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Released June 22, 2010

This e-newsletter presents reviews of important, recently published scientific articles selected by The North American Menopause Society (NAMS), the leading nonprofit scientific organization dedicated to improving women's health and quality of life through an understanding of menopause. Each has a commentary from a recognized expert that addresses the clinical relevance of the item. Oversight for this e-newsletter issue was by George A. Helmrich, MD, NCMP, Chair-Elect, 2009-2010 NAMS Professional Education Committee. Opinions expressed in the commentaries are those of the authors and are not necessarily endorsed by NAMS or Dr. Helmrich. Disclosures are available on request. Past issues of this e-newsletter may be viewed on the NAMS Web site (www.menopause.org/news.html).

Dyslipidemia and added sugar consumption

Welsh JA, Sharma A, Abramson JL, Vaccarino V, Gillespie C, Vos MB. Caloric sweetener consumption and dyslipidemia among US adults. *JAMA* 2010;303:1490-1497.

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CONTEXT: Dietary carbohydrates have been associated with dyslipidemia, a lipid profile known to increase cardiovascular disease risk. Added sugars (caloric sweeteners used as ingredients in processed or prepared foods) are an increasing and potentially modifiable component in the US diet. No known studies have examined the association between the consumption of added sugars and lipid measures. **OBJECTIVE:** To assess the association between consumption of added sugars and blood lipid levels in US adults. **DESIGN, SETTING, AND PARTICIPANTS:** Cross-sectional study among US adults (n = 6113) from the National Health and Nutrition Examination Survey (NHANES) 1999-2006. Respondents were grouped by intake of added sugars using limits specified in dietary recommendations (< 5% [reference group], 5%-<10%, 10%-<17.5%, 17.5%-<25%, and > or = 25% of total calories). Linear regression was used to estimate adjusted mean lipid levels.

Logistic regression was used to determine adjusted odds ratios of dyslipidemia. Interactions between added sugars and sex were evaluated. **MAIN OUTCOME MEASURES:** Adjusted mean high-density lipoprotein cholesterol (HDL-C), geometric mean triglycerides, and mean low-density lipoprotein cholesterol (LDL-C) levels and adjusted odds ratios of dyslipidemia, including low HDL-C levels (< 40 mg/dL for men; < 50 mg/dL for women), high triglyceride levels (> or = 150 mg/dL), high LDL-C levels (> or = 130 mg/dL), or high ratio of triglycerides to HDL-C (> 3.8). Results were weighted to be representative of the US population. **RESULTS:** A mean of 15.8% of consumed calories was from added sugars. Among participants consuming less than 5%, 5% to less than 17.5%, 17.5% to less than 25%, and 25% or greater of total energy as added sugars, adjusted mean HDL-C levels were, respectively, 58.7, 57.5, 53.7, 51.0, and 47.7 mg/dL (P < .001 for linear trend), geometric mean triglyceride levels were 105, 102, 111, 113, and 114 mg/dL (P < .001 for linear trend), and LDL-C levels modified by sex were 116, 115, 118, 121, and 123 mg/dL among women (P = .047 for linear trend). There were no significant trends in LDL-C levels among men. Among higher consumers (> or = 10% added sugars) the odds of low HDL-C levels were

50% to more than 300% greater compared with the reference group (< 5% added sugars). **CONCLUSION:** In this study, there was a statistically significant correlation between dietary added sugars and blood lipid levels among US adults.

Comment. Obesity has received much attention in recent decades owing to its concomitant comorbid conditions. Obesity is associated with dyslipidemia, hypertension, and diabetes among other cardiovascular risk factors. There is increasing awareness of the association of macronutrient intake and cardiovascular risk as it appears that not only food quantity affects heart health but so does food quality, ie, macronutrient content. Dietary guidelines have long promoted limits on saturated fat given its association with dyslipidemia and cardiovascular disease (CVD).¹ More recently, trans fat has been implicated in its potential to promote heart disease, including acute myocardial infarction and possibly sudden cardiac death.² Attention is now increasingly given to added sugars and caloric sweeteners as their consumption has been on the rise in the United States. Caloric sweeteners are associated with negative health consequences including obesity and cardiac risk factors.³

In this study, Welsh et al demonstrated an association between consumption of added sugars and blood lipid levels using nationally representative data from the National Health and Nutrition Examination Survey (NHANES). Greater intake of dietary sugars was associated with lower high-density lipoprotein cholesterol, higher triglycerides in both men and women, and higher low-density lipoprotein cholesterol in women. Interestingly but maybe not surprisingly, intake of dietary sugars was also associated with other unhealthy behaviors such as cigarette use, reduced physical activity, and weight gain. Collectively, these behaviors contribute to higher incidence of CVD risk as demonstrated in previous studies.

Given these results, it is appropriate that healthcare professionals recommend limitations

on consumption of added sugars as recently recommended by the American Heart Association.³ Also notable, consumption of caloric sweeteners was positively correlated with low-income status in this study. These findings implicate the need for multifaceted intervention to effectively implement limitations on caloric sweeteners, particularly in populations who may have limited access to nutritious foods. While further study is necessary to determine the clinical impact of these restrictions (ie, reduction in cardiac events), this study suggests that limitations in caloric sweeteners may mitigate dyslipidemia in at-risk populations with additional cardiovascular risk factors.

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Testosterone for sexual dysfunction

Panay N, Al-Azzawi F, Bouchard C, et al. Testosterone treatment of HSDD in naturally menopausal women: the ADORE study. *Climacteric* 2010;13:121-131.

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<http://informahealthcare.com/doi/abs/10.3109/13697131003675922>.

OBJECTIVE: To evaluate the efficacy and safety of a transdermal testosterone patch (TTP,

300 microg/day) in naturally menopausal women with hypoactive sexual desire disorder (HSDD). **METHODS:** A total of 272 naturally menopausal women, predominantly not using hormone therapy, were randomized in this 6-month, placebo-controlled, double-blind, multicenter study to receive twice weekly either TTP or an identical placebo. Efficacy endpoints measured were the 4-week frequency of satisfying sexual episodes (SSE) using the Sexual Activity Log, the sexual desire domain of the Profile of Female Sexual Function and distress by the Personal Distress Scale. Safety was assessed by adverse events, laboratory parameters and hormone levels. **RESULTS:** The TTP group demonstrated significant improvements in SSE ($p = 0.0089$) as well as in sexual desire ($p = 0.0007$) and reduced personal distress ($p = 0.0024$) versus placebo at 6 months (intent-to-treat analysis, $n = 247$). The results were significant for all three endpoints in the subgroup ($n = 199$) not using hormone therapy. Similar numbers of women treated with placebo and TTP discontinued ($n = 39, 27.5\%$ vs. $n = 26, 20\%$), reported adverse events (including application site reactions) ($n = 101, 71.1\%$ vs. $n = 81, 62.3\%$) and withdrew due to adverse events ($n = 20, 14.1\%$ vs. $n = 9, 6.9\%$). No clinically relevant changes were noted in laboratory parameters. Serum free and total testosterone levels increased from baseline in the TTP group (geometric means 5.65 pg/ml and 67.8 ng/dl, respectively, at week 24) within the physiological range; no changes were seen in estradiol and sex hormone binding globulin levels. **CONCLUSIONS:** TTP was effective in treating HSDD and improving sexual function in this study of naturally menopausal women with and without concurrent hormone therapy.

Comment. According to clinical and evolutionary psychologists Cindy Meston and David Buss, who have studied and reported on human sexuality, there are approximately 237 reasons why women engage in sex.¹ Their data suggest that women engage in sex for not only the obvious physical, emotional, and material reasons, or because they are raped or coerced, but also to lure a man into a heterosexual

relationship, to keep him fulfilled so that he doesn't stray, or to upset a man they no longer want. It would seem that this list of reasons will continue to grow as scientists continue to study human sexual response and factors affecting sexual health.

Superimpose this large number of reasons as to why engage in sex or feel sexual desire on the environmental, hormonal, medical, cultural, and socioeconomic modifiers and we can conclude that the data reported by Panay et al in this current study are groundbreaking.

Despite the fact that a woman's sexual function can be either negatively or positively influenced by internal and external factors, this study clearly shows that modifying one variable (ie, increasing the level of circulating total and free testosterone) enhances sexual health. Panay et al verify clinical and scientific observations made in the 1950s: that androgens and not estrogens motivate the sex drive.

Although pioneers such as Robert Greenblatt reported on the sexual benefits of testosterone therapy in the 1940s,² definitive data on testosterone and its sexual effects came from women with breast cancer who had had their ovaries and adrenals removed as part of their therapy in the late 1950s.³ That data noted that androgens and not estrogens were responsible for sexual desire. Now, it is again clearly demonstrated that in the naturally postmenopausal woman with HSDD, testosterone should be considered in the equation of treating this group of women with distressing sexual symptoms.

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Combination lipid therapy not effective for diabetes

ACCORD Study Group, Ginsberg HN, Elam MB, Lovato LC, et al. Effects of combination lipid therapy in type 2 diabetes mellitus. *N Engl J Med* 2010;362:1563-1574.

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BACKGROUND: We investigated whether combination therapy with a statin plus a fibrate, as compared with statin monotherapy, would reduce the risk of cardiovascular disease in patients with type 2 diabetes mellitus who were at high risk for cardiovascular disease. **METHODS:** We randomly assigned 5518 patients with type 2 diabetes who were being treated with open-label simvastatin to receive either masked fenofibrate or placebo. The primary outcome was the first occurrence of nonfatal myocardial infarction, nonfatal stroke, or death from cardiovascular causes. The mean follow-up was 4.7 years. **RESULTS:** The annual rate of the primary outcome was 2.2% in the fenofibrate group and 2.4% in the placebo group (hazard ratio in the fenofibrate group, 0.92; 95% confidence interval [CI], 0.79 to 1.08; $P=0.32$). There were also no significant differences between the two study groups with respect to any secondary outcome. Annual rates of death were 1.5% in the fenofibrate group and 1.6% in the placebo group (hazard ratio, 0.91; 95% CI, 0.75 to 1.10; $P=0.33$). Prespecified subgroup analyses suggested heterogeneity in treatment effect according to sex, with a benefit for men and possible harm for women ($P=0.01$ for

interaction), and a possible interaction according to lipid subgroup, with a possible benefit for patients with both a high baseline triglyceride level and a low baseline level of high-density lipoprotein cholesterol ($P=0.057$ for interaction). **CONCLUSIONS:** The combination of fenofibrate and simvastatin did not reduce the rate of fatal cardiovascular events, nonfatal myocardial infarction, or nonfatal stroke, as compared with simvastatin alone. These results do not support the routine use of combination therapy with fenofibrate and simvastatin to reduce cardiovascular risk in the majority of high-risk patients with type 2 diabetes.

Comment. Patients with type 2 diabetes mellitus (DM) have higher cardiovascular morbidity and mortality.¹ In fact, the mortality risk of those with DM without known coronary artery disease is similar to that of a nondiabetic who has experienced a myocardial infarction,¹ making type 2 DM a coronary heart disease (CHD) risk equivalent,² although this concept has recently been challenged.³ Dyslipidemia is one of the factors leading to the increased risk of atherosclerosis in DM patients, often with a characteristic pattern of high plasma triglycerides, low high-density lipoprotein cholesterol (HDL-C), and increased concentration of small, dense low-density lipoprotein cholesterol (LDL-C). The use of statin therapy in diabetics targeting LDL-C has been proven to reduce CHD risk⁴ and is the mainstay of therapy for diabetic dyslipidemia. Yet, despite institution of statin therapy, diabetics still incur a greater cardiovascular risk,⁵ and therefore alternative strategies have been sought.⁶⁻⁹

The ACCORD trial was a landmark study designed to assess the effects of drug intervention in type 2 DM. Previously, the ACCORD group reported that intensified glycemic control was associated with increased rate of death, a matter of continuing debate in light of subsequent clinical studies and a recent meta-analysis.¹⁰ In the study under discussion,

persons with type 2 DM had similar rates of cardiovascular events whether they were on simvastatin monotherapy or combination therapy with simvastatin and fenofibrate.

The only statistically significant result was found in looking at a prespecified subgroup analysis, based on gender, in which females had lower risk of major cardiovascular events if they were on statin monotherapy. Furthermore, there was a borderline significant interaction suggesting that patients with lipid profiles of triglycerides greater than or equal to 204 mg/dL and HDL-C less than or equal to 34 mg/dL had a lower rate of major cardiovascular events if on combination therapy (12.4%) compared to statin monotherapy (17.3%), suggesting that one would have to treat 20 patients with combination therapy to prevent one cardiovascular event. However, only 17% of the patients in the study met the criteria for this subset with dyslipidemia (n = 941), and thus adequate power was not achieved to draw meaningful conclusions from this subgroup analysis.

This study was innovative in looking at fenofibrate therapy in all persons with type 2 DM regardless of baseline lipid levels. The safety and tolerability of combination therapy was reinforced in that there was no excess myopathy observed in the combination group. Additionally, patients in the fenofibrate group had a lower incidence of micro- and macroalbuminuria than statins alone, suggesting a microvascular benefit of fibrates.

The results of the ACCORD lipid study are consistent with current guidelines of the American Diabetes Association, the National Cholesterol Education Program Adult Treatment Panel III, and European and Canadian guidelines. The next step is to further investigate the high risk group of diabetics with triglycerides greater than or equal to 204 mg/dL and HDL-C less than or equal to 34 mg/dL. A recent meta-analysis showed that patients with higher triglyceride levels on fibrates have lower cardiovascular event rates than those with lower triglyceride

levels.¹¹ However, the analysis included both nondiabetics and diabetics, and thus further investigation in diabetics is warranted.

In summary, this study demonstrates that there is no additional benefit to fibrate therapy in combination with statins in persons with type 2 DM who are at their goal LDL-C level. There may be a subgroup with high thyroglobulin levels and low HDL-C levels who may benefit from combination therapy of statins and fibrates, and future studies and meta-analyses will hopefully address this issue. The observed possible harm in women treated with both statin and fibrate also warrants further investigation.

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Positive effect of red clover on depression & anxiety

Lipovac M, Chedraui P, Gruenhut C, Gocan A, Stammer M, Imhof M. Improvement of postmenopausal depressive and anxiety symptoms after treatment with isoflavones derived from red clover extracts. *Maturitas* 2010;65:258-261.

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OBJECTIVE: To evaluate the effect of isoflavones derived from red clover extracts (MF11RCE) over anxiety and depressive symptoms among postmenopausal women. **METHODS:** One hundred and nine postmenopausal women aged 40 or more were randomly assigned to receive two daily capsules of MF11RCE (80mg red clover isoflavones, Group A) or placebo of equal appearance (Group B) for a 90-day period. After a washout period of 7 days, medication was crossed over and taken for 90 days more. Anxiety and depressive symptoms were measured at baseline, 90 and 187 days with the Hospital Anxiety and Depression Scale (HADS) and Zung's Self Rating Depression Scale (SDS). **RESULTS:** After receiving the MF11RCE compound the total HADS (anxiety and depression subscale scores also) and the total SDS scores decreased significantly. This effect was equivalent to a

76.9% reduction in the total HADS score (76% for anxiety and 78.3% for depression) and an 80.6% reduction in the total SDS score. After placebo, total HADS (anxiety and depression subscale also) and total SDS scores also decreased significantly in comparison to baseline but only equivalent to an average 21.7% decline. **CONCLUSION:** Red clover derived isoflavones (MF11RCE) were effective in reducing depressive and anxiety symptoms among postmenopausal women.

Comment. Previous studies evaluating the use of isoflavones, including red clover extract (*Trifolium pretense*), are limited by their small size and short duration with mixed results.¹⁻⁴

For instance, isoflavones are thought to have no detrimental effect on breast and uterine tissue^{1,2} According to the forthcoming updated NAMS textbook, soy for treatment of vasomotor symptoms appears “safe” for breast and endometrium,⁵ but we don't know whether and to what extent soy and soy isoflavones may have beneficial effects on cardiovascular health. There is good evidence that they have no clinically significant effect on plasma concentrations of lipids and lipoproteins; however, they may inhibit the progression of atherosclerosis by other mechanisms. And, there is now a clear indication that soy isoflavone treatment is not only safe for breast cancer survivors but may reduce mortality and the recurrence of the cancers. Except for the possibility of genistein given alone, there is good evidence that neither soy nor soy isoflavones provides any benefit in the prevention of postmenopausal bone loss.⁶

Soy and soy isoflavones may have small benefits in the treatment of vasomotor symptoms in the short term. Equol may be more beneficial than the usual mixture of soy isoflavones in the treatment of menopausal symptoms.⁶ The question of whether soy and soy isoflavones have beneficial effects on cognitive function of postmenopausal women is uncertain at this time. Additional studies are

needed to better understand whether there may be a critical window during the time of perimenopausal transition that soy might affect cognitive function.⁶

In this current study by Lipovac et al, the authors look at the effects of red clover isoflavone treatment on two other conditions—depression and anxiety. The response and improvement was dramatic. An average anxiety score at baseline of 9.98 was reduced to 2.40, depression from 6.91 to 1.50, and a total HADS score from 16.89 to 3.91. This was in contrast to the response in the placebo group, which was modest. While the decrease in the placebo group was statistically lower than the scores at baseline, a further drop in the isoflavone group was significantly lower than the placebo group. The study discussion refers to an 80% reduction in vasomotor symptoms, raising the possibility that the isoflavone treatment of vasomotor symptoms yielded the positive effects on mood.

What we did not learn from this study that would have been helpful was data regarding urinary isoflavone metabolites such as daidzein, genistein, O-desmethylangolensin, and equol. Also of interest to know would have been the number of women who were equol producers. Thus, while this study provides interesting and unexpected information, the dramatic results require confirmatory studies.

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The level of evidence indicated for each study is based on a grading system that evaluates the scientific rigor of the study design, as developed by the US Preventive Services Task Force. A synopsis of the levels is presented below.

- Level I Properly randomized, controlled trial.
- Level II-1 Well-designed controlled trial but without randomization.
- Level II-2 Well-designed cohort or case-control analytic study.
- Level II-3 Multiple time series with or without the intervention (eg, cross-sectional and uncontrolled investigational studies).
- Level III Meta-analyses; reports from expert committees; descriptive studies and case reports.

NAMS 21st Annual Meeting
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There are many compelling reasons to consider attending this year's meeting. The CME scientific program is outstanding, with sessions focusing on the latest research and interpretations of findings for clinical application. The cornerstones of the NAMS Annual Meeting—cutting-edge science, world-class experts, and networking—will take place against the backdrop of the spectacular Sheraton Chicago Hotel & Towers.

In addition, this year's pre-meeting symposium topic is abnormal uterine bleeding. Some of the other popular opportunities include the return of the Meet the Experts CME Breakfast Sessions and the convenience of sitting the NAMS Certified Menopause Practitioner (NCMP) exam on October 6.

For meeting details, visit www.menopause.org/meetings/agmintro.aspx.

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