ABSTRACT

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Fifty corporations were surveyed to determine the utilization of computers and software in corporate fitness. Of the corporations surveyed, 83.9% had a computer and were aided by supporting software, and nearly all had a printer. The majority of programs used an IBM computer. A canned software program was used by 61.5% of the facilities, and 38.5% used a custom designed program. Three programs utiltized both kinds of software. The directors who used custom designed software did so because they felt they could design a better program and were not satisfied with the canned programs available. Regardless of software design, the most common software features were word processing, body composition and membership records. One-half of the directors were satisfied with their current software, although 61.5% would like to improve it in some form. Fitness evaluations were the most frequent area desiring to be improved by the directors. As a result of the software, a large percentage of directors noticed a reduction in paper work, although only 38.5% noted a change in time available to spend with staff and members. The greatest percentage of directors surveyed were between the ages of 20 to 39 years old and educated with a Masters Degree in a health related field. Almost 91% of the facilities allowed all employees to use the facilities. It was concluded that computers are an integral component of the corporate fitness program and the type of supporting software used is based upon the needs of the facility and the abilities of the director.

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The Utilization of Computers and Software in Corporate Fitness

A Thesis Presented

to

The Graduate Faculty

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In Partial Fulfillment

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by

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CHAPTER I

INTRODUCTION

Along with the expansion of its capabilities the personal computer has become "user-friendly" and found its way into almost every facet of life. Most people today rely on a computer to some extent, for example: using the telephone, withdrawing money from the bank, using a calculator to balance the checkbook, or purchasing food at the check-out line.

Computer usage has also filtered into the the fields of health and physical education (Donnelly, 1987; Fardy, Yanowitz & Wilson, 1988). The applications of computer use in these fields are diverse and extensive. Computers can be used to assist in biomechanical analysis, help measure sport anxiety, aid in facility/building scheduling, alleviate managerial duties and supplement in-class instruction (Donnelly, 1987). In addition computers can be applied to exercise testing, exercise prescription, following the progress of an individual's exercise habits, and even approximate the number of calories burned (Bain, 1984; Fardy et al., 1988; Hettler, 1986).

One of the most recent promoters of wellness and health is in the corporate sector (Sheilds, 1984). Under the umbrella of health and physical education has emerged the field of corporate fitness. Many corporations have established programs for health and exercise. These programs have been found to help reduce absenteeism and turnover as well as increase work satisfaction (Cox, Shepard & Corey, 1981; Frew & Bruning, 1987; Song, Shepard & Cox, 1982).

With this in mind, a comprehensive corporate fitness program could be aided by a computer and software program. Numerous functions could be more efficiently accomplished through the use of a computer (Hettler, 1986). These tools could help assist in the management of the program as well as the assessment and motivation of the employees. Many corporations have already identified the advantages of the computer and aquired them to help serve the corporation's employees as well as aid the program's staff (Moore, 1981; Fardy et al., 1988). Computerization has occurred in some form in an estimated 70% of all fitness clubs (Tiersten, 1987).

Software programs are spreading beyond the typical business and mathmetical functions and expanding into the health and fitness industry ("Athletics/Recreation Software Increasing", 1989; Tiersten, 1987). Further, the selection of software available for this population is slowly expanding ("Athletics/Recreation Software Increasing", 1989). The expansion of available programs provides a greater range of choices, but it still may be difficult to find a software program that meets all the needs of the management and the facility ("Computers' Best Use is Information Management", 1989). Another option is to design the software. Program development is difficult and a programmer must be procured that can design such a specific program ("Computers' Best Use ...", 1989; Tiersten, 1987).

There is such an array of software packages available with a variety of capabilities. A study examining the current status of computer and software use in corporate fitness would be beneficial. A

study of this nature could help other fitness directors interested in purchasing or designing a software package, or aid directors desiring a change in software.

Statement of the Problem

The problem was to assess the extent of computer and software utilization in corporate fitness programs located within the United States. The investigation included the following main topics: computer availability, type of computer, software capabilities, software design, evaluation of the software and the demographics of the programs surveyed.

Purpose and Scope of the Study

The purpose of this study was to collect information on the utilization of computers and supporting software used in corporate fitness programs. If the fitness program did not have a computer, information was gathered to determine the reasons a computer was not used. In addition, the focus of this study was to determine if there was a specific software program most frequently used.

Assumptions

The following assumptions were made in this study:

1. The questionnaire was a reliable instrument.

2. The respondents were knowledgeable about the computer and software used by the corporate fitness program.
3. All respondents answered truthfully.

Delimitations

The following were determined to be the delimitations of the study:

1. Only corporate fitness programs were surveyed.
2. The corporate fitness programs were associated with corporations located within the United States.

Limitations

The following were limitations to the study:

1. Only corporate fitness programs listed in the Association for Fitness in Business were surveyed.

Definitions

Computer - The following are terms related to a computer:

Computer - A general symbol manipulator which comes in a variety of models. The computer is made up of:

1. input units - which feed data into the system.
2. central processor - which controls the processing function and essentially is a big filing cabinet that is completely indexed and capable of storing large amounts of data.

3. output units - which serve the functions of creating records and reports and create new media which can be used to satisfy further automated processing needs (Glossary, 1984).

Hardware - the physical components of a computer (Szoke, 1987).

Interface - connecting an external device such as a treadmill, bicycle ergometer or typewriter to a computer.

Kilobyte - a unit of information storage equalling 1,024 bytes (Szoke, 1987).

Main Frame - a large computer that is capable of being accessed simultaneously by numerous terminals (Szoke, 1987).

Megabyte - information storage capacity consisting of one million bytes (Szoke, 1987).

Modem - Modulator-Demodulator, a device which converts electrical signals from a computer, transforming them to a form in which to be transmitted across telephone lines (Szoke, 1987).

Peripherals - devices that are attached or interfaced to a computer such as a printer or treadmill.

Program - a term used interchangeably with software.

Software - the collection of programs and routines associated with a computer:

1. canned software is written to meet general purpose needs.
2. custom software is written specifically for an application (Glossary, 1984).

User-friendly - the ease with which the directions of a computer and its software can be executed.

Corporate fitness - The following are terms related to corporate fitness:

Corporation - business engaged in commercial, industrial or professional services with a profit motive.

Corporate fitness program - any business that promotes or sponsors some type of aerobic, strength or flexibility conditioning opportunities to its employees.

Fitness - The following are terms related to fitness:

Fitness Evaluation - the appraisal of one's aerobic capacity, flexibility and strength; a measure used to devise guidelines to improve one's overall fitness level.

Fitness Program - a physical activity program with emphasis placed on aerobic endurance, flexibility and strength.

CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

Corporate fitness programs have flourished in the last twenty years with more than 50,000 corporations having implemented some sort of service program for health, fitness and recreation (Finney, 1981; Baun & Baun, 1981). Some of these programs have "In-House" programs, providing exercise facilities at the corporate site itself, while other corporate programs reimburse employees for membership fees incurred at private and public facilities (Nudel, 1984).

An effectively administered corporate fitness program can be instrumental in maintaining high quality services and assessment. Furthermore, it can aid and assist employees in making beneficial lifestyle changes. A well trained staff, an adequate budget and well equipped facilities are the basics of an effective and efficient program. A computer and the proper software can aid in the administration of such a program.

Purchasing a Computer and Software

Initially, it must be decided what tasks can be automated and the functions the computer will serve, before beginning the selection of the computer and the software (Stu[illegible], 1988). First, a systematic evaluation of the facility operations is required. This is a greater understanding of data control in the facility and is very insightful when attempting

to computerize. In addition, not all tasks necessarily need to be computerized (Daniels, 1988; Kachel & Leon, 1986).

The decision regarding which software program should be purchased is based upon how easily the program can be learned, or how "user-friendly" it is, and the number of individuals who will be operating the computer. The software must meet the objectives and goals of the fitness program. It should be a program that will save time and be within the allotted price range of the exercise program (Kachel & Leon, 1986; Stuyt, 1988). Most importantly, the software should be chosen before the hardware (Hettler, 1986; Kachel & Leon, 1986).

Selecting Software

The software is the heart of the system and is required to make the hardware function (Daniels, 1988). The software system must meet the operational needs of the facility in order to be cost effective and be of value to the corporate fitness program. The fitness director should objectively analyze the operations of the facility, talk to staff members and review fitness assessment capabilities (Kachel & Leon, 1986; Kachel & Scott, 1986). Once the decision has been made as to what will be computerized, such as fitness assessments, business ledger, word processing, or inventory, a software program that can accomplish the designated tasks should be chosen. Ideally the supporting software and operating system will be integrated into a common data base rather than requiring several software programs for different operations ("Computers' Best Use is Information Management", 1989).

One resource for finding existing software or a private consultant to design the software, is a software development and consulting firm. A consultant should be unbiased and independent rather than a vendor of a particular software product. Additional sources are colleagues who can contribute their thoughts on what has been successful or unsuccessful, and help provide insight on software options. Finally, professional associations and trade shows can be an arena of opportunity to further investigate the best software options for the facility ("Computers Best Use...", 1989; Kachel & Leon, 1986; Tiersten, 1987).

Several sources of software are available. Pre-packaged, or canned, software is one possibility. For example, a general business ledger or a need specific software such as body composition analysis can be used. Shareware is a second option. It can be copied free of charge and a user fee can be paid to the amateur author at any time. A third choice is software which is considered "public domain" with no charge required to make a duplicate (Stuyt, 1988). Generally the largest drawback to most of the canned software is the difficulty finding a program that fits all the specific needs of the facility. If the software does not adequately accommodate the program, it can possibly be modified, the operations of the facility can be altered or a custom designed package can be assembled. Often times, modifications of existing software are unpredictable and reorganizing operations is generally contrary to the desired goal of improving existing operations ("Computers' Best Use...", 1989).

Finally a user developed or custom designed software package written by a private programmer, colleague, or the institution itself can be

considered. If a consultant is utilized, that person should be able to speak in laymens terms and communication lines must be open at all times ("Computers' Best Use...", 1989; Tiersten, 1987). The advantage to such an approach is that the software can be tailored to meet the needs of the operations desired. Unfortunately, this can be expensive and the final results are only as good as the programmer's abilities ("Computers' Best Use...", 1989).

When reviewing software, regardless if it is canned or custom designed, it should include the ability to merge information, and be a user-friendly system. Security of data and the ease of access to information are significant as well (Daniels, 1988). Other noteworthy points include identifying the reputation of the vendor, the type and quality of support services provided (Stuyt, 1988). Price is often the basis for a decision, but the selection of software should not be based on financial reasons alone (Bain, 1984; 1985; Stuyt, 1988). Obtaining competitive bids on exactly the same system is essential. Making a random check of the client list of the vendor and inquiring with current users about the software package are important as well (Bain, 1985; Kachel & Leon, 1986).

If possible, a copy of the software should be secured and a trial run performed (Bain, 1984; Hettler, 1986). Another option is to take some of the manual operations to be computerized and try it at the vendor (Kachel & Leon, 1986). In addition, the software should be evaluated on different hardware systems to determine which machine will run it best (Hettler, 1986).

Common Types of Software Systems

Software designed specifically for the fitness industry is becoming more widespread but is still limited. The available products fit into three categories (Athletics/Recreation Software Increasing, 1989):

1. Health/Fitness - Focussing on fitness assessments and exercise prescription, summarizing results of testing. Examples: CSI, Microfit Computerized Fitness and Health Check

2. Club Management - Tracking of membership use, billing, mailing and accounting projections are performance fuctions commonly found. Examples: Beta Data Systems and Microcache Systems

3. Statistical Packages - Management of sports such as facility scheduling, program registration and fund raising are aided by this. Examples: Sports Stats Inc and Win Sports Software

(Refer to Appendix A for information on the manufacturers for all canned software mentioned in this chapter.)

Selecting a Computer System

Once a software system that meets the needs of a facility has been found the hardware, or computer, and peripherals can be chosen. The following list of questions should be more easily answered after the evaluation of the tasks to be computerized has taken place (Kachel & Scott, 1986):

1. Is a single or multi-use configuration needed?
2. Should the computer have a floppy disk, hard disk drive or both?
3. Can communication between computers occur?
4. Can the computer support the software desired?
5. What type of printer is neccessary?

The hardware should be capabable of performing the level of usage anticipated over the next several years. In the computer industry, a year is considered a long time, and a time in which significant changes can take place. The system should be able to keep pace with the desired goals and not become obsolete. Obsolescence can be avoided by referring to trade journals and consulting with computer vendors to stay abreast of the changes occurring (Bain, 1985; Kachel & Scott, 1986).

The three alternatives when shopping for a computer are a full service store providing software support, a discount store or a mail order catalog. If computer knowledge is considered to be at the novice level, generally the full service store is the best place to begin (Kachel & Scott, 1986).

Check on warranty and product backing by the manufacturer. Ensure the purchase will not become obsolete because it is being phased out and replaced by an upgraded system. Directly calling the manufacturer will settle these issues promptly (Kachel & Scott, 1986).

Finally, supporting components are a vital issue. The kind of display screen is important. Will graphics be commonly used? If so, a colored display screen will probably be necessary. What will be printed? Both quality and the kind of type, as well as the speed of print are options to be considered (Daniels, 1988; Kachel & Scott, 1986).

Working with a Consultant

The previous considerations are imperative when choosing a computer system and are just as necessary if a consultant is hired to help

computerize a facility. The consultant should be available to work for a minimum of six months and be willing to work closely with the person in charge of implementing such a process (Andresen & Zach, 1985).

First, the consultant should tour the facility and observe operations several times to develop an understanding of procedures and operations of the fitness program. After a rapport has been developed, the consultant should be able to present a package summarizing the overall computerization plan including the necessary equipment, recommendations for the software and hardware purchase, and an implementation schedule. Generally the consultant will make suggestions concerning the most appropriate purchase and provide competitive price listing with the computer and software recommendations (Andreson & Zach, 1985).

Once the system is installed, the consultant should provide staff training and support services. This includes evaluating the effectiveness of the system, recognizing the need for additional support systems and working with users of the system to maximize its potential (Andreson and Zach, 1985).

Leasing a Computer

The advantages to leasing a computer include: a viable way to experiment, no depletion of cash, no risk of equipment obsolescence and payments are generally fixed. A contract for leasing should specify the amoung of time the equipment will be rented, the date it will be installed and issues of liability (Stuyt, 1988).

Computers in Fitness

A computer system in a corporate fitness programs can be effective and efficient in many ways. Used solely as a management tool it can help with budgeting needs, billing, word processing, payroll, management reports and inventory (Hettler, 1986). For example, it can aid in data collection and help determine the value of a fitness program within the corporation (Mizhari, 1987). It can also aid in fitness evaluations for body composition, flexibility assessment, diet analysis and health risk appraisals which help generate individualized fitness programs for the employee (Bain, 1984). In addition, some software programs will establish records on each participant providing a detailed report of the user's progress over time which is often considered a motivational benefit of such packages (Baun & Baun, 1984; Mizhari, 1987). Finally, several software designs combine some or all of the previous components and others can be put together separately to meet the corporate fitness program's specific needs ("Computer Software Applications", 1987; O'Connor, 1985). Whichever program is chosen, it is important the computer fit all testing modalities and components, and thus be interfaced, rather than a separate computer system for each piece of testing equipment (Donnelly, 1987).

Examples of Computers in Fitness

Donnelly (1983) reported his success with the computerization of the Kearney State Human Performance Lab. By purchasing the computer system

for the program, Donnelly determined that fewer personnel were required to operate a standard fitness test and more attention could be given to the subject. Also data reduction from fitness tests was simplified because of the computer's capability of handling large amounts of information and the ability to do calculations quickly. In addition, the exercise prescription was reduced to 2 minutes of time as opposed to hand calculations which took approximately 30 minutes. Most beneficial to the program was the flexibility of one computer and software program performing several jobs rather than several instruments and several people performing one job.

In a joint effort by the President's Council on Physical Fitness and Sports in cooperation with Campbell's Institute for Health and Fitness, the American Alliance for Health, Physical Education, Recreation and Dance and the Institute for Aerobics Research, a software program was designed. The program was presented to the Oklahoma School District in order to generate a fitness report card to the students of the school system (Lacy & Marshall, 1984). It was felt the report provided the necessary feedback and motivation needed to develop a successful physical education program. The report included such components as a fitness profile, individualized exercise prescription based on performance and a cumulative record of test results. Motivation was provided to the staff to try to develop programs to help students improve their fitness and performance. Students were more motivated after identifying weaknesses and strengths and being able to

make comparisons to national norms. It further encouraged family members to become involved in fitness as a result of the increased knowledge generated about health and fitness (Lacy & Marshall, 1984).

The paperwork required in athletic administration was greatly reduced for the director of the Phillips Academy in Andover, Massachussets by the use of a computer. In this situation, a relational data base was used allowing the connection between several smaller data bases that possess at least one field in common. The data bases formed at the Academy included contest scheduling, sports enrollment, records of injuries and stock room equipment. Sports scheduling was made much simpler by gathering data from the smaller data bases of team, opponent, official and season. Once all the appropriate data was entered, a contract was printed and sent to the opponent's coach. In addition, contracts were sent to others involved in the events such as ground crew, custodian, transportation services and the newspaper. This software provided extensive flexibility to arrange large amounts of data, with a common component, in order to meet the needs of athletic scheduling (Kalkstein, 1988).

Similarly, class and instructor schedules were organized by a computer to generate management reports to determine if dance studio and staff time were being maximized. After examining these factors, the Voight Fitness Center in Los Angeles, California, reduced cost expenses in payroll and increased income from clientele. Along with such management reports, a data base with class type, date, time of day, instructor, classroom and number of participants was created. Statisical analyses were generated to determine peak hours and provide a

schedule to meet the needs of the clients. Furthermore, with the database, personalized letters were generated to remind students to re-enroll in class; letters were easily addressed because the computer prints the labels as well. For this club, computerization produced a consistent clientele with 80% of the participants attending on a regular basis (Seigel, 1985).

Computer mail can be effective in a variety of ways such as a listing of upcoming events, communicating with other facilities, meeting announcements and producing schedules for recreational sports leagues. Computer terminals are the means by which computer mail is generated between individuals and groups. The electrical impulses are sent through a telephone system via a modem, or phone hook-up. This system allows for communication between offices in the same building or different states. Pre-packaged programs are available for these mail systems. Functions accessed on this software include sending a letter, calendar systems and address books. Correspondence is simple between terminals and information is quickly dispersed (Ribaric, 1986). This form of computer message transfer is commonly used to schedule health and fitness screenings and send announcements to employees at Microelectronic Technology Coroporation (Hartfield & Aitken-Townsend, 1989).

Software and Computers in Corporate Fitness

Departmental goals and objectives are attained through the use of computers at Tennaco's health and fitness program (Baun & Baun, 1984).

Program evaluation is easily acquired from statistical evaluation of facility use or determining the success of special programs such as weight loss and smoking cessation series (Read, 1987). Questionnaires and surveys are easily implemented and evaluated with the use of the computer, aiding in the feedback from participants in their programs (Baun & Landgreen, 1983). Some of the other functions of Tennaco's computer program include fitness and medical testing, employee membership and exercise logging (Baun and Baun, 1984). Exercise logging by the employees can be entered in a terminal at the fitness center following each exercise session. The data entry can include exercise activity outside the facility as well. In addition, if a participant does not want to enter the data at the terminal after each exercise session, a monthly tabulation or logging code sheet can be entered by a staff member instead (Baun and Baun, 1984).

Health assessment equipment which is computerized has lent credibility to the fitness program at Pfizer Incorporated (Read, 1987). Many of the corporation's members changed their opinion of the program realizing it was clinically and medically oriented rather than just a gym in which to work out. A more comprehensive program was provided to the members by providing more accurate data results of fitness testing (Read, 1987).

At Honeywell's corporate fitness program, a software program is used to assess fitness levels and develop an individualized exercise program for their members. A forty page report details each individual fitness measurement on a rating scale easily interpreted by the corporate club member. An explanation about the test is included with

each scale and suggestions are provided on ways to improve that particular component. A one-on-one review of the assessment is then undertaken with a staff member to develop a personalized program to meet the particular needs and desires of the participants. The report is an excellent resource for the participant to take with them after the assessment and review session (Mizrahi, 1988).

Blue Shield's worksite wellness program uses a computerized serial-risk assessment to determine each employee's risk status. Included in the "Healthtrac" evaluation are questions on smoking, fat, fiber, hospitalizations and illness. This program is used as an initial evaluation and for follow-up reports at six month intervals. Detailed in the Personal Vitality Report are the risk percentiles for major diseases and a summary of the probable medical consequences. An evaluation of change is generated by the computer at six months, providing continuous monitoring and behavior reinforcement for the employees (Harrington, 1987).

A thorough computerized database for record keeping is one essential component for maintaing a 25% daily participation rate at Microelectronics and Computer Technology Corporation's (MCC) Health and Fitness Center (Hartfield & Aitken-Townsend, 1989). Using a computerized record keeping system designed by MCC's management system staff, exercise logging is easily entered at each participants desk-top computer. The system tracks progress for each person through graphical displays of miles accomplished and number of hours of aerobic activity. In addition, fitness screening is entered into a data base allowing for analysis of programs which are recommended for additional risk-factor

reduction. A report is generated for the employee comparing the most recent screenings. The results are impressive to the computer oriented staff and valuable to the corporation itself (Hartfield & Aitken-Townsend, 1989).

Summary

The review of related literature indicated that there is little research available on the various types of software that would be most beneficial to corporate fitness programs. In addition, there is a gap in the literature with several resources available from the early eighties and a resurgence within the last three years. However, the literature does provide comprehensive suggestions on how to select and purchase a computer and the supporting software.

Nonetheless, evidence exists indicating there is a place in the corporate fitness programs for such modern technical conveniences and there are definite benefits and advantages of using such programs.

Fitness, health and recreation programs are found in numerous corporations today (Finney, 1981; Baun and Baun, 1981). These programs are provided in the company itself or may be held outside the facility in private clubs (Nudel, 1984).

A systematic evaluation is needed to determine what tasks will be computerized, and not all tasks need to be computerized (Kachel & Leon, 1986; Stuyt, 1988). Considerations for software purchase include the ease it is learned and the number of individuals using the program (Daniels, 1988; Hettler, 1986; Kachel & Leon, 1986).

The heart of a hardware system is the supporting software (Daniels, 1988). The computer and software should be integrated into a common system rather than acquiring several different software programs ("Computers Best Use is Information Management", 1989). Resources for software include a consulting firm, colleagues, professional associations and trade shows ("Computers' Best Use...", 1989; Kachel & Leon, 1986; Tiersten, 1987). Several different kinds of canned or premade software can be used. Modifications of canned software are often difficult, which is a drawback to such software. Custom designed software can be expensive, but it can be tailored to the program's needs ("Computers' Best Use...", 1989). Regardless of the type of software, the ability to merge information, security of data and support services are considerations to review (Daniels, 1988; Stuyt, 1988). Obtain competitive bids and check with previous clients if a vendor or consultant are used (Bain, 1985; Kachel & Leon, 1986).

Fitness oriented software is becoming more common and includes health and fitness software which focuses on fitness assessments and exercise testing. Club mangagement software accomplishes billing, mailing and follows membership use. Statistical packages generate management reports such as program registration and facility scheduling ("Athletics/Recreation Software Increasing", 1989).

The hardware, or the computer and peripherals can be chosen once the software has been secured. The system should not become obsolete within the near future. This is avoided by researching trade journals and talking with vendors (Bain, 1985; Kachel & Scott, 1986). Shopping for the computer can be through a mail order catalog, a discount store

or a full service store. Points to remember when reviewing hardware include the warranty and product backing (Kachel & Scott, 1986). Supporting peripherals include a printer and a display screen (Kachel & Scott, 1986).

The consultant should be available for a minimum of six months and should become familiar with the facilities operations after visiting on several occasions. The consultant should present a package suggesting the computer system and the software that will best suit the needs of the facililty. Included in the presentation should be the overall computerization plan and a competitive price listing (Andreson & Zach, 1985).

Advantages to leasing a computer include the ability to experiment and not risk obsolescence. The payment rates are generally fixed and cash resources won't be depleted. Specify the date of installation and issues of liability in the contract (Stuyt, 1988).

There are a variety of ways in which a computer can be used, such as management tool in a corporate fitness program (Hettler, 1986). Fitness evaluations are another use, aiding in body composition analysis and flexiblity assessment (Bain, 1984). Progress reports can be generated, which are often a motivational benefit of such programs (Baun & Baun, 1984; Mizhari, 1987). A variety of software packages are available to help meet the specific needs of the corporate program ("Computer Software Applications", 1987; O'Connor, 1985). The computer should be integrated, fitting all testing modalities, rather than consiting of separate components for each piece of equipment (Donnelly, 1987).

Donnelly (1983) purchased a computer system for the Kearney State Human Performance Laboratory reporting that data reduction was easily attained because of the memory capacity of the computer and the ability to do calculations quickly. A software program designed for an Oklahoma School District increased participation among its students because of the ability to provide a report of fitness test results. The staff became more motivated to offer a quality program for the students. The children were able to make comparisons to national norms and were given suggestions on how to improve weaknesses (Lacy & Marshall, 1984). Sports scheduling for the Phillips Academy in Andover, Massachussets was made much more simple with the use of a computer. Data bases were formed on the school's teams and their opponents. Contracts for events were easily formed and all those involved with such events were informed because of the accessability of the information (Kalstein, 1988). The Voight Fitness Center was able to determine peak hours of facility use and provide appropriate class schedules to meet the demands of the clients. A data base was formed, and personalized letters were generated, reminding students to re-enroll in classes, producing a consistent clientele (Seigel, 1985).

Tennaco's corporate fitness program has reached departmental goals and objectives through use of a computer (Baun & Baun, 1984). Evaluation of programs are obtained through questionnaires and surveys that are easily implemented with a computer and printer (Baun & Landgreen, 1983). Fitness logging, employee membership and medical testing are other functions for which the computer is used (Baun & Baun, 1984). The Pfitzer Incorporated has found that computerized

health assessment equipment has lent credibility to their program. By providing accurate data results on fitness testing it perceived to be more than just a gym by their members (Read, 1987). Individualized exercise prescription is developed for members at Honeywell's fitness program. A forty page report details each fitness assessment and provides suggestions for improvement. The participant can use the report as a resource for future use (Mizahri, 1988). The "Healthtrac" evaluation is a software evalution detailing risk factors for the workers at Blue Shield of California. A summary of probable medical complications are listed and an program of change is generated. A follow-up is produced at six months, providing behavior reinforcement for the employees (Harrington, 1987).

A computerized record keeping system designed by the employees at Microelectronics and Computer Technology Corporation allows exercise logging at the individuals desk. Aerobic exercise is charted by graphical display and total hours of activity. The computer oriented employees are impressed by such computer generated reports (Hartfield & Aitken-Townsend, 1989).

CHAPTER III

METHODS AND PROCEDURES

Introduction

The purpose of this study was to survey corporate fitness programs current use of computers, the type of software used, its capabilities and the users' opinions of the supporting software. The survey instrument for this study was specifically designed to gather information on the type of computer in the program, the software available, the capabilities of the software and an evaluation of the particular program being used.

Subject Selection

The subjects chosen for this study were selected from a mailing list provided by the Association for Fitness in Business (AFB). The members of the AFB were sampled because of their specific involvement in fitness and business. Fifty subjects were randomly selected out of a mailing label list of Corporate Fitness, Human Performance and Wellness Center Directors provided by the AFB. The mailing labels were on 12" x 12" paper arranged with 3 labels horizontally and 12 labels vertically, totalling 61 pages. A table of random numbers was used by designating the first two numbers to indicate the page number, the third and fourth numbers as column and the fifth number as row (Rand Corporation, 1955).

If the name chosen did not have a corporation listed below it, the name was discarded and the process was continued until fifty names were obtained. The questionnaire (Appendix B) was addressed to the name and title listed in the Directory.

Administration of the Instrument

The questionnaires were posted to the randomly selected corporate fitness director of the chosen program. Each mailed survey had a cover letter (see Appendix C) and a self-addressed stamped envelope in which to return the questionnaire. A letter was included stating the survey should be completed by a person knowledgeable about the computers and software or by the person who supervises it. Furthermore, the letter stated that if the survey could not be filled out by the proper person, or was not applicable, to return the survey indicating so.

A follow-up postcard was sent one week later (Appendix D). The postcard was used as a reminder to return the questionnaire, if the recipient had not already done so. It also reemphazied the importance of each survey being returned even if a computer was not used or the person who received the questionnaire did not work in a corporate setting.

Approximately three weeks after the mailing date, a follow-up cover letter, (Appendix E) questionnaire and self-addressed stamped envelope were sent to those directors who did not respond. Seven days later a letter (Appendix F) was sent out as a reminder to the final group of non-responders.

A follow-up telephone survey was used to determine the reasons the non-responders did not follow through with the questionnaire. The rate of return for the questionnaire was set at 50% to establish a valid study.

Development of the Instrument

A four part questionnaire was developed (see Appendix B). The questionnaire was divided into Section I: Type of Computer; Section II: Software Package; Section III: Software Capabilities; Section IV: Evaluation of the Software; Section V: Demographics; and blank page to make additional comments if so desired.

The development of the questionnaire began with a pilot survey administered to the LaCrosse Adult Fitness and Cardiac Rehabilitation graduate program consisting of 12 graduate students. After a critical evaluation from this group, the questionnaire was revised and sent to an advisory committee of five who were knowledgeable in the area of computers and fitness. The committee was comprised of the following:

Dr. William Zuti, PhD. Director of the Pepsi Co Fitness Program, Purchase, New York
Ms. Nancy Thompson, M.S. Execise Specialist at Sinai Samaritin Hospital, Milwaukee, Wisconsin
Dr. Neil Sol, PhD. Director of the Houstonian, Houston, Texas
Dr. Robert Patton, PhD. Professor at North Texas State University, Denton, Texas
Mr. James Nord, M.S. Fitness Manager at Johnson Wax, Racine, Wisconsin

Finally, a committee from the AFB reviewed the survey to determine if their members should receive such a study. The committee from AFB was comprised of:

Dr. William Baun, PhD. Chairman-Research Committee
Dr. Peggy Foss, PhD. Board Director
Dr. Larry Gettman, PhD. Board Director

Further revision was requested by the committee and upon approval of the committee, the mailing list was obtained (Appendix E). The questionnaire was then sent to the person directing the randomly selected corporate fitness programs as previously described.

Statistical Treatment of Data

Simple descriptive measures were used to summarize the data. The data were then compiled into tables and figures summarizing the utilization of software and computers by the corporate fitness programs.

CHAPTER IV

RESULTS AND DISCUSSION

Introduction

The purpose of this study was to determine the utilizition of computers and software in corporate fitness. A random sample of fifty corporate fitness directors was selected from a mailing list provided by the Association for Fitness in Business. A questionnaire designed by the researcher was used to obtain such information. Thirty-five surveys were returned and four questionnaires indicated there was no corporate fitness facility at their location, for a return of 67.3 percent. This chapter will present the responses to the questionnaire.

Results

Computer Availiablity

Computer at corporate fitness site. It was found that 83.9% of all respondents had a computer at their facility. Of the respondents who did not have a computer available, 40% of the five directors cited financial reasons for not having a computer, whereas 20% felt one wasn't needed.

Three of the five respondents who did not have a computer were waiting to install a computer or waiting to purchase one. Those directors who wanted a computer would use it for membership records, management reports, fitness logging, budgeting, inventory and purchasing. Two of the directors would prefer an Apple Macintosh and the third would like an IBM (See Appendix A for manufacturers'

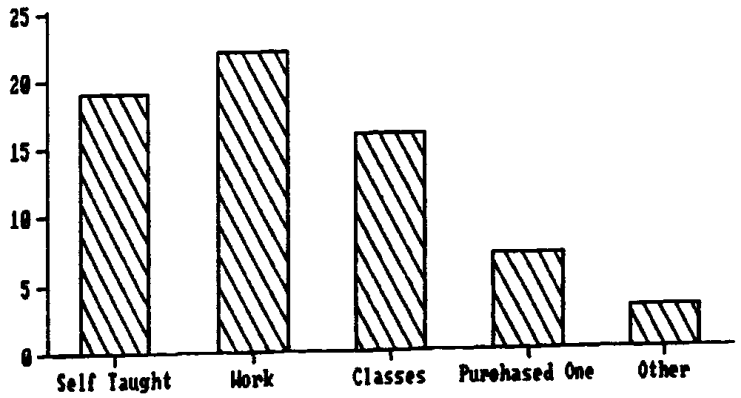
information on all computers referred to in this chapter). The software programs that might be considered by those without a computer were: CSI, Well Source and Nutrimed. (Refer to Appendix A for manufacturers' information on all canned software mentioned in this chapter.) One director was unfamiliar with the software available.

Computers

Familiarity with computers. One inquiry of this researcher was how the fitness directors became familiar with computers. The largest number of directors had become familiar with computers at work or were self taught (see Figure 1). Three respondents gave other explanations such as: training through the software vendor, outside resources, and university profiles of fitness testing. More than one response was accepted for this question.

Figure 1

Familiarity with Computers

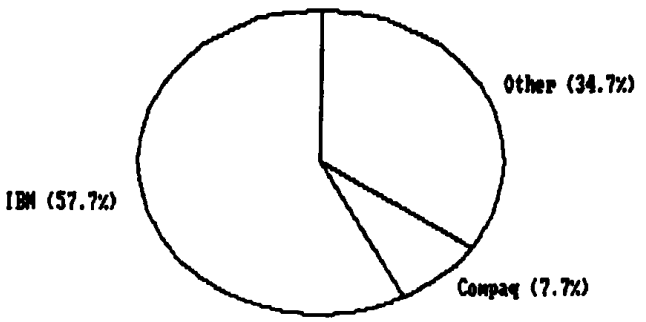


Type of computer used. The majority of facilities used an IBM computer, as illustrated in Figure 2. Different computers used by other programs were: a Hewlett Packard, a Sperry, a Packard Bell, a Unisys,

and an AT&T 6386 WGS. In addition, two facilities used both a Compaq and IBM and two others used both an IBM and Apple Macintosh.

Figure 2

Type of Computer

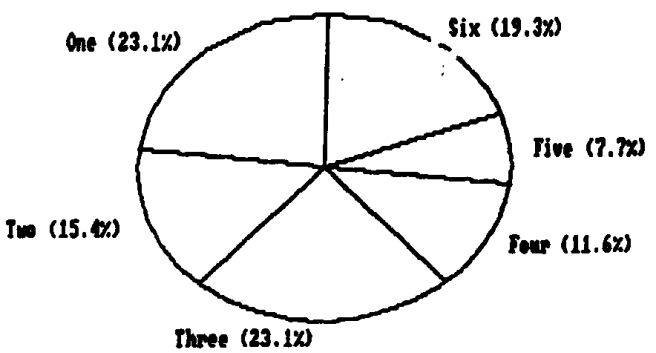


Leasing. Only two fitness directors were leasing a computer. Both were undecided as to whether the computer would be purchased. Reasons for leasing were due to corporate policy and a decision to continue leasing.

Number of computers. As illustrated in Figure 3, one-third of the directors surveyed had one or two computers and approximately one-fourth of the facilities utilized three computers.

Figure 3

Number of Terminals



Time using the computer. The greatest percentage (46.2%) of facilities had used their computer for three to four years. At 23.1% of the fitness facilities, the current computer had been used one to two years. The computer had been used for less than six months at 11.5% of the facilities and 3.8% had theirs for six months to a year.

Memory capacity. A small percentage of facilities had a computer with a memory capacity of 64K or 256K as shown in Table 1. A memory of 640K was most frequent. Other storage capacities included a main frame, 16 megabyte, 20 megabyte, and two did not know. Several directors did not respond to the question.

Table 1

Computer Memory

Memory Size	Frequency	%
64K	1	3.8
256K	1	3.8
512K	3	11.5
640K	9	34.6
720K	3	11.5
Other	7	26.9
No response	2	7.7

Disk drive configuration. Almost eighty percent of the computers had both hard and floppy disk drive configurations. Single floppy disk drive and double floppy disk drive configurations each comprised 7.7% respectively. A hard disk drive only constituted 3.8% of the total responses.

Main frame access. Over one-half, or 57.8% of the directors accessed a mainframe computer.

Printer. Ninety-six and two-tenths percent of the directors had a printer and the remainder did not. With the opportunity to check more than one response, a unicolor dot matrix and laser printer each constituted 54.2% of the printer type used. None of the directors noted that they would like a dot matrix printer, although 32.0% would like to have a laser printer. Twenty percent had a multi-color dot matrix and 4.0% indicated they would like to have one. A daisy wheel printer was used by 8.0% of the facilities, and no one indicated a desire for one.

As indicated in Table 2, on the average, the printer was used 11 or more times a day by more than 32.0% of the directors. One director cited using it 8 hours per day.

Table 2

How often the Printer is Used

Amount Used	Frequency	%
2 to 6 times per day	7	28.0
7 to 10 times per day	7	28.0
11 or more times per day	8	32.0
3 to 4 times per week	1	4.0
Other	1	4.0
No Response	1	4.0

Table 3 illustrates how the printer is used in corporate fitness facilities. The most frequent use was printing reports. The printer was

also used for other purposes such as data records, spread sheets, fitness evaluations, newletters, cash register, payroll, accounts receivable, accounts payable, general ledger, test results, sports, and desk top publishing.

Twenty, or 80% of the twenty-four respondents, were satisfied with the way the information was currently printed. Three directors were dissatisfied, one was undecided and one director did not respond.

Table 3

How the Printer is Used *

Use	Frequency	%
Fitness Logging	11	44.0
Reports	24	96.0
Correspondence	20	80.0
Writing Research	3	12.0
Other	12	48.0

*More than one response was accepted

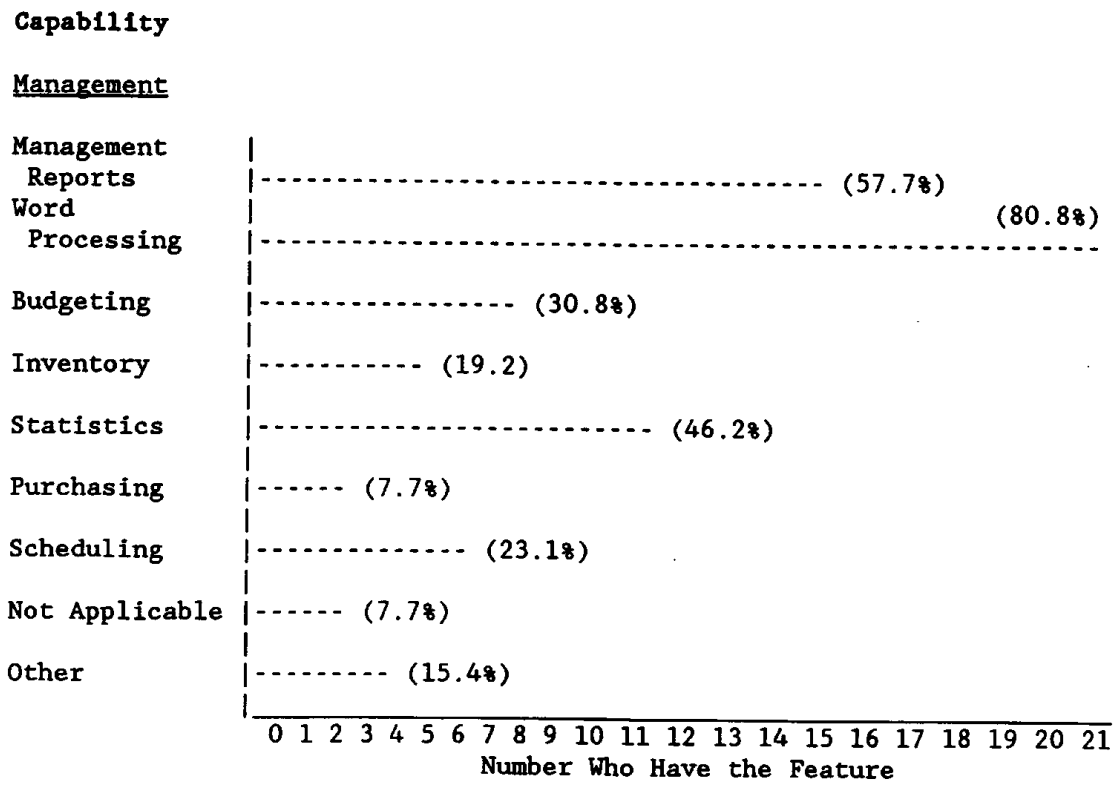
Software

Capabilities. One series of questions posed to the fitness directors concerned the capabilities of the software they used. One area queried was management features. Figure 4 illustrates that over four-fifths of the directors have access to word processing software. Greater than one half have a program that formulate management reports.

Purchasing did not appear to be a popular software feature for the fitness directors. Other features listed by the directors included: demographics, member listings, payroll and a spreadsheet.

Figure 4

Software Capabilities - Management* **



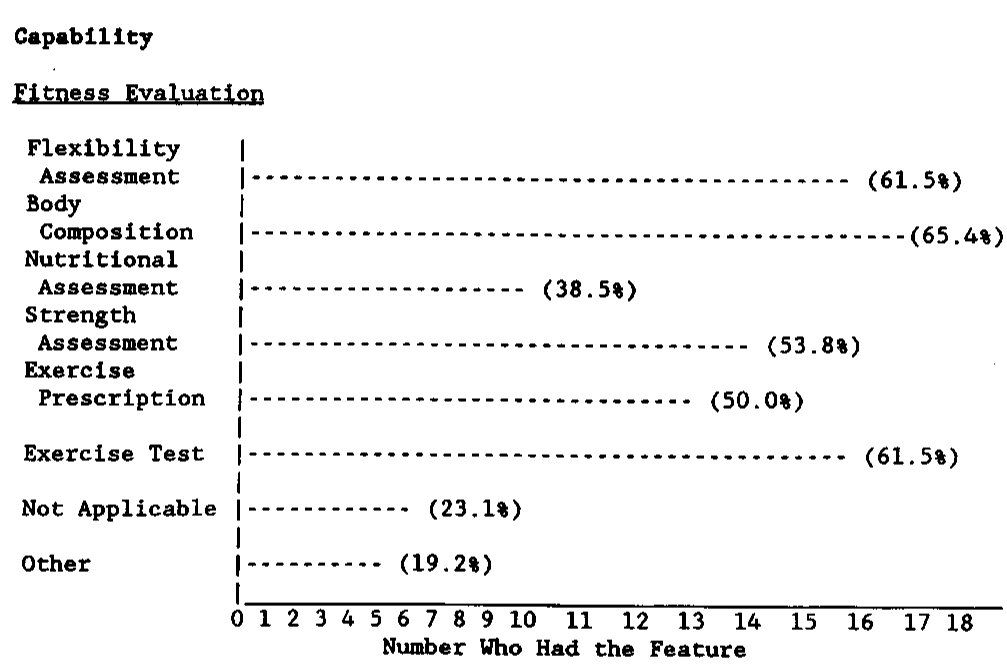
*More than one response could be chosen
**26 Directors responded

Fitness evaluation capabilities. The second group of software features was fitness evaluation components. The least common software assessment tool was nutritional assessment with 38.5% having such a feature (Figure 5). Exercise testing and body composition were

widespread among those surveyed. Features not listed in the survey, but listed by the directors included: respiratory analysis, profiles of testing components, exercise logging and cardiovascular testing.

Figure 5

Software Capabilities - Fitness Evaluation * **



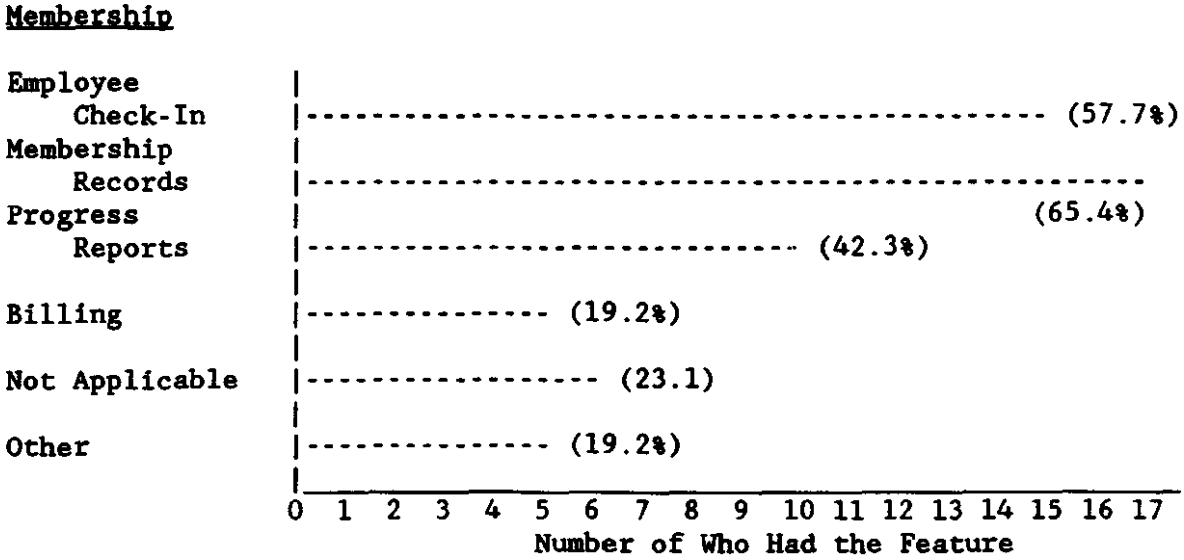
*More than one response could be chosen
**26 Directors responded

Membership capabilities. The third area of consideration concerning software capabilities was membership. The majority of directors did not have a billing feature on their software program as illustrated in Figure 6. Conversely, 65.4% did use their software for membership

records and 57.7% used it for employee check-in. Attendance, membership data records and program participation were other features listed by the directors.

Figure 6

Software Capabilities - Membership* **



*More than one response could be chosen
**26 Directors responded

Interfacing. When questioned as to the ease of interfacing peripherals with the computer, 19.2% said it occurred easily as compared to 34.6% who said it did not. The remainder did not know or did not respond.

The majority (53.8%) indicated the testing equipment was purchased separately from the software package. Only one director noted that equipment was purchased in conjunction with the software. The question was not applicable for 30.8% of the directors and 11.5% did not know or did not reply.

Current equipment interfaced. For 19.2% of the facilities, the current testing equipment could be interfaced with the computer and software. Conversely, 42.3% replied that current equipment could not be interfaced, and 15.4% did not know. For 15.4% of the directors this question was not applicable and 7.7% did not reply.

New equipment did not need to be purchased in conjunction with the software for 53.8% of the directors. For 11.5% of the directors, new equipment was purchased along with the software while 15.4% of the directors did not know or did not reply. Nineteen and two-tenths percent responded the question was not applicable.

Evaluation of Software

Satisfaction with software. Half of the directors were satisfied with their software program, although 61.5% of all respondents would like to improve the program in some fashion. As noted in Table 4, the majority would improve the capacity of their fitness evaluation and one half would improve the membership feature of their software.

Table 4

Areas Needing Improvement in Software Program * **

Software Feature	Frequency	%
Managerial	7	43.8
Membership Capabilities	8	50.0
General User-Friendliness	7	43.8
Fitness Evaluation	11	68.8
Other	6	37.5

*16 directors responded to this question.
**More than one response was accepted.

Choosing another program. Eleven or 42.0% of the directors would prefer another program rather than the one they currently had. Given the opportunity to choose more than one item, 27.5% would design their own program, 45.5 were undecided, and an additional 45.5 percent chose other programs such as CSI, Cooper's Aerobic Point System, and/or the Health Check software.

Almost one-fourth would like to keep their program and obtain another in addition to what they already had. The remaining directors would not purchase another software program.

Improvements due to the software. Four separate questions were asked in regard to changes as a result of having a software program to aid in the administration of the corporate fitness facility. One question asked if there was an improvement in participation of the members with the use of the software. There was a noticed change for 19.2% of the directors. Thirty and eight-tenths percent indicated there was no change at all. One reason given for no significant change in participation was the director responded it is the staff that is the component that improves such areas, not the software. Another director noted that the staff did not utilize the software fully to make a significant change. The remaining directors were undecided as to any improvement.

Changes in member participation. The second question referred to changes in the number of participants due to the software program. Just over one-half did not know if there was a change in the number of participants. Conversely, only 15.4% said there was an improvement and 30.8% were unsure.

Changes in time utilization. The third question posed to the directors inquired as to changes in time spent with members and staff as a result of the software. More time was spent with staff and members by 38.5% of the directors because of the software they used. No more time was available for staff and members for 38.5% of the directors and 23.1% were unsure. The most common reason for not spending extra time with staff and members was from malfunctions and problems with the software.

Reduction in paper work. Finally, the majority, or 65.4% felt that the software used alleviated time consuming paper work and similar duties as a result of the software program used. No change occurred for 19.4% and 15.4% were undecided.

Beneficial software features. The directors were asked to check all software options which they felt most beneficial to them, with the ability to respond more than once. This information is presented in Table 5. Word processing was deemed most beneficial to these directors with 69.2% checking this response. Budgeting, scheduling, caloric expenditure and strength assessment were not as common. Other beneficial software listed by the directors were nutrition and management reports.

Table 5

Features Most Beneficial to the Corporate Fitness Director*

Feature	Frequency	%
Word Processing	18	69.2
Budgeting	5	19.2
Scheduling	5	19.2
Exercise Testing	14	53.8
Exercise Prescription	10	38.5
Body Composition Analysis	12	46.2
Flexibility Assessment	11	42.3
Strength Assessment	9	34.6
Employee Check-in	15	57.7
Membership Records	17	65.4
Progress Reports	13	50.0
Caloric Expenditure	8	30.8
Other	5	19.2

*More than one response was accepted

Software features used most. Word processing was ranked the most used software feature by eleven of the directors (see Table 6). Employee check-in was commonly used for nine of the directors. Caloric expenditure and body composition analysis were the most used feature for only two directors each.

Table 6

Software Features Used Most by the Director*

Software Feature	Number Who Ranked Most Used
Word Processing	13
Exercise Testing	9
Exercise Prescription	4
Body Composition Analysis	2
Flexibility Assessment	5
Strength Assessment	2
Employee Check-in	10
Membership Records	8
Progress Reports	6
Caloric Expenditure	2
Other	1

*Rated with 1 or 2 on a scale of 10

Software features used least. Budgeting was used least for three directors and strength assessment was used least by four directors (Table 7). Caloric expenditure, exercise testing and scheduling were the least used by at least one director for each.

Table 7

Software Feature Used Least by the Directors*

Software Feature	Number Who Ranked Least Used
Budget	3
Scheduling	1
Exercise Testing	1
Exercise Prescription	4
Body Composition Analysis	2
Flexibility Assessment	2
Strength Assessment	4
Employee Check-in	2
Membership Records	2
Progress Reports	3
Caloric Expenditure	1

*Rated with 8, 9 or 10 on a scale of 10

Software Design

Canned software. The directors were questioned concerning the design of software they were using. Nineteen facilities were using a canned or a prepackaged program for their software.

Names of software used. A variety of packages were used, including: The Y's Way to Physical Fitness, Health Enhancement, Health Check, HMC and Nutrimed and four directors were using CSI.

Hardware purchased in conjunction with software. The hardware, or computer, was purchased with the software for 31.6% of the facilities, 57.9% did not need to acquire a computer and 10.5% were unsure if the computer was obtained with the software.

Length of time using the software. Slightly over one-fourth or 26.3% of the directors replied that the software had been utilized

between one to two years. More than one-quarter, or 26.3% had the software three to four years. At the extremes, 21.0% had the software for less than one year, and 15.8% had retained the software for five or more years.

Number of packages reviewed. Before purchasing the software, nearly two-thirds of directors reviewed several packages before making a decision. One person purchased the software on recommendation only and three choose not to review any (Table 8).

Table 8

Number of Programs Reviewed Before Purchasing

Number Reviewed	Frequency	%
0	4	21.1
1 - 4	7	46.7
5 - 9	1	5.3
Recommended	1	6.7
Not Applicable	3	10.5
No Response	2	10.5

Contacting users of the software. For 47.4% of the canned software users, a client list was not provided as a resource for information on the software. Twenty-six and three-tenths percent of them did not make contact when names were provided. Those who chose to contact previous users felt it was useful in arriving at a decision about the software.

On-site assistance. Almost one-half, or 47.4% of the directors replied that on-site assistance was given after purchasing the software. These directors felt the assistance was beneficial because it made them more comfortable with the software and they learned new things about it.

None of the directors cited that the assistance was not a positive experience. Only one director chose not to utilize such assistance.

When no on-site assistance was provided, the reasons for no aid were: it was only provided if problems occurred, one director went to the vendor for training and one stated it was not offered.

Follow-up by representative. A follow-up was made by the representative to 42.1% of the corporate facilities. No follow-up was made for 26.1% of the directors and 26.1% were unsure. No response was given by 10.5% of the respondents.

Procedural and technical updates from manufacturer. Greater than three-fourths (78.9%) of the directors were provided with procedural and technical updates from the software manufacturer. Only 10.5% were not supplied with such information and 10.6% did not know if updates were provided or did not respond.

Custom Designed Software

Software designed by the director. Ten directors were utilizing a custom designed software program. One-half designed the software themselves because they felt they could design a better program and were not satisfied with the canned programs available. Those who designed the program learned through a book, self-instruction, computer class(es) and help from others.

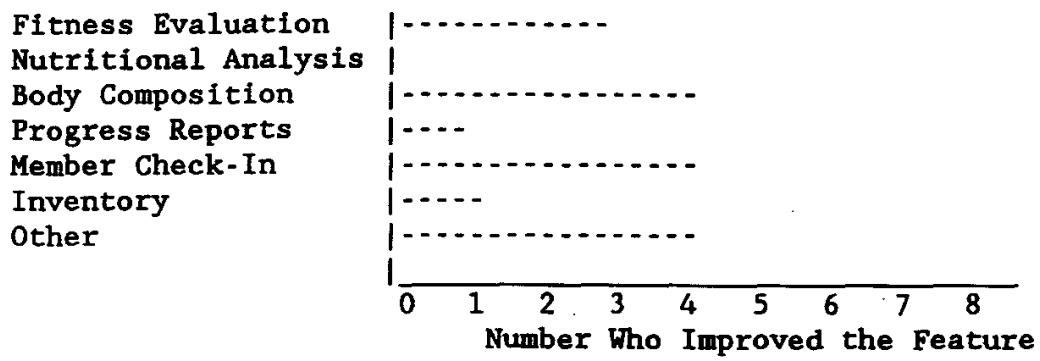
Software designed with a consultant. Seventy percent of the directors utilized a consultant to design their software program. The consultant was found through a business associate for 71.4 of the directors, and 33.6% found the consultant via other means such as the corporation in which they worked.

Models used for the software. The preponderance, or 70.0% of directors did not model their program after a canned program or another fitness program. Two directors who did use a model chose another corporate fitness program's software. Another director modeled the software from a canned program, the Microfit software.

Component developed. Figure 7 illustrates the components that were developed by the directors, which they believed to be lacking in canned software program. The directors were allowed to answer more than once for this particular question. Eight directors responded, with half believing body composition and member check-in needed improvement in the canned software packages. Other areas they felt needed improvement included exercise logging, participation reports and exercise prescription.

Figure 7

Areas Improved in Custom Designed Software

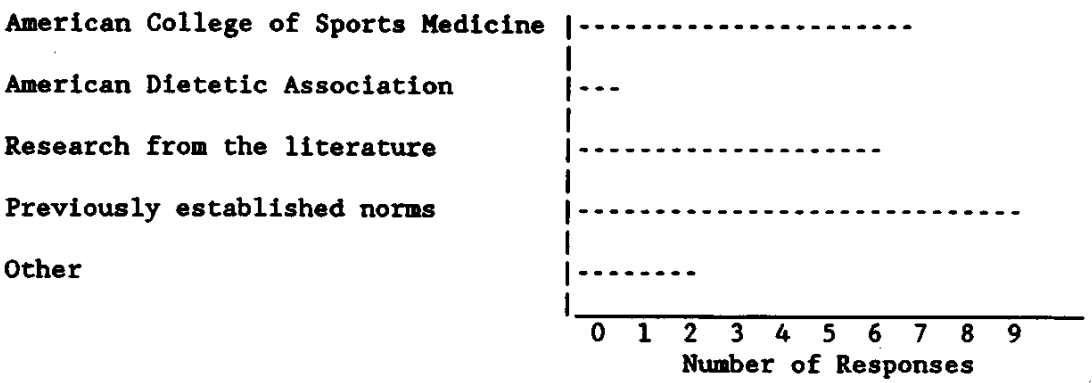


Scientific foundation for custom designed software. The scientific foundation used for the software developed by these directors included

the American College of Sports Medicine, research from the literature and previously established norms. This information is in Figure 8.

Figure 8

Scientific Foundation of Custom Designed Software



Demographic Information

Gender. The general demographic information for the subjects in this study is presented in Table 9. Not all respondents chose to provide such information, therefore percentages will not total 100%. The percentage of respondents was nearly equal when comparing gender.

Age range. The greatest percentage of respondents were between 20 and 39 years old, with the least being between 50 and 59 years old.

Highest degree. A Masters degree was the most common highest degree attained and 19.2% had received a Bachelors degree.

Area of education. Most the corporate directors had a formal education related to health and fitness. The greatest percentage had a degree in Exercise Physiology, and 29% had an education in Physical Education. Several respondents had a background in Business.

Certification. Most of the directors did not have the American College of Sports Medicine Health and Fitness Program Director certification. Only one director was certified. Several directors indicated other certifications such as Exercise Test Technologist and Exercise Specialist.

Table 9

Demographics of Corporate Fitness Directors

Group	Frequency	%
Gender		
Male	13	41.9
Female	16	51.6
Age Range		
20-29 years old	11	38.7
30-39 years old	10	32.3
40-49 years old	6	19.4
50-59 years old	1	3.2
Highest Degree		
Associates	1	3.2
Bachelors	6	19.4
Masters	18	61.3
Doctorate	2	6.5
Other	1	3.2
Area of Education		
Adult Fitness	1	3.2
Exercise Physiology	10	32.3
Nursing	1	3.2
Business	3	9.7
Physical Education	8	29.0
Other	3	12.9

*Not all respondents replied to this section therefore cumulative percentages will not total 100%.

Years worked at current corporation. A small percentage had worked at the corporate site for less than one year. Approximately one-fourth had worked for the corporation for 1 to 2 years and a little over one-third, for 3 to 4 years. One-eighth had been employed by the company for 5 to 7 years and 8 or more years respectively.

Salary range. The extremes of the salary range include $15,000 to $19,000 and $50,000 or more, for 3.2% and 9.7% of the directors, respectively. A salary range of $20,000 to $29,000 was common for 25.8% of the respondents and 36.1% of the directors earned between $30,000 and $39,000.

Corporation Demographics

Descriptive data related to the corporation is found in Table 10.

Size of corporation. The majority of corporations surveyed employed over seven hundred people.

Average employee use. Approximately one third of the fitness facilities were used by six hundred or more employees on the average.

Annual budget. A budget of $600,000 to $699,000 was common for 35.5% of the programs.

Table 10

Demographics of Corporate Facililty

	Frequency	%
Size of Corporation		
< 100	1	3.2
100-199	0	0.0
200-299	0	0.0
300-399	1	3.2
400-499	3	9.7
500-599	2	9.7
600-699	0	0.0
700 >	21	67.7
Average Employee Use		
< 50	2	6.5
50- 99	2	6.5
100-199	3	12.9
200-299	5	16.1
300-399	1	3.2
400-499	2	6.5
500-599	1	3.2
600 >	10	32.3
Budget (in dollars)		
< 50,000	2	6.5
50,000 - 99,000	2	6.5
100,000 - 199,000	4	12.9
200,000 - 299,000	5	16.1
300,000 - 399,000	1	3.2
400,000 - 499,000	2	6.5
500,000 - 599,000	-	-
600,000 - 699,000	11	35.5

*Not all directors chose to provide the above information

Employees who can use the facility. Nearly half of the programs allowed spouses and approximately one-third allowed the employee's children to use the fitness facility (see Table 11). Retired employees could access the facilities at 45.2% of the corporations surveyed.

Table 11

Employees Who Can Use the Fitness Facility *

Who Use the Facility	Frequency	%
Executives Only	2	6.5
All Employees	28	90.3
Spouses of Employees	15	48.2
Guests Admitted	5	16.1
Retired Employees	15	48.4
Children of Employees	10	32.3
Other	6	19.4

*More than one answer was accepted

Regions of Association for Fitness in Business. Most all regions were represented in the survey with a preponderance of replies coming from the midwestern states of Illinois, Indiana, Michigan, Minnesota, Ohio and Wisconsin, which comprise Region 4. This information is reported in Table 12. Regions 9 and 10 were not represented because they are not located within the United States.

Table 12

Regions of AFB Represented in the Survey

Region of AFB	Number of Responders
1	4
2	6
3	2
4	11
5	1
6	5
7	1
8	1

Random Sample of Non-responders

Ten percent of the sample size, or 5 directors, were contacted to determine the reasons for not completing the questionnaire. Three of the directors contacted had moved to another location. One director said that the information was confidential. Finally, the last person contacted replied that he/she did not want to take the time to fill out the questionnaire.

Discussion

Computer

The use of computers in corporate fitness is widespread and have expanded to many areas and functions in the programs. The results of this survey make more apparent how the computers are used and the functions of the software.

Stuyt (1988) explains that computer applications in leisure services have expanded because of improved academic training for the professionals in the field. This holds true for 16 directors in this survey. Conversely, 22 learned at work and 19 were self taught. This implies that computer applications should be developed in the academic setting to help these professionals utilize the computer to its maximum potential.

Leasing a computer was not a common occurence in the programs surveyed in this study. Only two directors said they were leasing. Stuyt (1988) cites advantages of leasing such as not risking obsolescence, a tax advantage and it is an optimal way to experiment. Neither director indicated fear of the computer becoming outdated and neither one plan on purchasing the computer in the near future.

Software Capabilities

The capabilities of the software can be used in management, fitness testing and membership check-in. According to an article by Lauerman (1989) one of the most underused features of software is the word processing component. Conversely, this survey found the majority of fitness directors, or 69.2%, used the word processing feature of their software, also making it the most used feature of their software.

Integrating the computer to a common foundation and interfacing all components is essential as suggested by Donnelly (1987). Of the directors for whom this question applied, 42.3% found that their testing equipment was not easily interfaced with the computer and software. In addition, slightly over one-tenth of the directors needed to buy new equipment with the software to fully integrate the system. Donnelly (1987) suggests an integrated microcomputer system can save time and money rather than having separate systems for each specific task. For example, the interfaced computer system can have a data base, formulate exercise prescription and design testing protocols.

Evaluation of Software

Seigal (1985) states that many facilities have found improvements in membership retention and participation after acquiring a computer and software. This researcher found that few directors noted a positive change in program participation or increased membership as a result of computerization. Fifteen and three-tenths percent of the twenty-six directors felt there was a signficant change. The majority were undecided as to any improvement. A possible reason for not knowing if there was change was there lack of a statistical base to compare pre-

computerization and post-computerization membership. Also, the primary purpose for purchasing the computer may not have been to increase participation.

When aided by a computer, the director should be allowed to concentrate on staff and members (Kalstein, 1988; Moore, 1981). The results of this questionnaire indicated a little over one-third of the directors were able to focus greater attention on staff and members and another one-third felt no more time was spent with them. Reasons given for no change in managerial duties were problems with the software which required their attention, and a "slow" computer.

Similarly, the majority of directors did feel alleviated from time consuming paper work because of the software. No change was noticed by 15.4% and 19.4% were undecided. Lauerman (1989) found that many features of a director's software program are unknown, and therefore underused.

One of the software features found to be most beneficial to the directors was word processing. Similarly, Hettler (1986) states that the efficiency of the word processor is tremendous providing a means to personalize letters and even produce newletters.

In Lauerman's article (1989) on the underuse of software, it is indicated the director is not fully aware of all the software's capabilities and does not fully understand how to use it. Body composition and exercise prescription were available to one majority of directors. Conversely, those features were considered to be most beneficial to less than half of the directors and less than 4 directors

cited the features as most used. With better academic training about computers and software, the directors may be able to better utilize such specialized software.

Software Design

Selecting canned software for the program is often difficult, but can become simpler if a few basic guidelines are followed. Suggestions such as reviewing several different software programs and contacting users of the software is important (Bain, 1985; Kacehl & Leon, 1986). Over one-half of the directors reviewed several software programs. Conversely, one-fifth of the directors reviewed none.

Another guideline for purchasing software is contacting previous users of the software (Bain, 1985; Kachel & Leon, 1986). Only two directors checked the client list, and both found it to be useful in arriving at a decision. One half who purchased canned software responded that no client lists were provided.

The support services offered are a consideration when purchasing software as recommended by Stuyt (1988). On-site assistance with the software purchase was given to 53.3% of the directors. All of the directors felt the experience was positive because they became more comfortable and learned new things. In addition, for 46.7% of the fitness programs, a follow-up was made by the representative. Procedural and technical updates were supplied to 73.3% of the directors.

The majority of directors surveyed were using a canned software program. One possible reason for this choice may be a result of the inability to design a program themselves.

Custom designed software was the design preferred by 38.4% of the corporate fitness directors surveyed. One-half of the directors programmed the software themselves. The reasons they did so include, being able to design a better program and not being satisfied with the pre-packaged programs on the market. Twenty-five percent of the directors learned to design the software by self-instruction: 25% learned from a book, 12.5% had taken computer class(es) and 37.5% received outside help.

Seventy percent of the directors choose a consultant to help design the software. The consultant was located through a business associate by two-thirds of the directors and the remaining third found the consultant through other means.

An advantage to custom designed software is the ability to design the software to fit the specific needs of the facility ("Computers' Best Use...",1989). Areas which were felt to be lacking in canned programs, and therefore revised by the directors include body composition and membership check-in. None of the directors who replied to this question choose to develop nutritional analysis. This may due to lack of knowledge in the area to develop such a program and/or satisfaction with what is already on the market.

The foundation of development for the software was established through resources such as the American College of Sports Medicine, research from the literature and previously established norms.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The purpose of this study was to collect information on the utilization of computers and supporting software used in corporate fitness programs.

The conclusions from the data revealed information in relation to the status of computer and software use in corporate fitness:

Computer Use

1. Most all facilities surveyed used a computer in some manner.
2. The majority of facilities used an IBM computer.
3. Leasing a computer was unusual.
4. Computers were not new to the facilities, with the majority having had the computer for three to four years.
5. Nearly all the directors had become familiar with computers at work rather than in an academic setting.
6. The computer was used more as an office tool rather than aiding in other fitness related areas such as body composition and fitness testing.

Software Capabilities

1. The most common management software feature was word processing.
2. Body composition was a prevelent fitness evaluation software program available to the directors.
3. A typical membership software capability was membership records.

Evaluation of Software

1. Although many of the directors were dissatisfied with their program, they would prefer to keep the software at hand and they would like to improve those features which they felt to be lacking.
2. Word processing was considered to be most beneficial and was the most frequently used software feature.

Type of Software

1. Canned software was chosen more often than custom designed software.
2. The directors who used a custom designed software package did so because they felt a better software program could be designed and they were not satisfied with the canned programs available.

Recommendations

It is recommended that future studies concerning computer and software utilizaton include the following:

Survey

1. A larger number of corporations be surveyed.
2. A more extensive survey be developed seeking information such as:
   a. Staff usage of the computer and software.
   b. The use of word processing since it was found to be the most common software feature in this study.

c. Specific ways in which the software is used, i.e. if management reports are generated, what information is produced?

d. Why the computer was chosen, where was it purchased and how many competitive price bids were attained.

e. Locations of the computer terminals if it used for employee check-in and fitness logging.

f. Why computerization occurred and if the purposes have been attained.

g. What kinds of reports and correspondence are generated since the majority of directors indicated it was the primary purpose of the printer was used for.

General

1. More research should be conducted in this area to develop a data base to inform those who want and need such information.
2. Better computer education be available to future professionals who will be entering the field to more fully utilize the computer and the software available.

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APPENDICES

APPENDIX A

Hardware and Software Manufacturer's Information

Hardware Manufacturers' Information

Apple Computer Corporation
20525 Marianin Avenue
Cupertino, California 95104
408/996-1010

AT&T Data Systems Group
100 Southgate Parkway
Morristown, New Jersey 07960
800/247-1212

Compaq Computer Corporation
20555 FM 149
Houston, Texas 77070
800/231-0900
713/374-4583

Hewlett Packard
300 Hanover Street
Palo Alto, California 94304
800/752-0900

IBM
Old Orchard Road
Armonk, New York 10504
914/765-1900

Packard Bell
9425 Conoga Avenue
Chatsworth, California 91311
818/773-4400

Unisys (Sperry)
1 Unisys Place
PO Box 418
Detroit, Michigan 48232
313/972-7000

Software Manufacturers' Information

Aerobics Center
12200 Preston Road
Dallas, Texas 75230
214/239-7223

Beta Data Systems
4100 North First Avenue
Tucson, Arizona 85719
602/293-2444

CSI Software
15424 North Freeway, Suite 180
Houston, Texas 77090
800/247-3431

HMC
4200 N. MacArthur Blvd.
Irving, Texas 75038
800/255-6909

Health Check
16801 Addison Road, Suite 137
Dallas, Texas 75248
214/250-2997

Health Enhancement Systmems Inc
9 Mercer Street
Princeton, New Jersey 08540
609/924-7799
800/437-6688

Microcache Systems
123 Stadley Rough Road
Danbury, Conneticut 06811
203/791-9521

Microfit
PO Box 2107
Menlo Park, California 94025
800/822-0405
415/322-6738

Nutrimed, Inc
3400 Silverstone Dr, #122
Alano, Texas 75023
214/985-9243
800/527-2139

Sports Stats
320 Brookes Drive, Suite 231
Hazelwood, Missouri 63042
314/731-8010

Well Source
15431 SE 82nd Drive
Clakcamas, Oregon 97015
503/656-7446
800/533-9355

Win Sports Software
15892 Redland Street
Westminster, California 92638
714/894-8161

Y's Way to Physical Fitness
Cardinal Health Systems
YMCA of USA
10250 Valley View Road
Suite 137
Eden Prairie, Minnesota 55344
612/9541-5170
800/328-01800

APPENDIX B

Questionnaire

Computer and Software Use in Corporate Fitness

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SURVEY OF CORPORATE FITNESS PROGRAMS USE OF COMPUTERS AND SOFTWARE

DIRECTIONS: *After reading the question, place a check mark in front of the most appropriate answer.*

I **COMPUTER AVAILABILITY**

1. DO YOU HAVE A COMPUTER AT THE CORPORATE FITNESS FACILITY?
   - 26 a. Yes, **Proceed to question 8.**
   - 5 b. No

2. IF YOU DO NOT HAVE A COMPUTER AT THE FACILITY, CHECK ALL THE REASONS YOU DO NOT.
   - 2 a. Financial
   - 1 b. Do not need one
   - 1 c. Do not want one
   - 1 d. Waiting to install one
   - 2 e. Waiting to purchase one
   - ____ f. Other (Please specify) _____

3. WOULD YOU LIKE A COMPUTER IN YOUR FACILITY?
   - 4 a. Yes
   - 1 b. No, **Proceed to question 5.**
   - ____ c. Undecided, **Proceed to question 5.**

4. IF YES, FOR WHAT REASONS? (Check all that apply.)
   - 1 a. Word processing
   - ____ b. Fitness assessment
   - 3 c. Membership records
   - 4 d. Management report
   - 4 e. Fitness logging
   - 3 f. Budgeting
   - 2 g. Inventory
   - 3 h. Purchasing
   - - i. Other (Please specify) _____

5. HAVE YOU CONSIDERED USING A COMPUTER AT YOUR WORKSITE?
   - 3 a. Yes, **Proceed to question 6.**
   - 2 b. No, **Proceed to question 66 on page 7.**

6. WHICH COMPUTER WOULD YOU LIKE TO USE IN YOUR FACILITY?
   - 1 a. IBM
   - ____ b. Zenith
   - ____ c. Apple II
   - 2 d. Apple Macintosh
   - ____ e. Compaq
   - ____ f. Other (Please specify.)_____

7. WHICH COMPUTER SOFTWARE PROGRAM WOULD YOU PREFER?
   ___ a. Fitlog
   ___ b. The Club System
   ___ c. Health Path
   ___ d. Pygmalion
   ___ e. Nutritionist
   ___ f. I would design my own
   1 g. I am not familiar with software programs.
   2 h. other (Please specify.) _____
   When you finish question 7, proceed to question 66 on page 7.

II COMPUTER

8. HOW DID YOU BECOME FAMILIAR WITH COMPUTERS? (Check all that apply.)
   19 a. Self-taught
   22 b. At work
   16 c. Computer class(es)
   7 d. Bought a computer for myself
   3 e. Other (Please specify.) _____

9. WHAT TYPE OF COMPUTER DO YOU HAVE AT YOUR WORK SITE?
   15 a. IBM
   ___ b. Zenith
   ___ c. Apple II
   ___ d. Apple Macintosh
   2 e. Compaq
   9 f. Other (Please specify.) _____

10. ARE YOU LEASING THIS COMPUTER?
    2 a. Yes
    21 b. No, Proceed to question 13.

11. DO YOU PLAN ON PURCHASING IT?
    ___ a. Yes, Proceed to question 13.
    ___ b. No
    2 c. Undecided

12. CHECK ALL THE REASONS FOR NOT PLANNING TO PURCHASE THE LEASED COMPUTER.
    ___ a. Did not like the brand
    ___ b. Did not meet our needs
    ___ c. Cannot afford to purchase it
    1 d. Will continue leasing
    1 e. Other (Please specify.) _____

13. HOW MANY COMPUTERS/TERMINALS DOES YOUR FITNESS PROGRAM HAVE?
    3 a. One
    1 b. Two
    6 c. Three
    3 d. Four
    2 e. Five
    5 f. Six or more

14. HOW LONG HAS YOUR FITNESS PROGRAM USED THIS PARTICULAR COMPUTER?

3	a. Less than 6 months	12	d. 3 to 4 years
1	b. 6 months to 1 year	3	e. 5 or more years
6	c. 1 to 2 years		

15. WHAT IS THE MEMORY CAPACITY OF YOUR COMPUTER?

1	a. 64 K	9	d. 640 K
1	b. 256 K	3	e. 720 K
3	c. 512 K	7	f. Other (Please specify.) _____

16. WHAT DISK DRIVE CONFIGURATION(S) DO YOU HAVE?

2 a. Floppy drive
1 b. Hard drive
2 c. Two floppy drive
21 d. Floppy and hard drive

17. DO YOU ACCESS A MAIN FRAME FOR YOUR COMPUTER USE?

15 a. Yes
11 b. No

18. DO YOU HAVE A PRINTER WITH YOUR COMPUTER?

25 a. Yes
1 b. No, **Proceed to question 23.**

19. WHAT IS THE TYPE OF THE PRINTER? **(Check all that apply.)**

	Have	Would Like to Have
a. Dot Matrix (one-color)	14	____
b. Dot Matrix (multi-color)	5	1
c. Laser Printer	14	8
d. Daisy Wheel Printer	2	____

20. IF YOU HAVE A PRINTER, ON THE AVERAGE, HOW OFTEN IS IT USED?

____	a. Less than once a day	____	e. Once or twice a week
7	b. 2 to 6 times per day	1	f. Three or four times a week
7	c. 7 to 10 times a day	____	g. Not applicable
8	d. 11 or more times a day	1	h. Other (Please specify.)___

_____

21. WHAT IS YOUR PRINTER USED FOR? **(Check all that apply.)**

11	a. Fitness logging updates	3	d. Writing research
24	b. Reports	12	e. Other (Please specify.)
20	c. Correspondence		_____

22. ARE YOU SATISFIED WITH THE WAY YOUR INFORMATION IS CURRENTLY PRINTED?

20 a. Yes
3 b. No
1 c. Undecided

III SOFTWARE CAPABILITIES

23. DOES YOUR SOFTWARE PROGRAM HAVE ANY OF THE FOLLOWING MANAGEMENT FEATURES? **(Check all that apply.)**

- 8 a. Budgeting
- 5 b. Inventory
- 15 c. Management reports
- 6 d. Scheduling
- 21 e. Word processing
- 12 f. Statistics
- 2 g. Purchasing
- 2 h. Not applicable
- 4 i. Other (Please specify.) _____

24. DOES YOUR SOFTWARE PROGRAM HAVE THE FOLLOWING FITNESS EVALUATION COMPONENTS? **(Check all that apply.)**

- 16 a. Exercise testing
- 16 b. Flexibility assessment
- 13 c. Exercise prescription
- 17 d. Body composition
- 10 e. Nutritional assessment
- 14 f. Strength assessment
- 6 g. Not applicable
- 15 h. Other (Please specify.) _____

25. DOES YOUR SOFTWARE PROGRAM HAVE THE FOLLOWING MEMBERSHIP CAPABILITES? **(Check all that apply.)**

- 15 a. Employee check-in
- 17 b. Membership records
- 5 c. Billing
- 11 d. Written progress reports
- 7 e. Not applicable
- 5 f. Other (Please specify.) _____

26. IS TESTING EQUIPMENT EASILY INTERFACED TO THE COMPUTER AND THE SOFTWARE?

- 5 a. Yes
- 9 b. No
- 11 c. Not applicable

27. WAS THE TESTING EQUIPMENT INCLUDED WITH THE SOFTWARE PACKAGE OR WAS IT PURCHASED SEPARATELY FROM THE MANUFACTURER?

- 1 a. Included
- 14 b. Separately
- 8 c. Not applicable
- 1 d. I do not know.

28. COULD YOUR CURRENT TESTING EQUIPMENT BE INTERFACED WITH THE SOFTWARE?

- 5 a. Yes
- 11 b. No
- 4 c. Not applicable
- 4 d. I do not know.

29. DID NEW EQUIPMENT NEED TO BE PURCHASED IN CONJUCTION WITH THE SOFTWARE?
   3 a. Yes
   14 b. No
   5 c. Not applicable
   2 d. I do not know.

IV EVALUATION OF SOFTWARE

30. ARE YOU SATISFIED WITH YOUR SOFTWARE PROGRAM?
   13 a. Yes
   11 b. No
   2 c. Undecided

31. WOULD YOU LIKE TO IMPROVE THE SOFTWARE PROGRAM?
   16 a. Yes
   8 b. No, **Proceed to question 33.**
   1 c. Undecided, **Proceed to question 33.**

32. WHICH OF THE FOLLOWING COMPONENTS WOULD YOU LIKE TO IMPROVE?
   7 a. Managerial
   8 b. Membership capabilites
   7 c. General user-friendliness
   11 d. Fitness Evaluations
   6 e. Other (Please specify.) _____

33. WOULD YOU PREFER ANOTHER SOFTWARE PROGRAM?
   11 a. Yes
   10 b. No, **Proceed to question 35.**
   4 c. Undecided, **Proceed to question 35.**

34. IF YES, WHICH OF THE FOLLOWING OPTIONS WOULD YOU CHOOSE? **(Check all that apply.)**
   ____ a. Autotech
   ____ b. WellSource
   1 c. Sport Tech
   3 d. I would design my ow.
   5 e. Undecided
   5 f. Other (Please specify.) _____ _____

35. WOULD YOU LIKE TO KEEP YOUR CURRENT PROGRAM AND HAVE ANOTHER ONE?
   6 a. Yes
   15 b. No
   5 c. Undecided

36. DID THE SOFTWARE PROGRAM IMPROVE PARTICIPATION OF MEMBERS?
   5 a. Yes
   8 b. No, How so?_____
   11 c. I do not know.

37. DID THE SOFTWARE PROGRAM INCREASE NUMBER OF MEMBERS/PARTICIPANTS?
   4 a. Yes
   8 b. No, How so?_____
   14 c. I do not know.

38. HAS THE SOFTWARE ALLOWED YOU TO SPEND MORE TIME WITH MEMBERS AND STAFF?
10 a. Yes
10 b. No, Please explain_____
6 c. I do not know.

39. HAS IT ALLEVIATED EXTRA DUTIES SUCH AS TIME CONSUMING PAPER WORK ETC...?
17 a. Yes
5 b. No
4 c. I do not know.

40. WHICH OF THE FOLLOWING FEATURES DO YOU BELIEVE ARE MOST BENEFICIAL TO YOUR PROGRAM? **(Check all that apply.)**

18	a. Word processing	9	h. Strength assessment
5	b. Budgeting	15	i. Employee check-in
5	c. Scheduling	17	j. Membership records
14	d. Exercise testing	13	k. Written progress reports
10	e. Exercise prescription	8	l. Caloric expenditure
12	f. Body composition analysis	5	m. Other (Please specify.)
11	g. Flexibility assessment		

41. RANK IN ORDER THE FEATURES YOU USE MOST TO THE FEATURES YOU USE LEAST. **1 = most 10 = least. If you do not have a particular component, use 0.** *The answers to this question have been averaged.

1.5	a. Word processing	5.4	h. Strength assessment
7.5	b. Budgeting	2.7	i. Employee check-in
6.0	c. Scheduling	3.2	j. Membership records
3.2	d. Exercise testing	4.4	k. Written progress reports
4.8	e. Exercise prescription	5.5	l. Caloric expenditure
4.3	f. Body composition analysis	2.7	m. Other (Please specify.)
4.8	g. Flexibility assessment		

V SOFTWARE DESIGN

42. IS YOUR SOFTWARE PROGRAM CANNED (PREMADE) OR CUSTOM DESIGNED?
16 a. Canned, **If the software is canned, please answer to questions 43 to 55.**
7 b. Custom designed, **If the software is custom designed, please proceed to questions 56 to 65 beginning on page 6.**

43. WHAT IS THE NAME OF YOUR SOFTWARE PACKAGE(S)?

____	a. Fitlog	1	d. The Club System
____	b. Pygmalion	1	e. Nutritionist
____	c. Health Path	16	f. Other (Please specify.)_____

44. WAS THE HARDWARE PURCHASED IN CONJUCTION WITH THE SOFTWARE PROGRAM?
6 a. Yes
11 b. No
2 c. I do not know.

45. HOW LONG HAVE YOU BEEN USING THE SOFTWARE PROGRAM?
__2__ a. Less than 6 months
__2__ b. 6 months to 1 year
__5__ c. 1 to 2 years
__5__ d. 3 to 4 years
__3__ e. 5 or more years

46. HOW MANY OTHER SOFTWARE PACKAGES WERE REVIEWED BEFORE A DECISION WAS MADE TO PURCHASE THE PROGRAM YOU ARE USING?
__4__ a. None
__7__ b. 1 to 4
__1__ c. 5 to 9
____ d. 10 to 13
__2__ e. Purchased on a recommendation.
__3__ f. Not applicable

47. IF NAMES OF CURRENT USERS OF THE SOFTWARE PROGRAMS YOU REVIEWED WERE PROVIDED, DID YOU CONTACT ANY OF THEM?
__2__ a. Yes
__5__ b. No, **Proceed to question 49.**
__9__ c. Not provided, **Proceed to question 49.**

48. WAS CONTACTING THE USERS HELPFUL IN ARRIVING AT A DECISION?
__2__ a. Yes
____ b. No
____ c. Not applicable

49. WAS ON-SITE ASSISTANCE GIVEN WHEN THE SOFTWARE WAS PURCHASED?
__9__ a. Yes,
__5__ b. No, **Proceed to question 53.**
__4__ c. I do not know. **Proceed to question 54.**

50. WAS THE ASSISTANCE BENEFICIAL?
__6__ a. Yes,
____ b. No, **Proceed to question 52.**
____ c. I do not know. **Proceed to question 54.**

51. HOW WAS THE ASSISTANCE HELPFUL? **(Check all that apply.)**
__6__ a. It made me feel more comfortable.
__7__ b. It taught me new things.
__1__ c. I chose not to use the assistance.
__1__ d. Other (Please specify.) _____
When you finish question 51, *proceed to question 54.*

52. IF THE ASSISTANCE WAS NOT BENEFICIAL, WHY WAS IT NOT HELPFUL? **(Check all that apply.)**
____ a. I became more confused.
____ b. Not enough assistance given.
____ c. It was time consuming.
____ d. Other (Please specify.) _____
When your finish question 52, *proceed to question 66 on page 7.*

53. IF NO ASSISTANCE WAS GIVEN, WHY NOT?
__1__ a. Not offered
__2__ b. Did not want any
__1__ c. Only given if problems arise
____ d. Could not arrange a time
__2__ e. Other (Please specify.) _____

54. WAS A FOLLOW-UP MADE BY THE REPRESENTATIVE?
__8__ a. Yes
__4__ b. No
__5__ c. I do not know.

55. ARE TECHNICAL AND PROCEDURAL UPDATES ABOUT THE SOFTWARE AVAILABLE FROM THE COMPANY?
__15__ a. Yes
__2__ b. No
__1__ c. I do not know.

Proceed to question 66 on page 7 after finishing questions 43 to 55.

VI CUSTOM DESIGNED SOFTWARE

If you are using custom designed software, answer questions 56 - 77.

56. DID YOU DESIGN THE SOFTWARE YOURSELF?
__5__ a. Yes
__5__ b. No, **proceed to question 59.**

57. WHY DID YOU CHOOSE TO DESIGN YOUR OWN? **(Check all that apply.)**
__1__ a. A challenge
__4__ b. Was not satisfied with other programs
____ c. Wanted to use previous programming experience
__1__ d. Felt I could design a better program
__2__ e. Other (Please specify.) _____

58. HOW DID YOU LEARN HOW TO DESIGN A SOFTWARE PROGRAM? **(Check all that apply.)**
__3__ a. Book
__3__ b. Self instruction
__3__ c. Computer class
__3__ d. Help from someone
__2__ e. Other (Please specify.) _____

59. DID A CONSULTANT/PROGRAMMER HELP DESIGN THE PROGRAM?
__7__ a. Yes
__1__ b. No, **Proceed to question 61.**
____ c. I do not know. **Proceed to question 61.**

60. HOW DID YOU LOCATE THE CONSULTANT/PROGRAMMER?
____ a. Friend
__5__ b. Business associate
____ c. Advertisment
____ d. Display booth at conference
____ e. Located at store (Please specify.)_____
__1__ f. Other (Please specify.) _____

61. DID YOU MODEL YOUR PROGRAM FROM A CANNED SOFTWARE PROGRAM?
__3__ a. Yes
__7__ b. No

62. DID YOU MODEL YOUR PROGRAM FROM ANOTHER FITNESS PROGRAMS SOFTWARE?
__2__ a. Yes
__8__ b. No

63. WHICH PROGRAM(S) DID YOU USE AS A MODEL? (Check all that apply.)
____ a. Fitlog
____ b. The Club System
____ c. Microfit
__1__ d. Johnsons Wax software
____ e. Tennaco's software
__3__ f. Not applicable
__2__ g. Other (Please specify.) _____

64. WHAT COMPONENTS DID YOU DEVELOP THAT YOU BELIEVE WERE LACKING IN OTHER CANNED SOFTWARE PROGRAMS THAT WERE AVAILABLE? (Check all that apply.)
__3__ a. Fitness evaluation
____ b. Nutrition anaylsis
__3__ c. Body composition
__1__ d. Progress reports
__4__ e. Member check-in
__4__ f. Inventory
__4__ g. Other (Please specify.)_____

65. WHAT IS THE SCIENTIFIC FOUNDATION OF THE SOFTWARE PROGRAM? (Check all that apply.)
__7__ a. American College of Sports Medicine Guidelines
__1__ b. American Dietetic Association
__6__ c. Research from the literature
__9__ d. Previously established norms
____ e. I do not know.
__2__ f. Other (Please specify.) _____

VII Demographics

66. WHAT IS YOUR GENDER?
__13__ a. Male
__16__ b. Female

67. IN WHAT AGE RANGE ARE YOU?
__12__ a. 20 - 29 years
__10__ b. 30 - 39 years
__6__ c. 40 - 49 years
__1__ d. 50 - 59 years
__2__ e. 60 years or more

68. WHAT IS YOUR HIGHEST ACADEMIC DEGREE?

1	a. Associates	___	e. None
6	b. Bachelors Degree	2	f. Other (Please specify)
19	c. Masters Degree		_____
2	d. Doctorate		

69. IN WHAT AREA DID YOUR RECEIVE YOUR HIGHEST DEGREE?

1	a. Adult Fitness	3	f. Business
___	b. Corporate Fitness	9	g. Physical Education
___	c. Cardiac Rehabilitation	3	h. Other (Please specify)
10	d. Exercise Physiology		_____
1	e. Nursing		

70. ARE YOU AN ACSM CERTIFIED HEALTH AND FITNESS PROGRAM DIRECTOR?

28 a. Yes
1 b. No

71. HOW LONG HAVE YOU WORKED FOR YOUR CURRENT CORPORATION?

2 a. Less than one year
8 b. One to two years
11 c. Three to four years
4 d. Five to seven years
4 e. Eight years or more

72. WHAT IS YOUR SALARY RANGE?

1 a. $15,000 - 19,000
8 b. $20,000 - 29,000
12 c. $30,000 - 39,000
2 d. $40,000 - 49,000
5 e. $50,000 or more

73. WHAT IS THE SIZE (NUMBER OF FULL AND PART TIME EMPLOYEES) OF THE CORPORATION AT YOUR LOCATION?

1	a. less than 100	3	e. 400 - 499
___	b. 100 - 199	3	f. 500 - 599
___	c. 200 - 299	___	g. 600 - 699
___	d. 300 - 399	21	h. 700 or more

74. HOW MANY EMPLOYEES, ON THE AVERAGE, AT YOUR LOCATION, USE THE FITNESS FACILITY?

2	a. 50 or less	1	e. 300 - 399
2	b. 50 - 99	2	f. 400 - 499
4	c. 100 - 199	___	g. 500 - 599
5	d. 200 - 299	11	h. 600 or more

75. WHO CAN USE THE FACILITY AT YOUR LOCATION? (Check all that apply.)

2	a. Executives only	15	e. Retired employees
28	b. All employees	10	f. Children of employees
15	c. Spouses of employees	6	g. Other (Please specify)
5	d. Guests are admitted		_____

76. WHAT IS YOUR PROGRAM'S ANNUAL BUDGET?

2	a. Less than $50,000	4	d. $200,000 - 299,000
3	b. $ 50,000 - 99,000	3	e. $300,000 - 399,000
5	c. $100,000 - 199,000	6	f. $400,000 or more

77. IN WHAT REGION OF THE ASSOCIATION FOR FITNESS IN BUSINESS ARE YOU LOCATED?

4	a. Region 1	5	f. Region 6
6	b. Region 2	1	g. Region 7
2	c. Region 3	1	h. Region 8
11	d. Region 4		i. Region 9
1	e. Region 5		j. Region 10

You have completed the questionnaire. Please turn to page 9.

The space provided here is for you to add any additional information you may feel would be relevent to the study. Every corporate fitness program is unique and operates differently. Please add additional comments about the software programs you have, and any clarifications you feel are necessary.

*We use a variety of computer programs at out different sites. I chose to respond to only one of the sites.

*The questionnaire was answered in terms of our current program, however we will be using the new FitTrack System. It will have capabilities to generate reports by design which are not necessarily standard. It will run off a hard disk drive and not a main frame system. We will be able to operate 2 fitness centers in this vacinity off the one disk drive unit. Because it operates under MUMPS instead of DOS, we will not use word processing with it and may retain our Hewlett Packard for that purpose. However, with MUMPS as the operating system, it will tie into other medical data (such as abseenteism, disability reports etc...) and should aid our program justification of need. Another reason for change in programs is to unify our corporate centers across the nation in program delivery and center management.

*We have developed an "In-House" program for attendance (facility usage) and exericse logging (calories burned, mileage totals and aerobic points). We used another corporation's software program as a model. This is on our main frame. We have CSI to supplement our exercise testing and prescription.

*Ours is a private company of 8500 employees, with many subsidaries totalling 35-45,000 employees. Our software (CSI) has MANY problems. Represenatives of the software company are quite helpful. Yet, training is lacking and the computer capabilities are not sufficient for our data collection. I have been most disappointed and frustrated with this

software. Particulary, the problem stems from personnel outside the corporate fitness field providing inadequate training and their lack of knowledge of the field.

*We have used the Tone-Up system on a limited basis for quite some time and have given up on programmer support as their assistance has not helped much. We pursued a project with our MIS Department to write a customized program. It was determined that it would be much cheaper and quicker to purchase a new canned program. We felt that the programmers of canned packages had gone through the learning curve and perfected their product. It made more sense to "re-create the wheel". After researching several canned programs we favored CSI. We have yet to purchase this package as the expense is unjustifiable because we are supplying management with all the necessary information now. This information is gathered by hand now. It is time consuming and perhaps not as accurate.

*We have 3 offices (approximately 35 people) that cover the US and serve 50,000 people. Several of us have worked on filling out the survey. Other programs used are DBase, Lotus/Freelance and Health Check.

*Health Enhancement Systems is our fitness software only. We have numerous other programs and software packages for budget, membership etc... The biggest drawback to the software, is that information it gives in response to a members questionnaire and testing input, are not in line with feedback given in personal counseling sessions. (Example - software's acceptable range for body fat percent is different from clubs recommendations, causing a conflict of information.

*We are now in the process of reviewing new General Ledger and payroll programs because IBM no longer makes them. Also, we are reviewing club programs for ideas to incorporate into a custom designed fitness evaluation program. We soon hope to have members log in on a computer when they come in.

*We have a LAN system with 100 MB dedicated to file server, 3 workstations and linked to all other company LANS.

*Though many members benefit from use of the software - most benefits are for staff. The existing program is not always user-friendly - however, new versions are being developed and used that will make it easier. Also, LAN, local area networking is a major concern for our future use - will make word processing useful/quick and easy.

You have completed the questionnaire. Thank you for your assistance. If you would like to recieve results, please print your name and appropriate address on the self-addressed, stamped return envelope. Below your address, print "copy of results". Do not place your name on the questionnaire.

APPENDIX C

Cover Letter

Setting the pace since 1971

La Crosse Exercise and Health Program

llege of Health, Physical Education and Recreation • University of Wisconsin-La Crosse • 1725 State Street, La Crosse, WI 54601-9959

May 27, 1989

Dear

Many corporate fitness directors are using a computer to improve effeciency of operation and membership services available to participants of their programs. It is often difficult selecting the software program best suited for the particular needs of the fitness director and the participants. Little information is available on the software most commonly used, the capabilities and the strengths and weaknesses of the software. The purpose of this investigation is to summarize the on usage of current software programs. This information will assist fitness directors in making future decisions regarding the selection and use of the software which will be the most appropriate for their respective programs.

As the director of a corporate fitness program, you are being given the opportunity to provide valuable information regarding your computer and software use and to express your opinion on it is usage and design. A small random sample of corporate fitness directors was drawn from the 1988 Association for Fitness in Business Information Directory to participate in this study. It is important the questionnaire be filled out by the Director in your corporation or the person who is charge of the computer and software used, if this person is not the Fitness Director. You should respond to the sections on computer availability and demographics even if you do not have a computer at your worksite. It should take approximately 15 minutes to complete the entire questionnaire. Please return the completed questionnaire by June 9, 1989. A self-addressed, stamped envelope is provided.

Your confidentiality in responding will be respected at all times. The questionnaire has an identification number for mailing purposes only. This is done so your name will be marked off the mailing list when your questionnaire is returned. *Your name will never appear on the questionnaire.*

The results of the survey will be available at Mitchell Library at University of Wisconsin-La Crosse and will be given to the Association for Fitness in Business as well. You may receive a summary for your personal use by printing your name and address on the back of the self-addressed stamped envelope and writing "copy of results" below your address. Please do not print this information on the questionnaire itself.

PHONE NUMBERS

M.S. Degree Program 608/785-8685

AF/Cardipulmonary 608/785-8683

Nutrition Services 608/785-8694

Insurance/Billing 608/785-8688

Education Services 608/785-8686

If you have questions regarding the questionnaire please call (608) 785-8683. Your assistance in this important study is greatly appreciated. A more comprehensive corporate fitness program can be provided as a result of your cooperation.

Sincerely,

Barbara Roth

APPENDIX D

Postcard

June 5, 1989

Last week a questionnaire concerning your use and opinion of computers and software was mailed to you. Your name was chosen in a random sample provided by the Association for Fitness in Business from their 1988 Directory.

If you have already completed and returned it, thank you for your assistance. If not, please do so promptly. The sample was sent to only a small representative group of corporate fitness directors and it is important yours be included to accurately represent the opinions of this population.

If you did not receive the questionnaire, or it has been misplaced, please call 608-785-8683 and another will be mailed to you. Please forward the questionnaire to the person who can best answer it, if you are not that person.

It is important you return the questionnaire if you do not work in a corporate facility or do not utilize a computer. Please complete the appropriate questions on computer usage and demographics and explain your particular circumstances on the last page.

Sincerely,

Barbara Roth

APPENDIX E

Cover Letter for Second Mailing

Setting the pace since 1971

La Crosse Exercise and Health Program

College of Health, Physical Education and Recreation • University of Wisconsin-La Crosse • 1725 State Street, La Crosse, WI 54601-9959

June 16, 1989

Dear

Approximately two weeks ago, an inquiry on your use and opinion of software and computers at your corporate worksite was sent to you. As of today, your completed questionnaire has not been received.

The purpose of this study is to summarize software use in corporate fitness. An investigation of this type will aid fitness directors on future decisions regarding the selection of the most appropriate software program to best meet the needs of management and members.

The signficance of your contribution to this study is vital. Each completed questionnaire will provide a more comprehensive summary of software use in corporate programs today. For the results to be represenative of these fitness programs, it is essential that each person in this sample return their completed questionnaire.

As previously mentioned, the questionnaire should be completed by the Director in your corporation or the person who is in charge of the computer and software used if this is not the Fitness Director. If you do not have a computer and/or a fitness program, complete the first section on Computer Availablitity and the last on Demographics.

If you are not currently working for a corporation, return the survey. Please write, "Not in corporation" on page 9, the last page. It is important all surveys be returned.

If your questionnaire was misplaced, you will find a replacement enclosed along with a self-addressed stamped envelope. Please return the completed questionnaire by Monday, June 26, 1989.

Your help in greatly appreciated.

Thank you,

Barbara Roth

PHONE NUMBERS

M.S. Degree Program
608/785-8685

AF/Cardipulmonary
608/785-8683

Nutrition Services
608/785-8694

Insurance/Billing
608/785-8688

Education Services
608/785-8686

APPENDIX F

Letter Follow-up

La Crosse Exercise and Health Program

llege of Health, Physical Education and Recreation • University of Wisconsin-La Crosse • 1725 State Street, La Crosse, WI 54601-9959

June 29, 1989

This letter is a follow-up for the study on "Computer and Software Use in Corporate Fitness". Your completed questionnaire has not yet been received. A large number of questionnaires have been returned and this is very encouraging. The ability to accurately describe the use of computers and software in corporate fitness depends on your response. You may provide unique insight to such a study even if a computer is not utilitized at your facility.

This is one of the first research projects in such a specialized area and is relevent to those in corporate fitness. Therefore, the results are of particular importance to many fitness directors and those who may be interested in using computers and software to aid their program.

In case you are not working for a corporation, return the previously sent questionnaire, writing "Not in corporation" on the back page. Return it in the self-addressed stamped envelope that was provided.

You may not have a computer, but you can complete the first and last sections of the survey. This will provide valuable information on why some programs are not using computers and the reasons for not using one.

If you would like a replacement survey or have any questions, please call the La Crosse Health and Exercise Program at (608) 785-8683.

Thank you,

Barbara Roth

PHONE NUMBERS

M.S. Degree Program
608/785-8685

AF/Cardipulmonary
608/785-8683

Nutrition Services
608/785-8694

Insurance/Billing
608/785-8688

Education Services
608/785-8686