

# NCAA Division I Strength Facilities: A Design and Operational Analysis

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While spectator venues typically gain a great deal of notoriety and coverage within the sport media, the less publicized facilities used for the daily training and development of the athlete are vital to his/her general performance and overall satisfaction. Within intercollegiate sport, the strength and condition facility (SCF) is one of the primary training areas utilized by nearly every athletic program participant. As the financial stakes of intercollegiate athletics continue to expand, university athletic programs continue to seek opportunities to attract better athletes and to physically develop these athletes within their span of eligibility. The SCF can become a critical component of this development process. However, because the SCF is neither the competitive venue nor the primary practice area for most sports, it is often overlooked from a facility design and operations perspective. This study sought to examine collegiate SCFs in order to better define their size and scope, the equipment utilized and the operational and staffing patterns present.

A total of 110 NCAA Division I universities participated in this study. Head strength coaches were surveyed to determine the size and scope of their facilities and equipment along with an analysis of their operations within their athletic departments. Strength coaches completed this 84-item survey hosted online with the inQsit system. Descriptive statistics and Pearson correlation analyses were conducted with SPSS version 17.0.

Facility size results indicated that the mean primary SCF size was 7,170 square feet, and the combined strength facility size for all athlete SCF areas was 10,557 square feet. Athlete-exclusive strength facilities have become more common in the university setting with 67.3% reporting the creation of exclusive facilities in the past 20 years. A further trend of exclusivity has expanded to the creation of football-only facilities within 90.7% of the schools. The trend of multiple sites is also demonstrated through the finding of a mean of 2.6 SCFs per school. An analysis of space allocations within the facilities revealed mean values of 71.3% for free weights, 17.9% for machine weights (both selectorized and plateloaded), and 9.1% for cardio areas. In addition, major facility renovation occurred within the past five years for 63.3% of the surveyed schools. SCF size was significantly positively correlated with total school enrollment ( $r = .316, p = .008$ ) and maximum safe capacity ( $r = .667, p < .001$ ).

Just as important as the amount of space available for the SCF is the equipment used. Therefore, both types and amounts of equipment were assessed. Free weight equipment was the most prevalent type present in 100% of the SCFs. Squat rack stations were most common ( $M=10.4$ ) ranging from 1 to 40, followed by bench press stations ( $M=9.0$ ) ranging from 0 to 40, Olympic platforms ( $M=8.2$ ) ranging from 0 to 40,

and dumb bell sets ( $M=1.9$ ) ranging from 0 to 8. Equipment in the machine weight category was assessed in two different classes: selectorized and plate loaded. Selectorized weight machines were present in 91.8% of the schools averaging 6.5 different machine types with a range of 1 to 19. Plate loaded machines were present in 73.6% of the SCFs averaging 4.4 different machine types per SCF with a range of 1 to 14 types. Cardiovascular training machines were included in 82.7% of the SCFs. Most prevalent were standard exercise bikes followed by treadmills and elliptical machines.

In order to assess the SCF operation, several staffing and organization aspects were assessed. The mean SCF staff size was 7.7 employees ranging from 3 to 24. Three types of strength coach staff members were present in every SCF with the following means: full-time ( $M=3.6$ ), part-time ( $M=1.5$ ), and graduate assistant ( $M=2.6$ ). An average of 13.8 athletic teams utilized the SCF ranging from 2 to 24. In order to accommodate these teams, the weekday opening time ranged from 5:00 to 8:00AM ( $M=5:54AM$ ), and the weekday closing time ranged from 4:30 to 9:30PM ( $M=6:48PM$ ). The operational strategies to cover these hours included eight hour shifts (47.8%), specific team(s) assignment (38.9%), and split shifts (9.7%). Special training in the form of certification was indicated in 93.6% of head strength coaches including: CSCS (74.5%), USAWF (53.6%), and SCCC (21.8%). Additionally, 62.7% of the schools reported that every member of their staff was certified. The typical level of daily use ranged from 40 to 700 individuals ( $M=258$ ), while the estimates of SCF safe user capacity ranged from 6 to 500 ( $M=51$ ).

From a budgetary perspective SCFs were assessed in the areas of equipment replacement and equipment maintenance budgets. Annual equipment replacement budgets included 31.2 % of universities indicating \$5,000 to \$10,000 in expenditures, 26.4% with less than \$5000 annually, and an additional 19.0% having no budget allocation in this area. Equipment maintenance added \$1,001 to \$5,000 to the budget for 42.6% of the schools annually. These generally modest amounts relate to the finding that 56.9% of the schools reported a majority of their equipment was less than five years old, and 36.1% reported use of external maintenance contracts for their equipment.

The enormous financial rewards for a successful athletic program have fueled an arms race among National Collegiate Athletic Association (NCAA) member institutions to build larger, more lavish venues that can serve to attract prospective athletes. Over a recent span of five years, schools in the NCAA's top six sport conferences raised more than \$3.9 billion for new sport facilities, according to the *Chronicle of Higher Education* (Wolverton, 2007). Schools engage in this arms race by building and upgrading stadiums, training facilities, offices, and meeting rooms. Before evaluating and/or constructing a SCF facility, it is important that one has a clear understanding of the programmatic objectives and the vision of the facility design. 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.

**References**

Wolverton, B. (2007). The athletics department of the future. *Chronicle of Higher Education*. 53(46), A28.