

TO: Board of Education

FROM: High School Planning Team

RE: Fitness Center

DATE: May 5, 2014

The proposal is to create a fitness center under the “new” gymnasium at the high school. To be certified for occupancy of any kind, the space requires new heating, lighting, ventilation and related systems. The renovated space will include an area for stretching and exercise as well as cardiovascular and weight equipment and free weights. It will serve physical education classes, athletic teams, and individual students.

A larger, better equipped facility is essential to the implementation of the K-12 physical education curriculum that’s been revised during the past two years, both as part of the normal program review process and in response to a new set of National Association for Sports and Physical Education standards. Consistent with current research and practice, the curriculum now includes an equal focus on lifelong fitness and on the theory and practice of lifetime sports/activities. The aim of the focus on lifetime activity is to develop not only physical skills and positive attitudes, but capacities such as collaboration and perseverance.

A modern training facility is also essential to our 21st century athletic program. Increasingly, interscholastic athletic programs require participants to be involved in strength, conditioning, health and safety education. Risk factors have increased as competitors have become larger, stronger and faster. Effective training is essential to minimize injuries, facilitate rehabilitation and protect the safety and long-term health of players. In Scarsdale, furthermore, a larger, more open, and more accessible fitness center is important to efforts to realize gender equity.

Program Requirements

The new physical education curriculum is divided into two, two-year sequences (grades 9-10, grades 11-12). Each sequence contains eight five-week units. Four are fitness units, the other half sports. Thus, every student in the school – approximately 1600 individuals – will participate in a five-week fitness unit each quarter of the school year.

The focus of fitness instruction includes general fitness, muscular strength, endurance and flexibility. The curriculum also calls for students to participate in physical activities and to learn theory (how to promote cardio health, physical effects of proper diet, etc.). Examples of fitness courses: Start-up Fitness, Principles of Modern Fitness, Fitness FUNdamentals, iFit, RaiderFit, Cardio-training. (See Appendix A) Examples of lifetime sports/activities: tennis, bowling, cooperative games, volleyball, basketball, golf, softball, archery, and Project Adventure, discussed in more detail below.

Curriculum discussions have also led to consideration of future possibilities. For example:

- Classroom learning involving lab equipment such as electronic monitors that would enable students to link theoretical study to their own physical progress. Teachers would use iPads or

other instructional tools to project videos or other information for student reference during class and to do the kind of physio-analysis our team has observed elsewhere.

- Upper-class electives flow logically from the 9-10 program, with courses including Modern Fitness Concepts, Bio-Kinetics, Exercise Physiology, Introduction to Sports Medicine
- Cross-disciplinary work. For example,
 - Biology: Measuring heart rate before and after exercise. Developing experiments to test how warming up a muscle affects its performance.
 - Physiology: Exploring the VO₂ max, carbon dioxide production and cell respiration based on exercise. Monitoring how muscles change temperature during exercise.
 - Technology: Supporting development of workstations and lab experiences in the Center, including Biopack Data Collection, VO₂ Max testing and OptiGate Testing.
 - Science Research: Applied study in biology, chemistry, physiology as Science Research Program project focus for students in grades 10-12.

Space Required to Support the Program

An improved fitness center is essential to the full implementation of a 21st century physical education curriculum that students will find meaningful, engaging and useful throughout their lives. A larger, more inclusive space is also necessary to meet the needs of athletes and to provide gender equity, consistent with Title IX.

The physical education curriculum involves strength training, cardio-vascular training and stretching, as well as instruction in theory. To implement the curriculum, space in the fitness center must be able to accommodate four different kinds of activity: two separate areas for strength training (free weights and weight-bearing machines), one area for cardio-vascular training (elliptical trainers, treadmills and similar equipment), one area for stretching.

To accommodate the current and projected student population, as well as constraints of the physical education schedule, the space in the fitness center will have to be able to hold two classes of approximately 30 students at a time. The total high school population is now 36 percent larger than it was in 1992, when the existing fitness center was created. The center is now in use a minimum of five out of seven periods a week during the winter season. There will be times when two fitness classes must be scheduled back-to-back. In addition, the professional staff anticipate that demand for this space will grow as experience with the new fitness curriculum grows.

The center should also provide for increased use by both male and female athletes after the school day (during which times it is currently staffed), as well as before the school day (if that time is staffed). Some of this use is informal. Currently, for example, many individual members of the football team lift weights during the off season. Going forward, there will also be more formal team use both in early season (in March for spring teams, for instance) and during the rest of the regular season.

Many females report that they won't use the fitness center now because of its location (down a long, dark and isolated corridor) and because they are uncomfortable exercising in the presence of male

athletes who are lifting free weights in a small, confined space. Some cannot conceive of themselves as ever taking advantage of any co-educational training area.

To be healthy, safe and successful on the field or court in the modern era, individual female athletes must use weight and cardio equipment. Also, women's teams must have equal access to fitness equipment. Because of practice and game schedules, it's not always feasible to schedule a fitness area so that only one gender at a time can use it. Therefore, the only apparent way to improve the current gender imbalance and provide equal access is to create a larger, more welcoming fitness center where athletes can exercise at a reasonable distance from one another, free from an aura of overwhelming masculinity.

After lengthy investigation, two different architectural firms have concluded that the best location for a new fitness center is underneath Gym 3 and 4. A 6200 square foot renovation would accommodate two classes at a time. The space would allow for two strength-training areas, a cardio-training area, and an area for stretching, floor exercises and group instruction. The space is in close proximity to the athletic fields, locker rooms, and other gymnasiums.

If a new fitness center is not created:

- We will not have an appropriate amount of space; the number of machines available to students will be inadequate; we will not have integrated instructional space in the fitness area
- We will therefore be unable to implement the physical education curriculum properly or to provide appropriate instructional space for the program.
- We will be unable to provide adequate opportunity for athletes to improve their physical conditioning or strength or to rehab injuries.
- A significant portion of the student population, mostly female, will not use the center for athletic training.

Current Space Limitations

The current fitness center has two critical shortcomings: size and (therefore) equipment.

The existing fitness center cannot accommodate even one physical education class. It is physically large enough to hold up to thirty students, but it cannot house enough equipment and/or provide enough floor space to allow a whole class to be active at the same time. As a result, some number of students currently has to stand and watch while others participate in physical activities.

Related: the size of the room limits the amount of strength equipment that's available and leaves almost no space for cardiovascular machines or for stretching or instruction. Because it cannot accommodate enough units of a full range of weight-training or cardio equipment, it can't serve a full class of students who are supposed to be pursuing the same general kinds of activities (cardio-vascular, e.g.).

While some fitness activities (stretching or yoga, e.g.) can take place in existing general gym space, it's not feasible to split classes so that students are simultaneously doing fitness work in multiple spaces (some stretching in one gym, some using cardio machines in a separate area, some involved in classroom learning in yet another.) The new curriculum, fully developed, requires more dedicated space than we currently have, as well as more, and more appropriate, equipment.

The same problems exist for the athletic program, especially when whole teams wish to use the fitness center.

Other Scarsdale Gymnasiums

In the process of developing this proposal, the professional staff reviewed the use of existing gymnasium space in the building to determine whether it could be converted for use as a fitness center. Physical education classes currently occupy all available facilities (3 gyms, multi-purpose (wrestling) room and existing fitness center) 12 out of the 35 periods each week. If any one of these physical education stations were taken out of service, classes would double up at another station and/or students would have to stand and wait, as is currently the case for some who have to stand in Gym A while they're waiting to use the fitness center.

Athletic teams use every available facility from 3:30 until 8:00 p.m. in the fall season, and from 3:30 until 9:00 p.m. in the winter season. All facilities are also in use from 3:30 to 5:30 before fields are open in the early spring season and in inclement weather throughout the spring. If one of these spaces were taken out of service, some teams would practice even later in the evening (after 8:00 or 9:00) or practices or games would be cancelled.

The Middle School gymnasium is in use for modified athletics and/or for first year high school teams during the fall and winter seasons, as well as in the early spring, before fields are open or in inclement weather. Elementary school gymnasiums are in use for high school teams or for elementary school activities.

Other Districts' Fitness Centers

A number of school districts built weight rooms about the time Scarsdale's existing facility was built, a quarter of a century ago. A main reason was the increase in weight lifting and conditioning for football teams. Since that time, the "weight room" has evolved into "the fitness center," which includes more and more varied kinds of equipment.

During a recent visit to Horace Greeley High School, for example, members of the professional staff and three school board members saw a facility that was somewhat larger than Scarsdale's and that includes a broader range of machinery, including weight and cardio equipment. The space was crowded, and Greeley staff described it as cramped and inadequate.

One of the newest fitness centers in our region is at John Jay High School in Katonah. The 5500 square foot space was built in the 2000's, replacing a weight room that was similar to Scarsdale's existing facility. The ceiling is approximately 25 feet high and accommodates a climbing wall of the sort we hope to install in Gym A. It cannot accommodate ropes elements of a Project Adventure course. The room contains a range of weight and cardio-equipment, space for stretching, and class instructional space. All or most of the equipment could be used in a facility with 8 to 9-foot ceilings.

During a visit to John Jay, Scarsdale visitors learned that the center was designed with the specific goal of involving a wide range of students, including non-athletes. As in Scarsdale, non-athletes and females felt uncomfortable using the old facility. The professional staff made a priority of changing the culture in the new space, and our visitors observed a healthy mix of males and females comfortably working out and interacting. John Jay's Director of Health, Physical Education and Athletics noted that over 100 students now regularly use the Center before and after school, so that the floor space is inadequate. If Katonah were to re-do the project today, he would advise making it larger.

Alternatives

GYM 3-4 OPTION ONE: The preferred alternative, which will support two classes and two or more athletic teams at a time, is 6200 square feet. The drawback of this space is a ceiling height of 8 to 9 feet. The architects have reviewed applicable standards and state that most standard equipment will fit in the space and that it is usable for the purposes intended.

GYM 3-4 OPTION TWO: A smaller space of 4500 square feet under Gym 3-4 is less desirable because it will house less equipment, fewer activities and only one class or team at a time.

AUTO SHOP: The auto shop is 3100 sq. ft., only 600 square feet larger than the existing fitness center. Its drawback is that it is too small to meet the program needs outlined above, and it would be subject to many of the same problems as the existing fitness center.

GYM A: Gym A, at 3470 square feet, is also smaller than the space required for a single class. There are several drawbacks to this option.

First, it is too small to meet the program needs outlined above.

Second, if it were taken out of general service and turned into a fitness center, the consequences would be as noted above: classes doubling up, students standing idle in one or more spaces, athletic practices or contests running past 8:00 or 9:00 in the evening or being cancelled.

Third, it would compromise the new physical education curriculum.

A long-term Physical Education Department goal has been to upgrade Gym AB so that it will support a modern physical education curriculum students will find engaging and meaningful. The thinking has been to use the space to complete the Project Adventure curriculum strand that begins at the Middle School.

The District has already invested significant financial and human resources in the Middle School's Project Adventure facilities and program. The new State physical education standards and the new Scarsdale curriculum – not to mention 21st century skills – involve capacities that Project Adventure is designed to develop: individual initiative, collaboration, intelligent risk-taking, communication, and so on. Gym A has the vertical space to accommodate equipment (a climbing wall and ropes courses, for example) that is necessary to Project Adventure activities.

The addition of Project Adventure elements would make Gym A more versatile, expanding its capacity and preserving it for varied kinds of physical education instruction, as well as for much-needed athletic practice space.

SPLIT FITNESS CENTER: The least desirable option is to split the Fitness Center between two locations. Depending on where the space was located, this option might impinge on space for the learning commons or take up different space with other legitimate uses. It would be less efficient instructionally (a) as teachers would have to split classes between two areas or plan instruction around the split in facilities (b) require added staff to supervise one of the two areas while the teacher supervised the other.

Appendix A

Fitness Curriculum Overview

Teaching units will introduce students to new concepts and activities each year. They will also revisit some activities in more depth or for higher levels of mastery or understanding.

Fitness Gram Testing and Start-Up Fitness: This unit is included in at the start of the year for all students. Lessons include warm-up principles, movement prep and rehab (Prehab), speed and agility training, squat and lunge progression, circuit training, group initiative challenges and student-designed instant fitness warm-ups.

Principles of Modern Fitness I: Students will apply the FITT principle and heart rate training zones to both resistance and cardio-vascular training. They learn how to design their own training routines by selecting appropriate goals and learning primary exercises for the major muscle groups, while researching and choosing secondary exercises to support their routines.

Principles of Modern Fitness II: Students will take part in multiple styles of training including, but not limited to: Interval training, Circuit Training, HIIT (High Intensity Interval Training), Tabata and Functional Training. Students will practice the concepts of overload, progression, specificity and periodization as they apply to resistance and cardiovascular training.

Fitness FUNdamentals: This class covers the basics of the types of training that can be employed to improve aerobic and muscular fitness and flexibility. These include circuit training, cardiovascular/aerobic training, resistance training (dynamic and static) and flexibility training.

iFit: Students will gain experience with the uses of modern technology to develop and implement personal fitness plans. These technology-based programs will assist in tracking, recording and assessing individual fitness goals. Teachers will select some technology-based applications; students will research and present others.

RaiderFit: The course will introduce students to training movements of varying difficulty and offer opportunities to engage in individual challenges and group competitions. Students will test their overall fitness through HIIT-style workouts. Each class will include a movement-based warm-up, instruction in specific movements or routines, an opportunity to complete a routine, and cool down.

Cardio training: The unit teaches the importance of cardiovascular health by exposing students to varied lifetime aerobic activities and basic training principles. Students research the effects of cardiovascular/aerobic training as preparation for continuous participation in this activity. Students track their personal progress and reflect on their individual experiences, adapting their cardiovascular goals as their personal fitness levels improve.