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3-1 FRAILTY IN OLDER PEOPLE; *'Seminar" and Review of Literature*

The age of the population is accelerating rapidly. The numbers of persons over age 65 will more than double in the next 10 years. This has profound implications for planning and delivery of health and social care.

The most problematic expression of aging is the clinical condition of frailty. Frailty develops as a consequence of an age-related decline in many physiological systems, which collectively results in vulnerability to sudden changes in health status triggered by minor stressor events. Between a quarter and a half of people over age 85 have substantially increased risk of falls, disability, long-term care, and death.

However, many persons over age 85 might not be frail, which raises questions about how frailty develops, how it might be prevented, and how it can be detected early.

Frailty is defined as a state of poor restoration of homeostasis after a stressor event, which increases the risk of adverse outcomes, including falls, delirium, and disability. Frailty is a long-established clinical expression that implies concern about an elderly person's vulnerability and outlook. Apparently small insults (a new drug, minor infection, minor sugary) result in a striking and disproportionate change in the state of health—from independent to dependent, mobile to immobile, postural stability to proneness to falls, or lucidity to delirium.

Frequent clinical presentation of fragility:

Extreme fatigue, loss of strength, unexplained weight loss, balance and gait impairment, falling, impaired vision.

Delirium (acute confusion)—rapid onset of fluctuating confusion and impaired awareness.

Fluctuating disability—day to day instability resulting in "good days" and "bad days"

Pathophysiology:

A gradual decrease in physiological reserve occurs normally with aging. In frailty, the decrease is accelerated and the homeostatic mechanisms start to fail.

Pathway:

Aging is believed to result from the lifelong accumulation of molecular and cellular damage cussed by many mechanisms.

In a cross-sectional study of 1002 women, investigators assess cumulative physiological dysfunction in 6 different systems (hematological, inflammatory, hormonal, adiposity, neuromuscular, and micronutrient). It reported a non-linear relation between the number of abnormal systems and frailty, independent of age and

co- morbidity. The number of abnormal systems was more predictive of frailty than were abnormalities in any particular system. When physiological decline reaches an aggregate critical level, frailty becomes evident.

Frailty has been associated with loss of physiological reserve in the respiratory, cardiovascular, renal, hemopoietic, and clotting systems. Nutritional status can also be a mediating factor.

The frail brain:

Neurons with high metabolic demands, such as hippocampal and pyramidal neurons, could be affected disproportionately by changes in synaptic function, protein transport, and mitochondrial function. The hippocampus has been identified as an important mediator of cognitive decline and Alzheimer's dementia. The aging brain is also characterized by structural and functional changes in microglial cells (the CNS equivalent of macrophages).

Delirium combined with frailty is associated with reduced survival.

Frailty is associated with an increased risk of developing mild cognitive impairment and a faster rate of cognitive decline. An independent association between frailty and dementia has been reported.

The frail endocrine system:

During aging, production of 3 major hormones decrease:

1) Lessening of pituitary growth hormone causes a reduction in insulin-like growth factor. This results in reduced anabolic activity, lessened neuronal plasticity and reductions in skeletal muscle strength.

2) Reduced estradiol and testosterone production

3) Lower activity of adrenocortical cells reduces production of major sex steroid precursor hormones and a rise in cortisol release. A link between chronically high cortisol and frailty is plausible since it is associated with increased catabolism, loss of muscle mass, anorexia, and reduced energy.

The frail immune system:

The aging immune system is characterized by a reduction in stem cells, changes in T-lymphocyte production, blunting of the B-cell-controlled antibody response, and reduced phagocytic activity of neutrophils, macrophages, and killer cells. The system fails to respond appropriately to stress of acute inflammation. Frailty is associated with an impaired antibody response to influenza and pneumococcus vaccines.

The frail muscle (sarcopenia):

Loss of skeletal mass strength, and power is regarded as a key component of frailty leading to reduction in functional ability.

Phenotype model:

A landmark study (Canadian Health Study) analyzed data obtained from a cohort study of 5210 men and women age 65 and older.

A frailty phenotype was established with 5 variables:

1) Unintentional weight loss
2) Self-reported exhaustion
3) Low energy expenditure
4) Slow gait speed
5) Weak grip

Those with 3 or more factors were judged to be frail. Those with 1 or 2 were judged to be pre-frail. Those with none were not frail .

Seven % were characterized as frail; 47% as pre-frail; 46% as not frail.

After 5 years, people categorized as frail had more adverse outcomes. Mortality at 7 years was 43%, 23%, and 12%.

Cumulative deficits model:

The Canadian Study of Health and Aging (CSHA), a 5-year prospective cohort study, investigated the epidemiology and burden of dementia in elderly people (mean age 82). Ninety two baseline variables of symptoms (eg, mood), signs (eg, tremor) and abnormal laboratory variables, disease states, and disabilities defined frailty. The frailty index was calculated by the presence or absence of each variable (eg, 20 deficits present of a possible 92 = frailty index of 20/92 = 0.27).

Thus, frailty is defined as the cumulative effect of individual deficits. “The more the individual has wrong with them, the more likely they are to be frail.”

The index has properties that support the idea of reduced homeostatic reserve. The deficits contribute cumulatively to an increased risk of deficits of homeostatic hormones.

During aging, production of 3 major hormones decreases:

1) Growth hormone reduction (pituitary) causes a reduction in insulin-like growth factor (IGF). This results in decreased anabolic activity, neuronal plasticity, and skeletal muscle strength.
2) Reduced estradiol and testosterone causes an increased release of luteinising hormone and follicle-stimulating hormone.

3) Activity of the adrenocortical cells decreases, causing a decrease in major sex steroid precursors and a gradual increase in cortisol release.

Changes in these hormones are regarded as important in frailty, although the exact associations remain uncertain.

A link between chronically raised cortisol and frailty is plausible. It is associated with increased catabolism, leading to loss of muscle mass, anorexia, weight loss, and reduced energy expenditure.

Epidemiology:

Evidence for the importance of fatality as a leading cause of death comes from a 10-year prospective cohort study of community-dwelling elderly people. Cause of death was based on clinical assessments, and on death certificates. The most common disorder leading to death was frailty (28%); others were organ failure (21%), cancer (19%); dementia (14%), and other causes (15%).

Prevalence:

A systematic review investigated 21 community-based cohorts (n = 61 500) of elderly people. The operational definition of frailty differed between studies, resulting in substantial variation in reported prevalence of frailty—from 4%to59%.

When the phenotypic model was used, average prevalence rates were 10% for frail, 44% for pre-frail. Frailty was more prevalent for women, and increased steadily with age: 65-69 4%; 70-79 9%; 80-84 16%; 85 and older 26%.

Most frailty models were developed in white populations.

Outcomes:

Four large cohort studies reported worse outcomes in the most frail people. Frailty is a dynamic process. Transition to a more frail state is common. Development of frailty often leads to increasing frailty with increased risk of falls, admission to hospital, and death. Even those with mild frailty are at higher risk of admission to long-term care than the non-frail.

The CHS study investigated the overlap between frailty, co-morbidity, and disability. Co-morbidity, defined as two or more of 9 diseases, (myocardial infarction, angina, congestive heart failure, claudication, arthritis, cancer, diabetes, hypertension, or COPD) was present in 46%. Importantly, frailty was present without co-morbidity and disability in 26% of the study group, which provides support for frailty as an independent factor that is distinct from co-morbidity and disability. However, more recent work suggests that the overlap is more frequent, and increases with greater frailty. The combination of sub-clinical disease might

be especially important, and physiological measurements that identify elderly people at risk of frailty could help guide the development of preventive interventions.

Interventions:

Complex interventions based on comprehensive geriatric assessment delivered to elderly people in the community can increase the likelihood of continuing to live at home, reduce need for care-homes, and fewer falls. But the most frail patients seem to receive the least benefit.

Exercise has physiological effects on the brain, endocrine system, immune system, and skeletal muscle. Three systematic reviews of home-based and group-based exercise interventions for frail elderly people showed that exercise can improve mobility and functional ability. The duration and frequency of exercise is uncertain, but adherence was characteristically high across a range on interventions.

A Cochrane Review incorporated 49 randomized, controlled trials of exercise interventions for long-term care residents (likely very frail) and concluded that strength and balance training were successful in increasing muscle strength and functional ability.

Nutritional interventions: Evidence is scarce. One randomized, controlled trial reported that nutritional supplementation had no effect on muscle strength, gait speed, stair climbing, or physical activity.

Pharmacological agents:

ACE inhibitors have led to improved structure and biochemical function of skeletal muscle. Evidence suggests that they could halt or slow the decrease in muscle strength in old age, and improve exercise capacity and quality of life.

Testosterone improves muscle strength, but also increases adverse cardiovascular and respiratory outcomes.

Vitamin D: Low serum concentrations have been associated with frailty. D supplementation improves muscle function. In deficient patients, D might reduce the number of falls. The combination of D supplements with calcium reduces fractures in elderly people.

But the general use of D for prevention and treatment of frailty is still controversial.

Conclusion:

Modern health-care systems are mostly organized around single-system illnesses. However, many elderly patients have multi-organ problems. Frailty is a unifying notion in the care of elderly patients that directs attrition away from organ-specific diagnosis toward a more holistic viewpoint. Frailty is a state of poor restoration of homeostasis after a stressor event. It is strongly associated with adverse outcomes.

Determining that a patient is frail should be an essential part of any health care encounter that might result in an invasive procedure or potentially harmful medication. This would allow the clinician to weigh up benefits and risks, and make properly informed choices for the patient. Failure to detect frailty potentially exposes the patient to interventions from which they might not benefit and could be harmful.

Conversely, considering patient to be frail only on the basis of age alone is unacceptable.

The most evidence-based process to detect and grade frailty is a comprehensive geriatric assessment (eg, the Canadian Study of Health and Aging). A comprehensive assessment is resource-intensive and costly.

A simple method to detect frailty would have considerable clinical merit. It would be a basis to shift the care of frail elderly towards a more appropriate goal-directed care.

Lancet March 2, 2013; 381: 752-62 "Seminar" review article, first author Andrew Clegg, University of Leeds, Leeds, UK

Obviously we have much more to learn.

I enjoyed this article. Frailty is rarely considered in the journals I abstract. It is an important clinical problem in primary care practice. It occurs universally to some degree as we age.

Problems are exacerbated when dementia is added to frailty.

I believe primary care clinicians and families can recognize frailty without the need of formal assessments.

Are any preventive measures available? Healthy lifestyle is key, especially physical fitness during middle and older age. I would not advise any drug except vitamin D. Elderly patients are likely to be deficient. D may increase muscle strength and lessen tendency to fall.

An important aspect of frailty and aging is a lessened ability to metabolize drugs. Drug discontinuation should be considered. Lowering dose (eg, by half) should be considered. I believe drugs are grossly overused in the frail elderly.

As frailty progresses, the approach to care of the patients changes from organ- and disease-specific treatment to supportive and comfort care.

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No Evidence To Support The Use Of Supplements For Prevention Of Major Cardiovascular Events

3-2 EFFICACY OF VITAMINS AND ANTI-OXIDANT SUPPLEMENTS IN PRIMARY PREVENTION OF CARDIOVASCULAR DISEASE: ***Systematic Review and Meta-analysis of Randomized, Controlled Trials***

Randomized, controllers trials (**RCT**) have reported inconsistent findings regarding the effect of vitamin (**V**) and anti-oxidant (**A-O**) supplements on CVD. In 2003, a meta-analysis (M-A) of 12 trials indicated that vitamin supplements did not decrease CVD mortality or CVD events. Beta-carotene supplements led to a small increase in all-cause mortality and CVD death. In 2008, a M-A of 6 trials reported that supplements containing selenium did not reduce risk of coronary heart disease.

More recently, it was reported that folic acid with vitamin B supplements had a small benefit in preventing stroke. Another study reported that folic acid decreased the risk of CVD by 15% in patients with end-stage renal diseases.

There are no published comprehensive M-A that review the topic all together in one report.

This study investigated the efficacy of V and A-O supplements on CVD through a comprehensive M-A of RCTs.

STUDY

1. Conducted an extensive literature search(from June to November 2012) of RCTs.
   All trials reported the efficacy of V or A-O supplements for preventing of CVD, and followed participants for at least 6 months. On a scale of 1 to 5, the methodological quality of trial included in the M-A was 4.3.
2. Major CVD events included CVD death, fatal or non-fatal myocardial infarction (MI), angina, sudden cardiac death, fatal or non-fatal stroke, and transient ischemic attacks.
3. Performed subgroup M-A by type of prevention (primary or secondary). Trials involving healthy populations and patients with any specific disease (except CVD) were classified as primary prevention. Trials involving patients with CVD were classified as secondary prevention. Types of supplements were classified by quality and dose (V only, A-O only, and as V + A-O), type of outcome in each supplement, type of study design, methodological quality, duration of treatment, funding source, provider of supplements, type of control, number of participants, and supplements given singly or in combination with other V or A-O.

RESULTS

1. Widespread search identified 2240 articles. After exclusions, a total of 50 RCTs that satisfied the predetermined selection criteria were included in the final M-A.
2. The 50 trials included 294 479 participants (156 663 intervention; 137 815 controls). Mean ages of participants ranged from 49 to 82. Trials were based in 13 different countries. Periods of observation ranged from 6 months to 12 years. Number of participants ranged from 61 to 39 876.

3. Thirty trials were primary prevention; 20 secondary prevention. A wide variety of baseline disabilities was present.

4. Overall efficacy of V and A-O supplements on risk of CVD:

Study (number of trials)	Relative risk vs control
All trials (50)	1.00
Vitamin A (2)	0.98
Vitamin B6 (16)	0.96
Vitamin B12 (17)	0.99
Folic acid (21)	0.99
Vitamin C (7)	0.99
Vitamin D (7)	1.02
Vitamin E (27)	0.97
Beat-carotene (17)	1.00
Selenium (7)	0.91

Only for vitamin D and beta-carotene did the trial favor control; 7 favored supplement. However, no trial reached statistical significance.

5. All V and A-O were administered orally, either singly or in combination. Doses varied widely.

6. Five trials were funded by pharmaceutical companies; 42 by public or government organizations or independent scientific foundations. In 29 trials, the V and A-O were supplied at no cost by the pharmaceutical industry.

7. In the combined 50 trials, V or A-O supplements were not associated with reduced risk of major cardiovascular events. (Relative risk = 1.00)

8. Overall, the effect sizes of the smaller trials tended to be less than 1.00, while the effect sizes of the larger trials tended to null.

9. Subgroup meta-analysis by type of supplement:

Overall, in the M-A of 50 trials, there was no significant association between V or A-O supplements and risk of major cardiovascular events.

Low dose vitamin B6 supplementation was associated with a slight decrease risk of major cardiovascular events (RR = 0.92). When only high-quality trials were considered, the RR = 1.00. Beneficial effects of B6 and E were seen only in trials supplied with supplements given by pharmaceutical companies.

There was no significant association by type of prevention (primary or secondary), type of study design, mythological quality, duration of treatment, funding source, and provider of supplements

B6 and E supplements were associated with a reduced risk of cardiovascular death, (RR = 0.91) and myocardial infarction (RR = 0.77)

V and A-O supplements were associated with a slightly increased risk of angina. (RR = 1.04)

DISCUSSION

1. This large scale M-A found no evidence to support the use of V or A-O supplements for primary or secondary prevention of major cardiovascular events.
2. In subgroup analysis, these supplements were not associated with any reduced risk of major cardiovascular events according to type of V and A-O, type of cardiovascular outcomes, study design, methodological quality, duration of treatment, funding source, provider of supplements, type of control, number of participants in each trial, or supplements given singly or in combination.
3. These main findings are consistent with those of previous M-A that investigated the association between vitamins B, D3, E, beta-carotene, folic acid, or selenium.
4. These findings are inconsistent with previous in vivo animal studies that suggested V or A-O inhibit the development of atherosclerosis, and in vitro studies that indicated that V and A-O reduce lipid peroxdation and free radical damage, thus inhibiting atherosclerosis.
5. The oxidative modification hypothesis of atherosclerosis claims that the oxidation of low density lipoproteins initiates atherosclerosis. The hypothesis suggests that accumulated LDL in the subendothelial space of arteries is oxidized to modified LDL—more negatively charged. The uptake of completely oxidized LDL leads to massive uptake of cholesterol by the macrophages and stimulates the binding of monocytes to the endothelium, promoting the release of lipids, enhancing the progression of atherosclerosis.
6. Thus, there is a discrepancy between in vivo animal and in vitro laboratory studies and RCTs with regard to the association between V and A-O and cardiovascular disease. Animal and in vitro laboratory studies might not represent the biological processes in the human body.
7. There is also a discrepancy between case-control studies and RCTs which could be explained by biases in the case-control.
8. Some important methodological issues might explain the differences in findings between cohort studies and RCTs.
9. Strengths and weaknesses in relation to other M-A.

The findings of this study are similar to those of previous M-A of RCTs on the

association between V or A-O supplementation and other outcomes such as mortality and cancer.

A 2007 M-A of 27 trials reported that vitamin A, vitamin E, or beta-carotene supplements were associated with increased mortality, while vitamin C and selenium were not. The investigators suggested that the elimination of free radicals through A-Os interferes with essential defensive mechanisms such as apoptosis, phagocytosis, and detoxification, and might lead to increased mortality. It was also suggested that, considering these negative effects, A-O supplements should be considered as medicinal products and should undergo sufficient evaluation before marketing.

In 2010, a M-A reported that A-O supplements had no primary or secondary preventive effect on cancer and even increased risk of bladder cancer.

9. Because of these discrepancies between studies and clinical trials, the findings from preclinical studies should not be directly applied to humans.
10. In the subgroup M-A of high quality RCTs, beneficial and harmful effects disappeared. It cannot be concluded, therefore, that V and A-O supplements are harmful for angina pectoris, or that B6 is beneficial for major cardiovascular events. Even though B6 supplementation was associated with decreased risk of CVD mortality in high quality trials, and E was associated with a decreased risk of MI, these effects were shown only in trials with supplements provided by the pharmaceutical industry.
11. There are several limitations to this study:

    The investigation considered only synthetic supplements. The results cannot be directly applied to fruit and vegetables rich in natural V and A-O, or natural V obtained from plants.

    The study was unable to evaluate whether supplementation would be beneficial against CVD in populations who are deficient in V or A-O.
12. Other recent M-A have shown that supplements were associated with increased mortality and had no protective effect on cancer, or were even associated with increases in some types of cancer.
13. Most countries permit the pharmaceutical and food industry to sell these supplements under the mane of functional food or medical food, Many people take them in the belief that they improve health.

CONCLUSION

The study found no evidence to support the use of V or A-O supplements in primary or secondary prevention of major cardiovascular events.

BMJ http://www.bmj.com/content/246/bmj.f10 first author Seing-Lwpn Myung, Seoul National University Colleen of Medicine, Seoul, Republic of Korea. For the Korean Meta-analysis (KORMA) Study Group.
A short version appeared in BMJ February 2 2013 page 12 BMJ2013;346:f10

This is a detailed, comprehensive, and convincing analysis.

My pharmacy displays vitamins, anti-oxidants, and herbal remedies on 8 shelves, each 20 feet long. Certainly, there must be a good market for them.

People have been spending billions each year for V and A-O which they do not need, and are possibly harmful. This is a tribute to the masterful influence of marketing departments and the gullibility of the general population.

As the study indicates, healthy individuals with complete body stores of various V and A-O have no need for more. We do not know the effects in persons who are deficient.

Additional folic acid at the time of conception may benefit by preventing spinal bifida and possibly autism. Vitamin D is frequently deficient in older individuals who are rarely exposed to sunlight.

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The Use Of DS For Health Promotion Is Controversial, Not Only Because Of Lack Of Sufficient Research, But Also Because Of Conflicting Evidence Available From Existing Research.

3-3 WHY ADULTS USE DIETARY SUPPLEMENT: ***NHANES Survey***

Dietary supplement (**DS**) use has increased over the past 30 years. Currently about half of adults report using 1 or more DS.

However, their actual motivation for use remains unclear.

The National Health and Nutrition Examination Survey (**NHANES**) has been questioning motivation 2007-2010.

STUDY

1. The present analysis collected data from household interviews; n = 11 956; 54% female; age range 20->60)).
2. Questionnaires collected detailed data on use of vitamins, minerals, herbs, and other DS over the past 30 days.
3. Motivation was assessed using a questionnaire including reasons for use of each reported DS. Also asked if the DS was used on advice of a health care provider, or for their own reasons.

RESULTS

1. A total of 49% reported using a DS within the past 30 days.
2. Use was more common in: Older adults (> 60); non-Hispanic whites; not underweight or obese; nonsmokers; having health insurance; exercising more; reporting excellent or good health; and drinking 1 alcoholic drink per day. Ie, a higher socio-economic group.
3. The most common reasons for use of DS (%):

Improve overall health	45
Maintain health	33
Bone health	36 women; 11 men
To supplement the diet	22
To prevent health problems	20
For heart health, lower cholesterol	15
Boost immunity prevent colds	12
For healthy joints prevent arthritis	12
For enhanced energy	10

4, Other reasons (5% or lower): Skin health, bowel or colon health, low iron, eye health, mental health, weight loss, muscle-related issues, healthy hair and nails, improve sleep, prostate health, for menopause, for pregnancy.
5. Multivitamin-mineral supplements were the most commonly used—primarily to "maintain health" or "supplement the diet". Calcium-containing supplements were the second most frequently used, reported principally for 'bone health" or for "healthy joints and prevention of arthritis". Omega-3 fatty acids and fish oils were the third most frequently used, most commonly for "heart health" or to "lower cholesterol". Vitamin D was used for "bone health", B12 to "enhance energy".
6. About ¼ of supplements were reported to be used on the advice of a healthcare professional, especially multivitamin-minerals and calcium. The most common motivations for products recommended by health care providers were for "bone health" and "to improve overall health".

DISCUSSION

1. DS were used by about half of U.S. adults in 2007-2010.
2. DS are defined by law as products that are intended to supplement the diet. They are

not drugs, and therefore are not intended to prevent, diagnose, treat, mitigate, or cure diseases.

3. This analysis indicates that the primary reason for use was to improve or maintain overall health, which may or may not include the prevention or treatment of disease.
4. Multivitamin-mineral supplements were the most commonly used and were reported to be used primarily to improve or maintain health.
5. Previous research suggests DS users have higher intake of most vitamins and minerals from food than non-users. Thus, it is often difficult to disentangle the effect of healthy food and lifestyle choices from the use of DS in epidemiological research.
6. The totality of evidence for DS and health outcomes is available for a few supplements:

   A 2006 evidence-based review by the NIH determined that "the present evidence is insufficient to recommend either for or against use of multivitamin-mineral supplements to prevent chronic disease".

   A recent analysis of B vitamins to lower homocysteine concentrations showed no significant effect on CVD events, cancer, or all-cause mortality.

   A meta-analysis of anti-oxidants (vitamin E or beta-carotene) showed that, among the vitamin E trials, there was no association between supplementation and prevention of CVD or mortality, and beta-carotene showed a small increase in CVD-related mortality.

   A Cochrane review of 3 trials of omega-3 fatty acid supplements showed no effect on prevention of cognitive decline or incident dementia. Two recent meta-analyses found supplementation with omega-3 (primarily from fish oils) to be of no or little value in preventing risk of major cardiovascular events and all-cause mortality (including those with a history of heart disease).

   Two M-A have reached different conclusions about potential value of glucosamine and condroitin in delaying radiological progression of osteoarthritis of the knee.
7. The use of DS for health promotion is controversial, not only because of lack of sufficient research, but also because of conflicting evidence available from existing research.
8. This study did not specifically question participants about cancer, although individuals could volunteer information. A cancer diagnosis has been shown to motivate initiation of supplements. Among cancer survivors, the top factor for using DS included "the ability to help oneself", "to boost the immune system", "to provide more energy", and "to help prevent cancer". Supplements are widely used, not only by those recently diagnosed with cancer, but also by long-term survivors.
9. Age and sex differences were evident in motivation for use. Older adults were more

likely to use supplements for site-specific health reason (eg, bone, heart, eye) and younger adults were more likely to use them for enhanced energy or to boost immune function. Women were more likely to use them for bone health; men for heart health and general health.

10. Virtually no one used DS for asthma, allergy, diabetes, to improve sleep, or to aid relaxation, although several products are marketed for these purposes.
11. Use of herbs and botanical supplements has been studied extensively. Use is related to being uninsured, using more over-the-counter medicines, and for certain health conditions. They may be used to replace costly prescription medications. Users do not report use to their health-care providers. They have the potential to interact negatively with prescription medications.
12 Americans spent over 30 billion for DS in 2011. Most were used by personal choice rather than by recommendation of a health care provider. This lends credence to the "inverse supplement hypothesis" that many users are healthy and want to take an active role in their own health, and purchase supplements as a type of insurance against poor health.
13. This NHANES cross-sectional study cannot completely rule out selection bias.

CONCLUSION

DS users report motivations related to overall health more commonly than they do for supplement nutrients from food. Use is more common in persons with more favorable health and lifestyle choices. Less than a quarter of use was recommended by a physician.

JAMA Internal Medicine March 11, 2013; 173: 355-61 Original investigation, first author Regan L Bailey, Office of Dietary Supplements NIH, Bethesda MD,

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Where did the public get the idea that using DS would improve health? Some may be based on the original investigations demonstrating that vitamins are essential to health. Over the years, marketing departments of drug companies promoted general use. The American public was anxious for an inexpensive way to "improve health".

DS are of no value unless they are insufficient in the body.

I can think of several which may be insufficient in enough individuals to warrant general use:

Vitamin D: Is lacking in food sources. Exposure to sunlight is often insufficient.

Use D to improve and maintain bone strength and likely improve muscle strength, helping to lessen risk of falls in the elderly.

Calcium: Supplementation in moderation for maintaining bone strength. It may

be warranted because dietary intake is often low.

Folic acid: General use by younger women who might become pregnant to prevent spina bifida and possibly lessen incidence of autism. I do not know if folic acid is actually deficient, or acts in some other way.

Personally, on the advice of my eye doctor, I take Ocuvite (V and A-O) for macular degeneration. I do not know if it is really helpful.

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A Significant And Largely Unaddressed Public Health Problem

3-4 SCREENING FOR INTIMATE PARTNER VIOLENCE AND ABUSE OF ELDERLY AND VULNERABLE ADULTS: *US Preventive Services Task Force Recommendation*

The USPSTF recommends that clinicians screen women of childbearing age for intimate partner violence (IPV), and provide or refer women who screen positive to intervention services. The term IPV describes physical, sexual, or psychological harm by a current or former partner or spouse (heterosexual or homosexual).

There is high certainty that the net benefit is moderate, or there is moderate certainty that the net benefit is moderate to substantial. (B recommendation)

The recommendation applies to women who do not have signs or symptoms of abuse.

The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening all elderly or vulnerable adults for physical or mental abuse and neglect.
(This is a separate clinical and social problem, I omit the comments of this topic. Ed.)

Importance

IPV often remains undetected. Nearly 31% of women and 26% of men have reported some form of IPV in their lifetime. Approximately 25% of women and 14% of men have experienced the most severe types of IPV. (This may be an underestimate.) In addition to the immediate effects of IPV, such as injury and death, there are other health consequences, many with long-term effects (sexually transmitted disease, pelvic inflammatory disease, and unintended pregnancy). Rates of chronic pain, neuralgic disorders, gastrointestinal disorders, migraine headaches, and other disabilities are increased. IPV is also associated with preterm birth, low birth weight, and decreased gestational age. Individuals experiencing IPV often develop chronic depression, posttraumatic stress disorder, anxiety disorders, substance abuse, and suicidal behavior.

For adolescents and young adults, the effects of physical and sexual assault are associated with poor self-esteem, alcohol and drug abuse, eating disorders, obesity, risky sexual behaviors, teen pregnancy, depression, anxiety, and suicide.

Detection:

There is adequate evidence that available screening instruments can identify current and past abuse or increased risk for abuse.

Benefits of detection and early intervention:

Interventions cam reduce violence, abuse, and physical and mental harm for women of reproductive age.

Harms of detection and early intervention:

The risk for harm to the individual from screening or intervention is no greater than small.

Patient population under consideration:

These recommendations apply to asymptomatic women of reproductive age.

Assessment of risk:

Factors that elevate risk: young age, substance abuse, marital difficulties, and economic hardships.

Screening tests:

Several are available. The HIT (Hurt, Insult, Threaten) screen comes in English and Spanish. It includes 4 questions:

Does your partner:

1) Physically harm you?
2) Insult or talk down to you?
3) Threaten you with harm?
4) Scream or curse you?

Each question has 5 possible answers (never, rarely, sometimes, fairly often, and frequently). Scores range from 4 to 20; 10 is considered a positive test.

Interventions:

Evidence supports various interventions, including: Counseling, home visits, information cards, and referral to community services. Services may be provided by clinicians, nurses, social workers, non-clinical mentors, or community workers. Counseling generally includes information on safety behaviors, and community resources. Home visits may include emotional support, education on problem-solving strategies, and parenting support. One study used a 20-minute nurse case management protocol focusing on a safety plan, supportive care, and guided referrals.

Useful resources:

The USPSTF has several recommendations that may be relevant, including screening for depression and alcohol abuse.

Useful resources include Web sites that contain material useful to primary care providers. Providers need guidance. IPV introduces significant safety issues that compel a provider to be fully informed on security. Providers need access to available tools, specific guidelines, and referral materials to help them develop a clinical environment dedicated to the safety of their patients. Providers should be aware of their state and local reporting requirements.

Computerized screening increases rates of domestic violence discussion, disclosure, and service provision. It has been found to be more acceptable for patients.

The CRC provides additional information: www.cdc.gov/ViolencePrevention/intimatepartnerviolence/resources.html

Burden of disease:

IPV is a significant and largely unaddressed public health problem. It is very common. Because of stigma of abuse, including, shame, and fear of reprisal many cases go unreported. A minority of women injured during their most recent rape, or during their most recent physical assault, receive medical treatment of any kind.

Effectiveness of early detection and intervention:

Five randomized, controlled trials assessed interventions to reduce exposure to IPV. physical and mental harms, or mortality in women of childbearing age.

One good quality trial compared usual care with prenatal and postpartum behavioral counseling for over 1000 African-American women who were pregnant or postpartum. The counseling emphasized safety behaviors and information on community resources. The intervention group had significantly fewer episodes

of IPV and better birth outcomes. The USPSTF determined that this potential benefit could be applied to other populations.

Potential harms of screening and interventions:

One trial of over 6000 women evaluating screening vs no screening found no harms.

Estimating the magnitude of net benefit.

Screening and intervention for IPV in women of childbearing age are associated with moderate health benefits through the reduction in exposure to abuse, physical and mental harms, and mortality. The USPSTF therefore concludes with moderate certainty that the overall net benefit is moderate.

How does the evidence fit with biological understanding?

The evidence on screening is based on a psychosocial framework, not a pure biological model.

Ample evidence shows that a person's response to violence can have lasting effects on health. In addition to physical injury: Posttraumatic stress disorder, depression, anxiety disorder, substance abuse, and suicide. Chronic pain, neurological disorders (from injury) gastrointestinal disorders (eg, irritable bowel syndrome) and migraine.

The USPSTF recommends screening women of childbearing age for IVP on the basis of research showing high diagnostic accuracy in detecting current or past abuse. Trials of intervention provide evidence that interventions reduce exposure to abuse.

The American College of Ob-Gyn, the AMA, and many others also recommend screening.

Annals Internal Medicine, March 2013; 158: 478-486 "Clinical Guidelines" first author Virginia A Moyer. From the U.S. Preventive Services Task Force, Rockville MD

During my years of active practice, I was not aware that this problem is so common. It is a terrible blight on our "civilization". I am sure I missed some women whose problem stemmed from IPV who presented with vague GI and GU complaints.

Classically, screening has been defined as testing for a condition for which the patient has no signs or symptoms. However, most women experiencing IPV will complain of some symptoms. They need an opportunity to talk about it.

I wonder about reporting IPV to social services or the police. Do we need the patient's permission? (Her expression of autonomy?)

I believe most primary care clinicians will not become intimately concerned with preventive interventions. This would take too much time. It requires special ability and experience. But, they should have a personal connection to the local social services personnel.

The primary care clinician's role is to suspect and diagnose the problem, leading to the patient's admission and confrontation with the problem.

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Beneficial And Safe

3-5 ADDING CORTICOSTEROIDS TO ANTIBIOTICS IMPROVES PAIN RELIEF IN PATIENTS WITH SORE THROAT: Cochrane Review and Meta-analysis

What is the efficacy and safety of corticosteroids for reducing symptoms in adults and children with sore throat?

A Cochrane Review included trials of corticosteroids plus antibiotic vs placebo + antibiotic in children over age 3 and adults with sore throat (pharyngitis, acute tonsillitis, or the clinical syndrome of sore throat.

No patient had infectious mononucleosis, peritonsillar abscess, sore throat after tonsillectomy or intubation, or was hospitalized (other than ED patients).

Outcomes: Patient-reported symptom improvement or resolution, pain reduction, and adverse events.

Eight randomized, controlled trials met inclusion criteria. Two included only children (n = 369), 2 only adults, 4 included both (n = 374).

Six trials used betamethasone; 1 used prednisone; 3 administered steroids intramuscularly, 4 orally, and 1 used both. Six used a single dose.

All trials used antibiotics in addition to corticosteroids or placebo.

RESULTS

1. Corticosteroids were better than placebo for complete pain resolution at 24 and 48 hours. And absolute pain reduction at 24 hours. Onset of pain relief was faster with corticosteroids.
2. Adverse efferent: Limited data were reported. 3 RCTs reported no treatment adverse effects; 1 reported no difference between groups for development of peritonsillar abscess (2% overall) or hospitalization (4%).
3. Number needed to treat for one patient to achieve complete relief in 24 hours = 4.
4. Corticosteroids vs placebo in children and adults with sore throat:

	N of trials (n)	Event rate		NNT
		Steroids	Placebo	
Complete resolution of pain in 24 hours	4 (285)	35%	12%	4
Complete resolution of pain in 48 hours	3 (200)	77%	47%	4

CONCLUSION

Adding corticosteroids to antibiotics improves pain relief in patients with sore throat.

Corticosteroids are not recommended for those with sore throat who are not receiving antibiotics.

ACP Journal Club Annals Internal Medicine March 9, 2013 commentary by Magidy W Attia, DuPont Hospital for Children, Wilmington, Delaware

Cochrane Collaboration/sore throat "Corticosteroids as stand-alone or add-on treatment for sore throat" Analysis of randomized trials, first author Hayward C Thompson