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Human Performance Lab Newsletter, February 1993

St. Cloud State University

NEWS

HUMAN PERFORMANCE LAB
SPIRIT
BODY MIND
ST. CLOUD STATE UNIVERSITY

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Department of Physical Education,
Recreation, and Sport Science

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A lesson From Grandma…
by Moira Petit

I walked into the nursing home and up to the elevator to visit Grandma Petit. She was lying in her bed watching TV as usual. The other residents of the home were scattered about in different areas sitting or lying down engaged in activities such as watching TV, eating, staring out the window, etc… although I'm not sure that these could be called "activities", for no one was in the least bit "active". But they're older, so what can they do? They need help getting dressed, eating, sitting up, walking… actually, they shouldn't be walking at all, and they're so fragile at that age, right?

The next week I arrived in Scotland where Grandma Donnelly met me at the airport. We hopped on the bus and went to her apartment. Of course she had forgotten to get extra biscuits for tea when she went to town that morning, so while I took a nap, she walked the two miles to town and back. Our activities for the next few weeks involved more walking than I had ever done in my life. I was amazed at the amount of energy she and her friends had. They all walked into town at least once a day for food and shopping, most of them had gardens that they tended themselves, and most of her friends lived alone with no one to dress them or feed them or help them in any way. I was constantly tempted to make my grandma sit at home and rest while I did the shopping, etc. After all, elderly people are so fragile. I was certainly proven wrong on that point…

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TWO STEPS TO BETTER HEALTH!

As we start the new year, it is a good Lime to evaluate the way we've lived during the past year. This, of course, could be a lengthy process if we consider all aspects of our lives. But I would like to share some of the things that are important for all to consider if we are to achieve our full potential as healthy human beings.

While tobacco, alcohol and drug abuse remain the most devastating things we subject ourselves to, I believe that the vast majority of our adult fitness members have these things well under control and so I won't dwell on the extreme negative effects they can have upon our lives.

Rather, I would like to emphasize that 1993 provides us with the opportunity to take' advantage of the scientific information available for our use - helping us to become healthier, stronger and happier.. Sometimes this information is difficult to interpret and may be very confusing. For example, so much has been written about the various forms of cholesterol that you may have given up trying to understand the big picture. This is unfortunate because, confusing as it may be, we now have a much clearer understanding of why we all need to pay closer attention to our cholesterol levels. Two of the most important things we can do to maintain healthy cholesterol levels are to engage in regular physical activity and reduce our fat consumption.

In fact, I would offer this same two-step blueprint to nearly everyone who is interested in staying healthy. Be determined to include physical activity in your life. Much evidence has been accumulated recently demonstrating the remarkable benefits that an active lifestyle brings to our lives. We've learned that there is no magic about any specific activity, but that, the body requires a moderate amount of general physical activity to maintain itself. Sedentary living is now being blamed for a host of physical ailments. If there is a "fountain of youth," keeping in good shape has to be at the top of the list. Studies indicate that a minimum of three 30 minute sessions per week are necessary to maintain a threshold level of physical fitness.

The second step requires a careful examination of our diet. Basically, the most important nutritional change we can make is a drastic reduction in our fat consumption. Plain and simple, most of us eat too much fat. Not only is this a major cause of increased body fat, but it is closely related to heart disease, some forms of cancer, diabetes and hypertension to name a few of the more serious consequences. Finally, everyone is in agreement that we need to increase our consumption of fruits and vegetables.

This two-step approach to good health, as simple as it may sound, will have a very positive influence on our health. Evidence substantiates that physical fitness and sound nutrition are the cornerstones of good health. For those of you. who have already experienced the positive benefits of this two-step blueprint, we congratulate you. For those who are in the process of trying to incorporate these changes, we encourage you to keep trying!

We wish you the best of health this year and encourage you to keep fun and joy in your lives -- especially in the physical activities you select.

- Dr. Jack Kelly, Director

ADULT FITNESS PROGRAM

A lesson from Grandma...

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when she made me walk ten miles one day and wore me out.

After a month in Scotland, it became clear how much we encourage apathy among [lie elderly population in this country. This fall, some of the HPL students attended the NASCM conference in Omaha NE entitled "Exercise in the Elderly Population." A large amount of information was relayed by speakers, but overall, they encouraged change in attitudes toward the elderly. They're not fragile and can often do more than people hall' their age. Engaging in simple daily activities like doing the dishes, putting oil a coat, walking to the store, etc. help to maintain health and muscle atrophy. It's not the intensity or duration that's important as much as getting people interested in activity.

Dr. Ronald LaPorte made the comment (flat "it would be enough it" everyone owned I garden"... excellent advice for the young and old.

QUALITY QUENCHING

Did you know that, by die time you feel thirsty you're already slightly dehydrated? Here's how to keel) I fluids replenished:

*Drink 2 1/2 cups of water I hour before exercise, then another 1 1/2 cups III) to 15 min. before exercising.

*Drink 1/2 cup of water every 15 min while exercising.

*After exercising, drink 2 cups of' water for every 1b. of weight lost as sweat.

Best drinks: water
50/50 juice/water
decaffeinated beverages
non-alcoholic beverages

Fluid replacement is vital, so drink up!

*Adapted from Your Health Your Choice Bulletin.

HOME EXERCISE EQUIPMENT: WHAT'S RIGHT FOR ME?

by Kari Brown

Time and convenience are two major factors that keep people from participating in a regular exercise program. Home exercise equipment has become a solution to this problem for many, but it has also been a dust collector for some. Here are some tips to consider if you're thinking of purchasing home exercise equipment:

1. Only choose exercise equipment that you will enjoy using. Don't choose equipment because it should make you more fit; if you don't like it you won't use it.
2. Put the equipment in a place where you'll see it and won't get bored with it-by the window, next to the TV, or next to the stereo helps keep you motivated.
3. If you do purchase equipment, do it seriously and buy equipment that will last. Purchase equipment where salespeople have a knowledgeable background on its use, and you can easily take it back for repairs if needed.

EQUIPMENT SPECIFICS

STATIONARY CYCLES
$200 - $3200.
Top models include Bodyguard, Cybex, Life Fitness, Monark, Precor Tunturi and Schwinn. Look for models with toe clips and resistance options that arc easy to change.

ROWING MACHINES
$150 - $1995.
Most favored is the Concept 11 Rowing Ergometer It operates with a fan-blade flywheel that adds resistance as you pull back on the handle.

TREADMILLS
$400 - $6000.
Look for ones allowing easy change of speed and elevation, a two-ply belt, and a bed long enough to accommodate your stride comfortably. It should have at least 1.5 horsepower of continuous duty.

STRENGTH TRAINING EQUIPMENT
Wide price range.
Machines operate by either free weights or a pulley system. If you exercise alone, it's best to go with a weight machine so that you don't need someone to spot you. Look for stability and die number of exercises it offers.

STAIR CLIMBERS
$250 - $3500.
The machine should operate smoothly. Be sure the ranges of motion and resistance settings are appropriate for you.

SKI MACHINES
$300 - $1300.
NordicTrack still leads the way; however, others arc close behind. Most machines will provide a good low impact activity. Expect to see a learning curve in that most ski machines require movement pattern quite foreign to most.

*Adapted from American Health magazine

OUR GRATITUDE

The staff and students at the Human Performance Lab would like to thank the following people for their contributions to the Adult Fitness Program in 1992.

Mr. and Mrs. Allan Andreotti
Drs. David and Nancy Bacharach
Ms. Linda Bettison
Dr. and Mrs. Flay Collins
Dr. and Mrs. Dennis Fields
Mr. and Mrs. James Gammell
Mr. and Mrs. Curtis Ghylin.
Mr. Patrick Karns
Mr. And Mrs. Leroy Kasper.
Dr. and Mrs. John Kelly
Mr.. and Mrs. David Kunze
Mr. And Mrs. Tom. Lembeck
Mr. And Mrs. Roger Moran
Dr. Ruth Nearing
Dr. and, Mrs. Frank Osendorf
Dr. John Pike
Ms. Sally Plante
Mr. And Mrs. Glenn Schwanberg
Dr. and Mrs. Glenn Street
Ms. Judith Seitz
Mr. and Mrs. Brady Watts

ADULT FITNESS PROGRAM

JUST A REMINDER

by Mike Reid

Is Jack Frost nipping at your nose? Yep. And my cheeks, ears, fingers, and toes, too! If you're a winter sport fanatic and survived the 1 o n g Minnesota summer, here are a few reminders. This welcomed weather can be hazardous and can stop you dead cold in your tracks. What I'm referring to, of course, is frostbite and hypothermia.

Frostbite is the freezing of tissue as a result of exposure to extremely cold conditions. Frostbitten areas feel hard and cold to the touch. To the victim, the area may be numb or it may sting. The hands, feet, nose, and ears are most commonly affected. However, the genitals, breasts and the cornea of the eye are at increased risk at temperatures below -15° Fahrenheit (F). At temperatures below freezing, earrings should be removed. A windproof barrier should be worn over the breasts and genitals. In extremely cold conditions, eye protection is a good idea.

Mild frostbite can be treated by holding a warm hand over the affected area or by submerging it in warm (100° F) water. Rubbing the area will only make matters worse. If the area doesn't warm up and feeling isn't regained, medical help should be sought immediately.

A condition more threatening than frostbite is hypothermia. Hypothermia results from the cooling of the body's core temperature, due to exposure to a cool and/or damp environment. Symptoms include impaired judgment, numb and pale skin, uncontrolled shivering, slurred speech, loss of coordination, and confusion. It most commonly occurs at temperatures between 30° and 50° F. Once the body's core temperature begins to drop, the body is incapable of reversing the trend, and death call result. Heat must be provided by an outside source. Consumption of warm fluids helps. If hypothermia is suspected, seek medical attention no matter what the severity. Remember, due to the victim's "intoxicated-like" state, it is largely the responsibility of companions to note symptoms and administer treatment.

Know what symptoms to watch for and dress wisely. By doing this, you should be able to avoid frostbite and hypothermia. May it snow through April!

*Adapted from MedCenters Self-Care Series, St. Cloud Nordic News, and Dr. William Robert's "Heat and Cold Recommendations For MSHSL Athletes in Competition and Practice."

Stress Buster

by Mary Kazemba

We have all experienced stress from having too much to do in too little time. The stress stems from feeling out of control over our situation: how will I ever get everything done? When we do feel a sense of control over our situations, we tolerate stress better. But how do we obtain a sense of control over an impossible situation? The answer is simple: face reality and make choices.

We cannot do everything under the sun and do it to perfection, but we can optimize the quality of our time if we prioritize what we wish to do and put caring for our body first. Yes, first. Why? Because our physical and mental health depends on it, and these profoundly influence everything that we do. **Regular exercise is the best stress-management technique and essential for good health.** As much as we try to avoid stress, it inevitably strikes us at some time. During stressful times, it is more important than ever to get enough sleep, cat well, avoid too much caffeine and alcohol, and exercise regularly. Exercise prevents artery disease, high blood pressure, diabetes, osteoporosis, obesity, anxiety and depression, it slows the aging process, and it often improves sleep quality… is that reason enough?

Taking care of our health is one of the best time investments we can make!

*Adapted from Fitness Management.

NUTRITION UPDATE

by Lori Hyink

A new food labeling method will be adorning the food shelves by May of 1994. This new labeling system requires all manufacturers of processed foods to more clearly disclose to consumers the nutritional content of their products. The new requirement has been the subject of much debate for the last two years.

The new labels will have to include calories, fat, cholesterol, sodium, carbohydrate, and protein content by weight. In addition, for each of these required items, a percentage of the recommended consumption for a 2000 caloric per day diet must be given. The FDA has established 65 grams of fat as the recommended daily allowance on a 2000 calorie diet. Two other columns further help the consumer by listing the RDAs of each item for a 2000 and 2500 caloric diet. Proponents of this new labeling method hope that this will help the average American select a healthy diet.

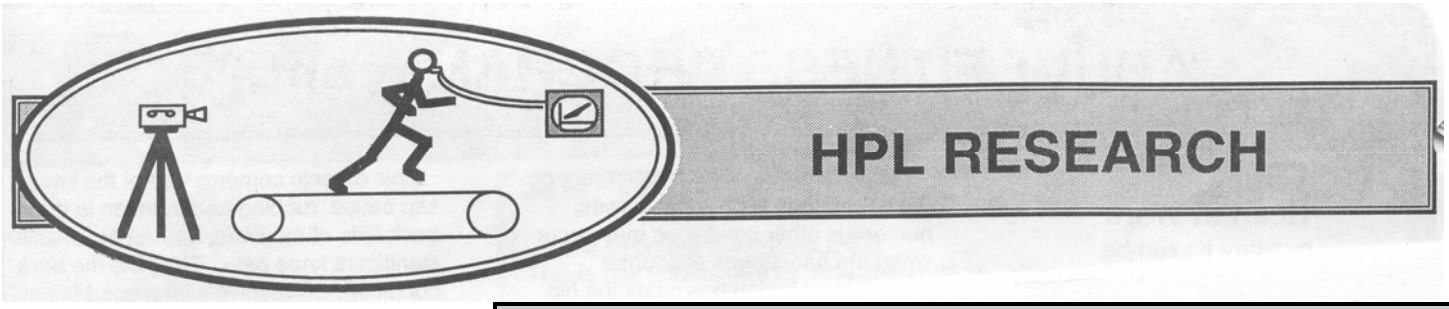
The government also will regulate misleading advertising using the word "light." In order to use the words "light fat," the food product must be 50% reduced from its original fat content. And if the word "light" is used in relation to sodium, the word "sodium" must be in the same size print as the word "light."

Hopefully Americans will pay attention to these changes and eat healthier!

COUPON

$ 10
DISCOUNT

Present this coupon at your next fitness evaluation and receive a $10 discount.



PRESENTATIONS AT THE 1992 ACSM MEETING

Bacharach, D., T. Hilden, L. Szmedra L. LeMura K. Rundell, S. von Duvillard G. Street, J. Kelly. Validity of blood LA measures during lab and field tests in elite biathlon skiers.

Hilden, T., S. Gaskill C. Wetzstein, D. Bacharach. Influence or stage duration and rest period on V02 max and threshold determinations.

Madden, M., G. Street. Comparisons of movement patterns of' low and high handicap golfers.

Taylor, M., J. Millerhagen, B. Westrum C. Wetzstein, L. Hebl T. Hilden, D. Birchfield J. Marquardt, D. Bacharach. Rate response of activity-based pacemakers during daily tasks.

Wetzstein C., L. Hebl T. Hilden J. Kelly, D. Bacharach. LA kinetics of trained female runners during continuous and discontinuous running protocols.

PRESENTATIONS AT THE 1992 AAHPERD MEETING

Bacharach, D., T. Hilden, S. Weber, M. Madden. Computerized Wingate power tests.

Madden, M., G. Street. Comparisons of movement patterns of low and high handicap golfers.

Research continues with Cardiac Pacemakers, Inc. The response of activity-based pacemakers to simulated, gardening and cycle ergometry project was completed in August 1992. Those involved were D. Bacharach, S. Raiche, M.Taylor, J.Hinrichs, S. Sanders, T. Hilden, G. Street and. J. Kelly. In February 1993, D. Bacharach, M. Kazemba, M. Taylor, S. Weber, S. Sanders, and G. Street will complete another CPI project titled Vigor comparison: Activity-based pacing during daily tasks.

G. Street, P. Bednarski, D. Bacharach, and J. Fewster have developed a quick attachment ski pole grip that allows biathletes to save 1-2 seconds - vital time in Olympic competition - when re-gripping poles after stopping to shoot. Dr. Street presented the project at the 1992 Olympic Sports Equipment and Technology Committee meeting in Colorado Springs. The new grip also improves pole control and hand comfort. Also, Matt Taylor and Dr. Bacharach traveled to West Yellowstone, Montana last fall to assist with testing the U.S. Biathlon Teams. Field testing since last summer has focused on determining Blood Urea Nitrogen (BUN) as a marker to control training regimens on a weekly/daily basis.

DID YOU KNOW THAT...

- Bob Gregory spent this fall at the Research Institute for Olympic Sports in Jyvaskyla, Finland analyzing film from the 1992 Junior Nordic World Championships and a project involving the Senior National Ski Team.
- Upon completing his thesis, Tim Hilden is now traveling Europe as the U.S. Luge Team's Athletic Trainer.
- Todd Carroll, MS 1991, had his thesis, metabolic cost of ice and in-line skating in division I collegiate ice hockey players, published in the Canadian Journal of Applied Physiology.

Congratulations are in order for the following students who have completed their master's thesis work and have moved on to new opportunities. This is a great accomplishment and they should be commended for a job well done.

Sean Connery:	Validation of the Conconi protocol by maximal lactate steady state measurement in runners.
Tint Hilden:	Influence of stage duration and rest period on lactate threshold and VO2 max.
Julie Marquardt:	Predicting 30 second minimum power from a 20 second Wingate test.
Jamie Remme:	Development of an arm VO2 max test for Nordic skiing.

1992 RESEARCH PUBLICATIONS

Bacharach, D., E. Ekstrom (In Press). Fluids and carbohydrate: What's best? Applied Research in Coaching and Athletics. Annual, 1993.

Bacharach, D., 1. Hilden, J. Millerhagen, B. Westrum, J. Kelly. Activity-based pacing: Comparison of a device using an accelerometer verses a piezoelectric crystal. PACE, 1992,15:9.

Hoffman M. and G. Street (In Press). Effect of heart rate on shooting accuracy in biathlon. Int. J. Sports Med.

LeMura L., S. von Duvillard D. Bacharach. Enhancement of functional power in patients with coronary artery disease by circuit interval training. Sports Med., Training and Rehab 1992, 3:307-315.

Street, G. Technological advances in cross-country ski equipment. Med. Sci, Sports Exerc. , 1992, 24:1048-1054.

GRADUATE PROGRAMS

MEET THE NEW STUDENTS

Kari Brown - Always cheerful and good humored, Karl is an exercise physiology student from Brookings, SD. She received her B.S. in Wellness and Fitness at SDSU, then spent last summer interning at The National Institute For Fitness and Sport in Indianapolis. Her future plans are to obtain her Ph.D. in exercise physiology and teach. Water aerobics and music are two of her favorite activities.

Sonya Hanson - Sonya is originally from Cottonwood, MN. Upon attaining a Business Administration and Physical Education degree from Concordia College in Moorhead, she worked for the American Heart Association in Aberdeen, SD before entering the exercise physiology program. She also instructs aerobics at Suburban Health Club. Sonya loves aerobics and shopping!

Lori Hyink - Coming to us from Worthington, MN, Lori first attended SDSU in Brookings, where she earned a B.S. in Athletic Training and Fitness/Wellness. She also traveled to Indianapolis for the summer to intern at the same facility as Kari Another exercise physiology student, Lori currently works as an Athletic Trainer at Apollo High School. She would eventually like to work in a sports medicine clinic, train athletes at the high school level, then work at the collegiate level as an athletic trainer. Her hobbies include music and reading.

Mary Kazemba - A third newcomer from SDSU, Mary studied biology as an undergraduate. Although another busy exercise physiology student, Mary always manages to find time to shoot a few hoops-- her number one past time- with fellow lab students. Cardiac rehabilitation or fitness/nutrition consulting are her areas of interest for the future, with a long term goal of earning a Ph.D. and possibly teaching undergraduate anatomy and physiology.

Moira Petit - As a former All-American Cross-Country runner, Moira is the lab's 11 petite" aerobic powerhouse. Moira, who is from Bloomington, majored in Psychology and Sport Science at St. Olaf College in Northfield. She is now studying exercise physiology and assists with the women's track and cross country teams at SCSU. Her future plans are to teach and coach at a college or university. Outside of exercise phys. Moira enjoys water skiing, outdoor activities, and reading.

Mike Reid - Native to St. Cloud, Mike received his B.A. degree in Biomedical Science here at SCSU before entering the exercise physiology program. Upon getting his master's degree, lie plans to pursue a career in general or podiatric medicine. As an avid cross-country skier, Mike passes on 1) is skiing expertise as a coach at Tech High School. Mike describes himself as "a motivated perfectionist who stresses out a lot." His music provides a relaxing break from his busy schedule.

Other students officially pursuing their master's degree in Exercise Physiology include: **Lori Anderson, Julie Deyak, Mary Jo Donovan, Janice Engebretson, and Deb Meierhofer.**

GRADUATE STUDENT RESEARCH

The following students are currently working on their thesis projects. This involves designing a study, conducting the research,, compiling the results, writing a thesis and an oral defense of their work.

Piotr Bednarski:	The effect of poling technique on cross country skiing performance.
Dean Birchfield:	Cardiovascular and metabolic responses to step aerobics with and without two-pound hand weights.
Steve Gaskill	A longitudinal study of the physiological changes in cross-country skiers.
Bob Gregory:	Evaluation of current mechanical work models and possible development of an alternative model.
Shelly Raiche:	Energy costs of various low-level cardiac rehabilitation exercises.
Steve Sanders:	Effects of training on cholesterol-specific enzymes between two different exercise groups.
Matt Taylor:	Effects of speed chute training techniques on sprint speed.
Kurt Threinen:	Comparison of two types of sprint starting blocks using a force platform and 3-D video analysis equipment.
Scott Weber:	Ground reaction forces and electromyography during the long jump and triple jump take-offs. He will use our latest equipment, the force platform and the telemetry electromyography systems for his thesis.
Bill Welle:	Effects of different weighted baseball implementation training oil velocity and accuracy.

FINANCIAL SUPPORT

We greatly appreciate the financial support many of you have provided over the years. The money has been instrumental in helping the Human Performance Laboratory's programs. We are always so gratified to know that you believe in our work enough to personally invest in it.

Should you be in a position to make a contribution to the Human Performance Laboratory, please make checks payable to: SCSU Foundation-Adult Fitness,

Send Checks to.

SCSU Foundation
St. Cloud State University
Alumni & Foundation Center
720 4th Ave. South
St. Cloud, MN 56301-4498

COME ON DOWN!

If we haven't seen you in a while, we'd like to see you again! Even if it's been years since your last evaluation we'll help you get back into the swing of things. Take advantage of the discount coupon offered in this newsletter.

CHANGE OF ADDRESS?
If your address has changed please send in your new address so that we can let you know what's happening here at SCSU's Human Performance Lab.

Name_____

New Address_____

Phone_____