Vitamin D has long been recognized as essential for the efficient absorption and utilization of dietary calcium as well as for bone and muscle health. Intestinal calcium absorption is significantly enhanced by the presence of adequate vitamin D and is conversely reduced in deficiency of this important micronutrient. Recent studies have highlighted this important micronutrient’s multiple roles. As an inhibitor of abnormal cellular growth, vitamin D is needed to help with cell differentiation and thereby minimizing abnormal cell proliferation; this abnormality is a key step in cancer development. A stimulator of insulin secretion in response to increased blood glucose, vitamin D promotes the maintenance of glucose homeostasis. In addition, vitamin D is important for the development and maintenance of the immune system.

(Vitamin D: Continued on page 7)
Question and Answer With Dr. Margaret A. Fitzgerald

What are the most Common Symptoms Associated with Postural Hypotension?

**Question:** What is postural hypotension? Who is at greatest risk for this condition? What are the most common symptoms associated with postural hypotension? In which position should blood pressure be taken to determine postural hypertension?

**Dr. Fitzgerald:** Postural hypotension, also known as orthostatic hypotension or orthostasis, is defined as an abnormal fall in blood pressure, at least 20 mm Hg systolic and 10 mm Hg diastolic, or both, within three minutes of standing upright. Symptoms of postural hypotension include faintness, light-headedness, dizziness, confusion, or blurred vision that occur within seconds to a few minutes of standing and resolve rapidly on lying down. Postural hypotension is not a disorder but rather a manifestation of an underlying cause. This condition is usually classified as acute, with recent onset and clearly a new onset trigger or chronic, longstanding and often as a result of age-related changes or the use of select medications.

In the healthy adult, the process of rapidly going from a supine or sitting position to a standing position results in gravitational stress on the lower extremities; up to ½ to 1 liter of circulating volume pools in the lower extremities and trunk. This results in a decrease in venous return, cardiac output and, therefore, lower blood pressure. In response, the autonomic and parasympathetic reflexes are activated, the blood pressure is quickly returned to normal and the act of going from a supine or sitting position to standing rapidly does not produce any symptoms.

The patient’s history is of particular importance and will usually reveal the postural hypotension cause. Even after extensive evaluation, about one-third of patients with persistent, consistent postural hypotension have no identified cause. In postural hypotension, the body’s response to position change is inadequate, usually due to hypovolemia, and an abnormal and occasionally protracted blood pressure response results. The most common causes of acute orthostatic hypotension are hypovolemia (including excessive diuresis), the new use of vasodilating medications, prolonged bedrest, and adrenal insufficiency. The most common causes of chronic orthostatic hypotension include age-related changes in blood pressure regulation, long term use of select medications and autonomic dysfunction.

To evaluate a patient for orthostatic hypotension, blood pressure and heart rate are measured after five minutes in the supine position and at one and three minutes after standing; the patient should be asked about symptoms of orthostasis while in the standing position. In patients unable to stand, this evaluation can be conducted by having the patient change position for a supine to sitting position using the same time parameters listed above. Marked increase in heart rate (greater than 100 beats per minute or by more than 30 beats per minute from baseline) is suggestive of hypovolemia as a cause. Hypotension without a compensatory increase in heart rate (less than 10 beats per minute over baseline) suggests autonomic impairment.

**References**


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**FHEA Offer of the Month**

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**Important System Update Information**

Routine maintenance is scheduled for June 15, 2013. FHEA is committed to providing our customers maximum uptime, reliability and security for our Online Testing and Learning Site, [www.fhea.com/npexpert](http://www.fhea.com/npexpert). Regular system maintenance is critical to achieving this goal and is normally performed the third Saturday of each month.
NP News in Brief

Cinnamon Challenge Causes Growing Calls to Poison Centers
Healthcare providers stated the dangers of the cinnamon challenge have caused increased calls to poison centers. The cinnamon challenge consists of swallowing a tablespoon of ground cinnamon in 60 seconds without drinking any fluids. Most young adults who have done it have only experienced temporary side effects but according to Steven E. Lipshultz, MD, this stunt has led to calls to poison centers, emergency departments and in severe cases hospitalization for a collapsed lung. In recent studies on animals, Dr. Lipshultz and his team have discovered swallowing that amount of cinnamon can cause lesions, scarring and inflammation of the airways and lungs and can have lasting effects like pulmonary fibrosis. People with asthma, pulmonary cystic fibrosis, chronic lung disease, or a hypersensitivity to the spice should be especially concerned. The cinnamon challenge is often attempted by people ages 13 to 24. As of August, more than 50,000 YouTube videos have been posted of people trying the cinnamon challenge and these videos have attracted millions of viewers. The increase in the number of views of the cinnamon challenge videos has caused an increase in calls to the American Association of Poison Centers. Within the first 6 months of 2012, the center received 178 challenge-related calls, which is more than triple their calls from the year before. Of those calls, 69% were internal misuse or abuse and about 17% required medical attention.

Read more

New York Bill will Give NPs More Autonomy
The Nurse Practitioners Modernization Act would allow NPs to diagnose and carry out certain procedures without the collaboration of a licensed physician. Currently, NPs are licensed and certified by the State Education Department to diagnose illnesses and physical conditions without being supervised, but they cannot do any of this without mandatory collaboration with a physician. Stephen Ferrera, executive director of The Nurse Practitioner Association of New York State, said this bill will abolish the written collaboration agreement with physicians. Assemblyman Richard Gottfriend stated that a collaborative agreement between an NP and a physician is outdated and that this new bill will help support and enhance the NP profession. If the bill is passed, not all NPs would be affected. NPs with less than 3 years of experience in practice or less than 3,600 clinical hours would still need to collaborate with a physician. Patients would not notice any change other than NPs will be able to practice without physician oversight. According to the bill, 13 states allow NPs to practice with complete independence and the outcomes are good. The concern now is if it will pass the state Senate.

Read more

What Traits are Potential Employers Seeking in NPs?
According to HealtheCareers.com, there are five traits that potential employers are on the lookout for when seeking nurse practitioner (NP) candidates. It is important for NPs to have good physical endurance because they have to be able to stand on their feet for long periods of time, since they will be seeing patients for the majority of their shift. Along with having good physical endurance, good mental endurance is also a must. An NP must always be prepared for any unexpected emergency. They must be able to assess the problem and take the appropriate steps. It is also crucial to always have patience. Approximately 90 million adults in the United States (US) have limited health literacy. This means that NPs regularly see patients who have trouble understanding and reading healthcare information. Additionally, NPs must have a caring nature in order to be successful. Because of all the responsibilities an NP has, employers want someone who really cares. Patients want someone who is sympathetic to their health concerns, problems and needs. With certain patients, treatments and conditions, NPs must be encouraging. Encouraging patients to succeed and change their lifestyles will assist in improving overall health.

Read more
**Question and Answer With Carolyn Buppert, NP, JD**

**Advice for NPs who are Considering Practice Outside of their Certification Specialty**

**Question:** Are NPs obligated to practice in the specialty in which they were educated? For example, a certified, licensed woman’s health NP (WHNP) is considering a position in a family practice where a licensed family practice healthcare provider (HCP) offers to train the WHNP in the provision of lifespan, family primary care. Is this a legal or advisable option?

**Carolyn Buppert, NP, JD:** First, ask your state’s board of nursing advanced practice consultant this question, as the board is the agency which has the authority to make the necessary decisions on issues such as this one. If the board gives you an answer that could in any way be interpreted as “no” to the first question (are you obligated to practice in the specialty in which you were educated) and “yes” to the second question (is this legal or advisable), then answer the following questions before working in a specialty other than the one for which you were educated:

*If a patient claimed to have suffered an injury under your care, can you justify your qualifications to render care to the patient? How would you prove your qualifications?*

If you are a WHNP and you are treating a woman with a gynecologic problem, and something goes wrong and you are sued, it will be easy to prove you were qualified to treat the patient; you will produce your academic transcript and a copy of your certification. However, if you are educated and certified as a WHNP but you are treating a man, or treating a woman for diabetes mellitus, you are going to be hard-pressed to prove your qualifications. It is possible to do so, but difficult. Perhaps you could keep detailed records of the on-the-job training you received, such as dates of sessions with the teaching HCP, documentation of hours spent with the HCP, names of books you read, numbers of patients you treated while supervised, and so on. Unless you are going to record all of your on-the-job training, and unless the board of nursing approves, I believe working outside your area of education and certification is very risky, and I wouldn’t advise any NP to proceed in this manner. This advice, not to practice outside of the NPs area of education and certification, applies to adult NPs treating children, geriatric NPs treating younger adults, pediatric NPs treating patients age ≥12 years, family NPs working in intensive care units, and psychiatric NPs treating medical patients.

A more prudent practice is work on and achieve additional education and certification via a formal, recognized program.

Carolyn Buppert is a health care attorney. Her legal clients include medical practices, institutions, nonprofit organizations and individual clinicians throughout the United States. She is a frequent contributor to various health care publications. She is the author of eight books, most of which cover the legal aspects of NP practice. Carolyn serves on Medscape’s panel of experts. She lectures extensively on a variety of medical-legal issues. For more information, please visit: www.buppert.com.

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**NP Certification Tracks**

In accordance with the recent implementation of the Consensus Model for APRN Regulation, FHEA is offering the following NP Certification Exam Review and Advanced Practice Update courses:

- Family
- Adult-Gerontology Primary Care
- Adult-Gerontology Acute Care
- Adult
- Psychiatric/Mental Health
- Pediatric
- Women’s Health

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<td>Margaret A. Fitzgerald, DNP, FNP-BC, NP-C, FAANP, CSP, FAAN, DCC</td>
<td>Hypertension in the Elderly: The latest treatment recommendations</td>
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<td>Probiotic and Prebiotic Use in Clinical Practice: What we know, what we are learning</td>
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<td>June 19-23, 2013</td>
<td>American Association of Nurse Practitioners 28th National Conference</td>
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<td>Sept. 13-14, 2013</td>
<td>Fitzgerald Health Education Associates, Inc. Pharmacology Update</td>
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Natural Family Planning (NFP) methods, also known as Fertility Awareness, help women track their fertile and non-fertile days. Women who have regular periods can predict ovulation by checking basal body temperature, cervical mucus, and/or calendar calculation. The fertile window begins two days before ovulation and ends five days afterward. Couples who avoid intercourse (or use a barrier method) during the fertile window can prevent unintended pregnancy. Success with NFP requires substantial effort from both sexual partners.

Studies of NFP methods show a wide range of efficacy: 95% to 99% for perfect use and 75% to 98% for typical use. These studies’ quality is limited by recruitment and dropout problems. For example, a long-term study of women using NFP in Germany revealed a 1.8% pregnancy rate and a 9.2% dropout rate over 13 menstrual cycles. A study of women using NFP for 1 year or less in developing countries (Bolivia, Peru, Guatemala, and the Philippines) revealed that 23% of participants had unprotected intercourse on one or more of their fertile days.

NFP demands dedication from its users. Women with irregular periods cannot use NFP. However, because NFP is the only group of methods considered acceptable by religions that oppose contraception, it remains an important option for many couples.

Please write to pearls@reproductiveaccess.org with any questions, comments or additional resources to add to the list.

Helpful Resources

Natural Family Planning Fact Sheet

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(Vitamin D: Continued from page 8)
min D deficiency, as application of sunscreen with a sun protection factor of 8 reduces the capacity of the skin to produce vitamin D as much as 95%. Obviously, individuals who spend little time outdoors have significant vitamin D deficiency risk.

The time of year and place of residence also influences sun-induced vitamin D synthesis, with winter sun and northern latitudes providing the weakest effect. Even people who are regularly involved in outdoor activities that facilitate exposure to sunshine can have vitamin D deficiency if little skin is left sun exposed. Exposing the hands, face, arms, or lower legs to about 5-15 minutes of sun at a strength found north of the 37th parallel (approximately at Richmond, Virginia on the east coast and San Francisco, California on the west coast) between the hours of 11 AM and 2 PM will likely provide an adequate amount of vitamin D synthesis. This level of sun exposure is unlikely to induce sunburn or increase skin cancer risk. At the same time, in parts of the country with a cold winter even this degree of sun exposure is likely not reasonable.

The use of certain medications, including phenytoin (Dilantin), phenobarbital and St. John’s Wort, is potentially vitamin D depleting. As a result, patients on these medications require two to five times the recommended daily amount of vitamin D. Vitamin D deficiency is also common in the presence of hepatic or renal disease as well as post gastric bypass. Additional risk factors for vitamin D deficiency include obesity, age ≥ 65 years, or ≤25 years and fat malabsorption.

Vitamin D deficiency: A common problem
Vitamin D deficiency is a common problem. For example, studies note that up to 36% of healthy adults aged 18-29 in Boston are vitamin D deficient by winter’s end and 27% of otherwise healthy Asian children in the United Kingdom are vitamin D deficient. An additional study revealed vitamin D deficiency in 57% of patients on a hospital medical ward and in 93% patients with non-specific musculoskeletal pain at a Minneapolis pain clinic. Of 824 elderly people (>70 years of age) from 11

(Vitamin D: Continued on page 9)
(Vitamin D: Continued from page 8)

European countries, 36% of men and 47% of women had wintertime vitamin D levels in the severe deficiency range. Recent research demonstrated a 10% rise in body mass index (BMI) was linked to a 4% drop in concentrations of vitamin D. Considering this, vitamin D deficiency is a common problem in a variety of populations.

Clinical effects of vitamin D deficiency: A musculoskeletal focus

In infants and children, severe vitamin D deficiency results in the failure of growing bone to mineralize; the resulting condition is rickets. In contrast, adult bones are no longer growing but are in a state of constant cell renewal and therefore susceptible to problems related to vitamin D deficiency including persistent, nonspecific musculoskeletal pain. To appreciate this, consider some of the clinical effects of vitamin D deficiency. Without sufficient amounts of vitamin D, intestinal calcium absorption is inadequate. The resulting calcium deficiency prompts an increase in production and secretion of parathyroid hormone (PTH). PTH acts at the level of the kidney by facilitating an increase in tubular calcium reabsorption and stimulating renal production of 1, 25-dihydroxyvitamin D, the hormonally active form of vitamin D. With a continued deficiency, unusually high levels of PTU allow osteoclast activation so that bone can serve as a calcium source. In addition, the continued presence of high levels of circulating PTH causes phosphate to be wasted via the kidney. The calcium phosphate product in the circulation decreases and becomes inadequate to mineralize the bone properly, potentially leading to osteopenia and osteoporosis. At the same time, osteoblasts deposit a rubbery collagen matrix layer on the skeleton. This surface cannot provide sufficient structural support; the clinical effect is osteomalacia. This abnormal collagen matrix can absorb fluids and expand. With expansion, pressure builds under the richly innervated periosteal covering. This process likely, at least in part, explains the origin of the constant, dull bone ache often reported in patients with osteomalacia. In these patients, minimal pressure applied with a fingertip on the sternum, anterolateral tibia, radius or ulna elicits a painful response. Since vitamin D deficiency symptoms overlap considerably with those of fibromyalgia, one condition is often mistaken for the other.

Vitamin D deficiency has also been long recognized as a cause of muscle weakness and muscle aches and pain in all ages. Aside from osteomalacia and localized bone pain, antigravity muscle weakness, difficulty rising from a chair or walking, and pseudofractures is also noted in the person with vitamin D deficiency. These findings resolve with appropriate treatment. Vitamin D deficiency also contributes to the development of hypocalcemia and hypophosphatemia. In this situation, unless the vitamin D deficiency is addressed, replacing calcium or phosphate alone does not restore the body to homeostasis.
A survey conducted by Jackson Healthcare last year revealed that job satisfaction among NPs and PAs remains high, in spite of the demands placed on the professions by the implementation of the Affordable Healthcare Act (AHA). The aging baby boomer generation now requires increased access to quality healthcare, while instances of chronic disease are increasing, contributing to the shortage in primary care providers.

The online survey gathered information from 395 practicing NPs and PAs. Of the respondents, 74% reported being satisfied or very satisfied with their current positions. The survey found that the top factors contributing to overall job satisfaction for NPs and PAs are work environment, patient interaction and the ability to make a difference, salary and benefits, autonomy and variety, and challenging cases and the ability to grow. The things that NPs and PAs expressed dissatisfaction with included supervisor/management, not feeling valued, salary, support staff, and physician attitudes.

On average, NPs and PAs reported seeing 16-18 patients per day. However, this number is increasing and advance practice providers are being asked to take on more responsibility. Of those surveyed, 30% reported an increase in the amount of overtime hours, while 59% said that overtime hours have remained the same. Half of the respondents reported an increase in their patient load over the past year, while 49% of their duties increased during that time. The survey also asked the respondents to identify the top three qualities they look for in a work environment. The study found life balance, pay, and control over work schedule were the most important. The most common work places, according to respondents of the survey, are in office-based settings, clinics or practices, hospitals, government institutions, outpatient surgery centers, mental health facilities or nursing homes, with PAs more often located in hospitals and NPs in office settings or clinics.

In addition to the AHA, the number of retiring NPs and PAs continues to keep the professions in demand. Of the survey respondents, 60% of NPs and 47% of PAs plan to retire within the next 15 years, while 47% of NPs surveyed believe that the role of the NP will be at risk in the future. The most common concerns reported were physician backlash, increased medical malpractice liability, and an increase in workload. Among PAs, 32% believe that future risks to their profession include the need for physician oversight and increased medical liability.

References:
"Skin of Color" by FHEA Faculty Victor Czerkasij, MA, MS, FNP-BC
Published in The Nurse Practitioner

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