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"My Heart Couldn't Take It": Older Women's Beliefs About Exercise Benefits and Risks

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Daily physical activity is advocated by various federal health agencies for reducing many of the health risks affecting old age, but older women are generally not heeding the message. The Health Belief Model proposes that sedentary living occurs when people believe that the risks of exercising exceed the benefits. To clarify the beliefs that act as incentives and barriers to more active living, the author asked 143 independent-living women aged 70 and older to respond to open-ended questions on their beliefs about benefits and risks for 6 fitness activities: brisk walking, aquacize, riding a bike or cycling, stretching slowly to touch the toes, modified push-ups from a kneeling position, and supine curl-ups. Content analysis organized perceived risks into 19 categories and perceived benefits into 6 categories providing original data on the conceptions that older women hold about the utility of various types of physical activity. Respondents generally recognized broad health benefits to fitness activities, but beliefs about risks were strong, anatomically specific, and sometimes sensational in description. The findings suggest that many older women feel physically vulnerable, are unsure about their actual risks and benefits in exercise settings, and, in the face of that uncertainty, report medical reasons why they should be excused from fitness-promoting exercise.

SEDENTARY living among older people has become a significant public health issue that adds to the burden of unnecessary illness and premature death (McPherson, 1994). Inactivity doubles health risks and adds a disease burden to society comparable to smoking (Pate et al., 1995), yet more individuals are sedentary (43%) than are smokers (28%) or have high blood pressure (14%; Stephens & Craig, 1990). Other research shows that years of inactivity during middle age shortens the human life span by as much as 2 years (Paffenbarger, Hyde, Wing, & Hsied, 1986). Even though the health benefits of physical activity are widely accepted, several researchers claim that older women may feel particularly vulnerable to injury or exaggerate the personal risks to health in physical activity settings (Calnan & Johnson, 1985; Heitmann, 1982; Siscovick, LaPorte, & Newman, 1985). Further study is needed on the positive and negative beliefs that are operating (O'Brien Cousins, 1995a).

Age Issues

Aging is treated by many people largely with contempt, especially by elderly women, many of whom still place high value on their fading health and beauty (Vertinsky, 1987). Living independently is highly valued in old age, whereas illness is viewed with trepidation but also with a certain amount of fatalism and learned helplessness (O'Brien & Vertinsky, 1992). Nutrition and adequate rest are embraced as the dominant behaviors for healthy aging, whereas exerting and physically fatiguing activities are avoided and are considered to be risky (O'Brien Cousins, 1995a).

The benefits obtained with regular exercise may be overruled by medically identified health conditions that excuse many people from taking part. However, at the same time, asymptomatic older people claim that they do not need to exercise because they are already healthy (O'Brien Cousins & Keating, 1995). Older adults may be discouraged by family, friends, and physicians who believe that the benefits of being active diminish as a person gets older (Chogahara, O'Brien Cousins, & Wankel, 1998) or that an active lifestyle for the purpose of disease prevention is meaningless if a person is not sure how long his or her life will last (O'Brien & Conger, 1991). Although Master's events, Seniors Olympics, and Seniors Games are enjoyed by thousands of older people, and strength training is becoming a feature of nursing home life (Fiatarone, 1996), other older people consider athletic endeavors to be foolish in old age (Ostrow & Dzewaltowski, 1986).

A good deal of attention is being paid to health promotion initiatives in which small investments in fostering healthier lifestyles have large economic payoffs for society as a whole (McGinnis, 1992). A physical activity recommendation in *Healthy People 2000* is to "increase to at least 30% the proportion of people aged 6 and older who engage regularly, preferably daily, in light to moderate physical activity for at least 30 minutes per day" (Pate et al., 1995, p. 403). These federal initiatives to foster self-care and more diligently thwart disease have met head-on with measureable foot-dragging by adult Americans, of whom only 22% are active at the level recommended for health benefits. Even fewer elderly people may meet the recommendation. Canadian studies have found that only 10% of women aged more than 45 have optimal activity levels (Statistics Canada, 1990), and only another 20–30% are active enough to promote their health with some degree of life quality (Stephens & Craig, 1990). A conservative estimate suggests that at least half of all older women could substantially benefit from more daily physical activity of a moderate to vigorous kind.

Beyond the assumed lethargy that often accompanies becoming older, a more complex phenomenon is apparent—a

conscious resistance to fitness activity in later life even though most older people agree that physical exercise is "good for you"(O'Brien Cousins & Janzen, 1998). Qualitative research showing that many older people do not seem to be interested in pursuing physical activity, even though they generally think it is a good idea, speaks to a need to further probe the beliefs of today's elderly people. In particular, older women deserve attention, because they are more at risk by virtue of their superior longevity, often fragile health, and social vulnerability.

Gender Issues

Of interest to this research is the phenomenon that females at all ages are significantly less physically active than their male counterparts (Stephens & Craig, 1990)—a situation that needs explanation. Theoretical understandings for female propensity to avoid physically exerting sports and vigorous pursuits apparently begin in girlhood and are rooted in the social and medical protection of women's bodies and their reproductive roles (Vertinsky, 1998). By later life, elderly women are conspicuous as the one segment of society most at risk for poor health and accelerated aging conditions, mainly as a result of their insufficient levels of lifelong physical activity (O'Brien & Vertinsky, 1991). Among other factors, the social affluence and conveniences of modern living have meant that by age 85 only half of all women are still able to live independently (Norland, 1994). The other half are weaker, stiffer, and often so unstable on their feet that they become dependent on various forms of care in their remaining years. No wonder aging has been called "a women's issue" (McPherson, 1994, pp. 329, 332).

Recommended Levels of Physical Activity

Accumulating scientific evidence supports a new view of physical activity requirements (Bouchard, Shephard, & Stephens, 1994). Research shows that even some activity is better than none, and more is better than less (Mummery, 1995). The American College of Sports Medicine has recommended that every American adult should accumulate 30 min or more of moderate-intensity physical activity over the course of most days of the week (Crespo, Keteyian, Heath, & Sempos, 1996). However, recent participation data from the Third National Health and Nutrition Examination Survey (NHANES III) confirm that physical activity participation in the United States has plateaued and is still a serious health issue because

> Regular physical activity that is performed on most days of the week reduces the risk of developing or dying from some of the leading causes of illness and death in the United States. (U.S. Surgeon General, 1996, p. 1)

As more and more evidence accumulates about the profound social, psychological, and physical health benefits of active living for older adults, the more urgent it becomes for researchers to understand why so many older people are not interested in increasing their activity levels. To this end, theoretical understanding is found in health psychology and behavioral medicine.

Theoretical Support

Psychologists believe that, despite environmental influences, the individual is the main controlling agent of their behavior (Bandura, 1997). Although all individuals confront social forces that may shape their values and beliefs, ultimately their intrinsic motivation and the way they interpret their world lead to predictable patterns of behavior. Self-referent perspectives are important to understand because attitudes, opinions, and beliefs are formative and modifiable (Dishman, 1990). Psychological malleability creates the potential for health promotion initiatives, media communications, and program experiences to profoundly and rapidly transform individual beliefs and behavior. Indeed, when health promotion programs are aimed at older adults, they can have a significant impact on mortality outcomes even after age 70 (Kaplan, Seeman, Cohen, Knudsen, & Guralnik, 1987).

The Health Belief Model (Rosenstock, 1974; Strecher, DeVellis, Becker, & Rosenstock, 1986) proposes that people take action when they perceive they are susceptible to a health threat and that, when considering the course of action available, they weigh the benefits and barriers or "pros" and "cons" to make a decision. Similarly, Bandura's (1997) Social Cognitive Theory (SCT) assigns a pivotal role to self-regulative processes in which beliefs about the outcomes of behaving in a certain way are considered. In SCT parlance, these broad beliefs about consequences are known as *positive and negative outcome expectancies*, or in this study *perceived benefits and risks*.

For the purpose of this study, beliefs about risks and benefits were intended to be broad in meaning and inclusive of expectancies for physical activity that go beyond physical health. I chose perceptions about exercise benefits and risks for study because lay people have been known to describe certain physical activities as "good for them" or "too risky." Social scientists have often described cognitive negativity, an important cognitive construction in the psychological literature, as *risk perceptions* (Bandura, 1997), whereas physiologists use similar constructs to describe beneficial or harmful outcomes of being active (Shephard, 1997, p. 177); thus the terms *risks* and *benefits* seem to be commonly employed among researchers.

According to SCT, people adopt a behavior such as increasing their physical activity level if they believe that they have much to gain and little to lose. If elderly women are generally reluctant to engage in late life physical activity, they may believe that it will do them more harm than good—a hypothesis that has been formulated elsewhere (O'Brien Cousins, 1996, 1998). Preliminary evidence suggests that low-active women do perceive that exercise provides them with more risks than benefits, whereas the decisional balance for high-active women is just the reverse (O'Brien Cousins, 1996). Bandura (1997, p. 117) explained that people

> who judge themselves as inefficacious construe uncertain situations as risky and are inclined to visualize failure scenerios. Cognitive negativity that dwells on personal deficiencies and how things are likely to go wrong is a good way to undermine self-motivation and performance.

In this study I sought to find out what independent-living older women were thinking about the benefits as well as the risks of late life active living.

Risks of Late Life Exercise

Little research has examined the harmful outcomes of physical activity from a social psychology point of view. In a small study on older adult's thinking about exercise, O'Brien Cousins and Janzen (1998) used four separate focus group interviews on active and inactive men and women. They found that "most of the beliefs that people hold as barriers to late life exercise are 'intrinsic' ones—that is, inherent in the person's state of being (physically, psychologically, socially)" (p. 84). Moreover, they noted that the most prevalent barriers to physical activity among older people were mainly psychological: mental blocks, negative attitudes, feeling foolish, and feeling inferior to other participants. Although little is known about the social and psychological risks of exercising, there is some evidence on the physical risks of participating.

Shephard (1997) noted that studies on injury rates among older adult exercisers are scant; reports vary from no injuries to more than 50% of participants with injuries (Carroll et al., 1992; MacRae, Feltner, & Reinsch, 1994; Pollock et al., 1991). A key finding across these studies is that injury tends to occur in the first week or two of training, suggesting that a more gradual buildup to fitness activity is crucial among elderly people.

One way to compare the overall risks between sedentary and active individuals is to look at longevity data. Such statistics show that those who engage in moderate physical activity live longer than their sedentary peers through to about 90 years of age. Shephard (1997, p. 178) reported that "there does not appear to be any great increase in the relative risk of exercise as a person becomes older" and hinged this opinion on the work of Siscovick and colleagues (1985), Thompson, Funk, Carleton, and Sturner (1982), and Vuori (1995). Vuori showed that both the risk relative to inactivity and the absolute number of deaths per million hours of active living were actually lower in those aged 50–69 years than in middle-aged people. Reasons Shephard (1997, p. 178) gave for the reduced relative risk of exercise in older people

> include the prior death of some of the most vulnerable individuals, a large increase in the number of heart attacks while seniors are inactive, and the fact that elderly people are unlikely to embark upon a bout of very intensive physical activity for which they are ill-prepared.

The actual incidence of exertion-related cardiac arrests across a number of studies is very low for men (only 1 in 18,000; Thompson & Fahrenbach, 1994). There are no published incidence figures for exercise-related sudden cardiac death in women, and few female deaths are ever reported.

Benefits of Late Life Exercise

The biological, social, and psychological benefits of physically active lifestyles for older people are well documented in thousands of scientific reports published in more than 200 refereed journals, and these benefits have been summarized in major volumes and reviews (Bouchard et al., 1994; O'Brien Cousins & Horne, 1999; Shephard, 1997). Aerobic exercise (deep breathing, continuous) is known to be a front-line approach for people of all ages in preventing and managing heart, stroke, and lung disease (Posner et al., 1992), hypertension (Spina, Ogawa, Miller, Kohrt, & Ehsani, 1993), obesity (Butterworth, Nieman, Perkins, Warren, & Dotson, 1993), breast and colon cancers (Mellemgaard, Engholm, McLaughlin, & Olsen, 1994), and adult-onset diabetes (Kohl, Gordon, Villegas, & Blair, 1992). Strengthening exercises are essential for muscle function, postural stability, and bone strength (Hu & Woollacott, 1994), and flexibility and agility exercises contribute to ease of movement (Duncan, Chandler, Studenski, Hughes, & Prescott, 1993), joint lubrication and pain reduction in arthritis (Moskowitz, Howell, Goldberg, & Mankin, 1992), and better reaction time for falls prevention (Hornbrook et al., 1994). By providing opportunities to be mobile in society, engagement in physical activity broadens social life (Burgess & O'Brien Cousins, 1998), reduces depression (King, Taylor, & Haskell, 1993), and increases prospects for independent living (Hall et al., 1992). In real terms, the health benefits are considered to outweigh the risks for most individuals at every age, and especially for those who have physical limitations. Health Canada's new physical activity guide (Health Canada, Active Living Coalition for Older Adults, & Canadian Society for Exercise Physiology, 1999) even depicts older people exercising in their wheelchairs.

Little research attention has been paid to more mobile, independent-living elderly people and the factors that help them lead their remaining years with quality, dignity, and independence. Work by Godin and colleagues (1994) highlights the importance of identifying the specific beliefs about barriers to exercise according to the particular social group being studied. Therefore, in this study I sought to develop a better understanding of older women's thinking about exercise. My goal was to provide a perspective on older women's beliefs and values with regard to the exercises that they would be likely to encounter in community fitness programs for older people. Knowing older women's barriers to physical activity, through documentation of their actual words and thoughts, improves the prospects for helping more older women overcome their resistance to health-promoting physical activities.

Methods

An all-female independent-living sample of 550 individuals aged 70 and older was reached through a random selection of 18 senior centers and community facilities from the 69 available that offered recreation programs in metropolitan Vancouver. A survey questionnaire was distributed census-style (inclusive of all age-eligible volunteers) at each site, and 327 usable returns were obtained. I assessed physical activity using a validated and reliable 7-day recall called the Older Adult Exercise Status Inventory (OA-ESI), which lists 37 physical activities suited to older adults (O'Brien Cousins, 1997b). Estimates of energy expended on leisure-time physical activity averaged 1,500 kilocalories per week, well below that recommended for middle-aged men (Paf-

fenbarger et al., 1986). One third of the sample reported that over their life course, they had "always been physically active"; more than 60% said that they were no longer active or had "never been much involved with physical activity" (O'Brien Cousins, 1996). Other results on the statistical and theoretical findings are reported elsewhere (O'Brien Cousins, 1995b, 1996, 1997a).

As part of the larger survey, I used an open-ended written response format to collect qualitative data. Open-ended and standard questions (the same for all) allowed the respondents to choose their own terms to explain their feelings and motives (Silverman, 1993). I selected illustrations of six fitness activities to represent a range of type, intensity, and duration of adult fitness activities (aerobic fitness on land, aerobic fitness in water, flexibility, muscle endurance, and arm and trunk strength). To enhance the illustrations, the fitness activities had descriptions of duration and intensity: 20 min of brisk walking; a 50-min aquacise class in chest-deep water; a slow sitting stretch to touch the toes; 20 min of cycling either outdoors or on a stationary bike indoors; 5 push-ups from a kneeling (adapted) position; and 10 trunk curl-ups (partial sit-ups). Prestudy ethnographic field observations of older adult exercise programs in Vancouver suggested that some of these six activities would be expected of the respondents if they decided to join seniors fitness programs in the facilities they frequented (O'Brien Cousins, 1997b).

Respondents were asked to complete the statements accompanying each fitness activity: "the greatest benefit for me in doing this exercise would be . . .," and "the greatest risk for me in doing this exercise would be . . . ." Of 327 returned surveys, 143 women responded with handwritten comments. Most comments were only a few words long; one-word answers were common, and some women wrote a few sentences, all of which were typed verbatim in a word processor by hired research assistants.

Using content analysis, the research assistants and I broke up comments into meaningful segments, so that if more than one idea was expressed, more than one meaning statement was counted. A sorted compilation of all the words and phrases for each fitness activity was made, and then a search for common meanings was conducted with a thematic clustering technique (Kvale, 1996; Miles & Huberman, 1994). For example, descriptive phrases such as "I get out of breath," "short of breath," and "breathlessness" were grouped together because of common meaning. Clustering was relatively straightforward because the written responses were generally succinct and the intent was clear. When the intent was unclear or the meaning was distinct from any cluster, items were placed in a miscellaneous category.

Kvale (1996) identified two approaches researchers can use to assure validation of the clusters: multiple interpretation or validation by example. I used the latter in this study (see Results section) by providing the reader with detailed examples of the words and phrases that were found within each cluster. Silverman (1993, p. 92) reported that, in researching beliefs and attitudes, "no interpersonal cross-checking of statements is appropriate." A positivist paradigm or fact-seeking strategy is not the goal; rather respondents are viewed as experienced people who give authentic insight on their constructed world.

Results

Some caution needs to be exercised regarding the generalizability of the findings. By virtue of the volunteer biases that were part of the sampling strategy in the larger study, respondents were considered to be better educated, functionally independent, and generally more physically active than the norm for women aged older than 70. Still, random-facility sampling ensured that a broad range of socioeconomic levels, activity interests, and health conditions were represented. The women who provided written responses in this study were not significantly different from the larger group in health, activity level, or age, but they were better educated ($p < .000$). The average age of participants was 76.7 years, 55% were widowed, 70% had completed high school, and 14% held a university degree. The median score for weekly energy spent on leisure-time physical activity was 1,000 kilocalories—a score that suggests that the women in the study were suboptimally active, as would be typical of this age group. Thus, these data may help readers appreciate the diversity of older women's thinking about fitness exercise.

Readers are further cautioned that this study is exploratory and descriptive with respondent questions guided by the theoretical predispositions of the Health Belief Model. On the basis of the advice of Krane, Anderson, and Strean (1997), I present my case and elucidate my findings by providing ample primary data, allowing older women to speak for themselves (Wolcott, 1990, p. 126). Quoted material from questionnaires is printed in italics. Statements separated by semicolons belong to one individual; periods show separate dialogue from different people.

Written responses provided original descriptions on the beliefs that these city-dwelling older women held about their physical capabilities, their health in late life, and their beliefs in the utility of six types of fitness activity to provide them with personal benefits. Generally, the respondents identified many of the known benefits, both physical and psychological, although they rarely expressed appreciation for the social benefits of meeting others for companionship, physical activity, and laughter. An exception was 1 woman's comment about aquacize: *Fun to be with others in the group—fellowship makes new friends and get to see old ones.* Lack of reported social benefits was a surprising outcome and has no explanation, considering that social support was a key predictor for late life physical activity in the same sample of women (O'Brien Cousins, 1996).

Perceived benefits were often represented by general, even vague descriptions: *It's good for you. Keeping in condition. Feeling good. Makes me fit.* In contrast, beliefs about personal risks were surprisingly sensational in description and tended to be anatomically specific and sometimes disturbing: *My heart would hemorrhage. Muscle seizure. I would be carried out on a stretcher.*

Altogether, 19 risk clusters were identified (e.g., no risk for me, joint damage/pain; Table 1). A miscellaneous risk category captured a wide range of comments that did not fit other clusters: *Boredom. Vomiting. Finding the time. I would rather do something else. Falling off* [the bike].

Six clusters captured broad themes regarding perceived benefits: realistic benefit, guessed benefit, no benefit, don't know, can't do it, and miscellaneous (Table 2). I subdivided

Table 1. The Exercise Risk Themes Presented by Elderly Women

	Walking	Cycling	Aquacize	Stretching	Curl-Ups	Push-Ups
No risk for me	37	16	23	35	11	12
Joint damage/pain	9	10	5	11	7	20
Heart attack/angina	9	8	8	4	13	10
Hurt my neck/back	0	0	2	29	28	10
Breathlessness	14	4	4	2	4	2
Muscle strain	0	9	4	7	7	10
Overexertion/fatigue	6	13	17	2	7	5
Can't do it	8	8	5	11	7	6
Raise blood pressure	0	0	0	0	2	2
Mortal event	0	1	9	0	2	1
Bladder problems	1	0	1	1	2	1
Dizziness	0	0	1	3	2	2
Hernia	0	0	0	1	1	0
Bone fracture	0	1	1	0	0	1
Lose consciousness	0	0	0	0	0	1
Lose balance, fall	7	14	4	1	0	0
Swollen feet	4	0	0	0	0	0
Miscellaneous	16	10	14	7	7	12
Don't know	1	2	3	1	1	5

Note: Numbers represent the frequency of women responding to each theme. Example: Thirty seven individuals reported that walking activity was "no risk" for them.

reported benefits into two categories to sort out benefits that would be realistic to expect, whereas guessed benefits included those that were unrealistic expectations, or comments that seemed to be musings that were unclear or neutral as to meaning: *I'd be in heaven. Increased chest activity. A form of exercise.* Walking was judged by the most women as having realistic benefits ($n = 98$), whereas only 34 women judged curl-ups and push-ups to have benefits. The activities eliciting the most guessed benefits were the toe touch stretch and curl-ups, which women apparently recognized as legitimate elements of exercise but seemed not to know what good they would offer. Following are the findings for each of the six fitness activities.

Walking Risks and Benefits

Walking at a moderate pace (2 miles in 30 min, or 4 mph) is advocated as an appropriate route to maintaining health and is comparable in effort to bicycling 5 miles or fast dancing for 30 min (Sallis & Owen, 1999). Walking is considered low cost and low risk and also is the most popular activity among older age groups, especially among women (Stephens & Craig, 1990). Most injuries are leg related and minor and tend to occur in people who already have musculoskeletal problems when they first start walking regularly (Hamdorf, Withers, Penhall, & Plummer, 1993; Ready et al., 1999).

Although 37 women perceived no risk for walking, 14 reported breathlessness and 9 listed heart attack, palpitations, or angina as concerns. Joint damage or pain, losing one's balance and falling, inability to walk briskly for 20 min (*Can't do it*), and swollen feet were among some of the other concerns. One woman commented about breathlessness; *It would require an overdose of Ventolin* [an inhalant]. Heart problems were expressed by 1 woman: *This would cause my heart to fibrillate.* Joint problems, especially in the ankles and knees, were mentioned a number of times. One woman was worried she would have trouble *walking stairs when I got home; my knee would be stiff by then.* Among the miscellaneous comments reported for brisk walking were the following: *When I start rushing, I probably shouldn't be here. Right now I am waiting for surgery; before surgery I am not able to; after surgery I will have to work up to it. Possibly trying to go too fast unnecessarily. Perspiring profusely. My feet will no longer let me.*

In terms of benefits, comments about walking were lucid and realistic: *Good for my heart, I think.* The women also saw a wide array of benefits beyond heart and lung health: *Getting out of the house. Controlling weight. Getting fresh air. Improving circulation. Feeling better. Dissolving tensions. Easy to do on a regular basis. It feels good and I enjoy it. Increased circulation—blows away cobwebs!*

Table 2. Exercise Benefit Themes Presented by Elderly Women

	Walking	Cycling	Aquacize	Stretching	Curl-ups	Push-ups
Realistic benefit	98	64	71	49	34	34
Guessed benefit	11	26	4	49	48	28
No benefit	6	13	13	7	24	22
Miscellaneous	11	6	9	9	5	7
Can't do it	3	3	5	2	7	3
Don't know	2	2	4	5	5	6

Note: Numbers represent the frequency of women responding to each theme. Example: Ninety eight different women reported walking provided them with benefits, and those benefits were realistic given current scientific knowledge. Eleven women guessed at benefits of walking, and their guesses were not likely to be realistic given current knowledge.

Although asked to list the biggest benefit of brisk walking, women who apparently had problems walking at any pace were prompted to comment on their limited personal capability and concerns for aggravating current medical conditions. For example, the following comments indicated that brisk walking, or the duration of 20 min, was a significant issue for some women even though they were mobile enough to frequent the facilities where this study took place: *If I could stand the pain and not get tired [there would be benefits]. I don't think I can walk anymore without something breaking. More than 20 minutes and my feet will be painful for days. I have to walk slowly—still have angina problems after heart surgery. I prefer gentle walking. It wouldn't be good for me to get too winded.*

Cycling Risks and Benefits

Historical records link the bicycle craze for girls at the turn of the century to the origins of the emancipation of women (O'Brien Cousins, 1998). Many of the women in this study would have had opportunities in their lives to experience cycling in outdoor and/or indoor pursuits. The biggest concerns for cycling for 20 min were difficulties in *getting on and off* the bike, or losing balance and *falling—too old for that!*, overexertion or fatigue (*Too bloody tiring. Exhaustion*), heart problems (*Palpitations*), and muscle or joint pain (*Muscle spasms. Damage to my knees. Joints touchy—forget it!*). In the miscellaneous category, 3 women reported boredom, even *death by boredom*, as their biggest risk for indoor cycling, and 1 woman considered outdoor biking a risk for *getting hit by a car.* One woman reported, *I have arthritis slightly in my knees, so I stay away from this type of exercise.* Another woman had given up on cycling: *I gave my exercise bike away when I moved into an apartment as the bike was boring; I'd rather walk for exercise and get fresh air.*

Thirteen women could see no benefit in cycling as an exercise: *Nil. I'd be too scared!* Another 26 guessed at cycling benefits: *More agility? Maybe for my heart? To feel young?* Realistic benefits that were reported were the following: *Losing weight and strengthening my leg and thigh muscles. Strengthen legs and increase heart beat. Building up my breathing. Part of my therapy after hip surgery.* A few women conceived of a link to *muscle tone, firm legs*, and *leg toning.*

Aquacise Risks and Benefits

More than 30 years ago, Cooper (1968) listed swimming among the best activities for aerobic benefits. Aquacize or water exercise has therapeutic value for many frail people and is often recommended for people with joint problems or for those who are overweight. The biggest concern for 50 min of aquafit activity was fatigue or overexertion: *I couldn't possibly last that long. Too tiring. Too strenuous. Too painful. Simply too long.* Eight women reported potential heart problems: *My heart couldn't take it. My heart haemorrhaging. Heart racing.* Nine women considered a mortal outcome of some kind: *The finish of me. Being taken out in a stretcher. Drowning* (5 women). *Collapse.* Joint pain and/or damage was listed by 10 women: *I have a sore right knee. Weakness and spasms.* Four women were concerned they would slip on the deck, get dizzy, or lose their balance en route: *Slipping on wet floors and bone breakage.* Four women were concerned about getting breathless, although this was a smaller proportion of women than the 14 concerned about getting breathless while walking. Among the many miscellaneous concerns were the following: *Being seen in a bathing suit or in the shower room. I do not undress in public. Boring. Too chilly. Putting either hip out of joint. Water in ears. Damage to ears. Charley horse and infection. I am afraid of water.*

Next to walking, aquacize had the next highest listing of benefits, with 71 women reporting positive and realistic outcomes: *It benefits heart and lungs and every other part of the body; I don't know why I stopped going. To strengthen muscles and relieve stiffness in the limbs. Low impact on your joints. General tone-up. Muscle stretch. Refreshing feeling. Invigorating. I love a playful swim in the ocean for 20 minutes. Feeling of well-being and more alert. Keeping active against the arthritis and keeping blood pressure down.*

Some responses sounded wistful and contemplative, as if the respondent had never had the opportunity to do water exercise: *If I could do this it would be wonderful; I used to swim and dive etc. most everyday in summer in a pool in my youth, but I have never done exercises in water. Maybe I could get over being afraid of water.* Still others were negative: *No benefit, too strenuous to start now. A major commitment of time which I do not want to do. I would get overtired.*

Slow Stretch Risks and Benefits

Hip flexion mobility is considered an essential flexibility for back health. With it, older people can maintain an ability to pick things up from the floor, put on socks, tie shoes, and care for their feet. Thirty-five women saw no risk involved with a slow stretch reaching for the toes, but 29 women believed this activity would hurt their neck or back: *Throw back out. Starting more back pain. Pull a vertebrae. Might hurt spine. Straining my back in the lumbar area.* Eleven women said they couldn't attempt it, perhaps because they assumed that they had to get down to the floor to stretch (when a bed or foot stool would give them the same position). Eleven women anticipated joint pain, especially in the hip area, behind the knees, and in back of the legs, although chest pain and general muscle pain were also mentioned. Four women thought the stretch would lead to a heart attack, and 1 woman claimed the stretch would lead to vomiting. A few women were worried they wouldn't be able to get up off the floor if they sat on the floor to stretch: *Stuck!*

Many women commented on benefits: *Keeping supple. More agility. Limbered up.* However, the slow stretching concept had many women guessing: *Strengthen my abdominal muscles. Good for hip joints? Unsure. Get rid of my angina. Lose weight. Flatten the tummy. Perhaps strengthen back muscles. Resilience. More pep, more energy. To strengthen my legs. Back muscle strength.* From these broad and unlikely guesses, women seemed to recognize this stretching exercise as a legitimate part of a fitness routine but were unsure as to its real purpose.

Curl-Ups Risks and Benefits

In the trunk curl, people use broad abdominal muscles and the deep iliopsoas muscle to flex the hip and raise the chest a short distance off the floor. Strength in these mus-

cles is therapeutic because it helps a person to maintain posture and support for the back. The trunk curl (O'Brien Cousins, 1998, p. 139) has recently been adopted by fitness professionals as a more suitable trunk exercise for elderly people over the full curl-up, but in any case some women in this study still did the exercise depicted in this study at home: *If I don't do 70 of these every morning, my lower back hurts.*

The largest concerns for respondents were back and neck injury (28 women) and angina or heart attack (13 women): *It would finish me. Heart attack and headache. Snapping my neck. Death. Back sprain. High blood pressure. Heart stress. Over-exertion.*

In terms of benefits, 24 women said they could think of none. Seven women only commented they *couldn't do it.* And other women were lukewarm about the benefits, calling them *slight*, but did comment that *stomach strength* and a *flatter stomach* could be benefits. One woman mused that it *might reduce my tummy. Ha! Ha!* Guessed benefits outnumbered realistic benefits, and this may reflect the biomechanical complexity of the activity. Women contributed guesses: *Weight loss. Elasticity. A real health boost. Increases deep breathing. Flexibility. Clears out cobwebs in head.*

One woman's comments gave mixed messages: *I've never been able to pull myself up to a curl; I do pull myself up slightly; there's no risk.* Other women seemed to know the real benefits from first-hand experience: *It strengthens the back by strengthening the stomach muscles.* One woman wisely excused herself: *I don't think I would benefit at all with this exercise; I've had a hernia operation and this wouldn't be good for it.*

Push-Ups Risks and Benefits

Next to curl-ups, push-ups were the most maligned exercise in this study. Upper arm and trunk strength and the wrist's ability to bear weight are stressed in this activity, although when it is performed from the knees (a shorter lever) with no breath holding, the "woman's push-up" is an effective and safe exercise for maintaining upper body strength. The muscle action (contraction of triceps) is equivalent to pushing oneself up and out of the bathtub or deep chair. Thus this exercise (and the muscles it stimulates) is important to independent living, even if it is not well liked among many women.

The main risks reported were joint or bone damage and pain: *Strain on wrist. Arthritic elbows. Shoulders and back trouble. Ruining my knees. Strain on my left shoulder. Dislocating a bone!* Also mentioned was heart attack or angina: *Fibrillation. Makes heart palpitate and then I stop. Heart attack.* Hurting the neck or back was also perceived as a possibility: *Throw back out. Muscle injury in back.* One woman of Italian descent reported, *fini*, suggesting this exercise would be the end of her. Only 2 women reported elevated blood pressure as a concern, even though push-ups can lead to substantially higher blood pressure if breath holding occurs. As with the stretching activity, 1 woman was concerned about getting stuck on the floor: *No one there to help me up.*

Respondents found it hard to describe the benefits of the push-up. Only 34 women managed to come up with plausible benefits: *Strengthen my arms and back if I could do it. Helps in getting out of cars and off low seats. It might help my arms, the triceps. Strengthen my shoulders; I have been on and off crutches for the last 8 years; good hands and shoulders help; it exercises a lot of muscles.*

Some of the guessed benefits were as follows: *Increased cardiovascular action. Maintaining agility; also a better figure! Helps to keep the weight down. Relaxation of joints. To be off medication of 12 pills a day. Reduce abdominal fat.* Still others were skeptical of any benefit: *Coma. I would see no benefit doing this at my age. My arms are already strong, thank goodness!*

Discussion

My goal in this study was to explore older women's beliefs that act as motivators or demotivators for fitness activities. The independent-living respondents were among the half that have not yet been, and perhaps never will be, institutionalized. Despite advanced age, most had not become so stiff, so weak, and so unstable on their feet that they needed substantial care to make it through a day. Therefore, they represent a segment of women who are likely to be more positively disposed to fitness activities that could conceivably broaden and optimize future benefits for health and longevity. Even so, some women in this study believe that physical activity is risky. There is a paucity of data on older women's beliefs about what is appropriate physical activity from their perspective, and without this information researchers will continue to wonder why many of them choose to sit out their later years in less than optimal health.

Before interpreting the findings of this qualitative study, I must address a number of limitations. The written survey data were collected as part of a larger questionnaire on the broad theoretical determinants of physical activity among women aged 70 and older. The length of the full survey (23 pages) may have discouraged many women from responding on the 12 open-ended questions about the biggest benefit and biggest risk for them on the six fitness activities. This might explain why only 143 of 327 women provided qualitative information. Women who were more educated tended to respond, and nonrespondents may have believed they were not familiar enough with the exercises to be of help. Still, the findings reported here are genuine, insightful, and important representations of what many women in this age group perceive as some of the benefits and risks of participating in fitness activities. This study provides a first glimpse at what elderly women think about the kinds of activities they are likely to encounter in exercise programs for older people, and these findings have some important implications for professionals in the community.

The evidence in this study shows that independent-living women aged 70 and older acknowledge a range of health benefits in diverse fitness activities that they might encounter in fitness programs but that at the same time they hold major concerns for their health and safety. Two thirds of the elderly female respondents were well below healthy activity levels. Generally, they believed that being involved in active recreation, strengthening exercises, or stretching activities had the potential to do them harm. Previous research

has found that low-active elderly women perceive they have little support from family, physicians, and friends for physical activity (O'Brien Cousins, 1995c); view themselves as being inadequately competent to successfully take part (O'Brien Cousins, 1997a); and tend to exaggerate the exertion required (O'Brien Cousins, 1995a). For these and possibly other reasons, they may view physical activity as too risky. Plausible explanations for the origins of these beliefs are offered here, but need validation in further research. Four that I discuss briefly are (a) real fragility that places older women at exceptional physical risk, (b) lack of experience with fitness activity that places them at psychological risk (feeling foolish), (c) socialized devaluation of older women's physical recreation combined with internalized stereotyping about age and gender, and (d) persistent public warnings of risk related to exercise at every age.

Fragility Caused by a Dominant Culture of Inactivity

The general U.S. population has made little improvement in increasing physical activity in the last few years; 22% are still reporting no leisure-time physical activity and another 34% report irregular activity habits (Crespo et al., 1996). Shephard (1997) noted there is a "conservation of function" among active people because physical activity ensures that function at any given age is some 20% higher than in a sedentary person.

Of interest to older people in developing countries, and to people who have had strong cultural traditions of physical work and active recreation, the new message about physical activity is that housework, farming, fishing, ranchwork, hunting, trapping, gardening, ethnic dancing, and walking are all relevant components of a healthy lifestyle. For most people, though, modern lifestyles tend to be sedentary: Watching television, movies, or videos; reading; visiting; working at computers; playing cards or bingo; and knitting or sewing for hours at a time are good examples of some of the sedentary, and less healthy, elderly people's activity options in the dominant North American culture. In a New Mexico study of 128 Anglo, Indian, and Hispanic men and women (66% female) aged 60–92 years, the main activities reported were all sedentary: 79% of participants engaged in reading, 78% visited friends, 77% watched TV, and 74% enjoyed traveling (Harris, Begay, & Page, 1989). Statistically significant sex differences were found, with women more likely to report doing arts and crafts, cooking, doing housework, thinking, reading, and going to church. Older women experience activity and its benefits through errands and just "getting out," whereas older men experience more formal and regular exercise (Clark, 1995).

Lack of First-Hand Experience of What to Do and How to Do It

Older adults tend to limit their activity choices to walking, gardening, and some forms of dancing, perhaps because they are seeking the most enjoyable, age-appropriate activities and perhaps because they do not feel skilled at other things. Crespo and colleagues (1996, p. 97) noted that "lifetime physical activities are easily learned during youth, and doing so increases the likelihood that such activities will be maintained at older ages." Lack of youth sport opportunities for girls, the low social status given to women's physical activities, and the habitual and strong social commitment of women to their families mean that by late life most older women lack the confidence, encouragement, and even the discretionary time to allow them to participate without undue stress (Branigan & O'Brien Cousins, 1995).

Age and Gender Stereotyping

Older women may have adopted an attitude of learned helplessness because many of them simply lack the confidence and personal resources to participate in active recreation (O'Brien & Vertinsky, 1992). Sexism and ageism can combine by late life to act as a "double whammy" limiting older women's self-perceptions of ability. Although women may be found in abundant numbers in supervised fitness classes, the more skillful, unguided, and sportive activities such as golf, cross-country running and skiing, hunting, boating, slow-pitch baseball, and old-timer's hockey are almost exclusively a male domain. Aquatics, where vigorous older women can be found, may be one exception but it is probably significant that a lifeguard is present who will ensure their safety.

Age and gender gradients in physical activity in the NHANES III study were significant (Crespo et al., 1996). Black Americans were the most inactive population by the age of 70 years, but cultural differences paled when gender was examined; 80% of White elderly women engaged in little or no physical activity. A consistent finding is that, no matter what the culture, younger people are more active than older people and men are more active than women (Lubben, Weiler, & Chi, 1989). A U.S. study on 1,021 Medicaid (low-income) recipients aged 65 and older also concluded that White elderly women were the least physically active social group, especially after age 75. Vertinsky (1998) claimed that deeper issues of age and gender stereotyping should be of central concern to those designing exercise promotion strategies, especially among health professionals "whose stereotypes about female aging add another dimension to sexism that increases the potential for devaluation of exercise needs" (p. 93).

Internalized Warnings of Medical Risk

Of interest to exercise leaders is the general awareness that active older women have for proper exercise technique, particularly in the stretching exercise in this study. The "sit and reach" has been used for decades as a flexibility test of hip flexion in the Standardized Test of Fitness Appraisal, yet in recent years leaders have warned that a straight-leg stretch such as that depicted in Rosato (1986, pp. 181, 189) is contraindicated or medically inadvisable. To older women, professional supervision is warranted when such precision in body position is absolutely required. Yet, published data on the risks of injury are not available for this or other exercises. Practitioners need to know the types of injury to be expected, the rates of injury, and under what conditions. Until these data are available, for leaders to call a gentle stretch position contraindicated creates unwarranted anxiety and possibly elevates the anticipated risks above the actual ones.

Such facilitation of negative outcome expectations has

been called a *nocebo effect* (false assumption of risk) in contrast to the *placebo effect* (false assumption of benefit; "The Nocebo Effect," 1996). The point is that slow stretching is the simplest and most relaxing form of exercise and should be "done anywhere and at any time" (Anderson, 1997, p. xi). Although reminders about correct technique make sense, exercise leaders should reconsider how helpful it is to warn people of risks that may or may not exist, especially when their clients are already quite cautious and anxious about coming to harm. An elderly person's confidence to stretch or be active whenever the opportunity is available may be undermined by this nocebo effect.

Older women also appear to be heeding warnings and internalizing the risks implied in public advisories to consult with a physician if they are planning to increase their activity level. Such advice, supposedly acting in the good interests of the exerciser, assumes that physicians are adequately trained for the task and financially compensated by health care insurance for their time spent in counseling about exercise. Unfortunately, this is not often the case, and inadequate medical interest by physicians may provide elderly women with the idea that daily physical activity cannot be very important if the doctor never asks about it.

Warnings about physical activity are prevalent in part because exercise video manufacturers, educational programmers, and researchers use waiver forms. Virtually any release form involving a physical activity component requires participants to waive liability or to see their physician, thereby removing liability to a third party. P. O. Astrand, the renowned Swedish exercise physiologist, now elderly himself, has often been quoted as saying, "Consult your physician if you plan to be sedentary" (1985).

Vertinsky (1987) has brilliantly outlined the complex determinants of female involvement in sport and healthful physical activity. In exploring central tensions in the debate about promoting female health through physical activity, Vertinsky has woven together powerful social, historical, and political forces to help focus on the continued medicalization of the female body, the tyranny of feminine beauty over health, the perpetuation of disempowering stereotypes into old age, and issues of diversity that undermine social acceptance in sport. Not only are females at all ages less physically active than males, but also the more exerting and skillful the activity, the greater the disparity beween the genders participating. Acknowledging that the medical community has not always been helpful in advising women about how best to manage their bodies, she noted

> Worrying about "wearing out" their bodies and incurring serious injuries, many aging women overestimate the health risks of exercise and underrate the health-promoting potential of of physical activity. (Vertinsky, 1998, p. 92)

Conclusions

One finding from this study was that older women perceive a range of benefits for walking, cycling, and aquatic activity but are less sure of the benefits for strength and flexibility exercises. A second finding was that beliefs about negative outcomes arising from fitness exercise were pervasive, strong, and even sensational in description. Such concern about coming to harm suggests that women aged 70 and older feel vulnerable in exercise settings—an issue that the fitness industry must address.

To be fair, women in this study were exposed to examples of challenging physical activities that in many cases were not appropriate for each and every one of them. Although the activities chosen were found in local seniors classes and were depicted with drawings of older women doing them, the specified workload or other indicators of performance may have been interpreted by many women as hopelessly difficult. My goal was to examine older women's outcome expectancies for program activities that were currently available as "seniors" exercise in the facilities they frequented. Women's comments about their heart hemorrhaging during a curl-up or throwing their back out during a gentle stretch add weight to other research showing that exercise leaders must overcome serious cognitive barriers in successfully presenting health-promoting activity to elderly people. As society's long-lived gender, women may be simply listening to their bodies and drawing on a lifetime of self-care wisdom that tells them that some things may lead to more harm than good.

At the same time, most of these elderly women astutely recognized health benefits of the same activities, suggesting that they were likely using both beliefs about benefits and beliefs about risks to judge whether certain physical activities were appropriate for them. The implication is that exercise leaders and health professionals should not assume that one program is suitable for all people; that is, the range of health, physical ability, and motivation to exercise in their clients is enormous. This fact suggests that professionals in the fitness industry, as well as in community wellness, need to help less active, less motivated, and less healthy women take gentle steps toward moving their bodies and encourage every woman to do at least light mobility exercises and gentle stretches every day. Leaders should avoid prescribing an overly cautious approach for more healthy women and putting all women on "red alert." Some older women have the fitness capabilities of women many decades younger, whereas others may be functionally frail at the same age.

Over- or underchallenging the capacities of some to maintain the well-being of others has ethical implications related to optimizing the benefits and reducing the risks for everyone. Physically, the human body declines when it is not challenged at the appropriate level, so it makes sense to customize physical activity programs into health and ability groups and disregard age altogether. Because the *senior* or *55 plus* descriptors have often been used to delimit who is invited to participate in community programming, it may be time for health professionals to market programs more for the client's agendas and consider developing functional descriptors aimed at sorting people out by health conditions or cognitive barriers (e.g., *unfit but fitting in*, *osteofit*, *moving better with arthritis*, and *scared but starting to move).*

In considering what is appropriate exercise, older women are suspicious and even afraid of activity that challenges their muscle strength or makes them bend in ways to which they are not accustomed. Women in this study, like older adults in other research (Wiles, 1998), were also concerned

about activities that they simultaneously understood to have many benefits—sustained activities that would elevate their heart rate such as walking, cycling, and aquatic exercise. Palpitations (racing, irregular, flipping, or fluttering heartbeats) were frequently mentioned as reasons not to exercise, but "in the vast majority of outpatients with palpitations, the causes of the palpitations are benign" (Zimetbaum & Josephson, 1998, p. 1370). Researchers need to clarify if palpitations are aggravated, unaffected, or even alleviated with regular participation in aerobic fitness activity.

Although a good proportion of older women could not see the relevance of exercises that make their muscles work harder than normal, make their bodies bend and stretch, or make their heart beat faster, a majority of women were well aware of the actual benefits, knew the technical names of muscles, knew the purpose of the exercise, and accurately described how to do the exercise in the safest manner possible. Ironically, the women who knew and expressed these benefits quite expertly (*Strengthens your heart*) were in contradiction with their peers who envisioned mortal outcomes (*Heart attack!*). This finding suggests that some women feel very much at risk in community exercise programs and may benefit from specialty programs that address their specific needs. Accurate health information on the actual risks of certain exercises is urgently needed for physical therapists and leaders in the fitness industry. With better information on actual injury risk, older people may overcome the perception that adopting an exerting health behavior, like exercise, is futile for a remote long-term disease risk reduction. That such expertise and knowledge exist within the ranks of older women is good to know and means that peer-led talks and discussion groups about the benefits of exercise are possible for those women who are thinking about being more active but need more information from those they trust to alleviate their fears.

Activities that were less familiar to elderly women seemed to force them to guess as to what those benefits might be. Lacking direct experience and aware of their vulnerability, elderly women may show their concerns about participating by anticipating outcomes that are frightening, injurious, and even mortal. To be fair, some of the women in this sample were frail, and many of the activities they had to judge were indeed presented at a level of performance that would have been totally inappropriate for them. Although some women in this study indicated fitness capabilities that included as many as 70 curl-ups every morning, others judged the same activities as a joke at best and as life threatening at worst.

Explanations for these real and perceived differences in older women's capabilities may be related to low fitness levels, the realities of current health problems, and limited opportunities and experiences with fitness activity. On the other hand, some women may have been seeking any reason, even if sensational, to justify convincingly why they should not be expected to do these kinds of exercises in late life. Clearly the passage of seven or eight decades of life have situated elderly women in a new cultural period where scientists now tell them that old muscles are supposed to be moved when there was no apparent reason to do so before. Defensive reactions and exaggerated beliefs about risk may be linked to recent and uncomfortable realizations among older women that they have not been looking after themselves according to new standards, when more fairly they are being scrutinized by a society that has suddenly changed the health rules.

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