Title: METHOD AND APPARATUS FOR ESTABLISHING, MAINTAINING, AND IMPROVING AN EXERCISE, NUTRITION, OR REHABILITATION REGIME

Abstract: The invention provides a personalized health, nutrition, and fitness data delivery system that operates over multiple interactive platforms, and that is synchronized via the World Wide Web. A side from conventional printing capabilities, the herein described fitness training system works with multiple interactive electronic devices such as the Palm Pilot and the VitalWatch, which is a wrist based, Web-enabled personal trainer. A key feature of the herein described system is the GetFli.com Web site which houses intelligent technology, along with a complete set of software tools used to create and manage fitness programs and transfer them to and from a portable device, such as the Palm Pilot or VitalWatch. The site also provides its visitors with a rich interactive experience where they can educate themselves on proper fitness training techniques and nutrition, and communicate with other users who have similar interests.
Method and Apparatus For Establishing, Maintaining, and Improving An Exercise, Nutrition, or Rehabilitation Regime

BACKGROUND OF THE INVENTION

TECHNICAL FIELD

The invention relates to human health. More particularly, the invention relates to a method and apparatus for establishing, maintaining, and improving an exercise, nutrition, or rehabilitation regime.

DESCRIPTION OF THE PRIOR ART

The fitness industry in America has grown steadily over the past few years. Membership in U.S. health clubs increased 63% between 1987 and 1997 to a total of 22.5 million, and according to the International Health, Racquet, and Sportsclub Association, that number will reach 40 million by 2010. However, as the number of people engaged in exercise has grown, so too has the number of problems faced by those individuals. Exercisers are confronted by problems such as a lack of fitness knowledge, confusing information, unsafe workout habits, inefficient tracking tools, and lack of personalized feedback.

In addition, institutions committed to providing health and fitness services are constantly seeking new tools to expand their client base and better serve current clients. Sports medicine rehabilitation centers, gyms, corporate wellness programs, and personal and team trainers would benefit from better and more efficient ways to bring their services to individual patients, employees, and athletes.
Whether exercisers workout in a health club or on their own, they all share the same common problems and frustrations. These problems can be categorized as follows: lack of fitness knowledge, confusing information, unsafe workout habits, inefficient tracking tools, and lack of personalized feedback.

Lack of Knowledge: What should I do?

Many individuals have the drive to begin and sustain a fitness program, but simply do not know how to achieve their goals. Additionally, the information overload that often accompanies the beginning of a fitness program can be very intimidating.

Confusing Information: There are so many theories, which one is right?

Even exercisers who have been participating in a regular fitness program can be overwhelmed by the sheer volume of contradictory information found in magazines, at the gym, and on the Internet.

Unsafe Workout Habits: Am I performing my exercises correctly?

Once an exerciser makes a firm commitment to a program, and has the information he/she needs, inefficient training techniques such as poor form, excessive rest, or inadequate warm-ups/cool-downs can slow progress and even cause avoidable injuries.

Inefficient Tracking Tools: How do I sustain my enthusiasm?

Exercisers often start a new routine with a great deal of enthusiasm, only to quit a few weeks or months later. Often enthusiasm can be sustained if an exerciser is able to view workout progress. Workout programs need to be altered periodically to keep the exerciser engaged and excited and to avoid plateau. This is why exercisers are always encouraged to keep track of their
workouts in written logs. Unfortunately, most exercisers do not track their performance data because current tracking methods are cumbersome and inconvenient. Paper logs are difficult to use when an exerciser is sweaty, they get misplaced or destroyed in the gym environment, and they provide little useful data without some sort of analysis tools.

Lack of Personalized Feedback: Where do I go from here?

Feedback on performance data lets an exerciser know where he/she is improving and where he/she needs help. This feedback acts both as a motivational tool and as a guide for optimizing the workout routine. Even those who do record their workout data have difficulty extracting meaningful information from paper logs to guide their progress.

The inventors have conducted a preliminary survey of people who work out to try to determine what needs are most important to end-users. The survey was conducted at several high-profile athletic clubs around the San Francisco Bay Area with members belonging to diverse demographic groups. Out of 500 distributed surveys, 280 completed surveys were collected. Highlights of this survey are included below:

- 57% of people who exercise regularly responded they would keep track of their exercise information on a computer if it were easy to enter data. More than half of the 57% do not currently track their workout information at all.

- 72% of the people surveyed indicated that they would have liked to have a personal trainer but that the cost is too high.

Indeed, a personal trainer can address most of the problems outlined above. Spending two or three sessions with a personal trainer addresses the educational needs and some of the guidance needs for most exercisers. To satisfy completely the five core areas of an exerciser's needs (Motivation,
Instruction, Guidance, Health, and Tracking), that person must continually work with a trainer. This is generally an expensive proposition because most trainers cost approximately $50/hr. (Source: FIND/SVP)

Of those surveyed by the inventors who had never used a personal trainer, more than 70% said that cost was the primary deterrent. Scheduling training sessions can also be a problem, since the trainer and the client must find a time that is mutually acceptable. Twenty-five percent of the individuals surveyed said they had wanted to use a personal trainer but found scheduling too difficult. In some cases, individuals are not interested in using a personal trainer, even if they have access to one. Personal issues such as a lack of communication skills or embarrassment about look or body odor can make some individuals uncomfortable with the idea of training with a stranger, especially in a public environment.

It would therefore be advantageous to provide a method and apparatus for establishing, maintaining, and improving an exercise, nutrition, or rehabilitation regime, where such method and apparatus addresses those issue discussed above.

SUMMARY OF THE INVENTION

The invention provides a personalized health and fitness data delivery system that operates over multiple interactive platforms, and that is synchronized via the World Wide Web. Aside from conventional printing capabilities, the herein described fitness training system works with multiple interactive electronic devices, including personal digital assistants (PDAs) such as the Palm Pilot, and other devices, such as the VitalWatch, which is a wrist based, Web-enabled personal trainer.

GetFitGetFit.com
A key feature of the herein described system is the GetFitGetFit.com Web site. This is the definitive site on the Internet for health and fitness. The Web site houses intelligent technology, along with a complete set of software tools used to create and manage fitness programs and transfer them to and from a Palm Pilot or VitalWatch. The site also provides its visitors with a rich interactive experience where they can educate themselves on proper fitness training techniques and nutrition, and communicate with other users who have similar interests.

The key features of the Web site are as follows:

Intelligent Technology – This is a proprietary software system that is designed to create personalized fitness programs for individuals using Bayesian networks and constraint propagation/optimization technologies.

Workout Creation – Users fill out a simple online questionnaire. A personalized workout and lifestyle program is thereafter generated specifically for each user. Alternatively, users can create their own workout and lifestyle program using interactive and innovative tools.

Download / Printing – Users print their workouts or download them to a Palm Pilot or VitalWatch. After exercising, workout data is uploaded instantaneously to GetFitGetFit.com.

Tracking and Feedback – This Web-based software analyzes the progress of users and provides them with instantaneous graphical and quantitative feedback along with continuous updates of their fitness program.

Education – The system herein may include an extensive library of multimedia clips illustrating safe and effective training techniques including exercises, stretching, sport-specific techniques, and injury prevention.
Interaction – It is expected that use of the system herein described will develop a strong virtual community for fitness enthusiasts to communicate with each other and share fitness programs, along with frustrations and successes.

PDA

The system herein includes a software package designed for a hand-held PDA device, such as the Palm Pilot. It will be appreciated by those skilled in the art that the invention is readily implemented in any other portable electronic device which comprises a display and a storage facility, and which allows for user interaction therewith. This package provides an interface to the herein described system for team trainers and personal trainers working along with athletes or clients in the gym or on the field.

This interface allows the trainer to transfer workouts to the Palm Pilot, to record valuable information regarding an individual's workout performance, and to provide instantaneous feedback and analysis to trainers and athletes on the spot. Using such a device together with the herein described system provides effortless and instantaneous workout data collection and generates a new level of analysis and feedback for athletes, personal trainers, and coaches. Individual exercisers are also able to use this software as an interface to GetFit.com, though it is not necessarily the ideal form factor for an individual.

The VitalWatch

The VitalWatch is the presently preferred interactive personal fitness tool. The VitalWatch is a stylish, shock-resistant, digital wristwatch device that functions as a complete workout guidance and tracking tool. An individual user transfers a current workout program to the VitalWatch directly from the GetFit.com Web
site. During the workout, the VitalWatch leads an exerciser through a fitness routine step-by-step, indicating which exercises to perform, the number of sets and repetitions, the weight to be used, and the rest time between exercises. While working out, the individual easily inputs performance on each exercise into the VitalWatch, eliminating the need for cumbersome paper logs. At the user’s convenience, the data is then uploaded back to GetFit.com.

**BRIEF DESCRIPTION OF THE DRAWINGS**

Fig. 1 is a block schematic diagram of a health and fitness data delivery system according to the invention;

Fig. 2 is a screen display showing a system home page according to the invention;

Fig. 3 is a screen display showing a new user tutorial according to the invention;

Fig. 4 is a screen display showing the creation of a new user profile according to the invention;

Fig. 5 is a further screen display showing the creation of a new user profile according to the invention;

Fig. 6 is a further screen display showing the creation of a new user profile according to the invention;

Fig. 7 is a further screen display showing the creation of a new user profile according to the invention;
Fig. 8 is a further screen display showing the creation of a new user profile according to the invention;

Fig. 9 is a screen display showing a workout view according to the invention;

Fig. 10 is a screen display showing a further workout view according to the invention;

Fig. 11 is a screen display showing a system calendar according to the invention;

Fig. 12 is a screen display showing a further system calendar according to the invention;

Fig. 13 is a screen display showing a user report according to the invention;

Fig. 14 is a screen display showing a further user report according to the invention;

Fig. 15 is a screen display showing a VitalWatch module according to the invention;

Fig. 16 is a screen display showing a further view of a VitalWatch module according to the invention;

Fig. 17 is a screen display showing a further view of a VitalWatch module according to the invention;

Fig. 18 is a screen display showing a further view of a VitalWatch module according to the invention;
Fig. 19 is a flow diagram showing the system, including the GetFit.com Web site according to the invention;

Fig. 20 is a flow diagram showing the community feature of the GetFit.com Web site according to the invention;

Fig. 21 is a flow diagram showing the commerce feature of the GetFit.com Web site according to the invention;

Fig. 22 is a flow diagram showing the GUI feature of the GetFit.com Web site according to the invention;

Fig. 23 is a flow diagram showing the PC installed software feature of the GetFit.com Web site according to the invention;

Fig. 24 is a flow diagram showing the VitalWatch feature of the GetFit.com Web site according to the invention;

Fig. 25 is a flow diagram showing the cradle feature of the GetFit.com Web site according to the invention;

Fig. 26 is a flow diagram showing the CD ROM feature of the GetFit.com Web site according to the invention;

Fig. 27 is a flow diagram showing the VitalStation feature of the GetFit.com Web site according to the invention;

Fig. 28 is a block schematic diagram showing the general data structure of variable components within a workout program according to the invention;

Fig. 29 is a block schematic diagram showing the AI system/profiler according to the invention;
Fig. 30 is a block schematic diagram showing the AI system/data interaction according to the invention;

Fig. 31 is a block schematic diagram showing Java/AI database interaction according to the invention;

Fig. 32 is a flow diagram showing synchronization and log on according to the invention;

Fig. 33. is a screen display showing a roster according to the invention;

Fig. 34. is a screen display showing the creation of an athlete according to the invention;

Fig. 35. is a screen display showing the creation of a rule according to the invention;

Fig. 36. is a screen display showing the creation of an exercise according to the invention;

Fig. 37. is a screen display showing the creation of a workout according to the invention;

Fig. 38. is a screen display showing the creation of a program according to the invention;

Fig. 39. is a screen display showing the addition of groups according to the invention;

Fig. 40. is a screen display showing the addition of athletes to groups according to the invention;
Fig 41. is a screen display showing calendar components according to the invention;

Fig 42. is a screen display showing a single day view according to the invention;

Fig 43. is a screen display showing a monthly calendar view according to the invention;

Fig 44. is a screen display showing addition of an event according to the invention;

Fig 45. is a screen display showing an event on a calendar according to the invention;

Fig 46. is a screen display showing dissociation of an event according to the invention;

Fig 47. is a screen display showing a workout menu according to the invention;

Fig 48. is a screen display showing a print dialog according to the invention;

Fig 49. is a screen display showing a workout dialog according to the invention;

Fig 50. is a screen display showing a save dialog according to the invention;

Fig 51. is a screen display showing a workout dialog according to the invention; and
Fig 52. is a screen display showing data entry according to the invention.

**DETAILED DESCRIPTION OF THE INVENTION**

The invention provides a personalized fitness, nutrition, and health data delivery system that operates over multiple interactive platforms, and that is synchronized via the World Wide Web. Fig. 1 is a block schematic diagram of a health and fitness data delivery system according to the invention. Aside from conventional printing capabilities 16, the herein described fitness training system 10 works with multiple interactive electronic devices, such as PDAs, e.g. the Palm Pilot 14, and the VitalWatch 15, which is a wrist based, Web-enabled personal trainer. The system implements a personalized health, nutrition, and/or fitness program, such as an exercise regime, for example, as carried out at a gym or other such facility 18.

GetFit.com

A key feature of the herein described system is the GetFit.com Web site 12.

This is the definitive site on the Internet for health and fitness.

Fig. 2 is a screen display showing a system home page 20 according to the invention. The Web site houses intelligent technology, along with a complete set of software tools used to create and manage fitness programs and transfer them to and from a portable device, such as a Palm Pilot or VitalWatch. The site also provides its visitors, both new users 22 and members 24, with a rich interactive experience where they can educate themselves on proper fitness training techniques and nutrition, and communicate with other users who have similar interests.
Fig. 3 is a screen display showing a new user tutorial 30 according to the invention. When a user first visits the Web site, he is guided through the enrollment process and provided with full instructions in using the system.

Key features of the Web site include:

Intelligent Technology – This is a proprietary software system (discussed below) that is designed to create personalized fitness programs for individuals using Bayesian networks and constraint propagation/optimization technologies.

Workout Creation – Users fill out a simple online questionnaire (discussed below). A personalized workout and lifestyle program is thereafter generated specifically for each user. Alternatively, users can create their own workout and lifestyle program using interactive and innovative tools. In addition, users can select from a multitude of workout programs for various sports or lifestyle goals, which are generated by GetFit's board of expert coaches, trainers, and athletes. Such programs are customized to each user incorporating the methodologies of the experts.

Download / Printing – Users print their workouts to a printer or download them to a portable device, such as the Palm Pilot or VitalWatch. After exercising, workout data is uploaded instantaneously to GetFit.com.

Tracking and Feedback – This Web-based software analyzes the progress of users and provides them with instantaneous graphical and quantitative feedback along with continuous updates of their fitness program.

Education – The system herein may include an extensive library of multimedia clips illustrating safe and effective training techniques including exercises, stretching, sport-specific techniques and drills, and injury prevention.
Interaction – It is expected that use of the system herein described will develop a strong virtual community for fitness enthusiasts to communicate with each other and share fitness programs, along with frustrations and successes.

In the presently preferred embodiment of the invention, GetFit.com is written in both Java and html for maximum compatibility with the wide variety of today’s electronic hardware and software. It will be appreciated by those skilled in the art that the system may be written in any other language, e.g. C++ or xml.

The system also may include a companion CD-ROM (for example, as may be included with every VitalWatch sold) that contains multimedia demonstrations for each workout in the system database. This CD-ROM is presently preferred because current bandwidth limitations make streaming video over the Internet a time intensive process. However, it is expected in time that all such information may be obtained from an electronic network, such as via the Web. The Web-centric design strategy decreases the demand placed on the desktop computer, and more importantly, it ensures that every user logs ontoGetFit.com on a regular basis. This is an important goal of the system strategy, i.e. creating and maintaining a critical mass of users.

GetFit.com incorporates a set of graphical tools and the above described intelligent technology. There are four main components to the intelligent technology:

- User profiling,
- Workout creation,
- Workout management, and
• Workout analysis.

The intelligent technology is a collection of intelligent agents that automate certain processes when called upon by the user. All of the intelligent agents are flexible. They allow the software to adapt and improve its strategy and thereby determine best fit workout programs that provide each user with increasingly customized feedback over time.

User Profiling - The software takes an individual through a thorough physical fitness assessment. The assessment has five main sections:

• Biometrics,

• Medical History/Profile,

• Workout History,

• Diet, and

• Goals.

The assessment also requires an individual to take several tests to determine the user’s level of fitness. Once the assessment is complete the intelligent technology evaluates the user’s physical condition based on the information entered by the user, as well as information acquired through inferential processes. The sum of the information gathered is then stored in the individual user’s profile. The user profile is completely dynamic. Based on performance data gathered from the analysis tool and changing user preferences, the software can update the profile automatically.

Fig. 4 is a screen display showing the creation of a new user profile 40 according to the invention. The new user first enters his personal information
42, e.g. name, birth date, and gender. It will be appreciated by those skilled in
the art that other personal information may be provided from which the user
may select, or the user may be provided with a field in the display into which
otherwise unlisted information that the user deems to be relevant may be
entered.

Fig. 5 is a further screen display showing the creation of a new user profile
according to the invention. In this step of the user profile creation process,
the new user enters generic goals 52 to be achieved as a result of using the
system. It will be appreciated by those skilled in the art that other goals may
be provided from which the user may select, or the user may be provided with
a field in the display into which an otherwise unlisted goal may be entered.

Fig. 6 is a further screen display showing the creation of a new user profile
according to the invention. In this step of the user profiles creation process,
the new user selects various fitness tests 62 that are used to access the
user's capabilities and progress. The tests listed on Fig. 6 are provided for
purposes of illustration and example and are not intended as an exhaustive
list.

Fig. 7 is a further screen display showing the creation of a new user profile
according to the invention. After the user selects the FINISH button (Fig. 7),
the system generates 72 a workout program.

Fig. 8 is a further screen display showing the creation of a new user profile
according to the invention. In this step of the user profile creation process, the
new user is presented with a personal workout program 82 that is based upon
the user profile generated by the user in response to the various screen
disks displays discussed above (see Figs. 3-7). In this example, the workout
program achieves the user's goals within a defined interval based upon the
user exercising at a predefined frequency. It will be appreciated by those
skilled in the art that other workout formats may be provided as desired.
It will be appreciated by those skilled in the art that the profile creation process may include fewer or more screens and may therefore collect less or more information about the user. Accordingly, the screen displays shown in Figs. 3-8 are provided for purposes of illustration and example only and are not intended as a limitation of the invention itself.

Workout Creation - Workouts can be created in two ways, either manually or with one of the system's intelligent agents. The system's intelligent agents can either generate a workout program from scratch or customize a program created by an expert for the individual user.

The manual workout creation tool provides users with an intuitive, graphical interface to create their own workout. Users can add exercises to their workout by clicking on the muscle group they wish to work, selecting the desired exercise from a drop-down menu, and then specifying the workout parameters, such as sets, repetitions, weight, and rest.

Fig. 9 is a screen display showing a workout view 100 according to the invention. In this screen display various exercises (1:-10:) are shown. A portion of the display 105 provides a description and advice for performing a highlighted exercise, while another portion of the display 102 shows a human figure with the muscle group to be exercised highlighted 104. In the example of Fig. 9, the abdominal muscles are shown in black, indicating that the exercise selected is directed to exercising the abdominal muscles.

Fig. 10 is a screen display showing a further workout view 110 according to the invention. In this screen display, the same exercises are shown in spreadsheet format in connection with a workout schedule 116. The user can select a group of muscles, such as the abdominals 104 by a gesture, such as a mouse over movement, and a dialog box 114 opens up, allowing the user to select a specific muscle group, in this example the upper abdominals. A
further dialog box 118 opens up that suggests the exercises that may be performed to work the selected muscle group. The user may use a gesture to select a particular exercise and the details of that exercise are then displayed.

It will be appreciated by those skilled in the art that the workout creation process may include fewer or more screens and may therefore provide less or more information to the user regarding the workout. Accordingly, the screen displays shown in Figs. 9 and 10 are provided for purposes of illustration and example only and are not intended as a limitation of the invention itself.

The second method of workout creation relies upon the intelligent technology to create a personalized workout based on the information found in a user's specific profile. The workout creation agent is a proprietary system technology. The agent has a declarative knowledge base of constraints, which is essentially an encapsulation of one or more of the rules personal trainers may use to create workout programs. This knowledge base provides the logic for an advanced constraint satisfaction algorithm to be able to reason about the information gathered by the diagnosis agent and create a best-fit workout for each individual user.

Alternatively, a user of the GetFit system can browse through a library of expert content providers from GetFit's advisory board. The user can identify a coach, trainer, or athlete from their area of interest and select a program which matches that user's goals. The workout creation agent functions as described above to tailor the selected program to a user based upon that user's ability level, schedule, goals, and other attributes.

Once a workout is generated, the user is able to view multimedia video clips of professionals performing the exercises in the workout with accompanying explanations. The videos can be streamed from the GetFit.com Web site or played from a user's CD-ROM drive if they have the companion CD-ROM. The medium of video allows individuals to see the full range of motion
necessary for completing an exercise correctly, as well as showing common mistakes. This is much more effective than viewing static exercise images in a book or a fitness magazine and reduces the chance of injury as a result performing the exercises incorrectly. The software also includes educational clips that focus on important workout topics, including general fitness information, the importance of stretching and resting between sets, and mental preparation.

Workout Management - Workouts can also be managed by a user or by the intelligent technology. The manual management tool is a simple interface which allows users to select workouts they have created and string them together to create full workout programs. The intelligent technology can automatically create an entire workout program and track that program through the user's personalized calendar (see the description of MY GetFit below). Once the user has added a workout program to the calendar, it can be printed or downloaded to a portable device, such as the Palm Pilot or VitalWatch.

Workout Analysis - Constructive feedback is one of the most powerful motivational tools in the arena of personal training. Currently, individuals do not have any tools that enable them to see actual progress achieved through a workout. Even those individuals working with a trainer or keeping paper logs are not able to receive meaningful feedback. The intelligent technology has sophisticated analysis tools for interpreting workout data and giving the user meaningful feedback on workout performance in the form of graphs, as well as via a written text.

Performance data are read into the workout analysis tool from the specific user's workout history profile. The tool charts the progress of certain muscles and exercises over time and also compares that data to standard data based on gender and age group.
Communication Tools

GetFit users can take advantage of custom Internet questionnaires to record other aspects of lifestyle data beyond their fitness training regimen. They can select form a variety of pre-created questionnaires regarding the following subjects:

- Sleep
- Nutrition
- Stress
- Soreness

Or, users can create their own questionnaires. Questionnaires can be placed on a user's interactive lifestyle planning calendar and e-mailed to the user automatically. Using this mechanism, the GetFit system can track multiple variable regarding a person's lifestyle and compare those variables later to the person's fitness data to provide a meaningful correlation.

The system also sends users intermittent reminders if it detects irregularities in their workout patterns. For example, if someone misses several workouts, the system checks in with the user and ensures that he is not bored with the current program. If the system notices progress leveling off, it suggests program modifications for optimal results.

MY GetFit
One goal of the system is to provide every individual who comes to the Web site with a truly personalized experience. One step toward this goal is allowing every user to set up a home page within the system, i.e. MY GetFit.

From the MY GetFit page a user can access all of the most important features needed to manage a personal fitness program:

Personal Calendar - In the presently preferred embodiment of the invention, every user has an interactive calendar to view, modify, and track a personalized fitness program. The calendar provides a gateway between the software and the VitalWatch and Palm Pilot.

Fig. 11 is a screen display 90 showing a system calendar 92 according to the invention. In the display a dialog box 94 is shown open which indicates the user's start date.

Fig. 12 is a screen display showing a further system calendar according to the invention. In the display, a progress box 120 is shown open which indicates that the calendar is being synchronized with a portable device, such as the Palm Pilot or VitalWatch.

Progress Report Center - The progress report center allows a user to analyze, chart, and graph fitness progress over time. The system supplies standard analysis templates, or the user can customize an analysis using vivid graphical tools.

Fig. 13 is a screen display showing a user report according to the invention. In Fig. 13 a user's bench press, one repetition maximum, is plotted against a population norm and a motivational message is displayed to the user.
Fig. 14 is a screen display showing a further user report according to the invention. In Fig. 14, a personal progress report is provided, showing the user's performance relative to other user's of the system.

5 Human Figure - Each user may generate a customized human figure that serves as a graphical representation of the individual user. The figure allows a user to identify body regions of concern, injuries, and areas to target for weight loss or muscle gain.

10 Customized Fitness Content - The system directs the latest news and content tailored to a user's interests directly to the user's MY GetFit page. If a user identifies to the system that he is interested in basketball, he receives features for training for basketball. If a user identifies through his human figure that he has a knee injury, he receives content about knee injuries.

15 My Gym Bag - Every user has a virtual gym bag which functions as a fitness shopping cart. A user can select any item from any page of the GetFit.com Web site and put it in the gym bag. The selected items are available to the user when he returns to his MY GetFit page. A user can select exercises to incorporate into a workout program, entire workouts or programs to try, body regions to highlight in a program, or content to include on MY GetFit.

Virtual Community

25 Along with providing a personalized experience for individuals, another feature of the system is the provision of an online community for people interested in health and fitness. The system preferably focuses on developing a high level of interaction among individual users, thereby creating a strong fitness and nutrition virtual community. Users benefit from the wide variety of resources provided by GetFit.com and share in the vast collective knowledge of the entire user base.
The system hosts a wide variety of services to facilitate the interaction of GetFit.com users. These services include:

Electronic Workout Transfer - Users may share workouts they have created by electronically transferring them via the Web site or email to other users.

Chat Rooms - The system provides a forum that allows members to communicate with each other in real time. As the user base grows, such theme-based chat rooms provide forums where users discuss their specific interests or goals.

Forums - The system hosts electronic gatherings where users can come to listen to respected members of the fitness community speak on a wide variety of subjects. Users may ask questions and see them answered on line and in real-time.

Connections - The system brings together individuals within the system community by matching people with trainers and potential workout partners. In addition, GetFit provides gym referrals to connect individuals to health clubs in their area suited to their particular needs.

Bulletin Boards - Users may post messages of all types, from exercise reviews, to requests for a workout partner, in a specific geographic area.

Calendar Subscription

The Web-based model of the GetFit system allows for unique calendar subscription functionality. Using a hierarchical calendar system, users can subscribe to other calendars in the GetFit system. The workouts, nutrition programs, or events from the calendar to which the user subscribes are displayed on the user's calendar. However, those objects are customized to

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fit the user's ability level, goals, or particular needs by GetFit's intelligent software agents.

The calendar subscription model allows for two distinct features within the GetFit system:

- "Train Along With" – This is a concept whereby a user can select a particular trainer, coach, athlete, or other expert from the GetFit.com Web site and receive that individual's training or nutrition regimen on a daily basis. The program is tailored to fit the user, and the user can log into GetFit.com to view the progress of the expert(s) with whom he is training.

- Organizational Calendar Subscription – An organization at a national or local level can post a calendar of events, training programs, or nutrition programs on the GetFit.com Web site. This calendar can be posted publicly, allowing any GetFit user to access the calendar and follow the regimen and events on the calendar. Alternatively, the calendar can be posted privately, so only members of the organization can view the calendar.

Electronic Commerce

The system also provides a marketplace for an extensive array of health and fitness products. The Web site provides one-stop shopping domain for fitness and nutrition. GetFit.com sells personalized workout packages and is a portal for sales of fitness equipment, nutrition supplements, books, videos, CD-ROMs, and other health and fitness products. The following list represents some of the products that are available on GetFit.com:

- Downloadable Workout Programs (Celebrities/ Personalized)

- Celebrity
- New Exercise Equipment

- Used/Refurbished Exercise Equipment

- Nutrition Supplements / Vitamins

- Health Foods / Diet Products

- Diet Programs (Celebrity / Personalized)

- Sports

- Books (Fitness / Diet related)

- Magazine Subscriptions (Fitness / Diet related)

- Sports Related Electronics (Walkman / Video tapes)

- Fitness / Get-Away Vacation Packages

The system also tailors specific product offerings to individual users by maintaining constant contact with users and keeping comprehensive user profiles. Workouts downloaded by users include suggestions for fitness equipment or nutrition products which can be used in conjunction with the workouts. Users are offered products specific to the sports in which they participate.

**Client Software**

The system includes a software package for PDAs and other portable devices, such as the Palm Pilot. The software is designed to answer the need
for efficient tracking tools in athletic and fitness training. For example, the Palm Pilot application is designed primarily for fitness trainers and coaches to replace multiple devices commonly used while working out. The application records workout variables and provides workout timers, thereby eliminating the need for paper, a pencil, and a stopwatch.

The software provides an interface to the system for team trainers and personal trainers working along with athletes or clients in the gym or on the field, as well as for individual exercisers. This interface allows the trainer to record valuable information regarding workout performance and to provide instantaneous feedback and analysis to athletes or clients in the field. The Palm Pilot application also saves trainers hours of time that they spent previously entering workout data into a computer spreadsheet for multiple athletes at the end of a training day.

For an individual exerciser, the software represents an escape from the use of a clipboard and pencil for recording workout performance. PDAs, such as Palm Pilot, provide a simple, effective, and accurate tool for individuals to record their workouts. It also provides motivational feedback and instructive workout reminders during the course of a workout.

The inventors have discovered from their detailed product design research that the Palm Pilot is the ideal form factor for athletic and personal trainers, allowing them access to records for multiple athletes simultaneously. While it is not the ideal form factor for the individual exerciser, it represents a popular and accepted hardware platform that has already been widely distributed. This reduces system development and distribution costs tremendously.

**VitalWatch – The wrist based personal trainer**
The VitalWatch is the ideal fitness guidance and tracking tool. The VitalWatch eliminates the need for cumbersome paper logs to guide and track fitness performance.

The VitalWatch is a small Web-enabled device that is worn on the user's wrist, which incorporates all of the features of a standard runner's watch. In addition, it provides the unique added capabilities of guiding and tracking other important components of an individual’s fitness program and transferring that data to and from GetFit.com. In the case of a gym workout, variables tracked by the VitalWatch include, for example, exercise names, weights, sets, repetitions, order of exercises, and rest intervals.

The presently preferred embodiment of the watch uses an infrared or RF transfer system and a cradle attached to any personal computer (or an infrared or RF receptor within the computer itself), network computer, or Web TV unit to communicate with the GetFit.com site. The VitalWatch has a sporty design that is attractive to the fitness enthusiast. The band of the VitalWatch is fashioned from a comfortable and breathable material, and the watch is shock and water-resistant.

An individual user transfers a current workout program to the VitalWatch directly from the GetFit.com Web site. During the workout the VitalWatch provides step-by-step instructions that detail which exercises to perform, how long to rest, and how much to lift. While working out, the individual easily inputs performance on each exercise into the VitalWatch. At the user's convenience, the data is then uploaded back to GetFit.com.

The presently preferred system includes the VitalWatch, a cradle for data synchronization with the GetFit.com Web site, a CD-ROM containing multimedia demonstrations of hundreds of fitness exercises, and GetFit.com service. Individual users who are not already registered with the system through an institutional client (e.g. a gym or sport’s team) may be required to
pay a monthly service fee for a complete Web-based personal training solution, e.g. at the end of a free trial. The service includes personal fitness program creation, workout guidance, performance tracking with the VitalWatch, detailed analysis, and vivid graphical progress reports.

Fig. 15 is a screen display showing a VitalWatch module according to the invention. In Fig. 15, the VitalWatch is shown on a computer display screen as a virtual watch. This view allows the user to manipulate an image of the watch on a computer and then, afterward, synchronize the virtual watch with the actual Vital Watch. In Fig. 15, the screen 130 shows an exact image of the VitalWatch 15. The face of the VitalWatch displays a menu 132 of watch functions which include, e.g. watch, calendar, today's workout, today's diet, and optional workouts. It will be appreciated by those skilled in the art that other functions may be included with the VitalWatch and that the form factor of the VitalWatch may be changed, without departing from the scope and spirit of the invention.

Fig. 16 is a screen display showing a further view of a VitalWatch module according to the invention. In the view shown in Fig. 16, the VitalWatch displays a calendar view 140.

Fig. 17 is a screen display showing a further view of a VitalWatch module according to the invention. In the view shown in Fig. 17, the VitalWatch displays an exercise routine 150, in this example a bench press.

Fig. 18 is a screen display showing a further view of a VitalWatch module according to the invention. In the view shown in Fig. 18, the VitalWatch displays an input box 160 with which the user may enter information into the Vital Watch, which in this case is an workout to be scheduled for 9:00.
Fig. 19 is a flow diagram showing the system 200, including the GetFit.com Web site 222 according to the invention. The system 200 comprises an administrator's workstation 210, the VitalWatch 212, the GetFit.com Web site 214/222, software installed in the user PC 216, a CD ROM 218, and a cradle 220.

The GetFit.com Web site comprises a community aspect 224, content 226, a graphical user interface (GUI) 228, and artificial intelligence module (AI) 230, and a commerce module 232.

The content 226/234 comprises video information, e.g. FitClips 238, workouts and programs 240, workout templates 244, and posting, chat, and search features 242.

The AI module 230/236 comprises a decision tree ("Mini Diagnosis") 246, a CSP workout generation module 248, and a Bayesian network diagnosis module 250.

Fig. 20 is a flow diagram showing the community feature of the GetFit.com Web site according to the invention. The community function 224 comprises chat rooms 300, postings 310, and a workout/program exchange area 320.

Fig. 21 is a flow diagram showing the commerce feature of the GetFit.com Web site according to the invention. The commerce feature 232 comprises an auction system 400, a shopping cart 410, and workouts and programs 420 that are for sale. The workouts and programs comprises both celebrity workouts 430 and a personalized workout creation service 440.

Fig. 22 is a flow diagram showing the GUI feature of the GetFit.com Web site according to the invention. The GUI 228 comprises a profiler 500 which further comprises a constraint driven GUI module 510 and a wizard 520. The GUI also comprises a calendar 530, a program creation tool 540, an exercise
sheet 550, a human figure generation and display module 560, and a VR trainer.

Fig. 23 is a flow diagram showing the PC installed software feature of the GetFit.com Web site according to the invention. The PC installed software 216 comprises a plurality of tray 620, i.e. a synchronize tray 630 and a P.O. delivery box 640; and a VR trainer 650, which includes a computer generated figure 660.

Fig. 24 is a flow diagram showing the VitalWatch feature of the GetFit.com Web site according to the invention. The VitalWatch 212 comprises a GUI 700, functional specifications 710, the watch hardware 720, and the watch trade dress 730.

Fig. 25 is a flow diagram showing the cradle feature of the GetFit.com Web site according to the invention. The cradle 220 comprises a transport protocol 800, the cradle hardware 810, and the cradle trade dress 812.

Fig. 26 is a flow diagram showing the CD ROM feature of the GetFit.com Web site according to the invention. The CD ROM 218 comprises additional installed components for the system 900, PC installed software 910, FitClips 920 (discussed above), and help/additional information 930.

Fig. 27 is a flow diagram showing the VitalStation feature of the GetFit.com Web site according to the invention. The VitalStation is an administrator's workstation 210 that comprises trade dress 1000, a GUI 1010, functional specifications 1020, and the VitalStation hardware 1030.

**General Data Structure**

Fig. 28 is a block schematic diagram showing the general data structure of variable components within a workout program according to the invention.
Starting at the top of the structure, a workout program 1100 comprises one or more program parts, e.g. four weeks of general conditioning 1110, four weeks of body building 112, and four weeks of strength training 1114. Each program part comprises a plurality of workouts, e.g. a strength workout 1120, a general conditioning workout 1122, and a fat burning workout 1124. Each workout, in turn, comprises a plurality of parts, e.g. a cardiovascular part 11330, a free weights part 1132, and a stretching part 1134. Each part of a workout comprises various exercises, e.g. a bench press 1140, dumbbell flys 1142, and an incline bench 1144. Each exercise is performed in sets 1150, 1152, 1154 where each set is represented in the system by a plurality of fields that, in the preferred embodiment of the invention, includes for example a repetition filed 1160, a weight field 1162, and a rest field 1164. The fields are specific to the actual set and exercise that is performed and the structure shown on Fig. 28 is therefore provided for purposes of example and illustration only. A field may also be added to provide a more global activity, such as a rest between sets 1180. Further, the sets may be grouped into a super set 1170 that comprises a plurality of sets within a set.

It will be appreciated by those skilled in the art that the above workout program is provided only for purposes of illustration and example and that many variations are possible. For example, a workout may be replaced with a rehabilitation program to assist in recovery from an injury. A workout may also be replaced with various mental or emotional activities as part of a personal growth program, such as bereavement recovery or behavior modification.

**AI System**

Fig. 29 is a block schematic diagram showing the AI system/profiler according to the invention. Fig. 29 shows user visible components 1200 which comprise the profiler 1220, the workout/diet/lifestyle program 1240, and aggregated system data 1250. The profiler (discussed above) accepts user entered data,
generates inferred data, and incorporates data inferred from external device synchronization.

User entered data are communicated 1210 to a diagnosis system 1225. The diagnosis subsystem includes a Bayesian network having utility nodes for evaluating the next best information. Weights are adjusted by information from other parts of the system, such as from learning or data mining. The output of the diagnosis system is a set of numbers that represent an individual's fitness level, abilities, and preferences 1230.

Information generated by the diagnosis system is also output to the profiler 1212 in the form of computer inferred data.

The output of the diagnosis system is communicated to the program design system 1235 which is composed of constraint satisfaction and/or optimization algorithms. The program design system uses predefined and/or dynamic constraints on user data and knowledge base and user defined constraints to fit schedule atomic and multi-atomic items into a composite program. The output of the program design system is a workout/diet/lifestyle program that is tailored to a specific user 1240.

User input (either direct or inferred) about the program 1245 is fed back into the profiler, diagnosis system, and program design system. The above systems then may adjust the weights on both an individual level and a collective demographic level. All data are aggregated 1250 and used by the system for data mining 1255.

Fig. 30 is a block schematic diagram showing the AI system/data interaction according to the invention. The profiler 1220 receives user 1330 data, as discussed above in connection with Fig. 29, as well as information from the client information database 1320. User input data and data from the profiler are used to create a workout program 1340. Program creation involves the
use of program information stored in an atom database 1350, such as exercises, and information stored in a program database 1360. The program thus created is stored in a program tracking database 1370. A synchronization module 1330 synchronizes the program tracking database and the client information database with an external device, such as a Palm Pilot or a VitalWatch 14, 15. An analysis module 1310 processes all system data to produce reports on user progress and to update user data.

Fig. 31 is a block schematic diagram showing Java/Al database interaction according to the invention. In a workout program request, the user 1330 clicks the request button (this does not have to be a button) to have the system create a workout. In the preferred embodiment of the invention, Java applets, ActiveX components, HTML, or other techniques are used to write any new data to the user profile database 1320. A request is sent to the GetFit.com server 214 to draw the system’s attention to the specific user who is requesting the workout. As a result of the request, a new AI process is created that attends to the request. Progress notifications are sent to the user. Relevant information is read from the knowledge base 1350, 1360 in response to the request. A newly created workout is then written to the workout database 1370. Notification of completion of the workout is sent to the Java applets (or other techniques, such as server side generated HTML for example). Progress reports may also be sent during creation of the workout. Finally, the new workout is read.

Workout Progression

Progression of workouts for an individual user of the GetFit system is controlled by GetFit’s intelligent software agents. The system constantly monitors an individual’s progress, allowing the individual to progress at an appropriate pace. The system modifies the prescribed goal variables such as weight, repetitions, distance, intensity, and velocity based upon a user’s current performance and their ability level. In addition, the system constantly
changes the prescribed exercises in a workout program and the order of those exercises to help a user to avoid plateau, boredom, and over-training. This type of progression monitoring is done in part by rerunning the optimization algorithms to reevaluate the current program in the context of any new information attained or inferred from the user or their demographic statistical data.

All of the program modifications described are controlled by a variety of intelligent agents.

In addition, there is a set of standard rules which GetFit draws from as appropriate to determine progression of goal variables within a workout regimen. These rules are also incorporated into the GetFit package offered to coaches and trainers to assist them in managing the training programs of their athletes and clients. See the discussion below below for a detailed description of rule functionality.

The Nutrition Component

GetFit's technology is very easily extensible into other aspects of health and lifestyle. One module of the GetFit system is entirely dedicated to nutrition. A user is able to receive a personalized nutrition program in conjunction with, or separate from, a fitness program.

Just as with the fitness component of the GetFit system, the nutrition component can be used in three ways:

- Automatic program creation – A nutrition program is generated for a user from scratch based upon a detailed questionnaire driven profiling system.
• Customization of an expert diet program – A user chooses a diet program created by an expert in the field, and that program is custom tailored to the user’s profile.

• Manual diet program creation – A user creates a diet program from scratch using GetFit’s online tools.

The interface for GetFit’s diet generation module is similar to the interactive interface for fitness. Rather than choosing exercises from an interactive human figure interface, the user chooses their dietary components from an interactive representation of a refrigerator and pantry on the GetFit.com Web site. Nutritional values for all foods are obtained from the Food and Drug Administration database and stored in the GetFit.com Web site database. The system keeps track of the nutritional values of a user’s diet by cross-referencing food intake with this database.

If a GetFit user takes advantage of both the nutritional and fitness components of the GetFit system, the two programs operate in conjunction. For example, as a user’s activity level rises through his fitness program, the system compensates by suggesting an increase in caloric intake through the nutritional program.

Accounts

Fig. 32 is a flow diagram showing synchronization and logon according to the invention. The user first connects the docking station to his personal computer (if it is not already connected) 1500. The user then dials his Internet service provider (ISP) (if he is not already connected) 1510. The user places the VitalWatch on the cradle 1520 and presses the synchronization button on the cradle 1530. The user’s default Web browser is launched and loaded from GetFit.com 1540. The VitalWatch transmits a unique serial number and password to GetFit.com, thereby identifying the user to the system 1550. The
GetFit.com server authenticates the user and the user’s password 1560. The server then transmits the user’s personal homepage to the user’s browser 1570 and the personal home page is displayed on the user’s computer 1580.

There are presently four types of accounts, although other types of accounts may be provided within the ambit of the invention:

1) Self managed Web account:

- Account is created by a Web user through the browser.

- Personal information is provided the user selects a unique user name and password.

- A new AppSession is generated containing an Object manager, and a single empty calendar (Inherit from is set to null).

- The AppSession is added to the users list of AppSessions table.

2) Coach managed Web account (Classic University/Pro team setting):

- The coach creates an athlete using the Training software.

- This creates a new AppSession and ObjectManager and enters them under a new User object that is generated from the coach provided info.

- The newly generated account info (including UserName and PWD are emailed to the email specified by the coach

- The User can then use that new UserName and pwd to log into the newly generated account.
3) Coach account:

- Training Software is provided to the coach / organization.

5  - Software in encoded with coaches user information.

- Account is generated.

- On first logon, information in training software in checked against account info.

- Number of Athlete/User accounts that are generated by the training software is regulated.

15 4) Combo account 1+2:

- Athlete working with coach also establishes a personal account via the GetFit.com Web site.

20  Migration / Addition of a Coach managed Web account.

- Through the self managed account the user is able to:

  - Reply to a request to be managed (Identity by UserName that was made known).

  - Request to be managed by a specific coach who publicized his UserName.

30  - Once the Coach/Trainer receives the OK to create account, the coach creates a new athlete account, and then a new AppSession and Object Manager is created under the users object. The object manager is then
pointed to the Calendar object within the Coaches Object manager. The new AS, and OM are clustered near the Coaches OM. The next time the User logs on he confirms that he applied for management.

- The HTML allows the user to select to view any one of the OM or all of them, *e.g.* through checkboxes. The events returned by the FlowManager are filtered by this request.

Migration / Addition of a Web account to Coach managed Web account.

- This account is generated automatically when a coach creates a coach managed account, allowing users to have free access to their own calendar, and increasing the number of users.

- This account could be generated on users request.

Presently Preferred Embodiments of the Invention

The invention presently comprises three different embodiments which address the needs of collegiate and professional athletes, health clubs and personal trainers, and sports medicine centers. The Team ADVANTAGE focuses on the collegiate and professional team market, the Trainer ADVANTAGE package focuses upon the personal trainer market, and the Sports Medicine ADVANTAGE package targets sports medicine rehabilitation centers. These packages incorporate the same set of tools, but with different graphical interfaces that are tailored for each segment of the market.

Team ADVANTAGE

Today, professional and collegiate athletic teams still use cumbersome and ineffective methods for extracting, analyzing, and organizing workout information. Extensive research interviews carried out by the inventors have
shown that collegiate and professional teams have a significant need for simplified and effective methods to guide, track, and project their athletes' performances both during and following their workouts.

Athletic team coaches and trainers spend hours per day recording their athletes' training data. In general, the athlete or the trainer is responsible for tracking and recording workout information. The information recorded is a tremendous tool for both the coaches and the athletes to make important decisions regarding an athlete's training and performance. If data is accurately and consistently collected for an athlete, a trainer or coach can identify those elements of a training program that positively affect the performance and progress of an athlete. Such a knowledge base recorded and maintained over time can become an invaluable resource for a coach in designing an effective training regimen to improve the quality of athletic performance. This information is also a powerful tool used by coaches to compare performances between athletes and justify positions or rankings within a team.

Presently, a workout card and a pen are the tools used by most team trainers and athletes to record training data. Once the information is recorded, the team trainer usually spends hours inputting the data into computer spreadsheets or very basic off-the-shelf athletic performance tracking software. At Stanford University for example, Mark Wateska, the head strength training coach, spends on average three hours per day inputting workout information into his desktop computer for 93 athletes. These time estimates do not include time spent by a trainer organizing data and generating feedback, which is both time consuming and difficult. Often the complexity of such analysis discourages the trainer from actually providing any valuable feedback to athletes or coaches. The Team ADVANTAGE embodiment of the invention provides teams with effortless and instantaneous workout data collection and generates a new level of analysis and feedback for athletes, trainers, and coaches.
In collegiate and professional sports, trainers often work directly with athletes on a one-on-one basis. In such an environment, a trainer is personally responsible for recording workout data for multiple athletes and providing motivation and feedback to athletes during training.

The software for the Palm Pilot provides a tool for team trainers to answer these needs. It is an important component of the Team ADVANTAGE package. As described, the software allows the trainer to record valuable information regarding workout performance and to provide instantaneous feedback and analysis to coaches and athletes in the field, thereby eliminating the need for pencil and paper. The software also provides rapid data synchronization of workout records for many athletes, thereby eliminating cumbersome and time consuming data entry.

Another set of challenges is faced by athletic trainers who cannot work with athletes in a one-on-one environment. Such a situation arises when many athletes on a team workout simultaneously or during the off-season when athletes are away from the team training facility.

These training needs can be answered through the introduction of the VitalWatch in an athletic setting. With the VitalWatch and the GetFit Team ADVANTAGE embodiment, a team trainer may pre-design custom workouts online, and the athlete can download the data to the VitalWatch anywhere anytime. The VitalWatch automatically guides the athlete through a workout program and tracks quantitative and qualitative performance data. The VitalWatch can also be programmed to provide daily lifestyle and training reminders to athletes outside of the training facility.

The Web-based design of the system provides distinct advantages in a team setting. One of the greatest needs expressed to the inventors by athletic coaches and trainers is the need for connectivity between coaches and
athletes at any team training facility or remote location, especially during the
off-season. The Team ADVANTAGE embodiment creates new opportunities
for connectivity that were never available to teams before, e.g. linking players
and coaches anywhere in the world via a private secure Web interface.

Coaches can deliver workout instructions, nutrition programs, training
reminders, and other information to athletes and collect their training records
and personal data over the Internet. In addition, team physicians can access
the system to review training data and direct an athlete's rehabilitation
progress in case of injury. The system ensures that players, coaches,
doctors, and trainers are in close contact on-season and off-season.

The Team ADVANTAGE embodiment will significantly improve the flow of
information associated with athletic training. The system eliminates the need
for cumbersome paper logs, saves hours of time spent inputting performance
data, and provides trainers with instantaneous analysis and feedback
capabilities never available before. The system's tracking, analysis, and
communication tools maximize the performance of coaches and athletes,
which is an essential factor in the world of competitive sports.

Detailed Description of Team ADVANTAGE Package

General Introduction

The system provides organized tools for creating, managing, and tracking the
fitness programs of multiple athletes. In addition, the system provides
powerful communication tools to allow a coach to stay in close contact with
his athletes, as well as team doctors and trainers.

The presently preferred embodiment of the invention focuses primarily upon
organizational tools that are used to create and manage a training regimen for
athletes. The following discusses some of the basic steps required to get a
program up and running.
All information in the system is stored in a local database with a replicated
database stored remotely on GetFit's server. It is important to build a
database initially before developing a training program. The following are the
objects used in the system:

- Exercise Databank
- Roster (People)
- Rules
- Athletes
- Exercises
- Workouts
- Groups (or Teams)
- Programs

**Rules**

Rules are used to update the progression of weights for an exercise within a
workout program automatically. The discussion herein focuses upon the use
of weights as part of an exercise regime, but those skilled in the art will
appreciate that rules may be provided for other exercises or activities. The
presently preferred embodiment of the system operates with four
classifications of rules:

- Target
- Range
- Count
- Pyramid
- None

A Target rule allows a user to set a target number of repetitions for an
exercise. The program automatically increases or decreases the goal weight
for an athlete based upon whether or not the athlete reaches the target
number of repetitions. The amount of increase and the amount of decrease
for the goal weight can be set.
A Range rule allows a user to set a range of repetitions for an exercise. The program automatically increases or decreases the goal weight for an athlete based upon whether the athlete misses the goal range, falls within the goal range, or surpasses the goal range. Reaching or surpassing the top of the repetition range is considered a Success. Falling within the range is considered a Miss. Falling below the repetition range is considered a Failure. The amount of increase and the amount of decrease for each of these scenarios can be set.

A Count rule is designed for exercises which are only based upon repetitions. The rule allows a user to set only a target number of repetitions for an exercise. The program automatically increases or decreases the goal repetitions for an athlete based upon whether or not the athlete reaches the target number of repetitions. The amount of increase and the amount of decrease for the goal repetitions can be set.

A Pyramid rule is different from Range, Target, and Count. In a Pyramid rule, weight progression for an exercise is determined by a Predicted 1 Repetition Maximum (1RM) for an athlete for a given exercise. The system automatically calculates Predicted 1RM's for every exercise and maintains them. These values can be viewed from the 1RM Table within the Info Screen of an athlete. In a pyramid rule, the user determines a number of sets for an exercise. Then the user specifies repetitions and a percentage of 1RM for as variables for each set of the exercise. The weight values are automatically displayed for an exercise when the user views or prints a workout based upon the percentages set and the calculated 1RM for an athlete for that exercise.

If the user specifies fewer sets for an exercise within a workout than specified in the Pyramid rule for the exercise, the system ignores the extra sets. If the user specifies more sets for an exercise within a workout than specified in the
Pyramid rule for the exercise, the system copies the values from the last set in
the rule to all of the extra sets in the exercise.

Further Information Regarding Rules

Rules are defined independently in three locations:

- Exercise Template – used as default when exercise is put into a workout.

- Workout Template – used as default when that workout is assigned to a
calendar.

- Assigned Workout – changes the rules for all workouts of the same type
coming after that workout and all corresponding child level workouts
  (overwrites any previous changes).

Rules do not determine the number of sets for an exercise. In the pyramid or
progression rule, the number of sets assigned are covered by the rule. If the
actual number of sets is lower than what is prescribed in the rule, just the
pertinent sets of the rule are used. If the actual number of sets is greater than
what is prescribed in the rule, the last set prescribed in the rule copy to the
other sets.

Rules and variables:

Rules are assigned a default independent variable.

Example: a target rule is assigned a default # of reps

That variable can be over-ridden by specifying a variable in any workout
template or assigned workout. If no default variable is specified, the rule
looks to the variable specified in the workout. Over-riding a variable causes the rule to be changed to fit the new variable.

Range Rule:

A range rule includes a specified default independent variable and a +/- range. The default variable can be left blank and specified from the workout. If a default independent variable is specified, it can be over-ridden in the workout. Over-riding a target variable shifts the range for the rule accordingly.

Count Rule:

The count rule is the only rule that contains no independent variable. It can specify a default dependent variable or assign from workout. Rule updates vary progressively.

Alternative Embodiments:

Rest rules – modify rest variable based upon successful performance, thereby redefining success.

Tie sets together – must succeed in all sets to record success, thereby progressively increasing/decreasing dependent variables.

Example: If exceed range by X, increase variable by Y%; if exceed by Z, increase by A%.

The Relationship Between Exercises, Workouts, and Programs

The system allows a coach or trainer to create their own exercises for use by individuals as part of an exercise regime. The following explains in detail how to build a database.
To assign an exercise or group of exercises to an individual athlete or group, those exercises must be organized into a workout. Workouts are a collection of exercises to be performed together. Workouts can be assigned directly or they can be organized into programs.

Programs are a collection of workouts assigned to be performed on a basic micro-cycle, or weekly schedule. A program can be assigned for any duration (e.g. days, weeks, months). The system automatically distributes workouts on the calendar where a program is assigned for whatever duration the program is assigned.

Events

Events are an object that is only used in the calendar. They identify important events within a team’s schedule or important events for an individual athlete.

Adding events to a calendar allows the user to plan an entire training schedule more effectively. For example, a user can enter a team’s entire competition schedule and then use the calendar to periodize an entire training program effectively.

Athletes, Groups, and the Calendar

Athletes are created from scratch, as with rules or exercises, and then organized into groups in the roster. The system uses what is referred to as a hierarchical (or multi-level) calendar. This means that every group and every athlete in the system has its own calendar. Adding a workout, program, or event to a group’s calendar copies that item to any group or individual within the group where the item is originally added. Consider the group structure, for example, shown in Fig. 33. In this case, adding a workout to the calendar for Linemen copies that workout to Bob A, because he is in that group. However,
athletes Bob B and Bob C do not receive the workout because they are not within the Linemen group. Likewise, any change made to any item at the group level are copied down to all groups and individuals within that group. But, changes made to the calendar of an individual athlete do not affect anyone else in the group. In this way, the system accomplishes two very important goals. A user can manage a large group of athletes easily, but can customize everything down to the level of the individual athlete.

Building A Database

Creating an Athlete

- Choose “New” from the control bar at the top of the screen, and select “Athlete.

- The Create Athlete screen 1 of 2 should appear as shown in Fig. 34.

- Only the fields shown in a predetermined color, such as red, are required to save a new athlete in the system.

- To advance to the next screen, click “Next.”

- To save an athlete, click Finish on screen 2 of 2.

Creating a Rule

For an explanation of how rules operate see “What are Rules?” above.

The following steps are used to create a Range, Target, or Count rule:

- Choose “New” from the control bar at the top of the screen, and select “Rule”
The Create Rule screen 1 of 1 should appear as shown in Fig. 35.

- Specify a name and type for the rule being created.

- Input and Output Variables are determined by the Rule Type and cannot be changed.

- For Range Rule (shown above), specify range Maximum and Minimum.

- Specify a number of Successes, Misses, and Failures desired before updating goals.

- Specify the desired weight increase or decrease for Success, Miss, and Failure.

- For Target Rule, one only need to specify the Goal Repetitions and Success and Failure results.

- For Count Rule, one only need to specify a starting goal for repetitions and Success and Failure Results. The starting goal for repetitions are ignored once the rule begins to operate.

- Click Finish to save.

**Creating an Exercise**

- Choose “New” from the control bar at the top of the screen, and select “Exercise.”

- The Create Exercise screen 1 of 3 should appear.
• Select the Name and Category for the exercise, along with any combination of variables to use for this exercise every time it appears in a workout.

• Click Next to go to screen 2 (see Fig. 36).

• Drag the sliders with a mouse to indicate to the system what muscle groups are targeted by this exercise.

• The Primary and Secondary muscle groups are reflected in the top right based upon the percentages indicated. These values are important for classifying this new exercise later and for performing data analysis based upon muscle groups.

• Click Next to go to screen 3.

• Select a rule from the ones created for use with this exercise.

• Identify the ideal pace for this exercise. This figure is used to determine approximate workout times.

• Click Finish to save the new exercise.

Creating a Workout

• Choose "New" from the control bar at the top of the screen, and select "Workout."

• The Create Workout screen 1 of 3 should appear.

• Choose a Name, Category, and Icon to represent the workout on the calendar.
• Click Next to go to screen 2.

• Screen 2 allows the setting of workout defaults. Set warm-up time, rest intervals, and default number of sets for each exercise in the workout. Each of these setting is reflected on screen 3 (see Fig. 37).

• Click Next to go to Screen 3.

• Add exercises from the database into this workout.

• Note: Expand the exercise list by clicking the “+” below the list.

• Exercises can be deleted by clicking on the exercise number and pressing the Delete button.

• Exercises can be grouped into a “Choose One” by holding down the “CTRL” key and selecting multiple exercise numbers. Then press Group. Undo the grouping by pressing “Ungroup.” Choose One allows the athlete to select one from a group of exercises to perform in a workout.

• Click Finish to save.

Creating a Program

• Choose “New” from the control bar at the top of the screen, and select “Program.”

• The Create Program screen 1 of 2 should appear.

• As with exercises and workouts, choose a name and category.
• The Color selection determines the color of the border around every workout icon for this program that appears on a calendar.

• Click Next to go to screen 2, shown in Fig. 38.

• Choose the days on which workouts are to appear in this program. Each day selected opens the corresponding day in the workout program screen.

• To add workouts to the days chosen for the program, follow these steps:

  1) Open the alphabetical workout categories to view the workouts in the system.

  2) Select a workout to add.

  3) Select a day to add the workout.

  4) Press the "->" button to add the workout.

If both a workout and a day are not selected before pressing "->", an error message is provided.

• To remove a workout, highlight the workout and press the "<" button.

• Click Finish to save the program.

  Working with A Roster

  Adding Groups (see Fig. 39)
The roster is completely customizable. One can add as many groups as desired to the roster, and can create as many levels of groups within groups as desired.

Select the group in the Roster to which a new group is to be added.

Choose “Roster” from the control bar at the top of the screen, and select “Add Group.”

When the Add Group Window opens, verify that the correct group is indicated in the “Add to:” field at the bottom of the box. If it is not, press Cancel, and choose the correct group.

Enter the name of the new group and press OK to add the group and return to the roster.

Adding Athletes to Groups (see Fig. 40)

Athletes are added from the database to the groups in the Roster. Athletes should be created before they are added to a Roster.

Select the group in the Roster to which to add an athlete.

Choose “Roster” from the control bar at the top of the screen and select “Add Athlete.”

When the Add Athlete Window opens, verify that the correct group is indicated in the “Add to:” field at the bottom of the box (see Fig. 40). If it is not, press Cancel, and choose the correct group.

Enter the name of the new group and press OK to add the group and return to the roster.
Note: Press the "+" button to expand the entire alphabetical roster, or click on the letters to expand each one.

5 The Calendar

The Calendar Components

- The Display Bar (see Fig. 41) shows the Group or Athlete whose calendar one is viewing and provides the controls for changing the calendar view.

Note: Click Refresh View whenever the calendar fails to indicate a change that is made.

- The Single Day View (see Fig. 42) appears when one is viewing the 2 or 4 month calendar. It shows an expanded view of the single day selected.

- The monthly calendar view (see Fig. 43) is where one primarily works with the calendar.

- Please notice a few items on the above calendar sample:

  The two small squares are markers for the beginning and end of a program. These squares and the borders of every workout in a program show the color selected to represent the program.

  The four dumbbell icons in the bottom row represent workouts. Three are part of the same program, while another one is a workout that is not associated with the program.

  The bar represents a multi-day event.
Adding an Event (see Fig. 44)

- Highlight the day or days to add an event.

5  - Choose “Calendar” from the control bar and select “Add Event.”

- The date range selected on the calendar appears in the Add Event window automatically, but one can change the Start Date and End Date from this screen as well.

10  - Select a Title and a Color to represent the event, and then click OK.

- The event above should appear on the calendar as shown in Fig. 45.

15  Working With an Event on the Calendar

- A user can only modify or move an event on the calendar at the level at which it was added.

20  - Arrows at each end of the event appear at the level at which it was added (see Event above).

- Shorten or Lengthen the event by clicking on one of the arrows and dragging it to a different day (see Fig. 46).

25  - Move the entire event by clicking anywhere on the event and dragging it to a different day.

- To move an event on a calendar other that the one where it was added, first Dissociate the event.

- Right click on the event and select “Dissociate,”
The arrows appear and the event may be modified.

Any changes made to the event at the group calendar level above are no longer reflected at the dissociated level. However, deleting the event at the group level is still reflected at the dissociated level.

**Adding a Workout to the Calendar**

- Highlight the day to add a workout.
- Choose “Calendar” from the control bar and select “Add Workout.”
- The date selected on the calendar appears in the Add workout window automatically, but one can change the Date from this screen as well.
- Select a workout from the list, and then click OK

**Working with a Workout on the Calendar**

- Move a workout to a different day on the calendar simply by clicking on it and dragging it.
- Right-clicking on a workout provides menu shown in Fig. 47.

View allows you to see a preview of the workout card.

Substitute is not functional in this version.

Delete removes the workout from the calendar (and all calendars below if deleted from a group).
Print: To Print a Workout, Right-Click on the Day (not the workout), and select Print.

Edit allows one to change the contents of a workout.

Copy allows one to copy a workout to a different day.

Dissociate removes the connection between a workout and the corresponding workout at the group level above it.

Adding a Program to the Calendar

- Highlight the days to add a program.

- Choose “Calendar” from the control bar and select “Add Program.”

- The dates selected on the calendar appear in the Add workout window automatically, but one can change the dates from this screen as well.

- Select a program from the list, and then click OK.

Working with a Program on the Calendar

- A Program can only be modified at the level at which it was added. This is represented by the small squares on the first and last day of the program.

- The Start Date or End date of a program can be moved by clicking on one of the squares and dragging it.

- Right-clicking on one of the squares allows one to choose the following options:
Delete removes the workout from the calendar (and all calendars below if deleted from a group).

**Printing**

- Right click on the day to see the menu shown in Fig. 48.

- The print command prints all workout cards for the selected athlete or group for that day.

**Data Entry**

In the presently preferred embodiment of the invention a Workout must be Saved or Printed before data can be entered.

**Saving a Workout**

- To enter data for a workout without printing the card the workout must be saved so that it gets a serial number.

- It can be determined if a workout has been printed or saved by right-clicking on the workout on an athlete’s calendar.

- If it has not been printed or saved, the menu looks as shown in Fig. 49.

- Click View, and then click Save at the bottom of the workout card preview (see Fig. 50).

- Now the workout has a serial number (discussed below).

**Selecting a Workout**
• Workouts are selected with serial numbers.

• A serial number for a workout can be found in the top right corner of a printed workout card.

• A serial number can also be found by right-clicking on a workout that has been printed or saved (see Fig. 51).

• The Workout number displayed at the top of the menu is the serial number.

• To load a workout for data entry, enter the serial number at the top of the Data Entry Screen and press Load.

The Data Entry Screen (see Fig. 52)

• The white fields are those in which one can enter actual performance data for each set.

• Clicking on a box highlights it.

• Type the correct number.

• When finished entering data, press Save.

Data Analysis

The GetFit training software incorporates sophisticated data analysis tools, which can be accessed by the coach or by athletes. These tools generate charts and graphs of various data regarding individual athletes or groups of athletes.
A user can select any range of time and perform an analysis of an individual's progress, a team or group progress breakdown and comparison, or average progress across a group of athletes.

Possible analyses include but are not limited to the following:

- Volume of work performed
- Repetitions of work performed
- Predicted maximum ability progression over time

Data analysis can be organized in the following ways:

- Per exercise breakdown
- Per workout breakdown
- Per muscle group breakdown

Aspects that can be analyzed for each variable include but are not limited to the following:

- Start value
- Finish value
- Maximum value
- Minimum value
- Average
• Standard deviation

• Percentage improvement

• Rank

In addition to performance data, the GetFit system allows the tracking and analysis of data to which coaches did not have access before. This data includes nutrition information, hours of sleep, soreness, injury status, perceived stress level, and numerous other lifestyle and health variables. All of this information is collected and incorporated into the system via Web-based communication tools and questionnaires (discussed below).

**Questionnaires and Communication Tools**

The Web-based design of the GetFit system allows for the collection of new forms of data that were not available to coaches or trainers prior to the development of the GetFit system. Coaches can design custom questionnaires to be distributed via e-mail or via the Athlete’s Web Site (discussed below). These questionnaires allow the coach to collect information such as hours of sleep, stress level, caloric intake, and other parameters.

**The Athlete’s Web Site**

The Athlete’s Web site is a Web interface similar to the Web interface for the general public. Athletes log in to the system via a customized WWeb site for their team or athletic institution. The athletes have access to their individual training calendar, data entry to record their training data, data analysis tools to chart or graph their progress, and communication tools to stay in touch with the coach or to answer questionnaires.
An added benefit is that, because the system is on the Web, the athlete can access his training program from anywhere, print or synchronize workouts, enter performance data, and stay in constant contact with his coach or trainer.

**Team Doctor/Athletic Trainer Interface**

GetFit also provides an interface to the Team ADVANTAGE system for the team doctor or athletic trainer. The doctor or trainer can use the system to coordinate a rehab program for an athlete. In addition, the Web connection provides the coach of the team with direct access to the injury and rehab status of his athletes. The system includes a health report for each individual athlete, so the coach knows constantly the injury status of his athletes. This breaks down communication barriers that exist within athletic institutions.

**Trainer ADVANTAGE**

The needs of personal trainers in a health club setting are very similar to the needs of team trainers in an athletic setting. The Trainer ADVANTAGE embodiment allows personal trainers to take advantage of the same technology used in the Team Advantage embodiment. The Trainer ADVANTAGE embodiment provides personal trainers with valuable new methods for gathering client training data, communicating with clients more effectively, and helping clients to reach their training goals more quickly and easily. In addition, the Trainer ADVANTAGE embodiment allows personal trainers to expand their client base beyond the gym to reach individuals who would not otherwise purchase personal training.

Personal trainers can enter and track client workout data using the software on a hand-held device such as a Palm Pilot. The software also allows trainers to share valuable feedback, graphical analysis, and progress reports with
clients in the gym. The ability to show progress in real time is a powerful motivational tool that trainers never before had available.

The GetFit.com Web site provides a new level of communication between trainers and their clients, thus allowing trainers to extend their reach to their clients. Clients have access to even more detailed analysis of their workout performance, along with historical data and vivid graphical progress reports. They are able to participate actively in the management of their fitness program by providing feedback to trainers, and trainers are able to provide motivational messages, reminders, and analysis of performance to their clients. The system allows personal trainers to differentiate the quality of their service and stand apart from the competition.

By incorporating the VitalWatch, personal trainers can further increase their service offerings and their revenue. The Vital Watch and the Trainer ADVANTAGE embodiment allow a personal trainer to offer cyber training packages to clients who cannot afford personal training or have scheduling difficulties. Without the system, a client may pay on average $480 for a package of twelve personal training sessions. This price may be too high for some people. Personal trainers with Trainer ADVANTAGE embodiment are able to offer packages that include a mix of workouts guided by the personal trainer and workouts guided by the VitalWatch, thereby lowering the price of the overall package.

The following is one example of a cyber training package that may be offered by a personal trainer:

The package consists of two introductory sessions with a personal trainer (during which the trainer evaluates a client’s needs and goals and creates a personal program for him using the system tools), nine sessions with the VitalWatch, and a final evaluation session with the personal trainer. During the evaluation, the performance data gathered on the VitalWatch is reviewed
by the personal trainer, and the trainer gives the user guidance and feedback based on that data.

Using the cyber training package, the client receives constant guidance and workout analysis from both the VitalWatch and the personal trainer. The end-user wins because personal training becomes more affordable. The personal trainer wins because a greater number of clients can be served, increasing training revenue.

The Trainer ADVANTAGE package is also sold to dieticians and weight loss clinics to help them coordinate their patients’ nutritional and fitness programs targeted at weight loss.

Sports Medicine ADVANTAGE

Physical therapists today are unable to maximize time spent with clients effectively. Currently, it is not efficient both in terms of time and cost for a rehabilitation specialist to monitor patients' workouts personally each day. These physical therapists require a system which makes their knowledge and guidance accessible to patients, even when the therapist is unavailable. Presently, even when a physical therapist does have a patient in the office, he often must depend on unreliable information provided by the patient regarding activity outside the physical therapy center.

The Sports Medicine ADVANTAGE embodiment answers all of these problems by introducing a monitoring system that collects and delivers rehabilitation, nutrition, and lifestyle data effortlessly. With the implementation of the VitalWatch in a physical therapy setting, doctors have access to a new degree of data regarding their patients, which they have never been able to collect before. In addition, the patient can receive the benefit of the doctor's guidance and personal attention, even when the doctor is not available. The
system can be part of a new technological revolution in medicine, which is capable of bringing doctors and patients closer together.

**Personal ADVANTAGE**

The Personal ADVANTAGE embodiment is aimed at fulfilling five basic user needs:

- **Motivation** - The ability to track one's performance and have a record of one's improvement, which is provided by the system, is a significant motivating factor. Furthermore, the community aspects of the GetFit.com Web site allow individuals to share their frustrations with other people in similar situations and show people how they compare with other users. With the ability to customize workout routines or download new routines from the Web, exercisers are less likely to get bored with the same exercises. The intelligent technology and the VitalWatch also have built-in, customizable workout reminder messages to encourage users to continue their program.

- **Instruction** - The software provides exercise information that is useful to all end-users, but especially to the end-user that is less experienced. Graphical tools built into the software provide the user with a good understanding of which muscle groups are worked by each exercise in the system. Multimedia clips show anyone how to perform the various exercises correctly and emphasize avoidance of common mistakes. Multimedia video is easy to use and provides more information than static diagrams or pictures found in published workout guides.

- **Guidance** - With the ability to design a routine on the software and download step-by-step instructions to the Palm Pilot or VitalWatch, the system ensures that the end user can follow the routine effectively. The intelligent technology tells the user how long to rest and how much to lift, counts down the seconds until the next set, and reminds the user to drink and stretch while working out.
Health - The system gives exercisers the motivation and knowledge needed to sustain an exercise program. Users quickly find their health and appearance, as well as their mood, improving. Exercisers enjoy the benefits of what they accomplish during their program and continue to use the product.

Tracking - The simplicity with which one can enter performance into the Palm Pilot or VitalWatch and then upload the data to the Web for easy analysis is a huge improvement over anything on the market today. This ease of use crosses over to all aspects of tracking, from entering the data to analyzing it.

**Alternative Embodiments of the Invention**

**Expanded VitalWatch Features**

Alternative embodiments of the VitalWatch include functions for measuring and tracking important metabolic data, such as heart rate, blood glucose, and blood lactate. Other embodiments include expanded memory, automatic exercise repetition counting via a motion sensing technology or a mechanism for receiving a signal transmitted from a sensor built into exercise equipment, a professional trainer model capable of tracking multiple users, and models designed specifically for senior population and children. In addition, alternative embodiments of the VitalWatch may be made available with DVD-ROMs, in addition to the presently available CD-ROMs, to accommodate the gradual conversion to DVD as the preferred media format.

**Dynamic generation of workout and instructional videos**

One realm which allows for tremendous advancement of the system is expansion into new forms of interactive media. This includes interactive exercise or sports education videos which are generated and customized for each individual. An individual can access the GetFit system via a computer or
digital television unit and create an interactive video workout partner, rather than watching the same workout video over and over without improvement or modification. In addition, users can access a full library of dynamically generated sports education videos to help each user to learn techniques and skills required for sports in which they participate. It is contemplated that expansion of the system is facilitated by the rapid technological advancement and bandwidth increases which are currently occurring on the Internet.

Dynamic generation of workout, nutrition, and sports instruction sound files

As one of the distribution methods for workout programs and sports training modules, the system combines sound bites to provide a sound file that is custom generated from the workout/diet data of an individual. The sound file guides the user through their workout/diet in an interactive informative manner that allows the user to perform the activities while listening to the sound file. This is done, for example, either using streaming audio, downloaded audio files, or audio files that are transferred to any form of portable media, including devices that play MP3 format files (e.g. the Diamond RIO). The sound file provides guidance, information, queues, and timing information, and may include advertising, and promotional information. The information is provided in such a manner that allows navigation of the sound files to allow the exercises/diet to be performed in any order desired. In addition, for those devices that allow recording the user is able to record information pertaining to the performance of specific portions of the performed activity, or the activity as a whole. This information may then be processed by the system using voice recognition technology to extract performance information about the activity.

The system's Web-centric strategy plays a crucial role in the expansion of the product. The use of the Web allows the system to update and upgrade its current software release easily, without needing to worry about distribution. Furthermore, once a client base is established, the Web is a great way to
gather user feedback. One benefit of this approach is that it allows the system to test-market to existing customers and only add additional features that are well received.

Although the invention is described herein with reference to the preferred embodiment, one skilled in the art will readily appreciate that other applications may be substituted for those set forth herein without departing from the spirit and scope of the present invention. Accordingly, the invention should only be limited by the Claims included below.
CLAIMS

1. A data delivery system, comprising:

   an application resident in a computer for creating and managing one or more health, nutrition, and/or fitness programs;

   means within said application for generating said one or more health, nutrition, and/or fitness programs for transfer to either of a portable device or a printer;

   said computer comprising an interface for transferring said one or more health, nutrition, and/or fitness programs between said computer and said portable device if said system is configured to include a portable device;

   said computer comprising means for allowing an individual user to transfer a current health, nutrition, and/or fitness programs to said portable device directly from said computer if said system is configured to include a portable device;

   wherein said individual user inputs performance data into said portable device while working out if said system is configured to include a portable device, or said individual user inputs performance data directly into said system if said system is not configured to include a portable device; and

   wherein said performance data is input to said computer at said individual user’s convenience;

   said application further comprising means for recording said performance data; and

   means for providing real time feedback and analysis with respect to said performance data.

2. The system of Claim 1, wherein either of said portable device and a printout leads said individual user through a fitness regime step-by-step
during a workout, indicating any of which exercises to perform, a number of
sets and repetitions, a weight to be used, and a rest time between exercises.

3. The system of Claim 1, said application further comprising any of:
   means for user profiling;
   means for program creation;
   means for program management; and
   means for program analysis.

4. The system of Claim 1, said application further comprising:
one or more intelligent agents for determining best fit programs that
provide each individual user with increasingly customized feedback over time.

5. The system of Claim 3, said means for user profiling comprising:
said assessment comprising any of:
   biometrics, medical history/profile, diet, and goals.

6. The system of Claim 5, wherein said assessment further comprises:
   means for requiring an individual to take one or more tests.

7. The system of Claim 7, further comprising:
an intelligent agent for evaluating said individual user based upon
information entered by said individual user, as well as information acquired
through inferential processes, once said assessment is complete.

8. The system of Claim 7, further comprising:
a memory for storing said information in an individual user’s profile.

9. The system of Claim 8, further comprising:
   means for updating said profile dynamically based on performance
data and changes in said individual user’s preferences.
10. The system of Claim 8, said profile comprising any of:
    personal information and generic goals to be achieved as a result of
    using the system.

11. The system of Claim 3, wherein programs are created either manually
    or with an intelligent agent.

12. The system of Claim 11, further comprising:
    a manual program creation tool that provides individual users with an
    intuitive, graphical interface to create a program, said manual program
    creation tool comprising:
    means for adding exercises to a workout by clicking on a muscle group
    to work, selecting a desired exercise from a drop-down menu, and specifying
    the workout parameters which may include any of sets, repetitions, weight,
    and rest.

13. The system of Claim 12, further comprising:
    a display for showing a human figure with a muscle group to be
    exercised highlighted.

14. The system of Claim 13, further comprising:
    means for allowing said individual user to select a group of muscles by
    a gesture; and
    means for suggesting exercises that may be performed to work said
    selected muscle group.

15. The system of Claim 11, said intelligent agent comprising:
    means for creating a personalized program based on information found
    in an individual user's profile, said program creation agent further comprising:
    a declarative knowledge base of constraints comprising an
    encapsulation of rules that professionals use to create workout programs.
16. The system of Claim 2, further comprising:
   multimedia video clips of professionals performing said exercises with
   accompanying explanations.

17. The system of Claim 3, wherein said means for program management
   are managed by an individual user or by an intelligent agent.

18. The system of Claim 17, wherein said intelligent agent automatically
   creates an entire program and tracks that program through an individual
   user’s personalized calendar.

19. The system of Claim 3, wherein said means for program analysis
   comprises:
   an analysis tool for interpreting program data and providing said
   individual user with feedback on program performance.

20. The system of Claim 19, wherein performance data are read into
    said analysis tool from said individual user’s history profile.

21. The system of Claim 19, wherein said analysis tool charts the
    progress of certain muscles and exercises over time and compares that
    data to standard data based on gender and age group.

22. The system of Claim 2, further comprising:
    means for sending intermittent reminders to individual users if
    irregularities in said individual user’s performance patterns are detected.

23. The system of Claim 2, said application further comprising:
a plurality of rules that are defined independently in any of the following locations:

an exercise template that is used as default when an exercise is put into a workout;

a workout template that is used as default when said workout is assigned to a calendar; and

an assigned workout that changes a rule for all workouts of the same type coming after that workout and all corresponding child level workouts by overwriting any previous changes.

24. A health and fitness data delivery system, comprising:

an application resident in a computer for creating and managing one or more fitness programs, said application further comprising:

means for user profiling;

means for workout creation;

means for workout management; and

means for workout analysis.

25. The system of Claim 24, further comprising:

means within said application for generating said one or more fitness programs for transfer to a portable device;

said computer comprising an interface for transferring said one or more fitness programs between said computer and said portable device;

said computer comprising means for allowing an individual user to transfer a current fitness program workout to said portable device directly from said computer;

wherein said portable device leads said individual user through a fitness routine step-by-step during said workout, indicating any of which exercises to perform, a number of sets and repetitions, a weight to be used, and a rest time between exercises;

wherein said individual user inputs performance data for each exercise into said portable device while working out; and
wherein said performance data is uploaded back to said computer at said individual user's convenience;
said application further comprising means for recording said performance data; and
means for providing real time feedback and analysis with respect to said performance data.

26. The system of Claim 24, said means for user profiling comprising:
an intelligent agent for evaluating said individual user's physical condition based upon information entered by said individual user, as well as information acquired through inferential processes, once said assessment is completed, said evaluation comprising any of:
biometrics, medical history/profile, workout history, diet, and goals;
wherein said assessment requires an individual to take one or more tests to determine said individual user's level of fitness;
a memory for storing said information in an individual user's profile;
means for updating said profile dynamically based on performance data and changes in said individual user's preferences;
said profile comprising any of personal information and generic goals to be achieved as a result of using the system.

27. The system of Claim 24, wherein workouts are created manually with a manual workout creation tool that provides individual users with an intuitive, graphical interface to create a workout, said manual workout creation tool comprising:
means for adding exercises to a workout by clicking on a muscle group to work, selecting a desired exercise from a drop-down menu, and specifying the workout parameters which may include any of sets, repetitions, weight, and rest;
a display for showing a human figure with a muscle group to be exercised highlighted;
means for allowing said individual user to select a group of muscles by a gesture; and
means for suggesting exercises that may be performed to work said selected muscle group.

28. The system of Claim 24, wherein workouts are created with an intelligent agent comprising:
means for creating a personalized workout based on information found in an individual user’s profile, said workout creation agent further comprising:
a declarative knowledge base of constraints comprising an encapsulation of rules that personal trainers use to create workout programs.

29. The system of Claim 24, wherein said means for workout management are managed by an intelligent agent, wherein said intelligent agent automatically creates an entire workout program and tracks that program through an individual user’s personalized calendar.

30. The system of Claim 24, wherein said means for workout analysis comprises:
an analysis tool for interpreting workout data and providing said individual user with feedback on workout performance;
wherein performance data are read into said analysis tool from said individual user’s workout history profile; and
wherein said analysis tool charts the progress of certain muscles and exercises over time and compares that data to standard data based on gender and age group.

31. The system of Claim 24, said application further comprising:
a plurality of rules that are defined independently in any of the following locations:
an exercise template that is used as default when an exercise is put into a workout;
a workout template that is used as default when said workout is
assigned to a calendar; and
an assigned workout that changes a rule for all workouts of the same
type coming after that workout and all corresponding child level workouts by
overwriting any previous changes.

32. A health and fitness data delivery system, comprising:
a portable device comprising a display, a user input mechanism, a
memory for storage workout and user information, and an interface for
exchanging said workout and user information with another device;
an application resident in a computer for creating and managing one or
more fitness programs;
means within said application for generating said one or more fitness
programs for transfer to said portable device;
said computer comprising an interface for transferring said one or more
fitness programs between said computer and said portable device;
said computer comprising means for allowing an individual user to
transfer a current fitness program workout to said portable device directly
from said computer;
wherein said portable device leads said individual user through a
fitness routine step-by-step during said workout, indicating any of which
exercises to perform, a number of sets and repetitions, a weight to be used,
and a rest time between exercises;
wherein said individual user inputs performance data for each exercise
into said portable device while working out; and
wherein said performance data is uploaded back to said computer at
said individual user's convenience;
said application further comprising means for recording said
performance data; and
means for providing real time feedback and analysis with respect to
said performance data.
33. A health and fitness data delivery system, comprising:

   a portable device comprising a display, a user input mechanism, a
   memory for storage workout and user information, and an interface for
   exchanging said workout and user information with an application resident in
   a computer for creating and managing one or more fitness programs, said
   application generating said one or more fitness programs for transfer to said
   portable device;

   wherein said portable device leads said individual user through a
   fitness routine step-by-step during said workout, indicating any of which
   exercises to perform, a number of sets and repetitions, a weight to be used,
   and a rest time between exercises;

   wherein said individual user inputs performance data for each exercise
   into said portable device while working out; and

   wherein said performance data is uploaded back to said computer at
   said individual user's convenience.
Welcome to VitalFit.com
The Future of Fitness

New User

Member

Fig. 2
Welcome to VitalFit.com, the revolutionary solution for all of your health and fitness needs. As a new user, feel free to let the VitalFit Virtual Trainer help you navigate through the web site.

Need help getting started? Click here.

We recently added a few new leg strength and flexibility workouts to our database. Check them out...

There is a huge sale on ski equipment in the VitalCenter shopping plaza. Go There!

Tonight @ 8:00pm edt we are having a live forum in the VitalFit arena. One of VitalFit's own personal trainers, Rodney Elgaan is talking about creatine and what benefits it can add to your fitness program. If you want to get the low-down, don't miss it.
Note: This program maintains an equivalent balance between cardio and strength.

Duration: Three weeks.

Frequency: 2 cardio, 2 strength per week

Summary: I created a 3 week cardio/strength training program to improve your overall fitness quickly. Rest time between sets is short to keep your heart rate elevated. Heights are kept low since you are just starting. Each workout is only 40 mins. to fit in with your busy schedule. Each week has a light strength training session followed by a cardio session followed by a medium training session and ends with another cardio session.

Enjoy!
Hanging Leg Raise:
The Hanging Leg Raise works the Lower Abdominals.

DO keep your arms straight.
DO NOT bend your knees.
Fig. 10
Good job. Your 1-RM score is 6% above the national average based on VitalFit's user-pool for your age and fitness level.

The graph below compares your progress with other segments of the VitalFit community. As you can see, you are progressing well. This will be reflected in your future workout programs.
Computer generated figure (similar to the figures in many fighting games – e.g. Tekken). That can be rendered in real time. This figure will understand high level commands that are composed of numerous low level commands. A high level command is of the form “Step aerobics - One basic”, but not necessarily in text format. Another example is “Gymnasium - Bench press”. This command can be followed by any number of parameters that specify additional information regarding the command (e.g. Weight, Reps etc...) A low level command specifies things such as bending knee, or moving leg from pt a to pt b. This figure can be used as an interactive personalized instructor / assistant that leads an individual to a personally tailored workout program. The program is generated either locally or on the server and is sent in the form of commands to the VR Trainer process. In addition the CGF (computer generated figure) can lead the individual / demonstrate how to perform rehab exercises, or be an interactive chef, assisting in the preparation of meals etc...
Profiler
- Easy, non-intimidating GUI
- User entered personal information
- Computer inferred data.
- Data obtained from external device synchronization.

Diagnosis system
- Bayesian Network – w/Utility nodes to evaluate next best info.
- Weights adjusted by info from other parts of the system (learning / data mining)
- Output is a set of numbers representing an individual’s fitness level / Abilities and preferences.

Intermediate Data representing individual’s Fitness level / ability / preferences

Program Design system
- CSP/Optimization – constraint satisfaction / Optimization
- Uses predefined/dynamic constraints on user data / Knowledge base & user defined constraints to fit atomic/multi-atomic items into a composite program.
- Output is a workout/diet/lifestyle program tailored to specific user.

Workout/diet/lifestyle program – specific to individuals profile

User input about program is fed back into Profiler

Aggregate Data

Data Mining
1) User clicks request to have AI Brain create a workout

3) Request sent to server for AI Brain attention on specific user

7) Notification of completion is sent to Java Applets. (Possibly progress reports are sent during workout creation)

2) Java Applets write any new data to the DB

8) New workout is read into Java Applet

5) Relevant information is read from Profile

6) Newly created workout is written to the Workout DB.

VitalFit.com Server (AI Brain)

4) A new AI process is created that attends to request (Progress notifications are sent to user)

5) Relevant information is read from the KB

Knowledge Base DB
Connect VitalDock to PC (If not already connected)

Dial ISP (If not already connected)

Place VitalWatch on the VitalDock

Press VitalSync Button (on the VitalDock)

VitalWatch transmits unique serial number and password to VitalFit.com

Server Authenticates the users password

Server transmits users "Personal home page" to users browser

Personal home page (Flow Chart)
Fig. 37