ABSTRACT: The purpose of this study was to examine selected aspects of the operation, administration, and structure of NATA-approved undergraduate education programs. Data were gathered through a self-reporting questionnaire designed specifically for the study. A total of 51 (93.0%) NATA program directors responded to the survey. For recording practical experience, 35.3% of all student athletic trainers used individual, weekly clinical hour log sheets. Student progress was formally evaluated in 74.5% of the programs with 96.1% of these evaluations reviewed in individual student conferences. The responsibility for scheduling student athletic training clinical hours was divided about equally between the head athletic trainer, the assistant athletic trainer, and the program director. Students were required to work with both men’s (51.0%) and women’s (49.0%) sports. In 56.9% of the programs, students were required to wear a uniform or adhere to a dress code. A majority (82.4%) of the programs conducted pre-season in-service sessions to review various procedures. About half (54.9%) of the program directors indicated that their programs engaged in fund-raising activities. Regarding program administration, 29.4% of the programs had a constitution. Student athletic trainer manuals were used in 78.4% of the programs and usually contained similar information. The position of Head Student Athletic Trainer existed at 35.3% of the schools. Many of the program directors (37.3%) indicated that they met weekly with the athletic training staff. Regarding various program components, 51.0% of the education programs had an athletic training club, and these clubs usually had similar functions. More than half of the programs organized orthopedic surgery, physical therapy, and/or orthopedic clinic observation experiences for their students. Of 45.1% of the programs which reported using affiliated settings, 31.4% were at the high school level. Further research is needed in the area of athletic training education, and it is imperative that the results be shared.

This study examined selected aspects of the operation, administration and structure of NATA-approved undergraduate athletic training education programs. Its intention was to apprise both program directors (curriculum and internship) and NATA Professional Education Committee evaluation team members of the approaches other athletic training education programs are taking in the professional preparation of their students.

SURVEY INSTRUMENT

Data were gathered through a self-reporting questionnaire designed specifically for the purpose of the study. With input from selected Professional Education Committee members, I developed the general items listed on the questionnaire as well as the areas to be investigated (see Table 1). After testing the survey instrument on nine NATA-approved undergraduate athletic training education programs, I further refined the questionnaire, then mailed the completed instrument to the remaining 55 program directors of NATA-approved undergraduate athletic training education programs.

RESULTS

A total of 51 (93.0%) of the 55 program directors surveyed responded to the questionnaire (results in Table 1). The internal consistency of these results is summarized in Table 2.

DISCUSSION

The study contributes to our general understanding of the operation, administration, and structure of NATA-approved undergraduate athletic training programs. It has revealed some helpful alternate approaches, and has reaffirmed those approaches already in use. Certain elements could be incorporated into the Program Self-Evaluation material for review purposes, both by program directors and by on-site evaluation teams. Responses provided by the program directors indicate that NATA-approved education programs tend to be similarly arranged, although guidelines for program structure, components, and operation are not as specific as they are for curriculum and skill competencies.

Two questions arise from this research: What is the effectiveness of such program components in the overall educational process? How do we ascertain and measure the impact of these components on the development of athletic training professionals?

It seems that some differences between programs could create differences in the preparedness of an entry-level professional. For instance, the reported variation in the frequency of staff meetings seems to suggest that communication among clinical supervisors may not be at an optimum level for providing adequate discussion and coordination of clinical experiences for student trainers. Further, the use of allied medical settings in NATA-approved education programs suggests that such experiences are not given to enough program graduates (assuming that these experiences are beneficial).
A possibility for revealing the influences of such program differences may come through a post hoc analysis of students' perceived benefits of selected program components on their job readiness during their first year of athletic training employment. This may also be expanded to include their perceived benefits of curricular offerings and skill competencies. These recommendations for improvements in program administration, operation, and structure could prove to be valuable.

As NATA-approved education programs grow and develop, a current status report regarding various program components could be used as a baseline for determining progress. Unique approaches should also be shared in an effort to improve athletic training education.

**Acknowledgement**

*I would like to thank Peter Howell for his assistance in both developing the survey instrument and conducting its mailing.*

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**TABLE 1**

<table>
<thead>
<tr>
<th>Survey Instrument and Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructions: Please respond to the three sections of this questionnaire as accurately and completely as possible. Checkmark all applicable responses.</td>
</tr>
</tbody>
</table>

**Part I: Program Procedures and Operations**

1. How do students in your program record their clinical hours?
   - (2) 3.9% a. community weekly hour sheet
   - (6) 11.8 b. community monthly hour sheet
   - (18) 35.3 c. individual weekly hour sheet
   - (2) 3.9 d. community semester log book
   - (11) 21.6 e. individual log book (for entire length of time in program)
   - (22) 43.1 f. clinical hours recorded in student's file at regular intervals
   - (19) 37.3 g. time sheets maintained in each clinical setting in the program (e.g., training rooms, physical therapy, etc.)
   - (11) 21.6 h. other responses: individual monthly, yearly, semester, bi-weekly, or daily time sheets were indicated as being used

2. How often is student progress formally evaluated by the program director and/or clinical instructors in your program?
   - 0.0% a. never
   - (38) 74.5 b. one or more times per semester or quarter
   - (11) 21.6 c. once annually
   - (4) 7.8 d. other responses: twice annually prior to registration; monthly; 4 times/semester as juniors, 1 time/semester as seniors, informal check at mid-semester

2a. How are these evaluations reviewed by your students?
   - 0.0% a. students never review written evaluation
   - (49) 96.1 b. individual conferences with students
   - (5) 9.8 c. student independently reviews written evaluation
   - (4) 7.8 d. other responses: during registration advisement with program director; committee evaluation; monthly feedback

3. How often do the athletic training students formally evaluate your athletic training education program?
   - (9) 17.6% a. seldom or never
   - (17) 33.3 b. once per semester or quarter
   - (20) 39.2 c. once annually
   - (7) 13.7 d. other responses: informal individual discussion; in the junior and senior years; at program completion; 4 times/semester as juniors, 1 time/semester as seniors; students encouraged to present concerns at any time

3a. How frequently are the clinical instructors in the Athletic Training Program evaluated by your students?
   - (9) 17.6% a. seldom or never
   - (26) 51.0 b. once per semester or quarter
   - (12) 23.5 c. once annually
   - (4) 7.8 d. other responses: according to faculty contract; junior and senior years; 4 times/semester as juniors, 1 time/semester as seniors

4. Who schedules your student athletic trainers' clinical hours?
   - (21) 41.2% a. head athletic trainer
   - (19) 37.3 b. assistant athletic trainer
   - (19) 37.3 c. program director
   - (8) 15.7 d. student athletic trainer (with supervision)
   - (2) 3.9 e. students work without schedules
   - (8) 15.7 f. other responses: twice/semester; athletic training committee; student secretary with head athletic trainer supervision; each clinical instructor to whom student is assigned

4a. With which sports are your student athletic trainers required to work?
   - (14) 27.5% a. all men's sports
   - (16) 31.4 b. all women's sports
   - (26) 51.0 c. some men's sports
   - (25) 49.0 d. some women's sports
   - (20) 39.2 e. other responses: all students work football; club sports, cheerleaders, band members; as many as possible; football and basketball; all three clinical settings; high school sports

5. Are your student athletic trainers required to wear uniforms or to adhere to a dress code?
   - (29) 56.9% a. daily
   - (11) 21.6 b. events only
   - (8) 15.7 c. variable times during the year and during events
   - (2) 3.9 d. individual student preference
   - (3) 5.9 e. other responses: neat dress

6. Does your Athletic Training Education Program provide an orientation session for its new students?
   - (1) 2.0% a. no
   - (50) 98.0 b. yes

7. What is included in this orientation session?
   - (43) 84.3% a. program requirements
   - (40) 78.4 b. program regulations
   - (46) 90.2 c. training room procedures
   - (11) 21.6 d. other responses: CPR; introduction to levels of profession; code of conduct; personal and program expectations; history taking, notations, technical application of modalities, wound care, work expectations of each clinical supervisor, tours

7a. When is the orientation session conducted?
   - (27) 52.9% a. before selection process
   - (26) 51.0 b. after selection process
   - (5) 9.8 c. weekly
   - (1) 2.0 d. monthly
   - (10) 19.6 e. other responses: entire first semester, during observation practicum twice each semester; when freshmen arrive on campus; in introductory course; before football camp; each semester; beginning of each rotation

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8. Do you hold a pre-season in-service for your athletic training students to review emergency procedures, training room operations, and the like?
   (9) 18.0% a. no
   (42) 82.4% b. yes

9. Does your program have a designed laboratory/study area (excluding campus library) for your students?
   (33) 64.7% a. no
   (18) 35.3% b. yes

9a. What type of area is available?
   (13) 72.2% a. department library
   (14) 77.7% b. office space
   (12) 66.6% c. special study area
   (12) 66.6% d. other responses: physical therapy room for modality application practice; student lounge; training room offices; college library

10. Does your program engage in fundraising activities to raise money for its own intent and purposes?
   (23) 45.1% a. no
   (28) 54.9% b. yes

10a. How is the money used?
   (12) 42.9% a. purchase of uniforms
   (15) 53.6% b. tuition scholarships for conventions, clinical symposia, etc.
   (6) 21.4% c. books or journal subscriptions
   (7) 25.0% d. teaching aids (slides, models, etc.)
   (18) 64.3% e. social activities
   (7) 25.0% f. other responses: scholarship fund, banquet/awards dinner; room and board expenses at NAT A meetings; travel with athletic teams

Part II: Program Administration

1. Do you have a program "constitution?"
   (34) 66.7% a. no
   (15) 29.4% b. yes

2. Are your student athletic trainers given program/curriculum handbooks (student trainer manuals) of standard operating procedures?
   (11) 21.6% a. no
   (40) 78.4% b. yes

2a. What type of information is included within the manual?
   (35) 87.5% a. emergency procedures (e.g., road trips, local health facilities)
   (38) 95.0% b. training room protocol and procedures (e.g., record keeping, dress code)
   (37) 92.5% c. curriculum guidelines and description (e.g., coursework, retention policies)
   (32) 80.0% d. competencies (e.g., skill, knowledge, attitude)
   (5) 12.5% e. other responses; all course handouts; philosophy of athletic training; glossary of medical terms; symptoms of common athletic injuries

3. Do you have the position of Head Student Athletic Trainer within your program?
   (33) 64.7% a. no
   (18) 35.3% b. yes

3a. How is this person selected?
   (1) 5.6% a. elected by fellow students
   (17) 94.4% b. assigned by curriculum director and/or head athletic trainer
   (1) 5.6% c. academic standing in comparison to other students
   (2) 11.1% d. other responses: students in final practicum

3b. What are the responsibilities of the head student athlete trainer?
   (9) 0.0% a. title only
   (10) 55.6% b. liaison between staff and students
   (13) 72.2% c. supervision of other students
   (14) 77.8% d. key responsibilities in training room operations
   (2) 11.1% e. athletic training club president
   (6) 33.3% f. other responses: assist with budget and in-services; in charge of a particular team

4. How often do you meet with the athletic training staff and others to discuss matters of the Athletic Training Education Program?
   (19) 37.3% a. weekly or more often
   (4) 7.8% b. bi-monthly
   (11) 21.6% c. monthly
   (8) 15.7% d. rarely (e.g., once each semester)
   (11) 21.6% e. other responses: correspondence/memoranda; as needed; almost daily on an informal basis

Part III: Program Components

1. Is there an organized athletic training club for students in your program?
   (25) 49.0% a. no
   (26) 51.0% b. yes

1a. What functions does the athletic training club perform?
   (21) 80.8% a. fundraising
   (22) 84.6% b. social events
   (20) 76.9% c. seminars
   (12) 46.2% d. guidance of new students
   (21) 80.8% e. general communication
   (1) 3.8% f. other responses: NAT A meeting trips

2. Which of the following allied clinical setting(s) or experiences does your program offer?
   (29) 56.9% a. physical therapy
   (27) 52.9% b. orthopedic clinic
   (34) 66.7% c. orthopedic surgeries
   (4) 7.8% d. nurse practitioner observation (general illness evaluation and care)
   (22) 43.1% e. physician observation—non-orthopedic (general illness and injury evaluation and care)
   (5) 9.8% f. health educator/wellness counselor observation (clinical setting)
   (1) 2.0% g. nutritionist observation (clinical setting)
   (17) 33.3% h. emergency room
   (23) 45.1% i. sports medicine center
   (9) 17.6% j. podiatric clinic
   (8) 15.7% k. other responses: high school setting; optometrist, sites as arranged by student; cadaver labs; dentistry, gynecology, allergy specialist

3. What affiliated settings do you have in your program?
   (28) 54.9% a. none
   (16) 31.4% b. high school
   (3) 5.9% c. community college
   (12) 23.5% d. college/university
   (2) 3.9% e. professional sport(s)
   (0) 0.0% f. other

3a. Is this setting approved by the NAT A for use in your program?
   (3) 13.0% a. no
   (20) 87.0% b. yes

continued on page 343
examination, began exercising with light dumbbells and progressed to using universal equipment. By the end of January, he was exercising with his teammates. His practice routine was modified during the 1988 spring training period; he performed only in non-contact drills; he continued his rehabilitation and weight training throughout the summer; he progressed very well and participated without pain throughout the fall 1988 football season.

**DISCUSSION**

A chondroblastoma is a cartilaginous tumor, usually of the epiphysis, capable of destroying bone, and characteristically containing multiple calcium deposits (2). Codman described the tumor in 1931, but it was not until 1940 that Jaffe, Lichenstein, and Portis named the tumor benign chondroblastoma. In 1951, Hatcher and Campbell indicated that partial removal by curettage (scraping) was sufficient treatment, but Evarts maintained that all chondroblastomas should be removed by thorough curettage, with care taken to protect the underlying epiphyseal cartilage.

Enneking pointed out in 1983 that chondroblastomas can mimic an internal derangement of an adjacent joint. Signs and symptoms include effusion, pain, numbness, and mobility restrictions. Areas of degeneration are common but joint fluid is usually normal, and pathologic fractures are rare. Since there are generally no accompanying health problems, the average practitioner cannot predict the occurrence of a chondroblastoma. Standard laboratory analysis of urine and blood yields negative findings, and the enlargement of lymph nodes has been noted in only a few cases (3).

Chondroblastomas do not appear to be related to athletics; however, they do occur in the age group of interscholastic and intercollegiate athletes. Nothing has been written concerning an athlete being restricted due to a chondroblastoma. Athletic trainers, team physicians, and other health professionals need to become aware of the potential of chondroblastomas.

The most common areas of occurrence are the epiphysis of the upper end of the humerus, the upper end of the tibia, and the lower end of the femur. There are reports of malignancy accompanying the tumor. Swelling has been seen in less than ten percent of reported cases. Recurrence rates vary, but chondroblastomas can reoccur, regardless of the treatment used. Marcove reported a recurrence rate of 25 percent when a bone graft follows surgical curettage (5).

Athletic trainers can serve an important function by recognizing the possible signs and symptoms. Testing and complete diagnosis must be done in a medical facility. Surgical intervention appears to be needed in the majority of cases involving active people participating in sports. Follow-up physical examinations and radiographs are recommended, as these tumors reoccur (4,5). Rehabilitation must be unusually conservative. Many therapeutic techniques are contraindicated for chondroblastomas. Electrotherapy should not be used (6,7). The involved epiphysis and/or the entire long bone may be greatly weakened. The tumor and the surgery contribute to the weakened condition of the bone. Aggressive athletic reconditioning must be avoided. Recovery time varies greatly, but the injured athlete should be monitored daily by the athletic trainer, and regularly by the team physician.

**NOTICE TO NATA MEMBERS**

National Headquarters in Dallas, Texas (telephone: 214/637-6282) handles Association business OTHER THAN Certification. Continue to contact the Certification office at the Greenville, North Carolina location (telephone: 919/355-6300) until further notice.

The Journal production office may be reached at telephone 919/355-5144.

**REFERENCES**


**UNDERGRADUATE ATHLETIC TRAINING from page 332**

Table 2:

**Internal Consistency of Survey Response**

<table>
<thead>
<tr>
<th>Inconsistent</th>
<th>Moderately Consistent</th>
<th>Very Consistent</th>
</tr>
</thead>
<tbody>
<tr>
<td>- clinical hours record-keeping</td>
<td>- frequency of student evaluation of clinical instructors</td>
<td>- frequency of student progress evaluation</td>
</tr>
<tr>
<td>- designated laboratory/study area</td>
<td>- person who schedules student trainer clinical hours</td>
<td>- method by which student evaluations are reviewed</td>
</tr>
<tr>
<td>- frequency of student progress evaluation</td>
<td>- student trainer sport assignments</td>
<td>- new student orientation sessions</td>
</tr>
<tr>
<td>- frequency of staff meetings</td>
<td>- dress code</td>
<td>- content of orientation sessions</td>
</tr>
<tr>
<td></td>
<td>- period of time in which orientation session is conducted</td>
<td>- pre-season in-service seminars</td>
</tr>
<tr>
<td></td>
<td>- program fundraising activities and use of money raised</td>
<td>- use and content of student trainer manuals</td>
</tr>
<tr>
<td></td>
<td>- athletic training club organization</td>
<td>- absence of program constitutions</td>
</tr>
<tr>
<td></td>
<td>- use of various allied medical settings</td>
<td>- absence of head student trainer position</td>
</tr>
<tr>
<td></td>
<td>- use of various affiliated settings</td>
<td>(those programs which have the position have very consistent selection method and responsibility delineation)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- functions of athletic training club</td>
</tr>
</tbody>
</table>

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