The rancher saw a puzzled look on the doctor's face so he continued to explain with his obvious wisdom collected over some time. "You know they didn’t get up there by themselves, they don’t belong up there, and they don’t know what to do while they’re up there, and you just wonder what kind of dummy put them up there to begin with."

For years we have been encouraged to avoid time in the sun to decrease risk of skin cancer, yet the scientific community is now split by a hot debate related to ultraviolet rays. There is increasing evidence that a little sunshine may indeed be helpful for us to enable our skin to make adequate vitamin D for our bodies. Because vitamin D is a mediator in immune response and keeps skin and other cells in a normal, nonproliferation state, some researchers believe that avoiding the sun may actually increase our risk of common cancers such as prostate, breast and colon. According to Edward Giovannucci, MD, ScD, a professor of medicine and nutrition at Harvard University, “I would challenge anyone to find an area or nutrient or any factor that has such consistent anti-cancer benefits as vitamin D. The data are really quite remarkable.” To make the case even stronger, consider that researchers have also found increased vitamin D levels may protect against other diseases as well, such as multiple sclerosis.

Dinner parties are wonderful events. Good food, good company, good conversation. I recently attended a large dinner gathering at a friend’s home with several people whom I had not before met. Inevitably, as with most social events, the conversation that night began with the question – “What do you do?” Upon disclosure of my profession and my scholarly interests in cognition and memory, I received from those dinner party guests a litany of case-specific questions: How can my wife and I improve our memory? Why do I forget things now at 52, when I used to be sharp as a tack? What happens in our brains as we get older that makes us remember things from long ago, but at the same time we forget our shopping list? When will I “find” the memory I lost?

Of course, for a minute or two, I forget things now at 52, when I used to be sharp as a tack. But, for the remainder of the evening, the conversation that night was memorable. It began with the question – “What do you do?” Upon disclosure of my profession and my scholarly interests in cognition and memory, I received from those dinner party guests a litany of case-specific questions: How can my wife and I improve our memory? Why do I forget things now at 52, when I used to be sharp as a tack? What happens in our brains as we get older that makes us remember things from long ago, but at the same time we forget our shopping list? When will I “find” the memory I lost?

Of course, for a minute or two, I provided the quick, standard answers to those dinner party questions as we transitioned from dinner to dessert. But, for the remainder of the evening, I inwardly reflected on the growing interest that people in the 50-something population have regarding their own cognitive changes. I became acutely aware that night of the intense interest that most of us have regarding the cognitive changes that we naturally make during our lives. By most people, change is seen as inevitable. For many, it is even welcomed. But for all, change is better accepted when accompanied by explanation. People generally seem to enjoy knowing the evidence of how and why their changes in thought and memory are so prominent.

As we all are aware, we are complicated creatures. We never stop changing. The development of our abilities extends even into our senior years. We experience significant growth and decline across all of the primary dimensions of our lives, within a constant pattern of movement and change. Given that understanding, it is interesting to consider the specific ways in which our cognitive abilities – primarily memory – shift and change across the later years. Also noteworthy are the pieces of evidence from scientific studies that continued on page 2
Age-Related Changes in Memory . . . . Continued from page 1

explain the reasons and rationale behind the particular changes that we make. People tend to become more positive and comfortable with their cognitive changes when explanations for those patterns are readily available. As the guests at the recent dinner party demonstrated, people have a genuine desire to learn more about the phenomena in their own lives in order to better embrace the changes that they observe. Based on that trend, this article provides a brief listing of a few evidence-based conclusions about how the cognitive changes in middle and older adulthood occur as a by-product of some of the obvious physical changes that occur in the body at that same time.

SENSORY CHANGES

There is much evidence which suggests that the decline of sensory processing may be partly responsible for changes in memory and other complex cognitive acts during middle and late adulthood. For instance, a person’s ability to focus on a particular visual stimulus and maintain its optical image in order to solve a problem with that visual information experiences its sharpest decline between ages 45 and 59. Evidence also suggests that the retina of the eye becomes much less sensitive to light levels and printed text at around that same age. Sensory processing related to hearing, a person’s sensitivity to pitches, ability to distinguish between specific sounds, and the skill of auditory acuity (e.g., distinguishing sounds that are near versus far) also have been shown to begin their most significant decline during the 45 to 60 age range. Tactile sensitivity – although it appears to peak at around age 55. Overall, sensory processing significantly wanes during middle adulthood.

This decline in sensory functioning has been linked to changes in memory. The primary theory regarding this issue is that the less efficiently we process information when it is encountered in our daily interactions with our environment (i.e., exposure to visual, auditory and tactile information), the less likely it is to be encoded and stored into our short-term and long-term memory banks. If the forerunners of our cognitive processing (i.e., our five senses) are not functioning properly, then our deeper levels of cognition – such as our problem solving and our memory – are not as effectively engaged. The bottom line is that if we don’t see, hear, or touch something with clarity, then we are not likely to remember it later.

CARDIOVASCULAR CHANGES

Because most people are aware that there are cognitive symptoms associated with cardiovascular illnesses, and that cardiovascular health is linked to cognitive health, it should be no surprise that cardiovascular changes during middle and late adulthood are correlated with the typical changes in memory function that are observed during those same life stages. During middle adulthood, many people find that fatty deposits and scar tissue begin to slowly accumulate in the blood vessels, thereby reducing blood flow to vital organs, including the brain. Between ages 45 and 55, most adults learn that their metabolism rates shift rapidly, contributing to instabilities in the ways that cholesterol can impact the body’s ability to regulate brain chemicals via cardiovascular functioning. Blood pressure is an obvious concern for most adults entering their fifties, as the consistency of blood pressure measurement is known to rapidly decrease within that decade, significantly destabilizing the rate at which blood flow impacts the tissue regeneration in the brain.

Obviously, this decline in cardiovascular functioning has been linked to changes in memory. Considering that the organic structure of the brain is rather dependent upon vascular health, it stands to reason that specific cognitive functions that are influenced by the brain would be significantly altered when those types of alterations occur in blood flow patterns. Generally, when blood flow activity in the brain is decreased, scientists have observed delays in cognitive processing time, decaying of problem-solving within the short-term memory, and a general deficit in retrieving previously stored information from long-term memory. This redirects our attention to the theory that as the efficiency of oxygen transport within the blood system decreases, so do our memory and problem-solving abilities.

continued on page 5

We want to hear from you!

If you have comments or questions about articles in this issue, want to submit a letter to the editor, ask a question or make a comment, or if you would like to suggest appropriate subjects for consideration in future issues of PrimeTimes, the PrimeTimes staff wants to hear from you. If you want to be added to the PrimeTimes mailing list, just call, fax or write to let us know.

LOCATION:
The Office of Lifespan Studies Atlantic Center 642 Century Circle Conway, S.C. 29526

MAILING ADDRESS:
OLS - Atlantic Center Coastal Carolina University P.O. Box 261954 Conway, S.C. 29528-6054

E-MAIL ADDRESS:
rockdo@coastal.edu

TELEPHONES:
Rocco Cartiano, 843-349-4116 Research Associate Fax 843-349-2184

OLLI SUMMER SESSIONS

The SUMMER 2009 Lifelong Learning course for June and July 2009 are listed in the summer schedule. Classes in art and photography, computer technology, history, literature and writing, music, personal growth and development are available. Classes are scheduled in Conway at the Foundation Center, in Litchfield at the Waccammaw Center and North Myrtle Beach at the J. Bryan Floyd Center.

What a GREAT WAY to spend some of those nice summer days with subjects you have an interest in and meeting those with similar interests while doing so.

Check the Other Lifelong Learning Institute Web site at www.coastal.edu/olli for more information or telephone 843-349-4001 or 843-349-4030.

Age-Related Changes in Memory . . . . Continued from page 4

concerning strategies and behaviors for improving quality of cognitive functioning during adulthood are encouraged to explore the following resources:


Russell Vaden may be reached at rvaden@coastal.edu. To read Vaden’s first article in PrimeTimes, Winter 2009 issue, “MEMORY: Through the Years”, please go to www.coastal.edu/olli and click on PrimeTimes listed on the left; ALL previous issues of PrimeTimes can be found here.

continued on page 3
Catholic Charities – Pee Dee provides many supportive services for seniors to help sustain independent living in this growing population. These services help make it possible for seniors to continue living full, independent lives in their communities. Our programs provide assistance that maintains a person’s dignity, and advocates for social justice through an array of community-based services and referrals.

Today, Catholic Charities – Pee Dee have seven successful Services for Senior programs. Our Geriatric Care Management service is broad and comprehensive. These services are available to individuals and families. A modest fee is charged in order to cover part of the cost; however, a sliding scale is available for those in need. This program provides case management, advocacy on behalf of the participant, a comprehensive assessment to create an individualized care plan, referral and coordination of services in all areas of a participant’s life, close collaboration with other service providers to coordinate and monitor care, and re-evaluation of service needs on a regular basis.

The goal of the Geriatric Care Management Program is to allow seniors to remain in their home longer by checking in with them and through conversations ask about their safety, nutrition, and if they have taken their medications. Our Wellness program helps seniors celebrate aging as a time for reflection and mentoring. Workshops and support groups are offered which enable seniors and their families’ opportunities to share and celebrate through memories, perspectives and gifts of the older generation. This program focuses on meditation, creativity and healing; giving recognition to seniors throughout the region.

We partner with the South Carolina Department of Human Services and the United States Department of Agriculture to provide supplemental food and nutritional education to a limited number of residents of Horry County who are age 60 and older. A monthly food package is provided to participants.

Catholic Charities – Pee Dee is excited to offer other special services unique to our charity, such as Financial Advocacy and Money Management, Medication Application Service (MedAppS), Moving Management for Seniors, Telephone Reassurance Program, and our Wisdom Programs. The Financial Advocacy and Money Management programs provide budget preparation and financial maintenance service for seniors, age 55 years and older, who are competent to make financial decisions but are not able to manage routine finances. Sorting and bill paying, balancing checkbooks, screening mail and financial advocacy are all part of this program which promotes healthy living by helping people access needed medicines, at an affordable cost, in the dosages prescribed by their physicians to maintain their health.

Moving management for seniors provides moving management, consulting and coaching services. We specialize in working with seniors and their adult children. We are skilled in making necessary arrangements, locating appropriate housing including retirement or assisted-living communities, locating needed resources, arranging the actual move, anticipating needs, helping with decision-making, and smoothing the actual transition in every possible way.

Telephone Reassurance Program is an outreach and support program that checks-in with senior adults at home on a regular basis.

Catholic Charities – Pee Dee is located at 407 Blossom Street in downtown Conway. We are dedicated to helping people of all faiths and cultures through programs that focus on those with the greatest need.

We invite you to learn more about us and our services by calling 843-488-2112, or visit our Web site at www.supportcatholiccharities.org. Trisha Moody-Walker can be reached at tmoody-walker@catholiccharities.org.
A second option would be to spend more time in the sun because sufficient ultraviolet ray exposure reduces the need for vitamin D from dietary sources. The vitamin is formed when skin is exposed to sunlight; however, the amount of vitamin D synthesized depends on many factors. These include: the season (summer sunlight provides more vitamin D production than winter), where one lives (many days it is impossible to have sunlight exposure in northern latitudes), and skin color (darker skinned people require much more sun to make vitamin D because their extra pigments block UV rays). For this reason some vitamin D researchers recommend 10 to 15 minutes of sun exposure prior to sunscreen use. Keep in mind that researchers are not recommending “excess” sun exposure because sunburning would increase skin cancer risk. Too, although sunscreen blocks 95 percent of vitamin D production, application of sunscreen is still recommended for more than casual sun exposure. One other interesting note – it is impossible to “overdose” on the natural form of vitamin D from sun exposure.

The third option, and likely the most practical one, would be through supplementation. Because many foods are not good sources of vitamin D and exposure to sunlight is not always feasible, some experts believe supplementing with vitamin D-3 or cholecalciferol rather than the less potent vitamin D-2 should be considered. Researchers are now suggesting that 800 to 1500 IU of vitamin D-3 might be needed to properly increase serum levels of 25-hydroxyvitamin D levels at least part of the year. Current vitamin D recommendations were set in 1997 and many researchers now believe they are too low. Presently, the recommended Daily Adequate Intake for vitamin D is 200 international units (IU) for children and adults up to age 50, 400 IU for those ages 51 to 70, and 600 IU for those over 70. New recommendations for vitamin D have not yet been devised, but those who have conducted research on this vitamin are now thinking they should perhaps double or even triple the current recommendations.

If research findings continue to support the need for higher vitamin D levels to help the immune response, how might vitamin D levels be increased? Basically, there are three options to consider. The first would be through food consumption. This method is difficult because vitamin D is not prominent in the typical American diet. Most Americans consume only 150 IU of vitamin D from food. Natural sources of vitamin D include salmon, mackerel, cod liver oil, egg yolks and sardines. Usual fortified food sources of vitamin D include cereal and milk. Another popular approach is to include egg yolks and sardines. Usual fortified food sources of vitamin D include cereal and milk. Another popular approach is to include sun exposure. It is not always feasible, some experts believe supplementing with vitamin D-3 or cholecalciferol rather than the less potent vitamin D-2 should be considered. Researchers are now suggesting that 800 to 1500 IU of vitamin D-3 might be needed to properly increase serum levels of 25-hydroxyvitamin D levels at least part of the year. Current vitamin D recommendations were set in 1997 and many researchers now believe they are too low. Presently, the recommended Daily Adequate Intake for vitamin D is 200 international units (IU) for children and adults up to age 50, 400 IU for those ages 51 to 70, and 600 IU for those over 70. New recommendations for vitamin D have not yet been devised, but those who have conducted research on this vitamin are now thinking they should perhaps double or even triple the current recommendations.

If research findings continue to support the need for higher vitamin D levels to help the immune response, how might vitamin D levels be increased? Basically, there are three options to consider. The first would be through food consumption. This method is difficult because vitamin D is not prominent in the typical American diet. Most Americans consume only 150 IU of vitamin D from food. Natural sources of vitamin D include salmon, mackerel, cod liver oil, egg yolks and sardines. Usual fortified food sources of vitamin D include cereal and milk. Another popular approach is to include sun exposure. It is not always feasible, some experts believe supplementing with vitamin D-3 or cholecalciferol rather than the less potent vitamin D-2 should be considered. Researchers are now suggesting that 800 to 1500 IU of vitamin D-3 might be needed to properly increase serum levels of 25-hydroxyvitamin D levels at least part of the year. Current vitamin D recommendations were set in 1997 and many researchers now believe they are too low. Presently, the recommended Daily Adequate Intake for vitamin D is 200 international units (IU) for children and adults up to age 50, 400 IU for those ages 51 to 70, and 600 IU for those over 70. New recommendations for vitamin D have not yet been devised, but those who have conducted research on this vitamin are now thinking they should perhaps double or even triple the current recommendations.

If research findings continue to support the need for higher vitamin D levels to help the immune response, how might vitamin D levels be increased? Basically, there are three options to consider. The first would be through food consumption. This method is difficult because vitamin D is not prominent in the typical American diet. Most Americans consume only 150 IU of vitamin D from food. Natural sources of vitamin D include salmon, mackerel, cod liver oil, egg yolks and sardines. Usual fortified food sources of vitamin D include cereal and milk. Another popular approach is to include sun exposure. It is not always feasible, some experts believe supplementing with vitamin D-3 or cholecalciferol rather than the less potent vitamin D-2 should be considered. Researchers are now suggesting that 800 to 1500 IU of vitamin D-3 might be needed to properly increase serum levels of 25-hydroxyvitamin D levels at least part of the year. Current vitamin D recommendations were set in 1997 and many researchers now believe they are too low. Presently, the recommended Daily Adequate Intake for vitamin D is 200 international units (IU) for children and adults up to age 50, 400 IU for those ages 51 to 70, and 600 IU for those over 70. New recommendations for vitamin D have not yet been devised, but those who have conducted research on this vitamin are now thinking they should perhaps double or even triple the current recommendations.
Smith Exercise Science (Continued from page 6)

(i.e. physical therapy, cardiopulmonary rehabilitation, etc.). Given the challenges the nation faces with the prevalence of cardiovascular disease, obesity and cancer with their connections to physical inactivity, it is no surprise that this major has seen such rapid growth.

To better develop student knowledge, skills and abilities in these areas, the Smith Exercise Science Laboratory has seen major upgrades in laboratory technology. In 2007, the laboratory added a “state of the art” isokinetic muscle testing system that is used by many universities, physical therapy clinics, athletic training facilities and hospitals. In January 2009, the lab vastly improved its capacity to provide body composition analysis for students and community members through the purchase of the “Bod Pod” (or as it is more scientifically known, an air displacement plethysmograph). This technology was obtained thanks, in large part, to the State of South Carolina Public Education Lottery Initiative. The Bod Pod is much safer and easier to use than the technique of underwater weighing, formerly the “gold standard” for body composition testing. Numerous research institutions and other commercial entities have long preferred the Bod Pod over underwater weighing, so our students will get hands on experience with cutting edge technology. In March 2009, the laboratory was able to purchase a new, state-of-the-art treadmill and electrocardiograph, a device that measures the electrical activity of the heart and is used to screen for heart disease (I’m so excited to get hands on experience in conducting stress tests and interpreting an ECG).

With regard to research, in 2008 the laboratory completed a rather large study of muscle strength, balance and falls in middle age and older men and women. This study has so far led to four research presentations at the Southeast Regional American College of Sports Medicine Annual Meeting, a presentation at the national meeting of the American College of Sports Medicine, and a presentation at the national meeting of the American Physical Therapy Association. Also, a book chapter was published in Fall 2008 using data obtained from this study.

Other exciting news related to the EXSS program is the recent hiring of Will Lyerly, an exercise physiologist from the University of South Carolina. Lyerly will be joining the faculty in the fall 2009 semester and brings to the faculty a wealth of experience in research, teaching and the certification process by the American College of Sports Medicine. As the EXSS program moves to the College of Natural and Applied Sciences in the future, Lyerly brings with him the ability to develop collaborations with existing EXSS faculty as well as those in health promotion, biology, and chemistry. We look forward to expanding our research and community outreach endeavors in the upcoming academic year. Stay tuned.

Dr. Martel can be reached at gmartel@coastal.edu or 843.349.2957

Vitamin “D” earns an “A” (Continued from page 4)

Vitamin “D” earns an “A”… perhaps using specialized equipment to work different muscles, including your heart. Exercise can also be accomplished outdoors, in nature, and one can reap the benefits of not only exercising their bodies but also enjoying our beautiful natural areas. Paddling is one of those types of outdoor exercise activities.

Paddling, also referred to as canoeing or kayaking, exercises the cardiovascular system as well as many parts of the muscular system. Depending on how intense the paddling activity is, one can get a moderate or a vigorous workout that will not only get the blood pumping but also work the muscles of the legs, arms, chest, back and abdomen.

A good cardiovascular workout is one of the keys to good health. The heart, a muscle, gets stronger and more efficient with exercise, resulting in improved blood flow to the body. A healthy heart reduces the risk of cardiovascular disease including myocardial infarction (heart attack).

In addition to a cardiovascular workout, paddling works our skeletal muscular system. The leg muscles help to stabilize the body in the canoe or kayak. The arm, chest and back muscles help in stroking the paddle through the water to move the canoe or kayak in the desired direction. The abdominal muscles get their workout from the twisting movement of stroking the paddle from each side of the canoe or kayak.

Beyond its potential for a good workout, paddling is easy to learn, enjoyable in the doing, and gets you outside in the fresh air and surrounded by nature. Paddling is a growing hobby/sport that accommodates all kinds of people - young and young at heart. Paddling enables one to enjoy all that nature has to offer.

Continued on page 6
The Waccamaw River is a signature natural feature in the coastal plain of North and South Carolina. The river provides multiple community benefits including scenic landscapes, diverse and significant fish and wildlife populations, drinking water supply and recreation and it is an economic engine that serves this growing region. The blue trail project will help us to engage local citizens in the stewardship of their watershed. This project is among our top priorities for the watershed because of the benefits for the community and for the long-term health of the river.

Since being in nature helps people appreciate and want to protect the river more, then being on the river will help people appreciate it more and want to protect it. So go out and enjoy nature, have fun paddling down the Waccamaw River, and reap the health benefits of both.

For more information on the Waccamaw River and the Waccamaw RIVERKEEPER® Program, check us out at www.winyahrivers.org. See you on the river!

Authors: Jeremy Neal, Senior, Coastal Carolina University (Health Promotion Programs); Christine Ellis, Waccamaw Riverkeeper, a program of Winyah Rivers Foundation.