colorectal cancer (CRC) when compared to those with the lowest DII score. Interestingly, the case-control studies showed a 27% increased risk and the more valid prospective studies showed an 81% increased risk of CRC. When further examined, the association was stronger for colon cancer than for rectal cancer, especially in the prospective studies. Men and women eating a pro-inflammatory diet had a 51% and 25% increased risk of developing CRC respectively. The authors didn't speculate why a high pro-inflammatory diet was associated with more risk for colon (than rectal) cancer and for men (than women). The authors conclude that a pro-inflammatory diet is associated with an increased

risk of developing CRC cancer and that the adoption of a low-inflammatory potential diet may reduce CRC risk. Studies examined for this review did not address the role of an anti-inflammatory diet after a diagnosis of CRC in lessening recurrence but other researchers have shown that adopting an anti-inflammatory diet (sometimes called a “prudent diet”) is associated with reduced recurrence risk. Consider avoiding or limiting pro-inflammatory foods such as refined or processed foods/meats, red meat and full-fat dairy products. Including a variety of anti-inflammatory foods such as vegetables, fruits, fish, nuts, whole grains (e.g. brown rice, bulgar wheat, barley, buckwheat, quinoa, oats) and seeds (e.g. flax, chia, hemp) will help to create an optimal diet. InspireHealth offers individualized consultations with dietitians as well as cooking classes, nutrition workshops and online nutrition webinars.

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## EXERCISE MOTIVATION

Koll, T.T., Semin, J.N., Grieb, B.M., et al.

### Motivating older adults with cancer to keep moving: The implication of lifestyle interventions on physical activity

*Current Oncology Reports* (2017), 19(10), DOI 10.1007/s11912-017-0623-4

**ABSTRACT | Purpose of Review:** The purposes of this review are to describe the unique needs and preferences of older adults with cancer regarding physical activity and to outline the essential characteristics associated with increased physical activity resulting from lifestyle interventions in older adults. **Recent Findings:** Functional decline is accelerated in inactive and sedentary older adults. Even a modest increase in physical activity can improve physical function for older cancer survivors. **Summary:** Participation in physical activity is influenced by diverse individual-level factors, behavioral characteristics and skills and social and environmental factors. Thus, programs that are tailored to older adults’ preferences provide social support and remove obstacles to participation may be more effective, particularly for older adults with low physical activity and sedentary lifestyle.

**INSPIREHEALTH’S INTERPRETATION:** This paper is a review of six physical activity intervention studies with adults aged 60 years and older who have a cancer diagnosis. Over two thirds of cancer survivors are over the age of 60 and cancer treatments can negatively impact physical function. Physical function decreases with age and is a determinant of independent living. Physical activity can improve physical function but typically declines after a cancer diagnosis. Therefore, to maintain physical function, independent living, and overall quality of life, it is important to identify the factors to target to change physical activity behaviour in older adults with cancer. In an intervention study, a condition is implemented with a group of people to determine if there is an effect on certain outcomes.

To guide the design and development of a physical activity intervention, it is helpful to use a theoretical framework. Three behaviour change theories were used either alone or in combination to inform the design of the intervention studies in this review. They were the Theory of Planned Behaviour, the Transtheoretical Model of Change, and Social Cognitive Theory. While these theories have different frameworks, they have many overlapping concepts. The authors made the following recommendations to maximize the success of a physical activity behaviour change intervention: 1) provide education to improve knowledge on the benefits and safety of exercise as well as increase the awareness of available programs, 2) tailor the intervention to the individual by considering participant preferences and needs, 3) engage a person’s social network of family and friends, 4) develop behavioural strategies such as goal-setting and self-monitoring, 5) maintain frequent contact and communication to maintain the behaviour change.

Based on this review, new activity behaviour is likely to be maintained after performing that new activity for six months. The overall goal of a physical activity intervention in this population is to increase moderate intensity physical activity time. There is strong evidence to support the benefits and safety of physical activity throughout a cancer diagnosis, however this review emphasizes the importance of an individualized approach to maximize health benefits, ensure safety, and promote successful behaviour adoption. The general aerobic physical activity guidelines are to accumulate 150 minutes of moderate to vigorous physical activity per week, however this is not necessarily realistic for everyone. Research shows that some physical activity is better than none; even a small increase in physical activity can have a positive impact on health. The interventions from this review typically focus on making physical activity a part of the daily routine by planning structured physical activity (exercise) and/or by increasing occupational and household physical activity minutes. It is also important to consider sedentary time which has a negative impact on physical function regardless of how much physical activity someone is doing. InspireHealth Exercise Therapists work with individuals to develop individualized plans that consider all aspects of physical activity – activities of daily living, aerobic, resistance, flexibility, and sedentary time – as well as the individual’s preferences, schedule, and physical function. The overall goal is to develop a sustainable physical activity habit to help manage side effects, improve physical function and capacity, and promote overall physical and psychological well-being.

## PERSON-CENTERED APPROACH TO MEDICINE

Grassi, L., Mezzich, J.E., Nanni, M.G., et al.

### A person-centered approach in medicine to reduce the psychosocial and existential burden of chronic and life-threatening medical illness

*Review of Psychiatry* (2017), 29:5, 377-388, DOI: 10.1080/09540261.1294558

**ABSTRACT** | The psychiatric, psychosocial, and existential/spiritual pain determined by chronic medical disorders, especially if in advanced stages, have been repeatedly underlined. The right to approach patients as persons, rather than symptoms of organs to be repaired, has also been reported, from Paul Tournier to Karl Jaspers, in opposition and contrast with the technically-enhanced evidence-based domain of sciences that have reduced the patients to 'objects' and weakened the physician's identity deprived of its ethical value of meeting, listening, and treating subjects. The paper will discuss the main psychosocial and existential burden related to chronic and advanced medical illnesses, and the diagnostic and therapeutic implications for a dignity preserving care within a person-centred approach in medicine, examined in terms of care of the person (of the person's whole health), for the person (for the fulfilment of the person's health aspirations), by the person (with physicians extending themselves as total human beings), and with the person (working respectfully with the medically ill person).

**INSPIREHEALTH'S INTERPRETATION:** This article highlights the importance of a person-centered approach in medicine for those with chronic and life-threatening conditions. Person-centered care encompasses biological, psychological, social, and spiritual aspects of a person's health. It includes addressing a person's dignity, uniqueness, suffering, and resources (such as social network, health care professionals, family, and caregivers). The authors highlight that medicine is becoming increasingly technically-enhanced and may not fully address patients' present interpersonal, psychological, and spiritual needs. This technical-based focus may lead to perceiving patients more as objects than as complex individual persons. This attitude may weaken the relationship between the provider and patient.

However, psychosocial factors are a significant component of a person's overall health and must be addressed. Patients with chronic medical illness have many psychosocial concerns including anxiety, depression, and feelings of overwhelming stress, reduced dignity, spiritual pain, demoralization and emotional detachment. Reduced dignity may be associated with both psychological (e.g., anxiety, sadness, irritability) and physical (e.g., lack of energy, pain, shortness of breath) symptoms. Spiritual pain, which is 'pain caused by extinction of the being and the meaning of self', can occur when considering one's own mortality, when social relationships lack meaning and when independence and personal choice are limited. Important needs for the patient include overcoming fears (e.g., of illness or death), finding meaning in life, having someone to talk to about finding peace of mind, and finding hope. It is also important to address spiritual and interpersonal topics such as not wanting to burden others, feeling worthwhile or valued, and making a lasting contribution in one's own life.

How can person-centered care address all these psychosocial factors and individual thoughts and behaviours? The answer is in the communication and dialogue that healthcare professionals, family, and patients have with each other. Communication training may assist professionals to be more emotionally tuned in to their patients. Compassionate conversations that are dignity-oriented with a focus on humanized care are essential. The creation of a 'healing space' within doctor-patient relationships is important. Providers and patients must be open to topics such as the inevitability of death, isolation, and meaninglessness. Dignity should not be taken for granted. Dignity can be preserved via appropriate attitude, behaviour, compassion, and dialogue. Using communication and dialogue as a tool, patient-centered care encourages listening to one another and to oneself. Person-centered care is a core value of InspireHealth's supportive cancer care philosophy.

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## TAI CHI AND BONE LOSS

Zou, L., Wang, C., Chen, K., et al.

### The effect of Taichi practice on attenuating bone mineral density loss: A systematic review and meta-analysis of randomized controlled trials

*International Journal of Environmental Research and Public Health* (2017), 14 (1000), doi:10.3390/ijerph14091000

**ABSTRACT** | **Objective:** The purpose of this study was to determine the effects of practicing Taichi on attenuating bone mineral density (BMD) loss. **Methods:** Both electronic and manual searches were performed for randomized controlled trials (RCTs) examining Taichi for bone health. Two review authors independently performed study selection and data extraction according to inclusion criteria. A third party (Lin Luo) emerged to discuss with the two review authors and resolve a disagreement. **Results:** Twenty RCTs were found to meet the inclusion criteria and used for meta-analysis with a total effective sample of 1604. The aggregated results from this systematic review have shown significant benefits in favour of Taichi on BMD at lumbar spine (Standard Mean Difference, SMD) = 0.29; 95% CI 0.15 to 0.43;  $p < 0.0001$ ), femur neck (SMD = 0.56; 95% CI 0.38 to 0.75;  $p < 0.00001$ ), femur trochanter (SMD = 0.04; 95% CI 0.01 to 0.07;  $p = 0.007$ ), total hip BMD (SMD = 0.46; 95% CI 0.16 to 0.76;  $p = 0.003$ ). **Conclusions:** The aggregated results from this systematic review suggests that Taichi is effective on attenuating BMD loss at the regions of lumbar spine and proximal femur neck in special populations (e.g., older adults, perimenopausal

and postmenopausal women, people with osteoarthritis, and cancer survivors). Researchers should further examine the effect of Taichi on the proximal femur trochanter and total hip so that a more definitive claim can be made regarding the beneficial effects for attenuating BMD loss in these musculoskeletal regions.

**INSPIREHEALTH'S INTERPRETATION:** This study is a meta-analysis of randomized controlled trials that investigated the effects of Tai Chi on bone loss. Bone loss is inevitable for everyone over the age of 30 and can be exacerbated by cancer treatment or inactivity. Reducing bone loss is important in terms of performing activities of daily living, quality of life, and preventing fractures. This meta-analysis pooled data from many studies to determine a collective effect. Randomized controlled trials, a type of experiment that can determine cause and effect (i.e., if I do Tai Chi, then I reduce bone loss) were included by comparing an intervention, in this case a Tai Chi program, to a control (i.e., no Tai Chi). Twenty of such trials were included in the analysis with Tai Chi programs that ranged from 12 weeks to 12 months. Each Tai Chi session ranged from 45 to 90 minutes in duration. Bone mineral density and total bone mineral content were measured via specific X-ray instruments.

The collective evidence found that Tai Chi participants had improved bone mineral density compared to controls. Increased bone mineral density was observed in the lumbar spine (lower back), upper femur (thigh bone), and overall hip. Notably, these improvements occurred in special populations such as middle-aged and older adults, peri-menopausal and postmenopausal women, people with osteoarthritis, breast cancer survivors, and people with osteoporosis. The authors mentioned that correct Tai Chi movements create forces within certain bones that may provide stimulation for bone growth. In Tai Chi, the waist is constantly being used in a manner that facilitates shear forces at the lumbar (lower) spine. Constant weight-shifting from one leg to another and weight-bearing foot-floor impact forces may stimulate bone growth. It is important to note that the type of Tai Chi performed may influence the degree of bone mineral density improvement. For example, Chen-style Tai Chi involves powerful, quick, and skipping movements and may be a greater stimulus for bone growth compared to Yang-style, which is of lower impact. However, even the lower impact styles were found to cause an improvement in bone mineral density. The bone remodeling process typically takes at least 24 weeks so it is recommended that programs last for at least this long. Further research on the training frequency, dosage, and type of Tai Chi for optimal effects on bone mineral density is important.

The authors concluded that long-term (at least 24 weeks) Tai Chi training may reduce bone mineral density loss in middle-aged and older adults, peri-menopausal and postmenopausal women, people with osteoarthritis, breast cancer survivors, and people with osteoporosis. The type of Tai Chi and frequency (how often per week and how long per session) for optimal bone loss reduction needs to be explored with further research.

**InspireHealth** provides patients with the knowledge, tools, and services to support their overall health during and after cancer treatment. Our medical doctors value conventional cancer treatments such as chemotherapy, radiation, and surgery. At the same time, they recognize the importance of supporting health, immune function, body, mind, and spirit.

InspireHealth's programs are supported by current research and can be safely integrated with patient's conventional treatments.

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