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(54) **METHOD OF DEVELOPING AND CREATING A PERSONALIZED EXERCISE REGIME IN A DIGITAL MEDIUM**

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(57) **ABSTRACT**

The present invention is a method for selecting and modifying particular exercise videos from a stored database into a customized digital-format exercise regime viewable by an individual.

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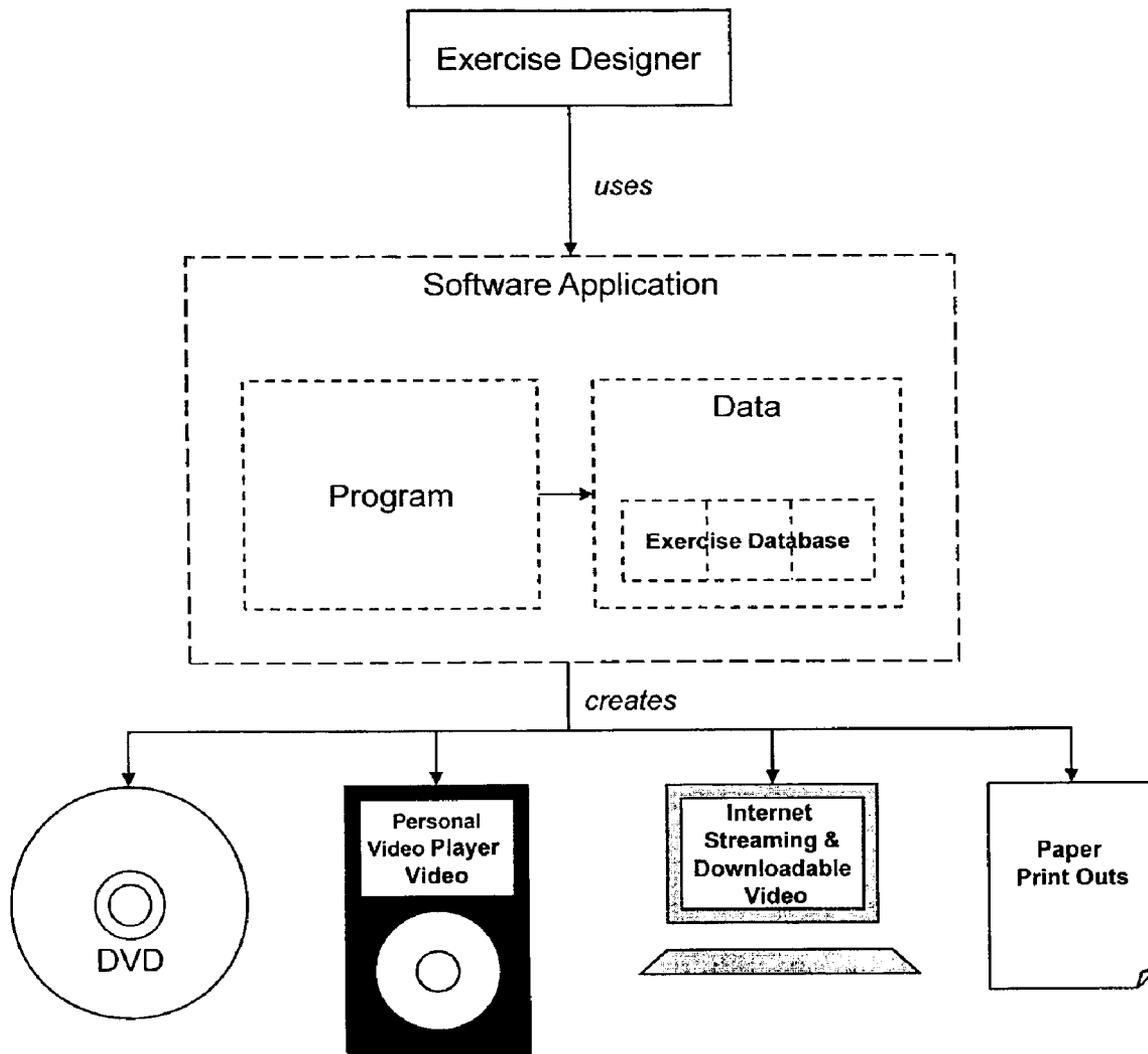


FIGURE 1

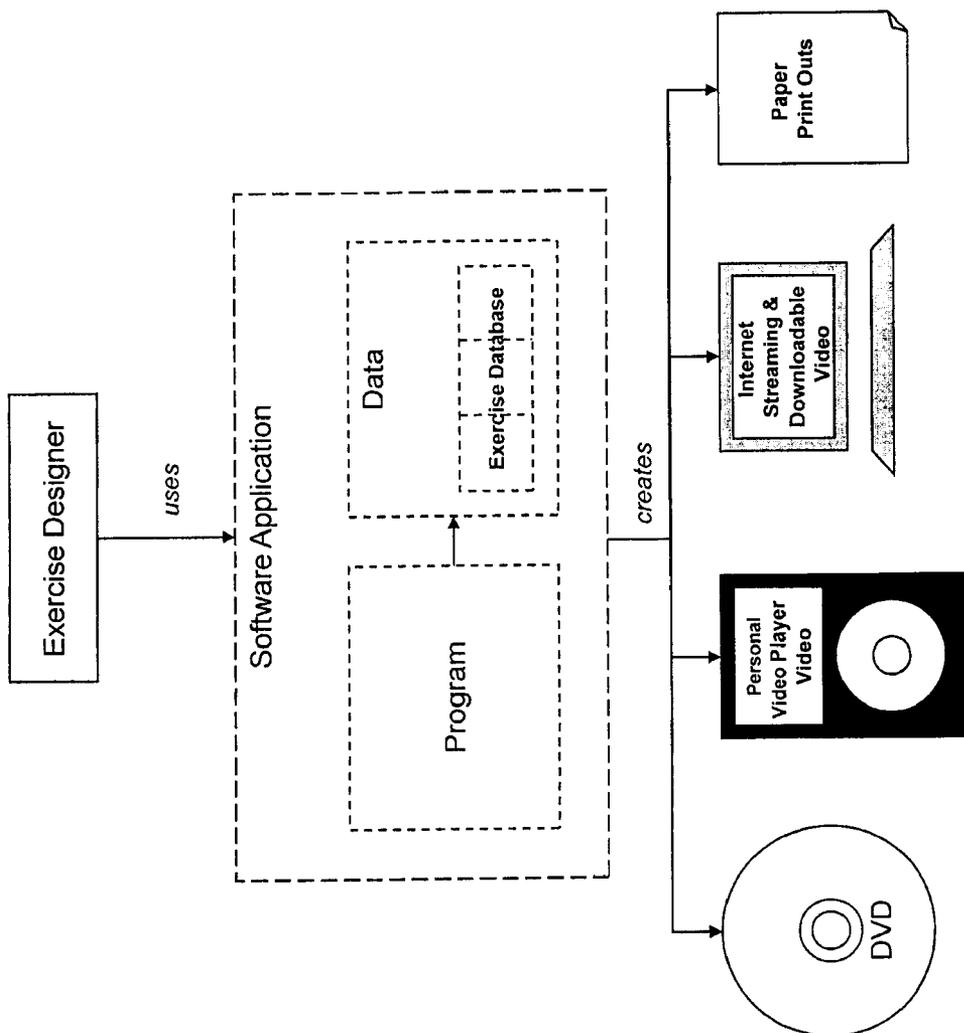


FIGURE 2

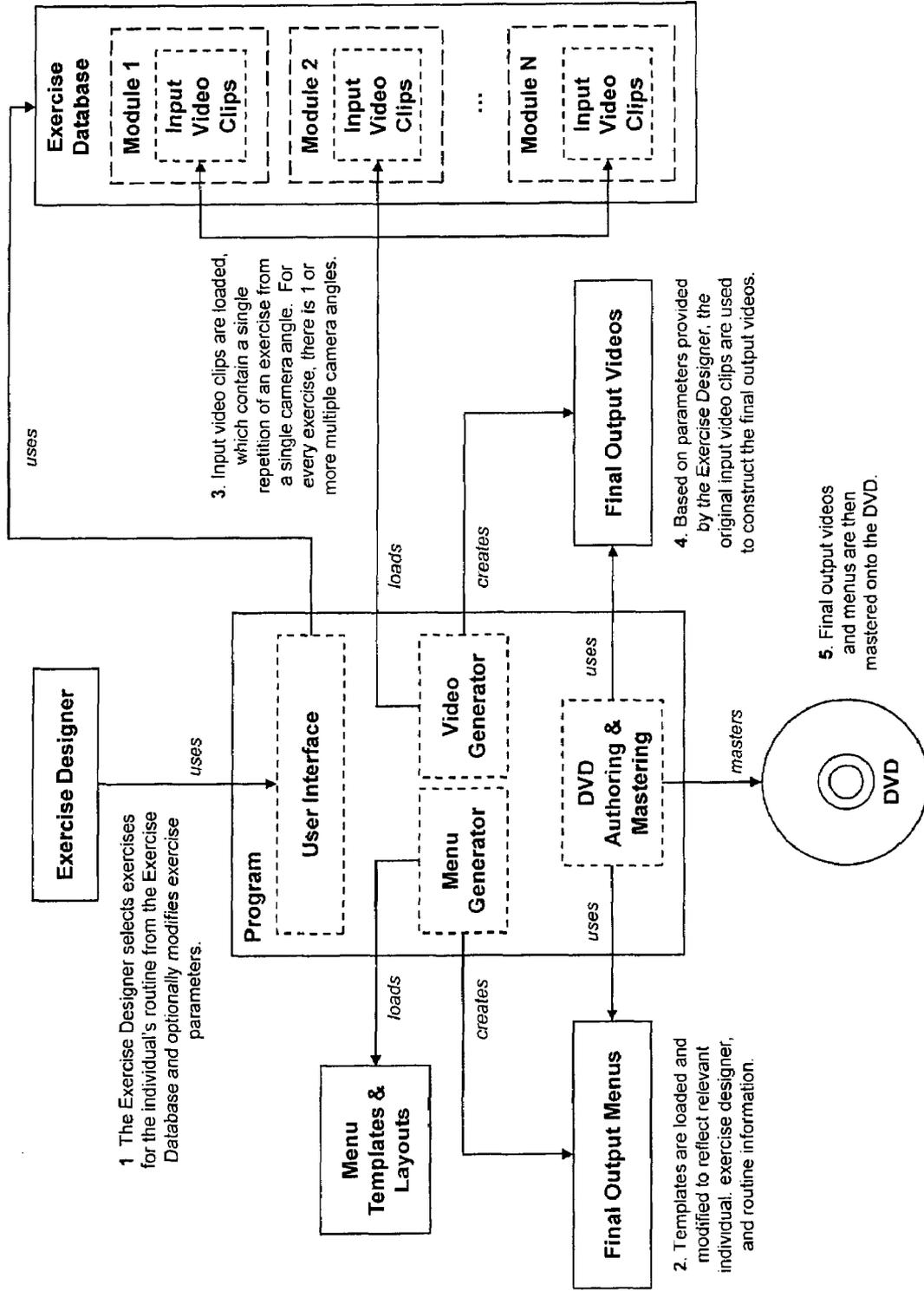


FIGURE 3

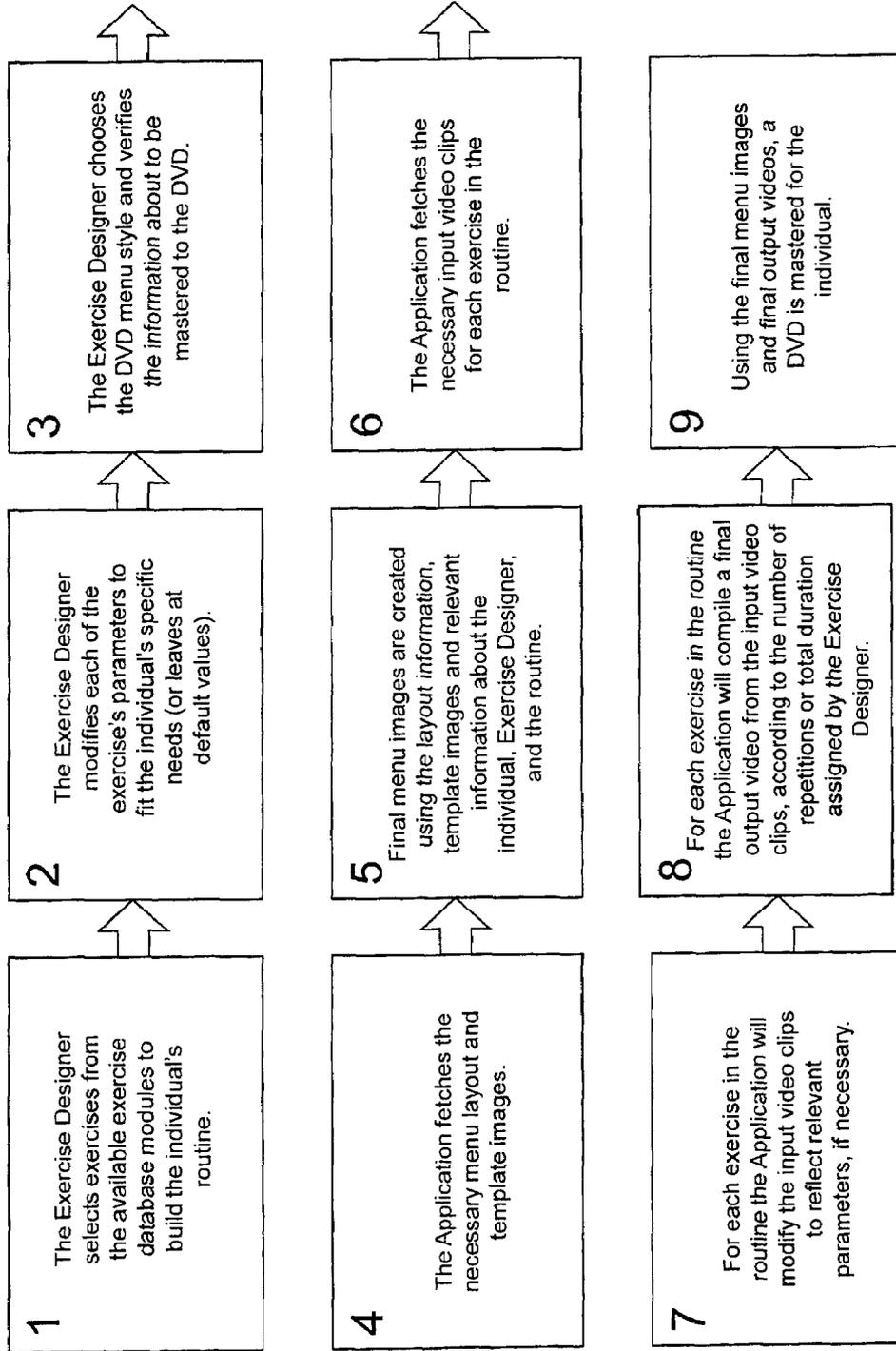


FIGURE 4

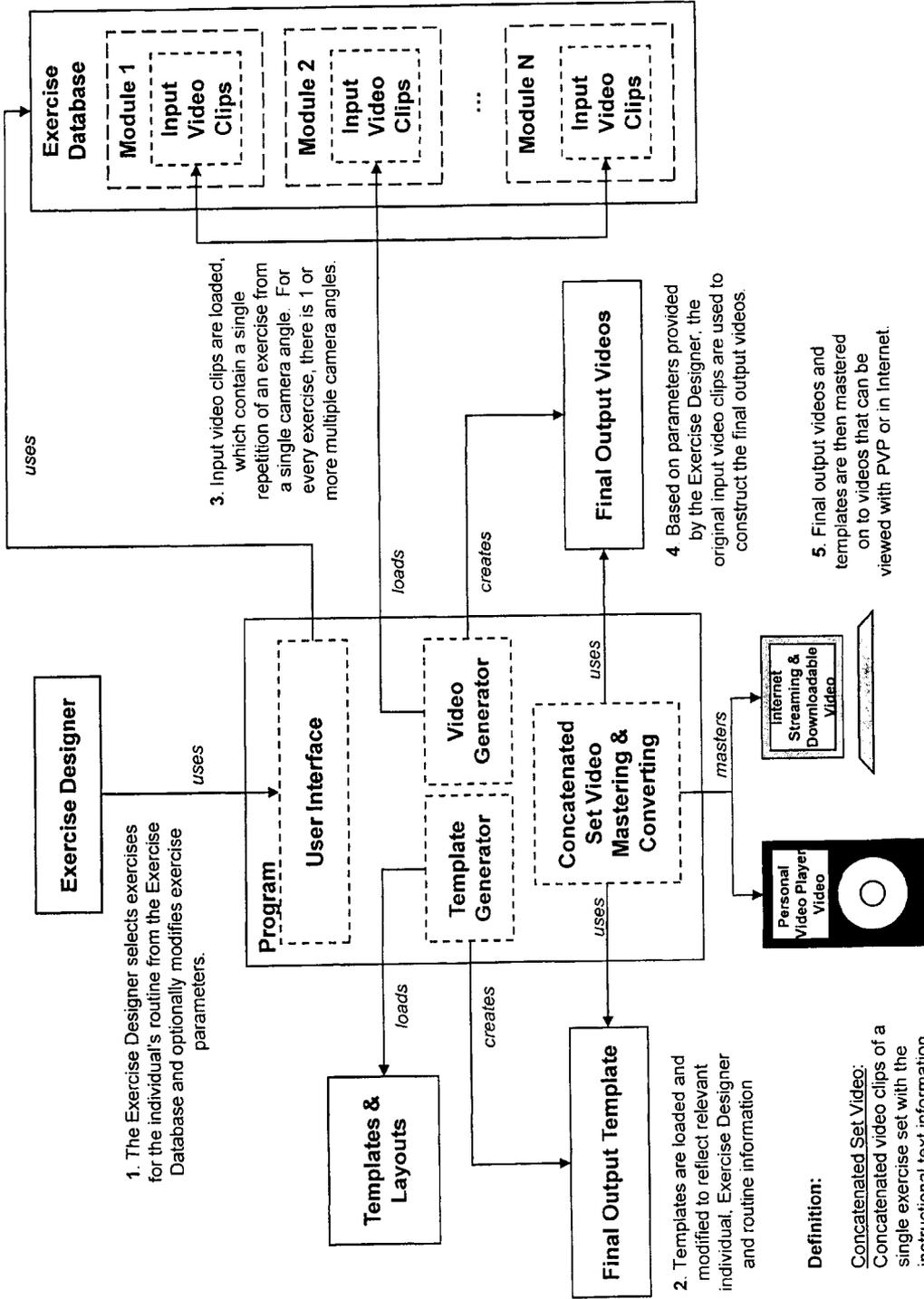


FIGURE 5

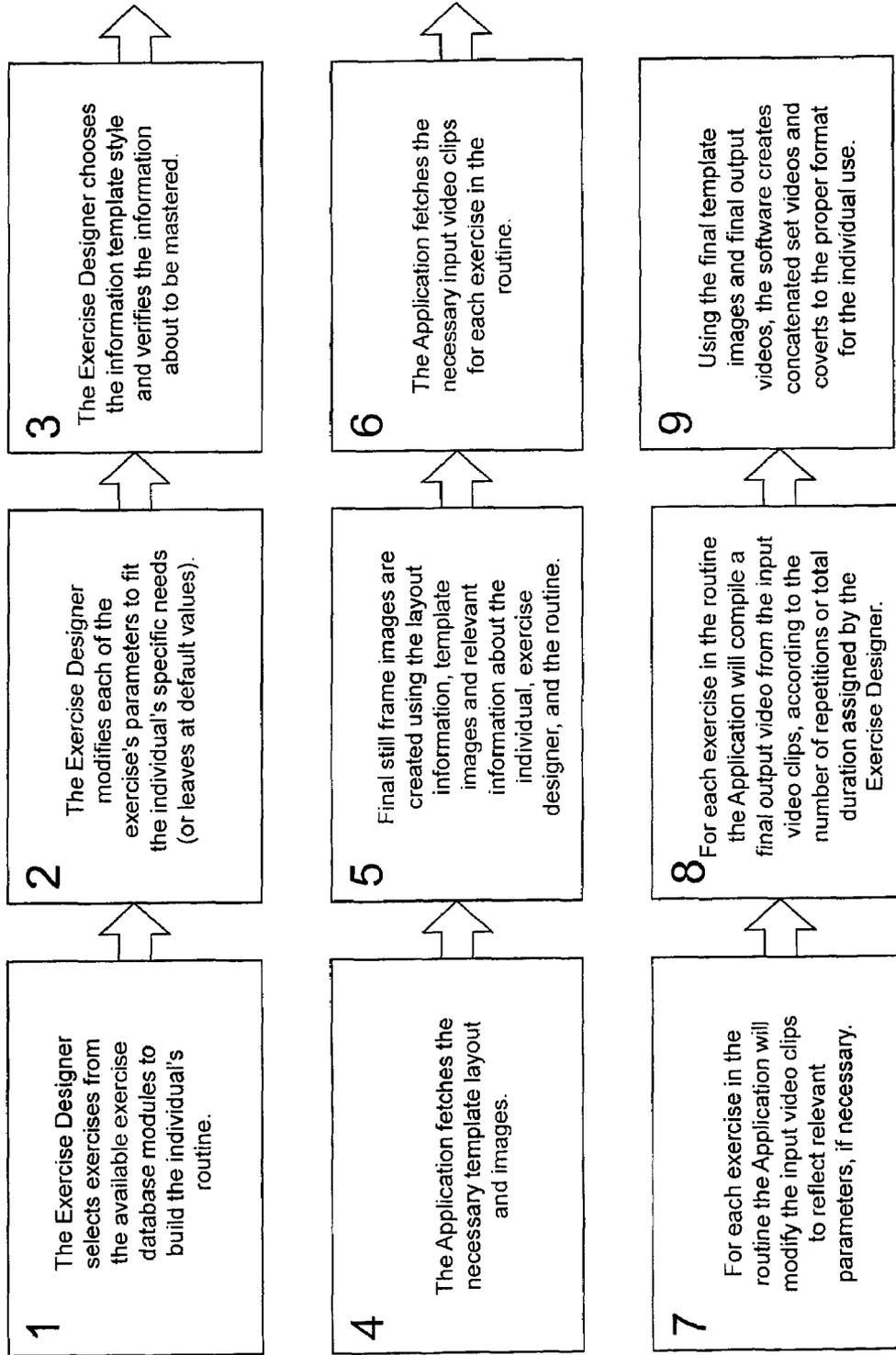


FIGURE 6

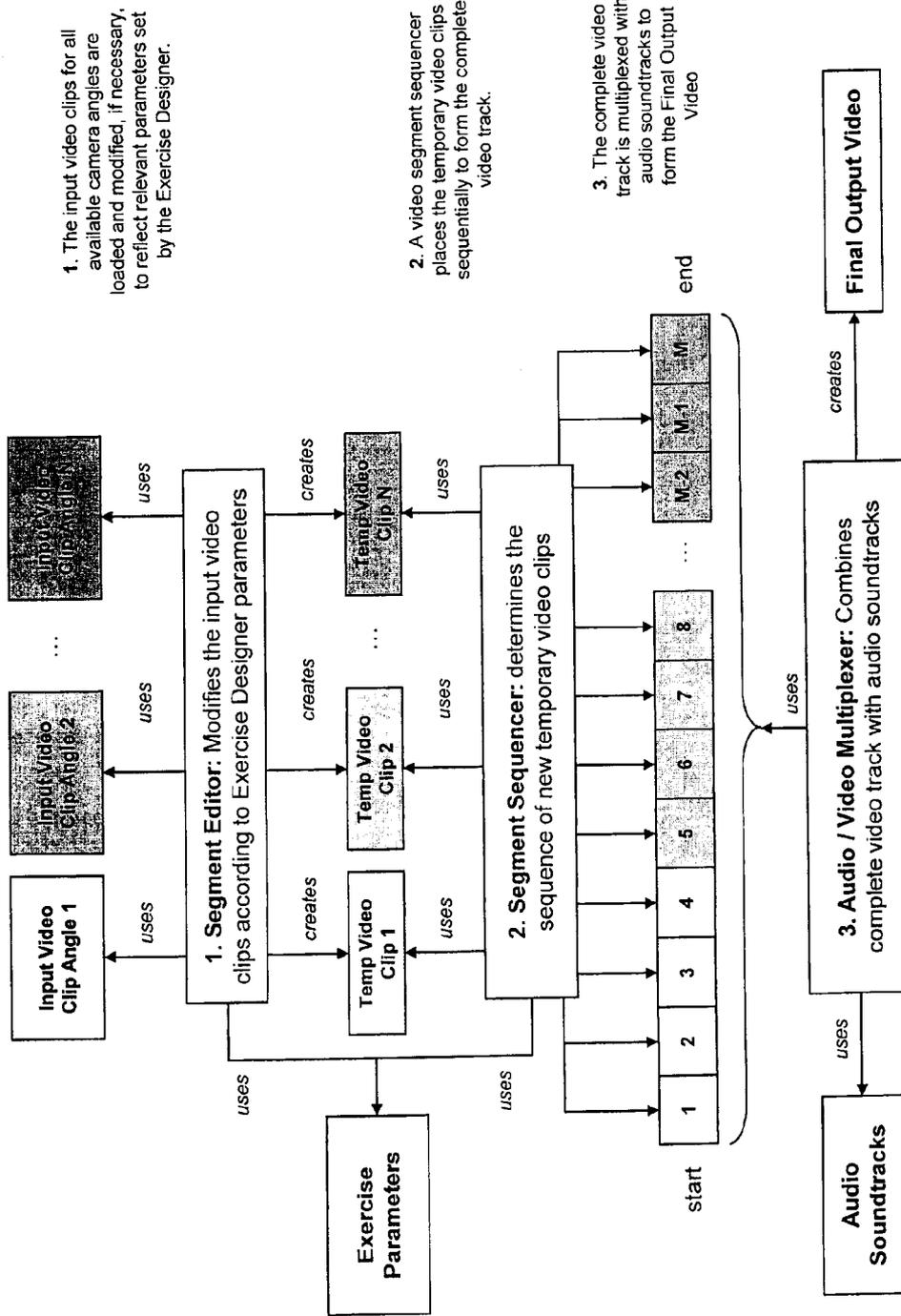


FIGURE 7

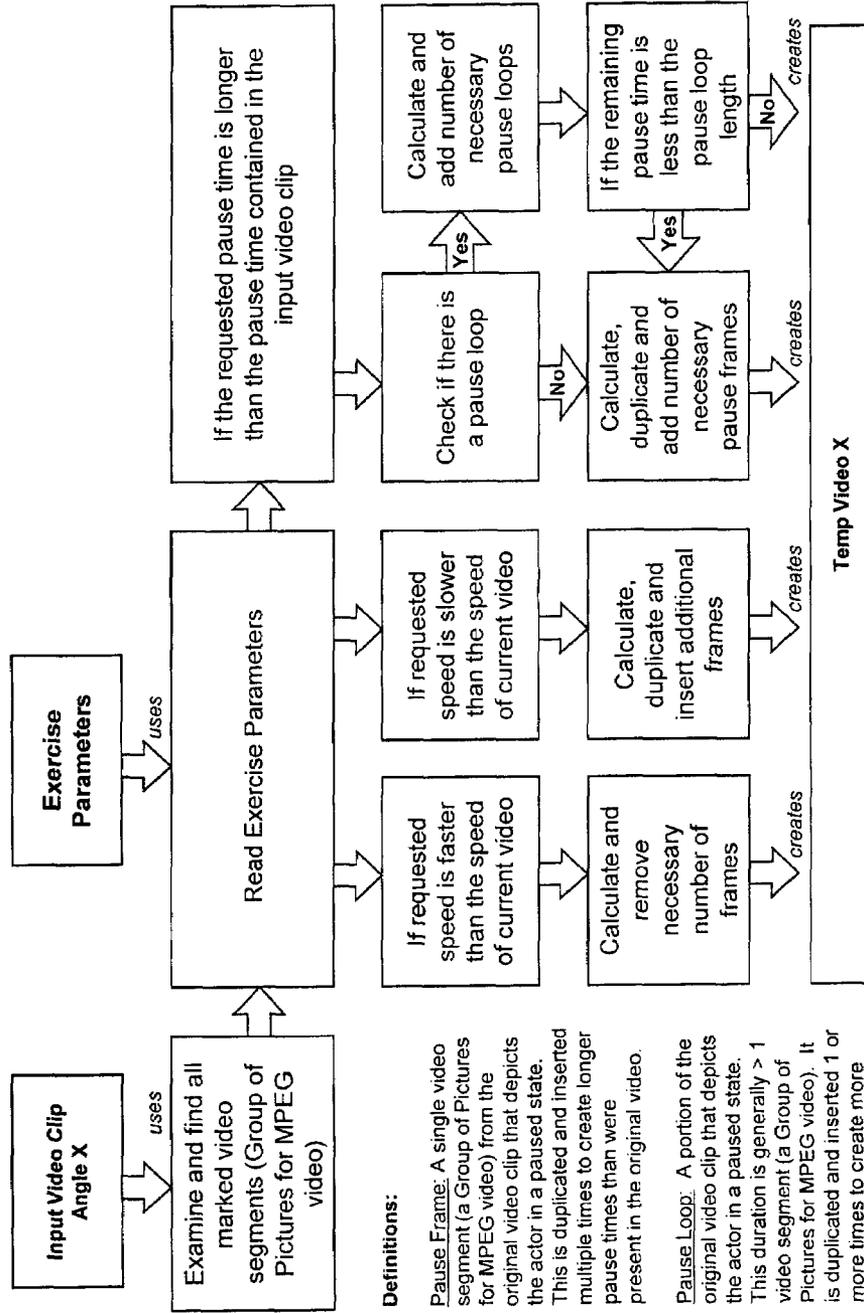
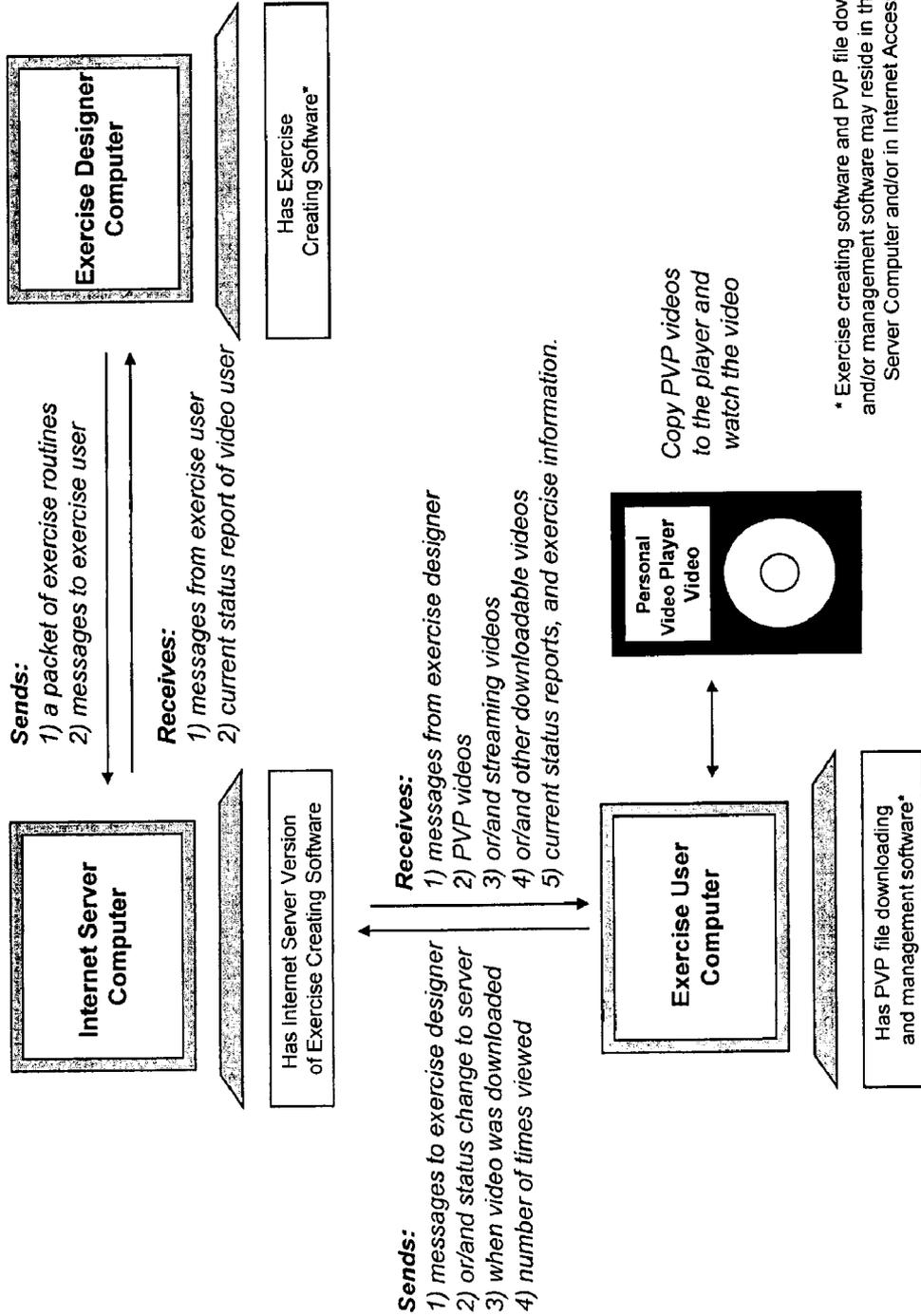


FIGURE 8



**METHOD OF DEVELOPING AND CREATING
A PERSONALIZED EXERCISE REGIME IN A
DIGITAL MEDIUM**

**CROSS-REFERENCE TO RELATED
APPLICATION**

[0001] The present invention claims priority to U.S. Patent Application No. 60/863,120 as filed on Oct. 26, 2006.

**STATEMENT REGARDING FEDERALLY
SPONSORED RESEARCH**

[0002] Not applicable.

**NAMES OF THE PARTIES TO A JOINT
RESEARCH AGREEMENT**

[0003] Not applicable.

**INCORPORATION-BY-REFERENCE OF
MATERIAL SUBMITTED ON A COMPACT DISC**

[0004] Not applicable.

BACKGROUND ON THE INVENTION

[0005] 1. Field of the Invention

[0006] The present invention relates generally to a method for assessing and developing a personalized exercise regime for an individual. More particularly, the present invention includes a method for assessing and developing an exercise regime for an individual wherein the exercise regime is digitally arranged and supplied to the individual such that the digital exercise regime is personalized and the customized based on the needs of the individual.

[0007] 2. Description of the Related Art

[0008] Physical therapy routines for individuals are well known in the prior art and typically consist of a series of physical exercises. The physical therapy routines are usually prescribed and assigned to an individual by physical therapists for rehabilitation from a disease and/or injury. In other situations, exercise trainers may develop and assign particular exercise regimes to individuals. When determining a proper physical routine for an individual, the physical therapist or exercise trainer should account for individual factors such as age, fitness level, medical history, any type of diseases or injury suffered by the individual, as well as mobility and/or strength the individual may be trying to attain.

[0009] Once the physical therapy routine or work routine is prescribed to the individual, the physical therapist or exercise trainer must make sure the individual understands how to accomplish the associated physical exercises. In order to accomplish this, the physical therapist or exercise trainer typically demonstrates the exercises to the individual and provides written instructions for subsequent reference for when the physical therapist or exercise trainer is not around or available. However, this can be an inefficient use of the time of the physical therapist or exercise trainer. This is particularly true where time consuming or intricate exercises are involved. Further, even though the individual may initially understand the entire exercise routine, the individual may eventually forget how to properly perform certain exercises in the exercise routine over time.

[0010] Standardized videotapes and other well known similar technologies that provide a visual presentation of physical exercises for muscle tone and weight reduction are

known in the prior art. These standardized visual presentations, however, typically assume that the person viewing the visual presentation and performing the exercises is a substantially healthy person. Furthermore, they do not account for the age, fitness level or physical malady of the individual that requires therapy. Moreover, for various reasons, other physical activities such as occupational therapy, athletic training programs and yoga exercises are subject to these same concerns.

[0011] Customized visual presentations of customized exercise regimes have also known in the prior art, such as in, for example, U.S. Pat. No. 6,971,972 to McGovern et al. However, such prior customized exercise regimes are inadequate in preparing an individual to conduct particular exercises in a proper arrangement and motion. Further, such prior art presents each exercise of a routine as a one-fits-all in so much as the exercise is represented and prescribed to an individual without association of the individual's physical needs and/or limitations.

[0012] Thus, what is desired is a method of assessing, developing, and prescribing a customized exercise regime with assignable parameters associated with the physical needs and limitations of the individual to which the exercise regime is prescribed.

SUMMARY

[0013] The various exemplary embodiments of the present invention include a method of creating a personalized exercise regime for an individual. The method is comprised of the steps of assessing an individual's physicality for body parts in need of improvement, therapy, or a combination thereof; reviewing a database via one or more computers, the database being comprised of stored videos of physical exercise such that each stored video presents a proper and substantially safe technique of performing a particular physical exercise; selecting one or more videos from the database, wherein the selected one or more videos are associated with the individual's body parts in need of improvement, therapy, or a combination thereof; customizing one or more parameters of the selected one or more videos based upon the individual's need of improvement, therapy, or both; saving the selected and customized one or more videos in a digital format; providing the saved one or more videos to the individual as an exercise regime; and prescribing that the individual view and perform the exercise regime as presented in the saved one or more videos.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] The various exemplary embodiments of the present invention, which will become more apparent as the description proceeds, are described in the following detailed description in conjunction with the accompanying drawings, in which:

[0015] FIG. 1 is an illustration of an exemplary embodiment of the present invention.

[0016] FIG. 2 is an illustration of another exemplary embodiment of the present invention for developing a customized exercise regime for an individual.

[0017] FIG. 3 is a flowchart representing the exemplary embodiment illustrated in FIG. 2.

[0018] FIG. 4 is an illustration of yet another exemplary embodiment of the present invention for developing a customized exercise regime for an individual.

[0019] FIG. 5 is a flowchart representing the exemplary embodiment illustrated in FIG. 4.

[0020] FIG. 6 is an illustration of an exemplary embodiment of the present invention in which parameters of a particular exercise video are modified.

[0021] FIG. 7 is an illustration of an exemplary embodiment of the present invention in which a particular exercise video may be edited.

[0022] FIG. 8 is an illustration of an exemplary embodiment of the present invention in which a particular exercise video may be shared with a personal video player via an Internet server.

DETAILED DESCRIPTION

[0023] For purposes of discussion, the methods described herein relate to a physical therapy or exercise routine, and the methods are accomplished by a physical therapist or exercise trainer. It is to be appreciated, however, that other types of work and exercise routines are also contemplated for use with the present invention. As such, for brevity, the term "exercise regime" as used herein refers to a variety of physical movements including, for example, a particular set of exercises, dance and choreography, movements in the manufacturing field, ergonomics in the workplace, and the like.

[0024] The present invention presents a method for substantially improving compliance of a home-based, i.e., not in the presence of a therapist or trainer, physical exercise regimen. Individuals are more likely to comply with home-based physical exercise regimen if the individual is able to choose or gravitate into a physical exercise practice that appeals to the individual.

[0025] While there are similarities between physical therapists in general, each regime, therapist or trainer may subscribe to different physical therapy philosophies and/or theories. The various exemplary embodiments of present invention attempt to provide an individual-specific exercise routine in a visually perceptible digital format as a means to improve compliance of a home-based physical therapy regimen.

[0026] In the various exemplary embodiments of the present invention, an individual is preferably assessed by a trained expert, for example, a physical therapist, exercise trainer, or other exercise designer, to determine the individual's physical limitations, needs, and abilities. In other exemplary embodiments, the individual may assess one's own physical limitations, needs, and abilities.

[0027] For example, a person having undergone hip replacement surgery would preferably consult with a trained physical therapist soon after surgery to have the individual's abilities determined, such as, for example, range of motion of the hip.

[0028] Upon physically assessing the individual, the physical therapist accesses and reviews a stored digital database of videos relating to a variety of physical activities, exercises, therapies, or a combination thereof. The stored digital database may be stored and accessed via one or more computers or via the Internet.

[0029] In the various exemplary embodiments, the digital database of videos shows particular exercises from which a therapist or trainer may choose. Each particular exercise may be shown as actual digital footage of a person conducting the particular exercise, as animated illustrations, or as a combination thereof.

[0030] In a preferred embodiment, each particular exercise is viewable by at least three varying angles. Varying the viewing angle of the particular exercise allows an individual viewing the particular exercise to better ensure proper movement that should be mimicked.

[0031] It is noteworthy to point out that therapists and trainers may desire exercises shown by various types of actors, backgrounds, and auditory sensory information. As such, particular exercises may include various versions showing the exercises properly performed by a variety of persons, for example, of different races, ages, body types, and the like.

[0032] In the various exemplary embodiments, the stored database is electronically stored in one or more computers, and each video of the database may be categorized based on body parts or movements emphasized in the exercise on the video. In exemplary embodiments, each video of the database may be categorized based on one or more of calories exerted; equipment used; function; muscle groups; body position, that is, for example, standing, sitting, laying down, and the like;

[0033] After assessing the individual and accessing the digital database, the physical therapist selects videos of those exercises deemed by the physical therapist to be most advantageous to the physical improvement of the individual.

[0034] Each video is comprised of one or more parameters that may be modified by the physical therapist.

[0035] These one or more parameters may include, for example, exercise repetitions, one or more particular exercise pause or holding durations, daily exercise sets, speed of performing a particular exercise, amount of weight to be used by the individual in performing the particular exercise of the regime, background music, audio exercise instruction, text exercise instruction, audio instructional language of choice, text instructional language of choice, exercise equipment to be used, text for additional precaution that may need to be taken, days of the week to perform particular exercises of the regime, and the like.

[0036] In an exemplary embodiment, the voice of a trainer may be recorded to play in conjunction with the particular exercise. In another variation, a trainer may include his/her own recorded video of one or more particular exercises. This allows for more personalized video creation.

[0037] In a preferred embodiment, each particular exercise is viewable from at least three varying angles to allow an individual viewing the exercise to better ensure proper associated movement.

[0038] The one or more parameters may also include an angle of viewing the exercise. The exercise videos may be captured and stored in a variety of angles for better viewing and understanding of the proper way to perform the particular exercise. In an exemplary embodiment, each exercise is reviewable from at least two distinct viewing angles.

[0039] The one or more parameters may be customized for each individual based upon the associated physical needs, limitations, and the like.

[0040] For example, the physical therapist may customize the parameters of a particular sit-up exercise such that the movement of the person in the video is at a speed and/or count rate desired by the therapist. Further, the therapist may set a particular position of the movement as a hold position for a desired amount of time. Thus, the individual to which the exercises are prescribed would mimic the movement of the exercise on the video at the same speed and hold position as desired by the therapist.

[0041] Upon customizing the selected exercise videos, the customized exercises are preferably stored in a digital format as an exercise regime for viewing by the individual. The digital forms may include a digital versatile disc (DVD); personal video player video, including, for example, mobile phones and personal digital assistants (PDA), in the form of MP3, MPEG4, or any other similar format; streaming Internet video; or other similar digital format, including high resolution variations of the above, allowing viewing by the individual.

[0042] In the various exemplary embodiments, a digital document format may be provided to the individual. Such digital document format may be in the form of, for example, HTML or PDF, and include still-frame images of the customized exercises from the videos. Such framed pictures may include, for example, particular positions and movements to be mimicked.

[0043] In storing the customized exercises in digital format, the information may be personalized for the individual to indicate the individual's name, the date, the therapist's name, clinic location and phone number, or a combination thereof.

[0044] The customized exercise videos stored to digital format for the individual is then provided to the individual such that the exercise regime set forth in the digital format is prescribed to the individual to perform.

[0045] It is preferred that prior to starting the exercise regime, the necessary equipment is identified so that an individual may gather all the equipment together prior to starting the exercise regime.

[0046] As the individual performs the exercise regime, the individual may view the exercises in any desired speed and/or pause the exercise to better ascertain the proper movements associated with a particular exercise. The individual may also view the remaining number of repetitions and the remaining duration of pause. The individual may also choose music from the selection music tracks already imbedded with the DVD or other similar video method, audio track language of their choices, and subtitle texts.

[0047] In exemplary embodiments, an individual can compare and/or contrast their own history of physical performance and/or physical abilities with the known history of physical performance and/or physical abilities of one or more particular celebrities and/or particular professionals. Further, the individual may compare their abilities to a standard healthy person of their own age and gender. Such comparison and contrast gives an individual a better concept of how regular routines or actual activities are or should be performed for particular benefits.

[0048] Thus, for example, a person viewing a particular exercise showing push-ups may compare the number of push-ups he/she does to the number of push-ups an army recruit does in basic training. A person lifting weights for a particular exercise may compare the weight and number of repetitions that they are doing to what Arnold Schwarzenegger does.

[0049] In another exemplary embodiment, graphical representations may be provided showing the muscle groups and/or joints exercised, calories exerted, etc. Such reporting will be tallied for the particular exercise regime. Such reporting of activity by an individual can be used to compare the individual against past performance as well as comparison against other known individuals.

[0050] In a preferred embodiment, single exercise movements may be combined to form a single cohesive movement to be viewed and mimicked by an individual. This is particu-

larly instructive in choreography wherein the exercise regime may be a series of single dance movements that are combined together to create a single dance. Such combination of exercises is analogous to combining the letters of the alphabet into words and then sentences. Thus, in such embodiment, a choreographer or trainer can identify from the database a number of movements to be performed in a particular substantially seamless order.

[0051] FIG. 1 illustrates an exemplary embodiment of the present method of developing a customized DVD, personal video player videos, and Internet streaming and downloadable videos for an individual. As shown in the exemplary illustration, a therapist or user accesses a database of exercises via a computer to customize and create a desired exercise regime for an individual.

[0052] FIG. 2 illustrates a more detailed flowchart of another exemplary embodiment of the present invention. In this exemplary flowchart, a therapist or user first selects exercises for an individual from a stored exercise database. The user selects these exercises, for example, via a user interface program in the software or similar means. In selecting the exercises, the user may access and use predetermined or customized templates. Such templates may be modified to reflect relevant information regarding the associated therapist, individual, exercise regime, date, and the like. Each exercise of the database is comprised of at least a single repetition of the particular exercise from at least a single viewing angle. Preferably, there are upwards of three or four viewing angles for each particular exercise. Via the software, the user may choose which viewing angle is most advantageous for the associated individual and particular exercise. The user modifies the parameters of each selected particular exercise. The modified, selected particular exercises are then concatenated to construct a customized exercise regime, which then may be transferred to a medium of choice of the user. In this instance, the exercise regime is transferred to a DVD.

[0053] FIG. 3 shows a different flowchart outlining the exemplary method illustrated in FIG. 2.

[0054] FIG. 4 is another flowchart showing an exemplary embodiment similar to that represented in FIG. 2. However, in FIG. 4, the exercise regime is transferred to a personal video player, such as, for example, an ipod® by Apple Computers, or streamed and downloadable via the Internet.

[0055] As shown in FIG. 8, a personal video player may be connected to an Internet server through which an individual's trainer may upload a new set of exercises which are then downloaded to the personal video player. The personal video player identified whether or not a video has been viewed, even only partially viewed. Thus, a trainer may check an individual's personal video player to ensure that an individual at least viewed the particular exercises assigned in the video.

[0056] In addition to allowing a trainer to manually check an individual's personal video play, in an exemplary embodiment, the present invention includes a feedback loop that automatically conveys to the trainer via software and the Internet whether or not a particular individual has viewed his/her respective video. Such feedback loop may provide a "yes" or "no" response identifying whether or not the video has been viewed. In an exemplary embodiment, the feedback loop also identifies the amount of the video viewed; that is, for example, if only five out of thirty-five minutes have been viewed. In another exemplary embodiment, such feedback

loop is not automatic and must be authorized by the individual prior to being conveyed to the trainer.

[0057] FIG. 5 shows a different flowchart outlining the exemplary method illustrated in FIG. 4.

[0058] FIG. 6 illustrates video concatenation process of a single particular exercise set from video exercise database with parameters provided by the user according to an exemplary embodiment of the present invention. Via the software, one or more viewing angles are selected for the exercise video. The user parameters of selected particular exercise videos are customized by the user via a segment editor and a segment sequencer. Such parameters may include, for example, repetitions of an exercise, pause time, text instruction, etc. Then, with a segment sequencer, the software sets the sequence of selected and customized particular exercise videos. The user may also include particular audio tracks with the selected and customized exercises, and then the exercise regime is finalized.

[0059] FIG. 7 illustrates an exemplary method by which a user may edit a particular exercise video. As shown in FIG. 7, once a particular exercise video is selected from the database, default exercise parameters are reviewed by the user. The user may then edit the parameters as desired. For example, if the user would prefer that the speed of the exercise shown in the exercise video to be faster, the speed is increased by way of the associated computer calculating and removing a necessary number of frames. Likewise, the user may manipulate a pause or hold time of the exercise shown in the exercise video.

[0060] Although the above description is explained primarily through a particular set of exercises, it should be understood that the same system and method may be used for other physical movements as well, including, for example, dance and choreography, movements in the manufacturing field, ergonomics in the workplace, and the like.

[0061] While this invention has been described in conjunction with the specific embodiments outlined above, it is evident that many alternatives, modifications and variations will be apparent to those skilled in the art. Accordingly, the preferred embodiments of the invention as set forth above are intended to be illustrative, not limiting. Various changes may be made without departing from the spirit and scope of the invention.

What is claimed is:

1. A method of creating a personalized exercise regime for an individual; the method comprised of the steps of:
 - assessing an individual's physicality for body parts in need of improvement, therapy, or a combination thereof;
 - reviewing a database via one or more computers, the database being comprised of stored videos of physical exercise such that each stored video presents a proper and substantially safe technique of performing a particular physical exercise;
 - selecting one or more videos from the database, wherein the selected one or more videos are associated with the individual's body parts in need of improvement, therapy, or a combination thereof;
 - customizing one or more parameters of the selected one or more videos based upon the individual's need of improvement, therapy, or both;
 - saving the selected and customized one or more videos in a digital format;
 - providing the saved one or more videos to the individual as an exercise regime; and

prescribing that the individual view and perform the exercise regime as presented in the saved one or more videos.

2. The method according to claim 1, wherein the parameters are selected from a group consisting of exercise repetitions, exercise holding duration, daily exercise sets, speed of performing a particular exercise, amount of weight to be used by the individual, background music, audio exercise instruction, textual exercise instruction, audio instructional language, textual exercise instructional language, exercise equipment to be used, noted additional cautions to be taken while performing the exercise, days of the week to perform the exercise, and a combination thereof.

3. The method according to claim 1, wherein a trainer may record his/her voice to give instruction in conjunction with the particular exercise.

4. The method according to claim 1, wherein a trainer may include his/her own recorded video to play for one or more particular exercises.

5. The method according to claim 1, wherein the one or more videos may be presented with multiple viewing angles.

6. The method according to claim 5, wherein the one or more videos may be present with at least three viewing angles.

7. The method according to claim 1, wherein the one or more videos includes actual filmed digital footage, animated illustrations, or a combination thereof.

8. The method according to claim 1, wherein the saved one or more videos further comprises information regarding the individual, information regarding the therapist, date of creation, or a combination thereof.

9. The method according to claim 1, wherein the stored videos of physical exercise may have various versions showing exercises performed by a variety of persons of different races, ages, or body types.

10. The method according to claim 1, wherein the stored videos in the database are categorized based upon calories exerted in the particular exercise, equipment used in the respective exercise, function of the respective exercise, muscle groups trained in the respective exercise, joints utilized in the respective exercise, body position to perform the respective exercise, or a combination thereof.

11. The method according to claim 1, wherein instruction is provided to the individual prior to starting an exercise regime to identify the equipment necessary to perform the exercise regime.

12. The method according to claim 1, wherein the digital format may be selected from the group consisting of DVD, personal video player videos, and Internet steaming and downloadable videos, and a combination thereof.

13. The method according to claim 12, wherein if the digital format is downloaded to a personal video player, the personal video player may automatically communicate with the trainer via the Internet to identify whether or not a particular exercise regime has been viewed by the individual.

14. The method according to claim 1, wherein an individual may view the saved one or more videos at any desired speed.

15. The method according to claim 1, wherein an individual may compare and/or contrast his/her own physical history of performance and/or physical abilities with the known physical performance and/or physical abilities of celebrities, professionals, a healthy individual of similar age and gender, or a combination thereof.

16. The method according to claim **1**, wherein reports may be provided to the individual identifying the muscle groups and joints exercised, calories exerted, and a combination thereof.

17. The method according to claim **1**, wherein single exercises may be combined together as a substantially cohesive movement for an individual to review and mimic.

18. The method according to claim **1**, further comprising providing the individual with digital document format still-frame images of particular positions or movements of the customized one or more videos.

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