Technology and Well-being

by Cynthia Smith
Director, ACWF

The other day I received a letter handwritten on the inside of a floppy disk. Apparently the sender isn’t the only person finding creative uses for high tech garbage. The column "Cobweb" (The Globe and Mail, April 11, 1997) reports that useless CDs make great coasters, jewelry, terrific big earrings, frisbees and even clocks. This is a humorous and creative twist on one aspect of modern technology that dominates our lives. I remember many years ago giving my grandfather a calculator, figuring it could help him do his banking and taxes. I returned it saying he didn’t need these modern gadgets. Would he, or anyone else be able to get away without a computer in the next couple of years? Or is this just another fad? That’s the newspaper columnist’s question.

Internet usage is double what it was 18 months ago and is still growing exponentially. When I was studying recreation in the 70s we were told that in the future people would have more leisure time. Here we are with the millennium less than 2000 days away and I sure would like to know where my leisure time has disappeared to. The pace of life and work has increased dramatically. When was the last time you wrote someone a letter? Technology is blamed for much of the fast pace of society and our lack of free time. And I don’t mean just mean cellphones, Internet, fax machines and computers. Cars, planes and dishwashers too. But is it really the case? I am on the Net regularly, have a cell phone, and my children can find me whenever they need to. Also, I don’t get breaded to rise without my recently acquired bread maker. Yet, I think the technology has to be under our control, we should insist it control us. We have to use it to our advantage and not let it control those aspects of our lives that always have and will continue to contribute to our joy and well-being.

As you turn the pages of this issue you will find many articles discussing technologies and their impact on our lives. Health Canada has just released a report titled Health Promotion and the Internet. The report recommends that while the new technologies have the potential to democratize, to increase our ability to participate in decision making, to decentralize political control and to enable social equality, this isn’t an automatic result. Copies of the report are available from the Health Promotion Development Division of Health Canada or on loan from our Resource Centre. We used the new technologies to our benefit in health promotion. They are not detrimental to themselves, but a threat to an end.

As above, there are reports that technology should be used as a health promotion tool. In health promotion, technology should replace education, information sharing and networking mechanisms that health promoters benefit from. Rather it should complement our existing practices and enhance our role in empowering people, promoting health and developing a more socially conscious society.

Examples of such technology include:
- the active Canadian health promotion discussion group CLICK4HP (now 1 year old).
- regular electronic contact between health promotion research centres across the country which network weekly and also on the Internet about issues such as Tobacco 1 legislations.
- the growing number of Canadian health promotion related websites including our homegrown Health in Action site at http://www.health-in-action.org. New programs and research are being added daily and the site has recently developed new look and new options.

In an Utne Reader article titled "The Tick Tock Syndrome", Dr. Dean Ornish, President and Director of the Preventative Medicine Research Institute in San Francisco, California puts the spotlight on an old Zen proverb: "Before enlightenment, chop wood and carry water, after enlightenment, chop wood carry water, perhaps the next adage for the new millennium might be: Our new version: Before information technology use your fax machine and cellular phone. After information technology use your fax machine and cellular phone!"

References

Women and Technology in the Workplace

by Karen D. Hughes, Ph.D. concentrated in jobs which have been prime sites of technological change. During the 1980s, a "first wave" of technologies brought change to many clerical jobs of women. By the 1990s, a "second wave" of technological change has expanded computer use among managers and administrators. With over 40% of Canadian women working in either a clerical or managerial/administrative job compared to less than 20% of men, women are heavy users of new technologies. As the 1994 General Social Survey shows, 71% of clerical workers use a computer on the job for an average of 2 hours per week. For managers and administrators the figures are even higher with 77% using a computer for an average of 19 hours per week. (Love, 1997).

New technologies have sparked heated debate about the potential impact for working women. For some, technological change poses dangers, threatening to eliminate job opportunities, erode skills and create health hazards and stressful working conditions. Others believe new technologies offer the possibility to actually improve women's quality of working life, by eliminating routine, repetitive tasks and increasing worker autonomy and satisfaction.

Extrinsic research on these issues in Canada and other industrialized countries suggests that both negative and positive outcomes are possible but that neither are determined by technology per se. Rather, it is the social choices surrounding the design and adoption of workplace technology that are crucial for determining how women's work and health will be affected.

To date, research suggests that certain groups of female workers are more likely to be adversely affected by technological change. According to Karen Messing, a well-known Canadian researcher on women's occupational health, those most at risk include workers such as data entry operators, typists, telephone operators, tellers, and cashiers, who spend long hours using video display terminals (VDTs). Such workers report high rates of visual fatigue and musculo-skeletal discomfort, and may also experience high levels of mental strain due to heavy and rigid world. For example, data entry operators may face daily quotas and electronic monitoring. Studies of Canadian and American women working in such conditions show high levels of anxiety, depression and aggr...
The bright and cheery voice you hear on our telephone three days is Ivy Roswall, the Centre's new Administrative and Research Assistant. Ivy has a records management background and formerly worked with Archives.

Kevin Wilson, Health Line Coordinator

We are pleased to announce the birth of another well-being babe: Matthew Benjamin, adorable son of Betty Lee and her husband, Wing. While Betty is learning about motherhood, her Communication Coordinator shoes are being filled by Ron Griffith. Ron has a degree in Physical Education from the University of Alberta and expertise in communications and media relations with a variety of organizations. He brings some fresh ideas that he is already implementing. You'll notice some new and exciting changes in our offerings.

Another new face in the office is Jennifer Williams, a graduate of the University of Manitoba and King's University College with a Bachelor of Recreation Studies and Arts respectively. Jennifer is coordinating Operation A.B.L.E. - "Aging Better with a Little Exercise" - a coordinating unit for Albertans seeking support, resources, and information on older adult physical activity and health promotion. She is also organizing workshops and resources for the program Fix for Your Life (Strength Training for Seniors).

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The opinions of the contributors do not necessarily represent those of their organizations or the Alberta Centre for Well-Being.

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Editorial Information
Linking Albertans' Well-Being Practices

Alberta Centre for Well-Being
Serving Practitioners in All Areas of Wellness and Active Living

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From the Resource Room

by Tracy Chalmers
Resource Coordinator ACFWB

In keeping with this issue's theme of technology, I've highlighted some of the health, wellness, and Internet resources available to Albertans.

Active Living Canada (ALC)

[website]

Useful not only for information on ALC publications but also for links to other active living organizations such as CAAWS, CAHPERD, CPELI, and CIPRA.

Advisory Committee on the Changing Workplace (ACCW)

[website]

The ACCW was established in 1995 to examine the issues of the changing nature of work and the workplace. Browsing through the questions of the week section on this site may provide some good insight into the current concerns of the Canadian workforce.

Atlantic Community Health Promotion Network

[website]

http://www.acsxl.ca/comm/ACHPNet

This is one of the best health promotion sites I've viewed. They provide a valuable annotated list of related sites that includes the more well-known organizations (e.g., the Association of Ontario Health Centres, The Canadian National Forum on Health, The Canadian Women's Health Network, The World Health Organization) and the not-so-well-known (e.g., SchoolSafe, The Community ToolBox, The Contact Centre Network, and WELFed).

Canadian Council on Social Development (CSSD)

[website]

http://www.acsxl.ca/council/council.html

One of the more interesting features of this site is the Social Indicators section. The CSSD defines social indicators as "measures of well-being which assess such things as school performance, life expectancy, or our population's health and which can provide important information upon which to base public policy decisions."

Health Canada

[website]

http://www.hcprb.hc.ca/programs.htm

An excellent layout of the various sectors within the Health Promotion and Programs Branch of Health Canada (such as nutrition, aging and seniors, workplace health, social marketing, etc.). The first is the Health Promotion Development page which describes in detail their recent publications (available for loan from the ACFWB). Health Promotion Research Internet Network (HPRIN)

[website]

http://www.ku.edu/phs/hprin/main.htm

I found out about this one from our Health-In-Action website. In addition to providing a listing of resources by subject (e.g., evidence-based health, health economics, occupational health), the HPRIN provides links to health promotion research centers, schools of public health, health promotion, and public health interest sites in the US, Canada, Latin America, Europe, Asia, and Australia.

Ontario Prevention Clearinghouse (UPC)

[website]

http://www.opc.on.ca/wel/pcare.htm

The UPC facilitates and empowers individuals, groups and communities to work towards the realization of their social, emotional, physical and environmental health and well-being. From this site you can order their facts sheets and online documents as well as internal organization policy and planning documents and internal information system user guides.

Walking Resources on the Web

[website]

http://www.walking.com/

If you want to chat with a fellow walker, join a walking organization, participate in a walking tour, read up on the benefits of walking or learn what walking gear is best then this comprehensive site is THE web page to consult.

And don't forget the Centre's own web site:

[website]

http://www.health-in-action.org/WellBeing

This site will give you information about the Alberta Centre for Well-Being as well as outlining current health promotion and injury prevention programs and research going on in Alberta.

Note: Health Promotion on the Internet: Surfing and Searching for the Potential of the World Wide Web

[website]

http://www.wwwnet.com/web/health

The Internet is a tool for communication and a vast source of information. By providing both these functions, the Internet is powerful as a resource to leverage our human experience. However, any expectation that it possesses a healing power of its own is unfounded. In my view, wellness and wellness begins with our relationships. Our relationships with the Internet cannot create wellness, but as a communication tool or database of information, it is a resource to facilitate and enhance the growth of wellness.

Letters to the Editor

We welcome your comments and feedback concerning the Alberta Centre for Well-Being and our WellSpring publication:

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On Wellness and the Internet

by Tim Bulmer

I believe it was Carl Jung who observed, "The purpose of life is to experience it, to taste experience to the full, to live out your life in all its phases, to have吃饱, to reach contentment, to be happy, to be wise--otherwise what is life, if not the pursuit of happiness?"

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Home-Based Business: Balancing Tensions

by Peggy and Dale Howard

Introduction

Imagine going for a mid-morning jog and then enjoying a cup of your favourite coffee while scanning the Tech Trends journal that arrived in yesterday's mail. No time constraints, no commute, no need to leave the house. We are not describing a holi-
day or a weekend away from work. This is a description of some of the freedoms associated with one of Canada's fastest growing phenomenon: home-based businesses.

A recent Statistics Canada, Labour Force Survey reports that "Growth in self-employment has historically been driven by the increase in employment in recent months and accounts for all of the gains since last September" (September 1996 to January 1997). One can assume that a portion of this growth is in self-employment at home-based businesses. Some estimates, in fact, suggest that approximately 2.5 million Canadians work from their homes (Gray-Computer Paper Inc., 1996). If you choose to do a quick "browse" on the Internet you will locate no fewer than 8000 documents directly or indirectly relating to Home Based Business.

Peggy Howard

In shifting from institutional-based employment to self-employment in a home-based environment, our company has been able to isolate and identify what we think are important considerations beyond the financial ones. We have had to create a balance between the pulls and pushes that create boundaries around what we prefer and what we are willing to tolerate on a personal and professional level.

Dale Howard

Balancing Tensions

While home-based businesses are growing in popularity, we believe they are not for everyone. They are not for every type of business, nor are they necessarily the right option for everyone. In our experience, creating and maintaining a healthy business and home environment has meant finding a balance between the opposing forces of independence and isolation, between private and public space, and between family and work.

Independence vs. Isolation

We have already mentioned some of the freedoms of home-based businesses — creating your own timetable and taking advantage of the comfort of home during the work day. Morning struggles of fighting traffic are absent, as are the costs associated with establishing and maintaining a "down-town" office. Parents have the option of being more available to their children and to community volunteering, if they so choose.

However, one of the trade-offs of home-based freedom and increased independence is isolation. Home-based businesses are by nature removed from mainstream activity. Most home-based businesses are small. Often, the home-based person works alone in an office in the basement, a den, or a bedroom, where they have been designated "office" within the home. Therefore, self-reliance and self-determination play a critical role in a home-based person's professional development and success.

Our Agologies

Our last issue of WellSpring (volume 8, number 1, Spring 1997) featured an article on "Kids in the Hall," an innovative training and employment program for street youth in Edmonton. We received a lot of positive feedback, and a lot of support. The program has helped me focus on what I want in life as a career choice. I see that I can work for what I want, rather than what will just do.

This successful project would not have been possible if it weren't for its funders which include Human Resource Development Canada (HRDC), Alberta Advanced Education and Career Development, the Mustard Foundation and many community members. Members of the food service and hospitality industry offered advice and support. In addition, Edmonton Community and Family Services provides an on-site social worker. For more information on this worthwhile project, call Garlaton at (403) 428-7514.

picked up over coffee and lunch, and discussions with colleagues, are not the norm in a home-based business. Communication and networking are vital to business development. Maintaining client contact and a professional network for the home-based requires deliberate attention. Greater effort must be made to attend business lunches and conferences. Coffee with colleagues becomes more than informal chat. It is a way to stay "in the know". And while advanced telecommunications allow us to alleviate some of the need for face to face communication, in relationship-based businesses such as ours, personal disconnection posed a challenge. While our home was large enough to handle small meetings, many of our clients were unwilling to venture into a residential neighbourhood, regardless of the time of day or the nature of the meeting. In addition, we found that a home-based business adds complexity to the creation of professional work teams, whether they are face to face or "virtual". Inevitably, we found the need to meet in a common site — one removed from any "home" environment.

Private vs. Public Presence

Most people's homes are their sanctuary. Home provides the necessary space between private and public life. In home-based work environments, the activity of business continuously intrudes into that private space. Decisions arise around the degree of interference and intrusion one will allow. For example, if your home-based business grows to the point of requiring assistance for secretarial duties, are you prepared to have to "staff" working alongside you in your home? Are you prepared to have clients drop in for meetings or are you comfortable with clients making judgments about your life space?

As a home-based business matures, considerations have to be given to the degree to which public and private "faces" promote or detract from the growth of the business. Doing business from the home often blurs your public and private presence. In opening your home to the public, the mystery disappears — professional and private image is more complex to maintain, more exposed, and more open to public scrutiny. Worries about whether the house is clean enough, or if last evening's dinner guests still linger on, or if the dog is barking the next-door house's dog is disturbing, all become influential factors in having clients and colleagues coming to the home.

Family life is Work life

Some people say they have been very successful at separating family life from work life, by designing a home office environment within family space. In our experience, family life space is too easily made available to others. The bedroom becomes the boardroom, the living room the waiting room, the kitchen the cafeteria, the bedroom the storage room, and so on. Work, as much as you love it and thrive on it, never goes away. It is always "in your face".

The upside is that you may have available a personal and family-orientated workforce to help with tasks retaining particular skill levels (cooking, alphabetizing files, writing reports and the like). Also, we recognize the advantages our teen-aged son has enjoyed by having a parent at home in the morning when he is off to school, and in the afternoon when he returns. However, we have found that this son is beginning to see their parents as who are "always working". At different points of family and business development, family demands may dictate or influence preferences in work environments.

Conclusion

Freedom, independence, privacy, and opportunities for creating and doing things the way you prefer are all elements of home-based businesses that come to be weighed against costs — many of them financial. Generally speaking, home-based businesses are less expensive to establish than "down town" offices. It is not surprising that finances become the primary consideration in deciding whether to embark on home-based ventures.

In our experience the financial decision is mitigated by the tenants surrounding independence and isolation, public presence, and separation of work from family life. These factors create the context around which the economic decision is based. Reshaping the tenants and finding a comfort level amongst these assists in determining whether home-based work is ultimately "worth it". In our particular case, the needs of a growing client base dictated a shift out of a home-based environment to a more conventional business environment. We are interested in creating and exploring a re-balancing of the tensions described here.

An Internet Resource for Home-Basers

A place to start your search: http://www.home-bas.com

Peggy and Dale Howard are principals of two companies: Human Research and International Systems Inc. and On-Line and Personal Inc. While they continue to maintain a home office, their primary business location is located in the University Extension Centre in Edmonton, Alberta. Peggy specializes in information and research support, evaluation, technology integration, and pedagogic research development detects. Dale specializes in health education and business sectors. On-Line and Personal Inc is an electronic support service designed to provide strategic and demand consultations to individuals and organizations.

Peggy and Dale can be reached at 496-0795 or email: mdh@cybergate.net.
The following article is an example of how technology can improve one's well-being. The ACFWB does not necessarily endorse this product or method.

The year is 2007 AD. You are reclining in your dentist's chair nervously waiting the dreaded root canal surgery. You look around and grimace as you remember the last time. The freezing hadn't taken well and you suffered. You still feel angry enough to punch somebody, especially your dentist. You are tense; your emotions trigger the "fight or flight" adrenaline pumping response.

"We are going to take a GSR reading and check your alpha waves," the dentist explains. "Your stress level seems to be up so we are going to use brain wave entrainment to help you relax."

His assistant appears and hands you a set of headphones and a pair of wired sunglasses. "Music to soothe", you joke.

"Not quite. Though you will be listening to some soothing relaxing music to put you in the mood..."

"For a root canal?"

"That's right. After a few minutes of Light and Sound Stimulation, you will feel so relaxed the dentist will be able to work away and you won't feel a thing. We cover your pain by changing your brain wave rhythms from your normal conscious alert beta state to a deeply relaxed meditative alpha state through brain wave entrainment. When you brace or put pressure against something painful, you set yourself up for future complications, especially in your jaw area."

"However, we convince you to relax by getting you to watch flickering light and listen to pulsing sounds at a low alpha some frequency. Your own brain waves will mimic this pattern which will spill over into your whole brain and before you know it, it will be all over and you will be on your way home - even more relaxed than you are now."

Women and Technology in the Workplace (continued from page 1)

...son, with the prevalence of such symptoms increasing with time spent on the job. In addition to these health risks, other risks such as repetitive strain injury (RSI) may affect clients of fewer operators, as well as other workers required to do fast repetitive work (Measting, p. 99-61).

It is important to emphasize that it is not the specific technologies involved, but the way they are organized into the work process that creates dangers for specific female workers. A generation feature shared by women who are negatively affected by technological change is that their jobs combine high demands with low control. Adverse consequences are thus more likely when new technologies are used to increase and intensify work loads, while at the same time decreasing workers’ ability to pace and control the flow of work. While women in managerial and administrative jobs may have greater scope to control how computers are used in their jobs, this is less true for women in clerical areas. Accordingly, it is imperative that employers act responsibly, taking into account both the social as well as technical implications of technological change, and recognizing worker health as an organisational, as well as an individual, issue.

Employers can do a number of things to minimize the harmful effects of new technologies. The International Labour Office recommends sound organizational which include:

1. Ensure a mixture of computer experts and non-computer work.
2. Limit computer time to no more than half of the work day.
3. Provide workers control test breaks of 15 minutes for every one and a half hours of computer time.
4. Encourage risk aversion.
5. Provide occupational monitoring and control.

While work design is critical, women can also take steps to protect themselves. Stone (1989) recommends some basic guidelines:

1. Where possible, women should leave these practices to ensure they are using new technologies wisely on the job.
2. VARY work tasks: break up computer work and non-computer work to allow changes in body positions and mental activity.
3. FACILITATE your work as a reasonable rate to avoid muscle strain.
4. LOOK for the screen occasionally and focus on distant objects to rest eyes.
5. USE rest breaks to stand up and move around.

References


Scientific fiction! Not all in 10 years, brain wave machines (BWE) could be well standardised for pain control during surgery and for pain in general. The technology is in place and public pressure for non-invasive, non-chemical health intervention is growing. Problems that are outside of clinical settings are potent additions to many of the complementary technologies being explored today. It is most important and urgent use to help reduce the debilitating effects of high stress levels in everyday life.

History of Light and Sound Stimulation

About 200 AD, Pliny noticed that flickering light caused pupils of colours to appear before his eyes, and he also noticed feelings of euphoria. We all have known the calming effect of a gently waving candle. Radar operators were known to fall into deep trance states while watching flickering radar screens. In 1940, James Turrell found and measured alpha brain waves produced by photic stimulation. Forty years later, researchers

and inventor, David Siever, working with Dr. N. Thomas, created the DAVID I which combined light and sound (L&S) stimulation for use with dental patients. They observed that subjects using the device showed relaxation of deep muscle tension and an increase in finger temperature, both indicators that subjects had entered a meditative or alpha state. Painful fixation and emotional tension were reduced considerably.

Benefits of Brain Wave Entrainment

Research and anecdotal reporting in the last 10 years describe a wide variety of applications for quality-controlled L&S stimulation. These include improvements in migraine headaches, SAD, ADD, academic and athletic performance, pain control, sleep disorders, and chronic fatigue.

In 1999, a study published by Fred Boerstra and Constantine Gagnon of the University of Alberta used the DAVID Paradise L&S technology.

One person began BWE with a subjective pain level of 77 out of 90 and taking up to 35 Tylex—a mild analgesic pill a day. Boerstra and Gagnon’s study measured pain, medication use, suicidal ideation, anxiety, self-efficacy, hopefulness, coping ability, and family stability. The following graphs illustrate the mental, emotional and physiological changes experienced over a 12-month period of consistent L&S stimulation (see above charts).

Pain was dramatically reduced which in turn decreased the use of medication to two or three. Tylex pills per day. Significantly, suicide ideations substantially decreased and the subject’s quality of life dramatically improved.

Some of these physiological changes could be due to an increase of the release of natural pain killers plus there is also the decrease of daily muscle relaxation suspended alpha waves) experienced during L&S stimulation.

Another application of L&S technology is the work of sports psychologist Thomas Hawes. He used L&S technology for over a decade with world class golfers. At this level of performance, athletes are characterized by their ability reach deep levels of concentration. A truly great athlete is able to reach “the zone”, a level where there is a quantum leap in one’s level of performance. When an athlete is in this zone, performance results are well beyond normal expectations.

This state of mind-body focus seems to alter the athlete’s perceptions: the skater watches himself skate: the tennis ball gets larger and seems to slow down; the golfer sees a large cup while all around him move in slow motion; the baseball batter sees the seams of the fast ball at it flies by at 150 mph.

Using L&S stimulation enables others as well as athletes to benefit from learning how to be in “the zone” and experiencing these extraordinary level. James Turrell’s, even a trip to the dentist becomes a mind-altering experience! David Siever, inventor of the DAVID, has not needed an anesthetic for the past 10 years.

Jean Courten is a freelance writer and educator specializing in technologies that enhance learning and well-being.

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More Information

information, counseling, consulting and training of the use of L&S devices manufactured in Edmonton are available through

Comportic Devices Limited, 755-1000 60th Street, Edmonton, Alberta, Canada.

References


Brain Wave Entrainment and Using Light and Sound Stimulation by Jean Courten.
Connecting with Community Health Councils

by Barb Whearstone

In September 1996, I enrolled in the Health Promotion program through the Centre for Health Promotion Studies at the University of Alberta. By early January, I found myself in my practicum at the Alberta Centre for Well-Being embarking on a project to market the Centre's resources to the provincial Community Health Councils (CHCs). The ACFPB had previously connected with a few CHC members when Marie Carlson and Linda Rasmussen featured them in a CHC Overview article in WellSpring's Fall issue (see this issue for more information on the structure and development of CHCs). Working with Health Councils presented another opportunity. Health promotion is based on a broad view of health and the factors that determine it such as:

- socioeconomic status
- social support networks
- education
- employment and working conditions
- physical environment
- biological and genetic endowment
- personal health practices and coping skills
- healthy child development and health services.

I wondered if council members would agree that these factors determine health and how they would rank them in order of importance. As any social marketer knows, the first step in positioning your product is to segment your market, target one audience and then get to know your target adopter group. Given the thirteen days I had at the ACFPB, I realized getting to know my target group would be all I would have time to do.

There are 17 Regional Health Authorities (RHAs) in the province and I chose to contact CHC members from Regions 1 (Chinook), 12 (Lakeland) and 13 (Minotah) to get their opinions on issues. A common theme through the 29 interviews I conducted, was that members were still feeling their way and many councils were still clarifying their roles. At the same time, other councils were seeking community opinions about health needs. A few others were identifying their communites health needs and one council was attempting to reach more marginalized groups. Some found themselves acting as complaint departments between the community and the RFA. All members except one expressed support for the idea of CHCs but some wondered how effective they could be.

In the Capital Health Region, (10) I didn't speak to council members. Instead, I talked to Community Health Development workers with 11 CHCs. Like other provincial CHCs, councils in the Capital Health Region are shaping their role, seeking input, and defining health needs within their communities.

By the end of my practicum, I had spoken to farmers, merchants, cashiers, mayors, writers, unemployed and self-employed people, all CHC members. I spoke to an approximately equal number of men and women, yet not an exceptionally varied cultural or racial mix, nor to anyone living on the margins of mainstream society. Each person I interviewed appeared to express a genuine desire for CHCs to be an effective community link for their RHA.

Barb Whearstone

In talking to CHCs, further action strategies have emerged for the ACFPB:
- collaborate with staff and members of CHCs to provide resources available through the ACFPB.
- send CHC notices of workshops and special events.
- provide CHCs with a complementarily copy of "WellSpring".
- provide the CHC Directory to council members working with CHCs.
- consider creating an electronic network for CHCs.

As for the determinants of health, more people said they were important but did not want to rank order them. They said the determinants were connected to each other and that "it is impossible to separate one from the other." This led me to believe that the people I talked to had a broad view of the influences on the individual and community health.

Notes
1. Based on Health Canada's Population Health Promotion model.

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When I started using the Internet two years ago, I saw its promise for saving on travel, long distance phone/fax and postage/courier costs when working on evaluation and research projects. I also knew that not everyone could afford to be "on-line" and that people varied in their experience with the technology. My feelings about the Internet were thus mixed.

On the plus side, I use E-mail to organize projects with colleagues and research assistants to other provinces. We transfer questionnaires, interview guides, and data files to and from each other, which saves me both E-mail mailing lists such as Click4HIE, a health promotion list from Ontario. I "surf the Web" for information on health promotion programs and research, visiting Health-in-Action and other sites. I have recently begun to share my own health care, lifestyle and Internet links with others working in health promotion.

Internet service costs per hour have decreased. Software has become more user-friendly. Geography has become less of a barrier to working together. Not only can I work easily with people outside Alberta, I can also keep in touch with people in Alberta when I travel out of province.

So why do I still have reservations? Because I have seen "glitches" as well as successes, and because the Internet has great potential to reinforce existing social inequities.

Using E-mail is not as reliable as I once assumed. File transfers can be garbled if the sender and receiver have different encoding/decoding programs (such as MIME and uuencode). This problem is lessening as mail programs provide more than one option for encoding files.

Other setbacks (and potential misunderstandings) occur when messages get "lost in cyberspace." Also, E-mail can "bounce back" to the sender due to system problems, out of date addresses, or types. The "return to sender" message can take several hours, often coming back to you after the sender has shut off her/his computer and left for the day (if you're lucky) or holidays (if you're unlucky). I have learned to use phone or fax so that on email messages I do not receive a response within a few days or if it (correctly typed) message bounces back.

Some communication problems involve invasion of privacy. E-mail, for instance, as an organization may only have one or two direct connections to the Internet. If the person I am working with does not have access to one of those connections, I am dependent on someone else to relay messages and files. If there is some sort of problem (e.g. sick of going to holidays and no one else can access the system (or has never learned how to use it), major communication problems can result.

This raises a bigger issue than simple inconvenience. The Internet is becoming a valued source of reference. Unusual access to it endorses power differentials within organizations whose information offers equal power.

Organizations committed to health in its broad sense (which includes reducing inequities in all their forms) face the challenge of ensuring access to technology which will give them the means to do so.

At the broader societal level, many people cannot afford computers, especially in non-industrialized countries. English-speaking mailers from industrialized countries make up the majority of Internet users. Female may find access to the Internet limited because of sexism and sexual harassment by E-mail. are offended by on-line pornography and/or feel uncomfortable about the constitutional nature of some news groups where people are "flamed" (verbally attacked with large volumes of e-mail messages). If they say something others read messages do not approve of. Also, people who are not proficient in English have limited opportunities to interact on-line. The Internet is also becoming more commercial and it is getting harder to separate useful information from "junk.

Another concern I have about the Internet, and other technologies such as phone and video conferencing is that face-to-face interaction will decrease as organizations adopt technology to cut travel costs.

The most meaningful interaction takes place in meetings, workshops and conferences that often occur during breaks, over meals, or during "down time" as people seek out like-minded others to share ideas for future networking or collaboration. I feel much more connected to people I have spent time with in person than to those I know only through e-mail or conference calls. I prefer real dinners to virtual ones.

After two years, I am neither a computer geek nor a neo-Luddite. I use the technology when it serves the goals of a project; allowing that face-to-face interaction with clients and colleagues benefits both the project and our relationships with each other as human beings with shared interests and values.

For more information on several of the issues raised above, see the December 1996 issue of the New Internationalist.

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Exercise and Stress: Two Benefits for The Price of One

by Carol Malec and Bryan Hiebert
Department of Educational Psychology, University of Calgary

The Authors thank The ACWF for their assistance in the development of this paper for the media and for granting the necessary research assistants who helped with data collection.

People working in health promotion need to be concerned about stress. Stress plays a pivotal role in an estimated 80% of all diseases (Albrecht, 1979). The Heart and Stroke Foundation in Canada reports that in Canada 39% of all deaths are due to cardiovascular disease and more than 18 million physician visits every year are due to cardiovascular disease-related problems in which stress plays a major role. Studies show that stress can play a role in many other diseases including cancer, multiple sclerosis, diabetes, and depression. Furthermore, stress is associated with decreased autonomic functioning and mounting a risk in the development of disorders such as: colds, flu, and AIDS.

Compounding such problems are the common maladaptive ways in which people react to stress which include: smoking, excessive use of alcohol, over-eating, increased use of stimulants such as coffee, tea, and cola drinks, and use of over-the-counter drugs and street drugs.

One way in which people attempt to deal with stress is through aerobic exercise. Crews and Landers' (1968) review of 34 studies, concludes that aerobically fit subjects have a lowered physiological stress response and a faster physiological recovery to stress. However, conclusions from existing studies are difficult to interpret as many studies used non-standardized exercise programs or experimental treatments requiring maximum effort from participants (King, 1994).

Furthermore, many studies involved a homogenous group of athletic college men in their early twenties. Moreover, findings from such studies may not apply to the general population (Brown, 1979). In addition, most studies have focused on fitness variables and not examined the effects of exercise on BOTH stress and fitness.

A study conducted at the University of Calgary over the past winter investigated the connection between exercise, fitness, and stress in a more demographically diverse population. It tracked both stress and fitness variables with people in a regular exercise program in order to understand how fitness and stress change across time.

Methodology
Participants for the study were recruited from the local community via radio announcements, newspaper articles, corporate and community newsletters, and campus recreation brochures. Following a telephone interview, 110 participants self-selected into one of five groups described below. Complete data were collected for 77 of the 98 participants finishing the study. The age of participants ranged from 19 to 77 years (Mean = 44 years).

Group 1 (49 participants) received a 12-week lifestyle change program consisting of an educational component and an aerobic exercise component. The educational component included one hour per week of presentations and group discussions led by a team of nurses, dieticians, and fitness instructors. The program covered nutrition, weight loss, general health practices, and physical activity, focusing on essential behaviors, knowledge, and skills needed to modify lifestyle for general well-being. The exercise component was scheduled twice a week and was led by licensed fitness instructors. The routine consisted of 10 minutes of warm-up (stretching), 30 minutes of low impact aerobic exercise at "moderate effort", then a 10-minute cool-down.

Group 2 (26 participants) received the same standardized lifestyle change program as Group 1, but without the exercise component. Participants were encouraged to engage in fitness activities on their own but were not provided with any scheduled aerobic exercise classes.

Group 3 (22 participants) were a waiting list control group and received no treatment. They agreed not to participate in any aerobic exercise activities while waiting to commence the group 1 program at the end of the study.

Procedure
Participants were asked to log the amount, duration, and type of exercise they did in order to track factors contributing to changes in fitness and stress and to verify that participants in Group 3 did refrain from exercise.

Results
A combination of standardized and informal measures were administered at the outset of the study and at 4-week intervals. Fitness levels were measured by the Cooper Fitness Test: post-exercise heart rate recovery measured following the Cooper fitness test at 30 seconds, 2 minutes, and 5 minutes, and self-monitored resting heart rate (7-day average taken upon waking). Stress levels were measured by a 36-item MANOVA which supported the ascetiptal results.

Conclusions
Our study shows that moderate exercise (twice a week for 30 minutes) can yield significant gains in fitness and reductions in stress levels. In exercise, the positive impact of exercise on lifestyle change is not as beneficial as education combined with exercise. However, it is not necessary to be an "exercise devotee" to see positive results. Additionally, participants told us that the monthly progress indicators provided by our data collection procedures were very motivating and helped keep them involved in the program. Only 12 people began the study and did not complete it. The combination of an effective exercise program, interesting and pertinent information, and tangible indicators of progress helped the people enjoy the exercise experience.

We hope this line of research will encourage others in promoting multi-disciplinary, multi-component strategies for encouraging people to develop a healthy active lifestyle. This study represents an example of research that can be intertwined with practice to produce a combination that is more effective than either alone. The ultimate benefits of our collaboration between research and practice were the participants, who discovered increased fitness and reduced stress could be achieved through commitment to a moderate program of exercise and education.

Carol Malec will be starting her Ph.D. this September at the University of Cambridge to further her research on stress and well-being. She can be contacted at (03) 220-3675 or via e-mail: carmichael@e1.caltech.edu.

Bryan Hiebert, Ph.D., is a Professor at the University of Calgary in the Educational Psychology Department. His research focuses on stress and stress management. He can be contacted at (03) 220-5651 or via E-mail: hiebert@ucalgary.ca.


References

Table 1: Mean (SD) Stress Scores Across Time

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Time</th>
<th>Time 2</th>
<th>Time 3</th>
<th>Time 4</th>
</tr>
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<tbody>
<tr>
<td>Symptomatology of Stress</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exercise &amp; Education</td>
<td>37</td>
<td>91.47 (84.93)</td>
<td>65.91 (44.00)</td>
<td>54.03 (37.43)</td>
<td>46.35 (38.82)</td>
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<tr>
<td>Education</td>
<td>23</td>
<td>76.67 (40.73)</td>
<td>64.92 (39.54)</td>
<td>57.08 (37.02)</td>
<td>47.31 (32.26)</td>
</tr>
<tr>
<td>Whole List</td>
<td>85.90 (62.65)</td>
<td>71.24 (62.15)</td>
<td>65.44 (58.01)</td>
<td>58.57 (52.55)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>77</td>
<td>86.62 (49.17)</td>
<td>68.20 (45.78)</td>
<td>56.61 (41.48)</td>
<td>50.92 (42.86)</td>
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<tr>
<td>Daily Hassles Inventory</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exercise &amp; Education</td>
<td>37</td>
<td>51.04 (25.51)</td>
<td>40.65 (23.37)</td>
<td>37.17 (24.51)</td>
<td>35.45 (22.17)</td>
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<tr>
<td>Education</td>
<td>23</td>
<td>43.13 (27.50)</td>
<td>36.68 (21.85)</td>
<td>33.12 (24.93)</td>
<td>32.73 (25.17)</td>
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<td>Whole List</td>
<td>17</td>
<td>47.32 (34.81)</td>
<td>45.22 (34.37)</td>
<td>37.89 (37.02)</td>
<td>46.95 (39.36)</td>
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<tr>
<td>Total</td>
<td>44</td>
<td>47.84 (28.23)</td>
<td>47.92 (24.87)</td>
<td>39.70 (27.08)</td>
<td>35.99 (28.18)</td>
</tr>
</tbody>
</table>

Statistical analysis using a 3x4 MANOVA supported the ascetiptal results.

(Reminder significant at p<.05 are reported.)