

Chapter

Strength and Cardiovascular Training Facilities

Thomas H. Sawyer and David A.P. Stowe

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Cardiovascular and strength training venues (commonly referred to as the fitness floor) are the lifeblood of any existing or future facility. When facilities inspire their members by capturing their imagination and promoting their safety, they will sustain their existence even with the growing number of competing exercise facilities. Strength and cardiovascular facility coordinators must embrace the advances in technology and recognize the value of incorporating entertainment mediums as they embark upon developing or refining existing programs, refurbishing existing facilities, or planning for the expansion or construction of new facilities. The responsibilities of coordinators are demanding; however, when collectively engaging others in defining program outcomes, establishing services, evaluating facility needs, and planning facility enhancements, the personal rewards are many.

As a strength and cardiovascular facility coordinator, you are responsible for not only knowing how to organize participants for strength and cardiovascular training, but also for knowing how to arrange equipment safely in order to meet the challenge. In some cases, you might be responsible for developing a facility. Planning the facility takes many hours of creating and reviewing floor plans and deciding what equipment will be needed, how space may be best utilized, what surfaces are needed in various areas, and other factors. It is worthwhile to contact professionals in other programs who have built a facility and to compile information on specific needs. A committee of people who represent various areas of expertise may be organized to help in the planning of the facility. Such a committee may consist of an administrator, contractor, lawyer, student-athlete, sport coach, instructors who would use the facility, various experts in the field of sport conditioning, and any other people who could give valuable input on design.

This chapter will focus on a discussion of current trends, existing facilities and how you might improve and reorganize them to best suit the needs of the philosophy (the ideals and values shaping the program), goals (the desired outcome), and objectives (the individual steps toward a goal) of a program, and what would be needed in a new facility.

Learning Objectives

After reading this chapter, the student should be able to

- assess the needs of an existing or new facility,
- identify the industry standards for strength and cardiovascular facilities,
- understand the design concepts and philosophies for revitalizing existing facilities and the construction of new recreational facilities,
- plan and organize an existing or new facility for maximum usage, and
- understand the environmental factors affecting facility development.

Strength and Cardiovascular Training Facility Planning

Assessing the Needs of an Existing or New Facility

After defining the program goals and objectives, the facility coordinator should assess existing equipment and the needs of the various sports groups that plan to use the facility. As the coordinator, you will need to answer these questions:

- What are the specific training goals of each group?
- What types of training does each require (e.g., circuits, machines, free weights, platform lifts, plyometrics)?
- What are the seasonal priorities of each group?
- What are the training ages (training experience) of the athletes in the groups?

- When will weight training fit into each group's schedule?
- What repairs, adaptations, and modifications must be made to meet the athletes' needs?
- How should the equipment be placed to best utilize the space in a safe and efficient manner?

Defining the Programmatic Objectives

Before evaluating and/or constructing a facility, it is important that one has a clear understanding of the programmatic objectives and the vision of the facility design. Listed below are suggestions for program assessment.

The planners of a strength and cardiovascular facility should answer a number of questions prior to initiating planning for the facility. The questions include:

- What specific activities or training functions will take place in the space?
- Will the spaces be used for team instruction, group programs, new member equipment orientations, and the like?
- Will the activities cater to individuals or small or large groups?
- What will be the size of classes?
- What is the demographic composition of clientele served: Children, teens, middle-aged persons, senior citizens?
- What is their gender?
- What are the deficiencies of the present programs?
- What equipment is needed to support the respective activities?

Desired Facility Outcomes

It is important for the planners to consider the desired outcomes of the completed facility. These outcomes should focus upon, but not be limited to: maximizing the use of existing or future space, assuring the safety of participants, achieving program objectives successfully, and increasing user satisfaction.

Existing Facility Assessment

In chapters 3 and 4, we have discussed generally the planning process that should be employed. Appendix B provides a number of facility checklists to assist the planner in designing spaces for new and existing facilities under renovation.

Facility Design Concepts and Philosophy

The visual appeal of a facility significantly impacts the ability to attract and engage participants. It is important to design visually pleasing facilities that are easily maintained. The desired outcome is to create energy and to make the visit to the facility an "experience." If facility coordinators do not have a thorough understanding of the impact of interior design, the utilization of a professional interior designer to maximize the visual ambience is highly recommended. Color is a significant dimension that contributes to the psychological, emotional, and physical response of participants. The coordination of equipment frame colors, upholstery colors, wall colors and textures, flooring patterns, use of lighting, ceiling heights, and window treatments are all factors that contribute to the overall visual appeal of the exercise experience. Facility enhancements may be as simple as painting accent colors on white walls for the purposes of creating a space that not only is visually appealing but also makes one feel good.

Safety in facility design is primarily achieved by providing sufficient walking space to keep members from inadvertently bumping into each other or when too many pieces of equipment are placed in a space that is inadequate. Meeting only minimum space standards does not allow for potential membership growth and facility expansion. When designing new facilities, attention should always focus upon how the facility can be expanded with some structural modifications such as removal of interior walls or exterior walls. Strategic facility design includes preparing for future growth.

Planning the Facility Layout

Prepare a floor plan to 1) visualize the present and potential locations of equipment; 2) organize for safety and the most efficient use of space, exits, and entrances; 3) identify areas of frequent travel; 4) develop facility flow (pathways in the facility); and 5) select supervisor station locations for maximum supervision of the whole facility, especially areas of increased risk (such as the platform area). Safety should always be a priority and the planners should make sure that adequate safety buffer zones are used between pieces of equipment and that all entrance and exit pathways are clear and easily recognizable to the participants.

Station all high-risk activities, including platform lifts, squats, overhead presses, bench and incline presses, and exercises that require spotters, away from windows, mirrors, exits, and entrances to avoid breakage of glass, distraction, or collision with the bar or lifter. Place the equipment for these activities in areas that are readily supervised to ensure safety and the execution of proper technique. Supervision is effective only if all areas of the facility can be observed at any given time. Therefore, locate supervisor stations in places with full visibility of all areas of the facility to allow quick access to participants in need of spotters or immediate assistance.

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Arrange the tallest machines or pieces of equipment along the walls with the shorter, smaller pieces in the middle to improve visibility (as well as appearance) and maximize use of space. Place weight racks enough distance away from bar ends and spotter areas for ease of movement without obstruction. Tall pieces of equipment, such as squat racks, may need to be bolted to the walls or floors for increased stability.

The following are guidelines suggested by a panel of safety experts at the National Strength and Conditioning Association (NSCA) and the American College of Sports Medicine (ACSM) for the safe and efficient use of equipment (Baechle, 1994; Peterson & Tharrett, 1997):

- All weight machines and apparatus must be spaced at least 2 feet (61 cm) from one another and preferably 3 feet (91 cm) apart.
- Platform areas should have sufficient overhead space (at least 12 feet [3.7 m]) which should be free of such low-hanging items as beams, pipes, lighting, and signs.
- The proper spacing of Olympic bars is 3 feet (91 cm) between ends (12 feet [3.7 m] X 8 feet [2.4 m] = 1 platform lifting area).

Maintain a clear pathway, three feet (91 cm) wide in the facility at all times, as stipulated by federal, state, and local laws. Machines and equipment must not be allowed to block or obstruct this flow. Place equipment at least 6 inches (15 cm) from mirrors and mirrors 20 inches (51 cm) above the floor. Place free-weight equipment well away from exits and entrances to avoid obstruction, give participants ample room for passage, and guarantee safety to the pedestrian and lifter. Organize equipment into “priority sections” such as free-weight areas, machine areas, power training areas, and cardiovascular/aerobic areas. This allows the supervisor to identify and focus on the higher risk areas and keep equipment orderly in the facility.

A strength and cardiovascular training area should provide areas for cardiovascular training, resistance training (divided into free weights and machine weights), and stretching. The design and layout of a facility should provide at least 20 to 40 square feet for each piece of exercise equipment (Peterson & Tharrett, 1997). The exact amount of space is determined by the size of each particular piece of equipment and the recommendations of the manufacturer. Further, “a facility should allow for 20 to 25 sf of space for each person expected to be using the facility at any one time” (Foster & Sol, 1997, p. 51). This is not in addition to the space allocation for equipment previously mentioned.

The planners need to define the use of the space. Responding to the following questions does this:

- What programs will be offered, for example, circuit training, free weights, cardiovascular training?
- What is the size of the total membership or the membership registered to use the strength training area?
- What is the approximate peak demand for the area?
- What is the equipment preference (i.e., a mixture of free weights and machines, free weights only, machines only)?
- Is there a high demand for separate or coed areas?
- What type of flooring would be most appropriate?
- Has the equipment been chosen? If yes, who is the vendor, what are the specific dimensions of the equipment, and what is the proposed layout?

Organizing the Facility for Maximum Usage

When organizing groups of participants, you should consider the size of the facility and assess the needs of each group in terms of the following:

- Specific training needs (e.g., strength, endurance, circuits, and power).
- Seasonal priority (i.e., when sports occur, such as football in the fall and baseball in the spring).
- group size and equipment availability (i.e., a football team with 150 members may not be able to use a facility efficiently and safely without being split into groups; other sports groups may have to be scheduled at times other than football groups to ensure sufficient use of the equipment).
- The participant-staff ratio (1:10 to 1:30, depending upon the training group).
- A minimum space requirement per lifter of 30 feet (2.8 m) and a maximum of 60 feet (5.6 m) (Baechle, 1994).

Schedule facility usage so that different groups of participants train in the facility at more or less constant “density” throughout the day; avoid large, congested groups which increase the potential for injury and inefficient use of equipment. If the facility is designed for high school athletes, groups may be organized through physical education classes that offer beginning, intermediate, and advanced strength and conditioning to the students. Teams may organize facility usage time before or after practice according to seasonal priority.

Planning Specific Facility Features

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Flooring

The correct selection of flooring minimizes the potential of slips, falls, and other injuries to occur. The Deutsche Institut für Normung (DIN) standards (see Appendix C.2) are ideally suited in the selection of the appropriate flooring for cardiovascular and strength training centers. The following DIN standards should be considered:

- *Shock absorption.* Without appropriate shock absorption, the potential for accruing an injury increases, specifically for ankle and knee joints. This is an essential component for aerobic and other group exercise spaces.
- *Standard vertical deformation/resilience.* Insufficient energy return in a floor causes sore ankles if a surface is too hard. Excessive energy return creates a trampoline effect.
- *Sliding characteristics/surface friction.* Side to side lateral, rotating, and pivoting movements create strain on joints without the proper friction coefficient to minimize stress. “On a friction scale of 0.1 (ice) to 0.9 (fly paper), 0.5 to 0.7 is the DIN standard” (McPherson, 2004, p. 43).
- *Rolling load.* A floor’s ability to withstand heavy weight without breaking or sustaining permanent damage.

Flooring can be composed of such materials as wood, tile, rubber, interlocking mats, and carpet. The planner should carefully review the surfaces for the following concerns.

Wooden Flooring

Wooden flooring on platforms must be kept free of splinters, holes, protruding nails, uneven boards, and screws. The boards should run in the direction of the bar so that lifters do not catch their feet against the grain of the wood when widening their stance. This is the safest flooring for Olympic-style lifters.

The use of wood flooring is the most common surface found in group exercise areas. However, the maintenance of wood is a challenge, because it contracts as well as expands depending upon humidity and moisture. This can lead to the floor buckling and can be an expensive repair. A growing trend is the use of synthetic wood-look floors made of polyvinyl chloride (PVC) that has rubber padding underneath and comes in modular plastic tiles. The challenges with this type of material are that it scuffs easily, and the joints are not tight enough.

Tile

Tile flooring and antistatic floor should be treated with antifungal, antibacterial agents in the aerobic machine area. The tile should also be resistant to slipping and moisture accumulation and free from chalk accumulation.

Resilient Rubber Flooring

The use of rubberized flooring is becoming more predominant in the fitness industry because of the low maintenance requirements, durability, color options, and length of warranty. Coloring that is added to rubberized flooring is commonly referred to as fleck and comes in 10, 20, and 30% grades of color. The thicknesses and applications of rubberized flooring range from area rubber mats found under exercise equipment to entire rooms being completed in rubber flooring. The thickness of the flooring ranges from 3/8 to 1 inch, with the thicker style being suitable for free weight areas. Rubber flooring is available in rolls 48 inches wide, square tiles, or interlocking applications. With interlocking flooring the number of seams increases raising the potential for the matting to lose its initial integrity and pull apart if not permanently installed. The maximum thickness for rolled rubber flooring is 3/8 inch, with thicker matting coming in 4 feet x 8 feet rectangle sheets. Professional installers should be used with permanent rubber flooring installations and the use of rolled rubber flooring and where many cuts will be required to accommodate the facility’s walls, columns, and other structural features. An organization’s logo as well as geometric shapes and patterns can also be used as inlays in the rubber flooring to increase the ambience as well as brand identity of the organization.

In preparation of placing selectorized weight equipment on the rubber flooring, it is recommended to place large sheets of plywood on the floor so that pallet jackets and four wheel moving carts that are used to move the heavy equipment do not damage the floor. This precautionary measure should specifically be at the point of entrance where the continuous traffic pattern will occur.

Finally, resilient rubber flooring in the free-weight and machine areas should be similar to aerobic flooring. It must be kept free of large gaps between pieces, cuts, and worn spots.

Interlocking Mats

Interlocking mats must be secure and arranged so as not to pull apart or become deformed (with protruding tabs). The stretching area must be kept free of accumulated dust. Mats or carpets should be nonabsorbent and contain antifungal and antibacterial agents.

Carpet

Commercial grade carpet within an exercise facility has four primary applications. It is appropriate when used in an office setting, selectorized weight equipment center, general traffic areas, and in cardiovascular machines areas as long as exercise mats can be placed between the machine and the carpet to

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protect from oil and other elements. The use of carpet for group aerobics areas is not advisable because of the friction that can occur with movements. Carpet is not ideally suited for free weight areas because of the nature of the activity and the fabric will break down with weights being dropped. The installation of carpet may be in the form of squares or rolls. Each of these selections has its benefits as well as limitations. Carpet squares are more easily replaced than rolled flooring.

Carpet must be free of tears. High-use areas should be protected with throw mats. All areas must be swept and vacuumed or mopped on a regular basis. Flooring must be kept glued and fastened down properly. Fixed equipment must be attached securely to the floor.

Walls

The selection of materials for new wall construction or remodeling areas should be durable and have some acoustical value. Mounting sound absorption panels on the walls or other materials is highly desirable to absorb the clanging plates in the strength training areas, noise generated from cardiovascular equipment, and from normal conversations of patrons in these respective venues. Mirrors should be mounted at least 20 inches above the floor. Mirrors provide a sense of openness to the space as well as a means for checking for appropriate form; however, the overuse of mirrors can be unwelcoming to the selfconscious or deconditioned individuals. The ambience of a designated space is enhanced with the use of graphics and other artwork. Periodic painting of facilities and new and enhanced graphics should be considered. All appropriate Americans With Disabilities Act (ADA) signage (see Chapters 14 and 17) and emergency exits must be appropriately mounted. Wall-mounted apparatus and light fixtures should not be mounted in high traffic areas or walkways. Patterned galvanized steel could be mounted on the walls for protection as well as aesthetic value in high traffic areas such as in free weight areas where the numerous benches, bars, and Olympic plates may come in contact with the wall surfaces.

Ceilings

The minimum ceiling height for free weight areas is 12 feet (3.7 m) with 13 feet (3.9 m) desirable. Olympic lifts or pull-up stations require significant overhead clearance. All apparatus, ceiling fans, fire emergency sprinkler devices, and light fixtures should not be within arm's reach of the membership. Financial savings can be achieved as a result of not incorporating a drop ceiling. The expense of replacing broken or aging tiles is also eliminated. The exposed roof grid work is painted; however, a suspended ceiling may provide more interior design options and also camouflage pipes and provide some sound absorption with the ceiling tiles. The higher the ceiling is, the greater sense of openness will be.

Lighting/Electrical Requirements

Proper lighting of the exercise floor is important for the general safety of all participants. The number of foot-candles designates lighting. Optimal lighting is considered 50 to 100 foot-candles. A designated exercise facility should be void of any dark spots and equipment should be well illuminated. Lighting fixtures should be energy efficient and compliant with Green Seal Environmental Standards. Exit signs and hearing impaired signage should be illuminated and periodically inspected for burned out bulbs.

Electrical requirements for most commercial treadmills require a minimum of 120volt/20amps and designated breakers with National Electrical Manufacturers Association (NEMA) 5-20 receptacles. All electrical outlets that need modifications to accommodate these types of plugs need to be done by a qualified electrician.

Environmental Factors

Environmental factors that should be considered in helping make the facility safe and effective include noise control, temperature, ventilation, humidity, and posted signs. Music can be a form of motivation for many, but it can also pose a problem if the stereo system is not properly managed. Volume should be low enough to allow for clear communication between spotters or instructors and lifters at all times. The stereo system should be controlled by the facility coordinator and qualified supervisors only.

Air temperature should be kept constant at 68° to 72° F (22° to 26° C) to offer a reasonable training environment. If the room is too cold, athletes may become chilled after they finish warming up; if too hot, participants may become overheated or lose motivation to continue. Proper ventilation is important to maintaining air quality and keeping humidity to a minimum (relative humidity should be less than 60 percent). The ventilation system should provide at least 8 to 10 air exchanges per hour and optimally 12 to 15 air exchanges. The result should be no detectable strong odors in the room and equipment free of slickness or rust due to high humidity (Peterson & Tharrett, 1997).

All safety, regulation, and policy signs should be posted in clear view, in two or three central places within the facility; more postings may be needed in a large facility.

Acoustical Considerations

A significant amount of noise is generated with an exercise facility. Impact noise and vibrations occur from dropping of weights, members moving simultaneously during an aerobics class, and members' use of treadmills and other equipment, combined with high-volume music. Strategic placement of group exercise activities within the context of the actual center along with the inclusion of built in acoustical controls will prevent these venues from negatively impacting other programs such as yoga classes. The strategies for addressing these issues ultimately depends upon whether a group is planning a new construction or trying to remedy an existing acoustical problem.

Additional structural modification for new or existing venues is to provide multiple layers of dry-wall on both sides of studs when activities are going to be placed next to each other. Constructing floating wooden platform floors to support cardiovascular equipment is also another solution. Strength training acoustical issues can be enhanced with the use of rubber flooring and rubber bumpers between weight plates on selectorized weight equipment. Addressing acoustical issues with the architect, engineer, and acoustical experts should be discussed early in the design phase of a new exercise facility. When having to remedy existing acoustical problems, they should be discussed before it negatively impacts the operation.

Entrances

The entranceway to the facility should be double wide to allow for the moving of oversized exercise equipment into and out of the facility. An entrance with a removable middle door jam is advisable. Further, since the entrance to the facility is the first area seen by the participant, it should be pleasing to the eye as well as the nose.

Accommodation of Membership

The program objectives of the organization, type and availability of exercise equipment, and size of the facility ultimately impact the clientele served.

Team Related

Facilities that focus upon conditioning of students for sports teams must devise strategic time schedules for them to use facilities. The size of the respective team, the instructor-to-student ratio, and program objectives also impact accommodation. Instructor ratios of 1:30 are acceptable; however, lower ratios are advisable for team sports that involve free weight and plyometric training.

General Population

Facilities that accommodate the general public from teens to senior citizens also have strategic issues of accommodation to be addressed. Many women are intimidated to use weight training facilities because of the predominant number of men using the facilities. Providing cardiovascular and strength training facilities strictly for women and seniors is highly recommended. Doing so will increase member satisfaction and will reflect positively upon the organization in the desire to meet the unique needs of these populations.

Security

All spaces should have provisions for emergency and night lighting. Further, each space should have a system to alert staff to medical emergencies. Finally, spaces other than locker rooms should be provided with video monitoring cameras. The security monitors should be located in a central location for staff to monitor.

Special Considerations

The following are special considerations planners should include in the planning process for new strength and cardiovascular training spaces:

- There should be at least two, 220-volt electrical outlets to service heavy-duty cleaning equipment.
- There should be a provision for a large (40 to 50 inch) TV with VCR in the cardio-respiratory area.
- Commercial structures typically have a 60-pound-per-square-foot load-bearing capacity, but exercise areas need at least 100-pound-per-square-foot capacity.
- The appearance of the room is important. The right ambience entices members to exercise while enjoying their surroundings. Special consideration should be given to the use of mirrors, lighting, carpeting, rubberized flooring, graphics, and skylights.
- Carpeting that extends on the side to wainscoting height serves as an excellent acoustical buffer as well as protective surface for the free-weight area.
- The color schemes of walls, equipment upholstery, flooring, and ceiling must all be coordinated to appeal to users.

Signage

Signage is very important to participants' safety in a strength and cardiovascular area. See Chapter 17 for detailed information about signage. However, there are some specific signs that should be found in this area. They include, but are not limited to, the following:

- **Vendor Signage:** All signage provided from manufacturers pertaining to the warnings of using the equipment must be posted.
- **Weight Facility Signage:** To increase safety and to reduce liability, the following signage should be displayed:
 - Replace weights in their designated racks.
 - Do not drop the weights.
 - The use of a spotter is advisable.
 - When in doubt on how to use a respective piece of equipment, ask for assistance.

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- Children under the age of 14 must be accompanied by an adult.
- Please accommodate others in the use of equipment.
- Failure to comply with these rules and regulations may result in membership privileges being revoked.
- Cardiovascular Center Signage: Signage for the cardiovascular area should address the following:
 - Clean off consoles, seats, or handrails of equipment after use.
 - Cease to use equipment if one feels light-headed, dizzy and notify a staff member immediately.
 - Report any malfunctioning problems with a piece of equipment to the designated staff member on duty.
 - When in doubt on how to use equipment, consult with staff member on duty.

Cardiovascular Areas and Equipment

The challenge for any facility is having an adequate amount of cardiovascular equipment to accommodate a respective organization's membership during peak hours of operation. Every effort should be made to meet this objective. Failure to do so can contribute to members' dissatisfaction if an extended waiting period for equipment is required before they can have access to the machines. Normal peak hours of use are 3:00 p.m. to 7:00 p.m. on a daily basis—after school and work hours. The popularity of the cardio center is directly influenced by the ambience of the facility as well as the availability of multiple entertainment sources. These include mounted televisions on walls or hung from the ceiling, sound systems, and the capability to connect to fitness networks whereby a member can retrieve their individual workout histories and statistics. If a respective facility has the capability of establishing multiple cardiovascular centers, this provides the opportunity to create a variety of experiences. One cardio center may be separate from the strength training area or overlook another significant activity or outdoor landscaped courtyard. These scenarios enhance the overall experience by making it more intimate as opposed to having a large room with row after row of cardiovascular equipment which is often threatening to the deconditioned and inexperienced member frequenting the cardio center. Spacing between equipment should be at least two feet with a three-foot allowance behind treadmills and any walls. All equipment power cords should be covered with a protective cover which should be glued or otherwise fastened to the floor.

Equipment for Cardiovascular Training Area

The International Health, Racquet, and Sportclub Association (IHRSA), NSCA, and the ACSM recommend that strength and cardiovascular training area planners should consider providing

- a variety of types of equipment for the cardiovascular area including treadmills, mechanical stair-climbing machines, bicycle ergometers, computerized cycles, rowing ergometers, upper-body ergometers, and total body-conditioning machines;
- at least one circuit of progressive resistance-training equipment (other than free weights) that includes either a machine or workout station for each of the following muscle groups: gluteus, quadriceps, hamstrings, calves, chest, upper back, lower back, shoulders, triceps, biceps, and abdomen; and
- a circuit for resistance training in a fashion that allows users to train the largest muscle groups first and then proceed to the smaller muscle groups. All compound movement machines should be placed in the circuit before isolated movement machines involving the same muscle(s).

The following considerations should be taken under advisement when making cardiovascular equipment selections:

- age and condition of clientele served
- available space in cardiovascular area
- sufficient electrical supply to support equipment
- budgetary considerations
- maintenance requirements of selected equipment
- proximity of equipment repair technicians to fitness facility
- length of warranty (e.g., two years for most common equipment)

Some vendors will provide on-site demonstrations of their cardiovascular equipment and can be trailed by the membership for usually a two-week period. This is an ideal time to acquire feedback from the members pertaining to the likes and dislikes of equipment. Only consider on-site demonstration of equipment if you are seriously considering the purchase of equipment. Teasing the membership with the possibility of making a purchase and not following through will only upset them. It is also inappropriate to give a respective vendor the impression you are going to make a purchase and actually have no intentions of doing so.

Indoor Cycling Studios

The facility requirements of the indoor cycling studio should complement the objectives associated with the activity, which is to enhance mental imagery of an outdoor riding experience. To a certain extent, this activity should be perceived as a theater production where the instructor can control the lighting and sound with dimmer controls, which contribute to the ambience and visual effect. The inclusion of DVD projection is also desirable. The group facilitator's bike should be placed on a platform for participants to observe the cadence, form, and technique of the instructor, as well as for the instructor to observe the participants. Self-contained heating, ventilating, and air-conditioning (HVAC) systems separate from the main facility are desirable considering the intensity of the activity and the perspiration and heat that accrues. Ceiling fans should also be installed to circulate the air and keep the participants comfortable. The total space requirements are ultimately dependent upon the number of bikes to be included in the indoor cycling studio.

Group Exercise Areas

With the growing popularity and variety of group exercise programs, the accessories associated with these activities are also expanding. For these reasons, storage of equipment is a significant priority when evaluating existing and planning future group exercise facilities. Avoiding the appearance of clutter and potential hazards can be eliminated with the installation of tiered shelving that can be rolled out and put into a storage closet after a respective activity is completed. Mirrors serve as a functional need in this area in order for the instructor to observe the participants' form and technique; however, the overuse of mirrors on all walls can be disturbing for deconditioned individuals because of their perception that everyone is staring at them.

Stretching and Core Body Training Areas

The designated space for stretching and core body training is ultimately dependent upon the scope and extent to which the following accessories are made available: stability balls, speed and agility training accessories, medicine balls, bands/tubing, plyometric training boxes, power wheels, functional training grids, balance and stabilization boards, and pads. Establishing systems to support the use and storage of accessories is essential. Will the area be used on an individual or formal group instructional basis? A minimum of at least 175 to 300 square feet is suggested for this space.

Strength Training Space Requirements and Equipment

When determining facility space requirements, the programmatic objectives, number of potential users at peak time of use, the number of pieces of exercise equipment, and requirements for space allowances between pieces of equipment and walkway areas must be taken into consideration. The facility planner, when determining overall space requirements, should use two formulas:

- For each piece of equipment: 20 to 40 square feet should be provided. The exact amount of space should adhere to the equipment manufacturer's recommendations.
- For each participant: 20 to 25 square feet allowance should be allocated for each person using the facility at peak times of use. (This square footage requirement is not in addition to the space allocation for equipment).

Having adequate space ultimately provides a means to avoid compromising the safety of the participants. The space requirements for the most common free weight activities are as follows:

- bench Press = 90 square feet (18.36 sq m)
- standing exercise (standing arm curl, shoulder press, etc.) = 40 square feet (3.7 sq m)
- standing exercises from power racks = 130 square feet (12.07 sq m)
- olympic lifting platform (power clean) = 144 square feet (13.37 sq m)

At least two feet of space should be provided between exercise equipment/stations with three feet being optimal. It is also advisable to strategically design the strength training area into zones. Activities with greater risk, such as free-weight usage, should be a separate area away from the selectorized weight machines. The strength facility supervisor or monitor's station must be in close proximity or have direct visibility of the free-weight zone.

This area will be one of the most popular spaces in the facility. You should expect a mixture of dedicated bodybuilders, recreational weight lifters, dedicated fitness and body tone people, and novices who are just becoming interested in strength training. There will be an equal number of men and women involved in strength training programs. Further, this area needs to include space for free weights, strength training machines, and cardiovascular and stretching equipment. The designer must consider all these variables and create a room that will fit the needs of all groups.

Size

The strength training area will include coed free-weight, strength-training, cardiovascular, and stretching areas. A minimum of 9,000 square feet is needed; however, 12,000 square feet is preferred for this space with at least a 10-foot ceiling. Many new strength and cardiovascular training areas are inadequate

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when they open, because the designer did not perceive the popularity of the activity during the design stage (Baechle, 1994).

Walls

Three of the walls should be solidly covered with materials that will reduce sound internally as well as externally. The walls should be painted with an epoxy for ease of cleaning. There should be graphics provided to make the walls come alive. Further, numerous mirrors should be placed around the walls. The fourth wall should be constructed of durable glass and face into the lobby/lounge area (with drapes) to further encourage greater use of the area. Each area should have at least one bulletin board (i.e., cardiovascular, weight machines, free weights, and stretching).

Floor

The facility should provide the following types of floor coverings for the strength and cardiovascular training area (Peterson & Tharrett, 1997):

- Cardiovascular area: Antistatic commercial carpet treated with antifungal and antibacterial agents.
- Resistance-training area: A rubber-based resilient floor.
- Stretching area: Nonabsorbent mats or antistatic commercial carpet with antifungal and antibacterial agents.

New construction should involve the establishment of a 4 to 6 inch concrete floor being constructed on top of the building slab with a two-inch air space between the floor and the building slab. The springs will provide vibration isolation and ultimately prevent transition of sound from the building slab. The free-weight area should be at least one platform, 10 feet by 10 feet by 6 inches, constructed of sturdy materials and covered with a rubberized flooring material to be used for heavy weight activities. This platform should be recessed into the concrete slab. Depending on the number of participants, multiple platforms may be needed.

Ceiling

The ceiling clearance needs to be at least 10 feet. The ceiling should be constructed with acoustical ceiling materials. A drop ceiling can be installed for these spaces; however, ceiling panels are more susceptible to damage by objects or individuals and require considerable maintenance. Therefore, it is recommended that a permanent ceiling be considered rather than a drop ceiling.

Electrical

The electrical needs of equipment (e.g., treadmills, stair climbers, computerized bicycles, etc.) in the facility must be considered as well as the equipment layout. There should be numerous receptacles around the perimeter of the room. The designer will need to provide for audio and video needs in the room as well as for computer access.

The lighting in the area should provide at least 50 foot-candles of illumination at the floor level. The ideal lighting system has both an indirect and a direct component, throwing surface light on the ceiling to give it about the same brightness as the lighting unit itself. It is recommended that fluorescent lamps be installed, since they have the advantage of long life and produce at least two and one-half times the amount of light of incandescent lamps for the same amount of current used.

Sound

The strength and cardiovascular training space by its nature and equipment is a noisy place. Therefore, it is necessary to design the room to accommodate the noise generated. Materials in the walls, on the floor, and in the ceiling should have good acoustical qualities. The sound system should provide equal sound distribution to all areas, not exceeding 90 decibels.

Climate Control

When people use weights, they generate a great amount of perspiration and odor. The designer must consider these problems when designing the mechanical aspects of the room. The three most critical concerns are heating and cooling (68 to 72° F [22 to 26° C]), humidity control (55%), and ventilation (8 to 12 exchanges per hour with a 40 to 60 mix outside to inside air). Unfortunately, designers and/or owners neglect these concerns and are extremely disappointed after the facility opens. Climate control can make or break a strength training program.

Strength Training Equipment

A comprehensive strength training facility will include: Olympic benches, bars, and plates; weight trees; power racks which include adjustable spotter's bar for squats or bench press purposes; adjustable benches for dumbbell activities; cable crossover and handle accessories; smith machine; assisted dip; hyperextension; and abdominal boards.

The number of Olympic benches and power racks is ultimately dependent upon the projected number of participants using the facility during peak hours of operation. The selection of the appropriate Olympic bars is determined by the tensile strength. Bars used for squatting, Olympic lifts and bench press

ultimately require 1,500-pound test. The types of Olympic plates available are steel, rubber, or polyurethane-coated. The selected style is ultimately influenced by the budget and the desired aesthetic value that is to be achieved. Olympic plates can be monogrammed with the organization's logo and dumbbells to reinforce the organization's brand identity.

One complete line of selectorized weight equipment should be included in the strength training venue. Typically, a complete line (11 to 18 pieces) will accommodate all major muscle groups. Selectorized equipment is ideal for beginners, women, and seniors because of the elimination of a balance component and reduces the risk found with the use of free weight activities.

Health Assessment and Testing Area

An organization truly having a vested interest in the physical well being of their membership will have a state-of-the-art fitness assessment, consultation, and educational seminar room.

Programmatic Considerations

The members' achievement of their fitness goals requires that they have a baseline to measure their progress prior to beginning their exercise programs. The health assessment process is an integral part in developing exercise plans. A determination must be made as to the scope of the health assessment process and the extent that educational and lifestyle programs will be offered, because these dimensions will dictate the amount of facility space required. Most health assessments include body composition analysis, blood pressure screenings, muscular strength and flexibility testing, submaximal cardiovascular testing, cholesterol screenings, health history appraisals, and nutrition consultations.

The following are specific fitness testing space and facility requirements:

- The scope of space required is ultimately dependent upon the scope of the health and fitness protocol completed. The fitness testing space requires a minimum of 100 to 180 square feet, consultation room (90 to 120 square feet), and a seminar room (20 square feet per participant) all with a minimum of an eight-foot ceiling with suspended acoustical panels; wall construction comprised of dry wall and painted with epoxy paint.
- The electrical outlets need to be strategically located in proximity to the exercise testing equipment and should be ground fault interrupters (GFI). Fluorescent lighting within this area should be at least 50 foot-candles of illumination at the floor surface.
- A sink in the facility is required.
- The emergency response system should include emergency lighting and audible alarms. This is necessary for the purposes of warning other facility personnel of a medical emergency in the area.
- Because of the function of the space, adhering to these standards is essential. The HVAC mechanical systems must have a temperature environment of 68°-72° F (22° to 26° C), humidity control of 55 degrees, and ventilation (8 to 12 exchanges per hour with a ratio of 40 to 60 outside to inside air).
- Size: The testing area includes a fitness testing space (100 to 180 square feet), counseling room (90 to 120 square feet), and seminar room (20 square feet per participant) all with an eight-foot ceiling (Peterson & Tharrett, 1997). There should be adequate space in this area to house two chairs, a desk, a file cabinet, a storage cabinet, a computer station, a bicycle ergometer, a flexibility tester, a treadmill, control console, crash cart, metabolic cart, 12-lead electrocardiogram (ECG), ECG defibrillator, cholesterol analyzer, examination table, double sink, spine board, and a storage cabinet for equipment such as skinfold calipers, stopwatches, and stethoscope(s).
- Walls: Simple drywall construction, epoxy painted with a pleasing color(s), appropriate graphics for the area, and a bulletin board.
- Floor: The floors should be carpeted with an antistatic and antifungal commercial-grade carpet, color coordinated with the walls and equipment in the room.
- Ceiling: A suspended acoustical panel ceiling is appropriate.
- Electrical: The electrical needs of the equipment in the room should be considered as well as the eventual location of the equipment. There should be numerous electrical outlets around the perimeter of the room. The outlets near the sink should be GFI. The recommended lighting for this area is fluorescent units that will produce at least 50 foot-candles of illumination at the floor surface.
- Climate control: The mechanical considerations for this space include heating and cooling (68° to 72° F [22° to 26° C]), humidity control (55 degree), and ventilation (8 to 12 exchanges per hour with a ratio of 40:60 outside to inside air). Due to the activities in this room, careful consideration to cooling, humidity control, and ventilation are necessary.
- Plumbing: A facility should ensure that every fitness-testing space either has a sink or access to a sink.
- Security: There should be emergency lighting and an audible emergency alarm to alert other personnel to a medical emergency in the testing area.

Equipment for the Fitness-Testing Area

The NSCA and ACSM suggests that a facility should ensure that its fitness-testing area has the following equipment (Baechle, 1994; Peterson & Tharrett, 1997):

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- In the fitness-testing area—a bicycle ergometer, a treadmill or a fixed-step device (e.g., a bench) of a desired height, skinfold calipers or other body composition measurement device, sit-and-reach bench on goniometer, tensiometer or other device for measuring muscular strength and endurance, perceived exertion chart, clock, metronome, sphygmomanometer (blood pressure cuff), stethoscope, tape measure, scale, and first-aid kit.
- In the health promotion and wellness area—computer, overhead projector, video system, slide projector, conference table, and chairs.
- In the fitness-testing, health promotion, and wellness area—a system that provides for and protects the complete confidentiality of all user records and meetings.

Selecting and Purchasing Equipment

The selection and purchasing process is the key to securing top quality equipment. The planners of the facility should answer the following questions before selecting and purchasing equipment:

- What are the current equipment needs?
- What pieces would complement the new or existing facility?
- Will the selected equipment meet the programmatic objectives and needs?
- Will the clientele's needs be accommodated?
- Are ADA requirements being met in terms of type of equipment and placement?

The purchasing of exercise equipment is exciting; however, it is a time-consuming and involved process. With the numerous manufacturers of exercise equipment, the selection process is becoming much more difficult in trying to sort out which vendor to select. Purchases should be from reputable manufacturers that meet the fitness and industry standards for commercial equipment. Equipment for the home should never be considered for a public facility. To streamline the selection process, consider the following:

- Attend exercise equipment trade shows: This allows for the prospective buyer to use equipment and compare equipment vendors all at the same location. It is also an opportune time to establish rapport with vendors, particularly when planning to do business with them in the future.
- References: Call other fitness facilities to determine their level of satisfaction pertaining to a brand of equipment being considered for purchase. What do they like or not like about the selected equipment? What common maintenance issues have they had to address? What was response time for making repairs and the quality of service?

The following is a listing of selectorized equipment criteria:

- dimension of frames—floor space considerations
- shape of frames—oval, tubular, square—esthetic value
- covered weight stack shrouds/sealed moving parts—avoid potential injuries
- ease of cleaning—labor savings
- color of frames and upholstery—esthetic value
- ease of making seat adjustments—user friendly
- equipment instruction placards mounted on each piece of equipment

Delivery and Arrival of New Equipment Protocol

The arrival of new equipment is an exciting time for the respective facility and the membership. Proceed with the installation of equipment with caution and the utmost care.

- Establish a firm delivery date and time with the shipping company.
- Make an assessment to determine what entrance modifications, if any, need to be made to the facility when equipment arrives. Questions to consider include: Should the facility be temporarily closed; is the removal of door jams required; are pallet jacks or a four wheel cart required; will additional staff to assist with set up and installation be required or is this service included in the delivery and set-up process?
- Take pictures and write extensive notes pertaining to the condition of equipment upon arrival, specifically if it is damaged. Are upholstery colors and the models of equipment correct?
- Inventory the equipment immediately by securing the serial numbers from the delivery sheets or manually record the numbers off each piece of equipment. This is necessary because, when requesting future repairs, respective vendors will ask for serial numbers before processing equipment repair tickets.
- Sign off on deliveries, as long as items are acceptable. If equipment is not correct, an immediate call to the manufacturer or sales representative will determine the course of action to take, which may include the reloading of equipment onto the truck.

- Prior to allowing equipment to be placed into service, it should be thoroughly inspected as well as tested by the facility coordinator to ensure it is functioning appropriately.

To ensure the longevity of the facility and the equipment, the following criteria should be in place:

- Develop equipment and facility inspection systems.
- Establish equipment cleaning and maintenance schedules.
- Establish short- and long-term facility enhancement project schedules.
- Establish equipment replacement schedules.
- Establish staff cleaning matrix of assignments.
- Rules and regulations need to outline what the expectations are of members pertaining to cleaning cardiovascular consoles and upholstery after use, and so on.

Facility coordinators must be knowledgeable regarding manufacturers cleaning and maintenance requirements. Failure to adhere to these guidelines can jeopardize the warranty of equipment. Organizations must establish cleaning and maintenance manuals for the staff to use. The content should outline the cleaning materials, tools necessary to complete the task, the procedures for completing the cleaning or maintenance procedure; and the frequency of the cleaning or inspection to be done. Many small organizations and facility operations often require front desk or exercise floor staff to complete cleaning and maintenance functions. Greater accountability of staff is established when staff members are responsible for cleaning specific pieces of equipment and not just charged with the oversight of all equipment, especially if more than one person is involved in the cleaning and maintenance process.

Procedures for Maintaining Equipment

All strength and cardiovascular facilities, whether they are existing or new, should have a well-planned set of procedures for maintaining equipment in specified areas.

Aerobic/Anaerobic Fitness Area

This space contains rowing machines, bikes, sprint machines, stair machines, and skiing and climbing machines. In this area, surfaces that come into contact with human skin should be cleaned and disinfected daily. This not only protects participants from unsanitary conditions but also extends the usefulness and maintains the appearance of equipment surfaces. The moving parts of the equipment should be properly lubricated and cleaned when needed so that they are not stressed unnecessarily. Connective bolts and screws need to be checked for tightness or wear and replaced if needed. Straps and belts should be secure and replaced if necessary. Measurement devices such as revolutions per minute (rpm) meters should be properly maintained (this is usually done by the manufacturer, but the life span of the equipment can be extended by wiping off sweat and dirt regularly). Equipment parts such as seats and benches should be easily adjustable.

Machines Area

Isokinetic, variable resistance, single-station, and multistation machines are located in this space.

Rehabilitation and Special-Population Machine Area

The cleaning and maintenance of both the machines and rehabilitation areas are similar to those processes in the aerobic/anaerobic fitness area. Bench and machine surfaces that come into contact with skin should be cleaned and disinfected daily to provide a clean surface. Padded and upholstered areas should be free of cracks and tears. Moving parts should be cleaned and lubricated (guide rods on selectorized machines should be cleaned and lubricated two to three times each week). These areas should be free of loose bolts, screws, cables, chains, and protruding or worn parts that need replacing or removal. Pins that were designed for the machines and belts should be kept in stock. Chains and cables should be adjusted for proper alignment and smooth function. Machines should be spaced so that they are easily accessed with a minimum of two feet (61 cm) on all sides, preferably three feet (91 cm) (Baechle, 1994).

Body Weight Resistance Apparatus Area

This area contains sit-up board, pulleys, hyperextension benches, plyometric boxes, medicine balls, climbing ropes, pegboard climb, and jump ropes. It should have secured apparatus with well-padded flooring. If mats are used, they should be disinfected daily and be free of cracks and tears. The flooring below plyometric boxes and jumping equipment should be padded to protect the jumper from impact with a hard surface. The tops and bottoms of boxes should have nonslip surfaces for safe use.

Stretching Area

Equipment in this area includes mats, stretching sticks, medicine balls, elastic cords, and wall ladders. Mats in stretching areas should be cleaned and disinfected daily and be free of cracks and tears. Areas between mats should be swept or vacuumed regularly to avoid the accumulation of dust and dirt. The area should be free of benches, dumbbells, and other equipment that may clutter the area and tear mat surfaces. Medicine balls and stretching sticks should be stored after use and elastic cords should be secured to a base, checked for wear, and replaced when necessary.

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Free-Weight Area

This area includes bench presses, incline presses, squat racks, dumbbells, and weight racks. Equipment should be spaced to allow easy access to separate areas. All equipment, including safety equipment (belts, locks, safety bars) should be returned after use to avoid pathway obstruction. Benches, weight racks, and standards may be bolted to the floor or walls. In the squat area, the flooring should be of a nonslip surface and cleaned regularly. Equipment such as curl bars and dumbbells should be checked frequently for loose hex nuts. Nonfunctional or broken equipment should be posted with “out of order” signs or, if a long delay in repairs is expected, removed from the area or locked out of service. All protective padding and upholstery should be free of cracks and tears and disinfected daily.

Lifting Platform Area

Equipment in this area includes Olympic bars, standards, bumper plates, racks, locks, and chalk bins. The cleaning and maintenance of the lifting platform includes ensuring that all equipment is returned after use to prevent obstruction of the area and hazardous lifting conditions. Olympic bars should be properly lubricated and tightened to maintain the rotating bar ends. If standards are used in the area, the base of each should be secure and each standard stored out of the way when not in use. Bent Olympic bars should be replaced and the knurling kept free of debris and chalk buildup by cleaning and brushing occasionally. All locks should be functioning, and wrist straps, knee wraps, and belts should be stored properly. The platform should be inspected for gaps, cuts, slits, and splinters (depending on the type of surface) and properly swept or mopped to remove chalk. The lifting area should be free of benches, boxes, and other clutter to give the lifter sufficient room.

Cleaning supplies should be kept in a locked cabinet located near the office or supervisor station. Supplies should be inventoried and restocked on a regular basis (once or twice each month). These items should be kept in stock (Armitage-Johnson, 1994): disinfectant (germicide), window and mirror cleaner, lubrication sprays, cleaning sprays, spray bottles (about four), paper towels, cloth towels, sponges, broom and dust pan, small vacuum cleaner, vacuum cleaner bags, whisk broom, mop and bucket, shower caps (for bicycle meter equipment), and gum and stain remover (for carpet and upholstery).

Maintenance supplies should be kept in a toolbox located in a locked cabinet. The toolbox should contain these items (Armitage-Johnson, 1994): file, hammer, pliers (standard and needle-nose), screwdrivers (Phillips and standard), allen wrenches, crescent wrench, rubber mallet, carpet knife, cable splicer parts and appropriate tools, chain splicer parts and appropriate tools, heavy-duty glue, nuts, bolts, washers, nails, and screws in various sizes, transparent tape, masking tape, duct tape, drill and drill bit set, lubricant spray, socket set, and vise grip.

Floor Cleaning and Maintenance

The life of any floor is directly related to the daily cleaning and maintenance of the surfaces. The floors should be cleaned regularly, especially surfaces near and around cardiovascular equipment. The established cleaning and maintenance schedule should indicate the type of solvents to use, cleaning process, and the frequency for completing daily or routine maintenance processes. Manufacturers will provide the guidelines, schedule, and tips for cleaning and maintaining the floors.

Disinfectant/Cleaning Schedule for Exercise Equipment

Selected solutions used to clean and disinfect equipment must comply with the manufacturer's recommendations. All upholstery, handrails, exercise mats, and cardiovascular equipment consoles, and especially any equipment surfaces that may come in contact with the skin, should be cleaned at least three times per day by a designated staff member. Members should be encouraged to wipe equipment after their use of equipment. Cleaning solutions should be applied to a soft cloth and then wiped on the unit, and not applied directly to any part of the equipment. The rails on ellipticals, treadmill bases, and footpads on stair-steppers as well as equipment housing units, will need to be vacuumed regularly.

Outsourced Maintenance Service Contracts

Establishing a maintenance service contract with an independent vendor is advisable for clubs or organizations that have numerous pieces of equipment or do not have the appropriate staff to service equipment. A Request for Proposal (RFP) for the servicing of equipment should be requested from vendors in order to secure the most competitive rates. Considerations included with the bid may include: service contract period, quarterly preventative inspection and maintenance schedule, hourly cost for service, trip charges, and the like. This formal approach may increase the likelihood of the organization's financial resources being maximized through a competitive bidding process.

In-House Maintenance Programs

Having a designated staff member responsible for servicing equipment increases the likelihood that repairs will be completed on a more timely basis and service interruptions for the members are kept to a minimum. Many equipment manufacturers provide training for in-house maintenance staffs. This service may be a variable when determining which manufacturer to consider when making future equipment purchases.

Once the warranty expires and the equipment ages, the frequency and number of repairs increase as well. Keeping the most common parts in stock minimizes the down time of broken equipment and the delay in receiving parts should they have to be ordered. It is advisable to have the following parts be in stock:

- treadmills—new running belts, decks, and motors
- ellipticals—ramp, wheels, and elevation assemblies
- stair climbers—alternators, cables and belts
- indoor Cycles—pedals, straps, water holders, crank arms, pads
- selectorized equipment—cables, Kevlar, weight stack pin replacements

Only certified trained staff should complete repairs on exercise equipment, especially when servicing electrical components.

Tools/Parts/Cleaning Supplies

The establishment of a comprehensive toolbox needs to reflect the tasks that will be completed by in-house maintenance programs versus outsourced service repairs. With each respective vendor using different size bolts and attachments, a survey of manufacturers' equipment manuals will delineate the necessary parts and tools necessary to make repairs. When an equipment catalog is not provided, it will be necessary to inspect the equipment attachments and fittings before making specific tool purchases. A word of warning is to make sure socket and Allen wrenches appropriately match metric or standard fittings. Lubricants for selectorized equipment rails must adhere to manufacturer's guidelines

Reporting Repairs

Establishing a formalized process for reporting repairs and for taking malfunctioning equipment out of circulation is a legal liability and necessary standard.

Facility coordinators have a duty to warn participants of any potential risk they assume in the general use of facilities, or pieces of equipment that are not operating efficiently, as well as when a respective facility area may be under repair. Equipment that is not operating should have a placard attached to it that states "DO NOT USE." Removing the equipment from circulation is a more prudent response to assuring the safety of participants.

The sample work order demonstrates the types of information that should be included.

Equipment Repair Work Order

Today's Date: _____
 Name of Staff Member requesting repair: _____
 Detailed Description of Item Broken: _____
 Serial Number of the Product: _____
 Organizational Inventory ID number (if used) _____

Was equipment taken out circulation or sign posted on equipment restricting use? (Please Circle).
 If no, describe what actions were taken!

YES NO

Date call was placed for repair? _____
 Date Service was completed _____
 Cost of Repair _____
 Warranty of repair: 30 60 90 days

Strength Training Equipment Maintenance Checklists

The following are the standard inspections that should be included in a comprehensive maintenance program:

- Inspection of weight stacks, cables, and attachments—are they appropriately secured?
- Inspection of snap hooks—clasps close appropriately?
- No worn or frayed cables on equipment?
- Chrome end caps on dumbbells are not becoming jagged or flaking shrapnel pieces?
- Dumbbells tightened and secured?
- Bolts appropriately tightened on all benches?

Maintenance Records

At the time of installation of new equipment, a Maintenance Record Sheet should be established for each respective piece of equipment. This is necessary to track the maintenance inspection and servicing history and warranty schedule and to aid in decisions when a respective piece of equipment may need to be traded in or replaced. Extending the longevity of cardiovascular equipment can be enhanced if the pieces directly in front of entertainment sources are periodically interchanged with other pieces. Typical usage patterns are for cardiovascular equipment in front of entertainment venues to be the most frequently used. A review of the diagnostic tests to track usage patterns, specifically on treadmills is an excellent method to determine the number of miles as well as the frequency of starts and stops for each piece of equipment.

A safe-deposit box at an office site location should include a listing of all equipment, serial numbers, internal ID systems, as well as a video recording of the interior of the facility and the equipment. In

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the event of a fire or other catastrophic event, these records increase the likelihood of claims with insurance adjusters being settled much more quickly as a result of the detailed records being accessible.

Upholstery Repair

A common eyesore in facilities is worn upholstery. The process of repairing upholstery is a time-consuming process. Having the appropriate tools to complete the job and a skilled in-house staff member to perform this task is a challenging one; therefore, outsourcing this repair is recommended.

Summary

The development of strength and cardiovascular facilities requires a great deal of specific knowledge about the activities to be carried out within the facility. The planners need to be versed in the programs to be offered and the equipment used in the programs. Finally, the planners need to understand any specific requirements for programs or equipment.

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