A STUDY TO DETERMINE THE IMPACT OF EARLY SPECIALIZATION ON ATHLETIC SUCCESS

Research Project
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Abstract

It has become popular for many athletes to start concentrating on one sport at an early age instead of the traditional changing of sports with the season. This early specialization has become a trend because many athletes feel that it will help them be recruited and gain college scholarships. However, some believe that early specialization may be harmful to athletes physically and emotionally and that playing multiple sports is more beneficial. This study intended to discover how early specialization affects the success of athletes.

Predictions that athletes who specialized early would have greater success in recruitment and scholarships were proven true. Respondents to the survey were also asked about their enjoyment of sports, and it was unexpectedly found that both specialized and multiple sport athletes received about the same amount of enjoyment. Although the results were conclusive, the talent levels of the athletes who responded were not taken into account, which could have affected their success.

Since early specialization was determined to be beneficial in achieving college scholarships, it was recommended that athletes be encouraged to start playing one sport at an early age. However, further research should be done with a larger sample size and with respect to talent levels in order to gain more accurate and reliable results.
Research Background and Purpose

Background

Higher education is becoming the national standard, with nearly 90 percent of students hoping to attend college and 75 percent of high school graduates furthering their studies (Ramaley & Leskes, 2002). With this trend toward increased college attendance comes increased competition for college acceptances and scholarships. Students must find ways to set themselves apart from their peers, either through academics, community involvement, or sports in order to gain entrance to their desired college. Once and if they make it through admissions, many must find a way to pay the costly tuition. While parents can often help with the burden, most students must still take out loans, work during college, receive grants, earn academic scholarships, or win athletic scholarships.

Many families and students anticipate the expense of tuition and hope to get scholarships, which are very desirable among college-bound students. Many concentrate on obtaining academic scholarships, while others work towards athletic scholarships, often specializing in one sport at an early age with hopes to succeed in high school and to be recruited for college. According to Tom Fakehany, a board chair of the Collegiate Volleyball Officiating Association, early specialization is increasing largely because it is thought to improve the athlete’s chances of receiving a collegiate athletic scholarship (1995). Athletes desire to specialize in order to gain more exposure to the sport and to become more advanced more quickly (Susanj & Stewart, n.d.).

However, early specialization is a highly controversial issue because there are thought to be many negative effects on the single-sport athlete. Included in these effects
are emotional and physical burnout. A child playing only one sport can become tired and rundown, possibly causing a desire to quit. Early specialization can also be viewed as a sacrifice. Dr. Jordan Metzl, a medical director of the Sports Medicine Institute for Young Athletes, points out that “focusing on a single activity puts all of a young athlete’s eggs in one basket.” If children do not try other sports, they will never know which they enjoy the most or in which they have the most talent (as cited in Stenson, 2004). Furthermore, many experts believe that single sport athletes do not use a variety of movements or develop a range of muscles as opposed multiple sport athletes who are thought to be well-rounded (Fakehany, 1995; Stenson, 2004; Susanj & Stewart, n.d.; Wippel, 2005).

Although it seems to be more beneficial to play multiple sports, the trend for athletes to focus on one sport seems to be increasing nevertheless.

**Purpose**

Parents are often posed with the decision to have their child focus on one sport or to participate in many. Steven Anderson, chairman of the American Academy of Pediatrics, feels that many children specialize due to “the lure of sky-high professional salaries, college scholarships, or an Olympic slot” (as cited in Lord, 2000). On the other hand, Daniel Wann, professor of psychology at Murray State University and a member of the board of directors for the National Alliance of Youth Sports, believes that playing a variety of sports helps children avoid burnout and develop their overall athleticism (as cited in Ripkin, n.d.). There are many opinions on this controversial topic, but “there have been a limited number of studies evaluating [sports specialization’s] impact on kids,” according to Amanda Kelly, a pediatric sports medicine specialist at Rainbow
Early Specialization

Babies and Children’s Hospital (2005). Choosing the appropriate path for young athletes may have a large impact on the amount of success that they achieve in their sports career. This study attempted to explore how early specialization affects the success of athletes.

If early specialization does inhibit the success of athletes, the national trend toward concentrating on a single sport should be seriously addressed. However, if it is beneficial for success, early specialization will become even more popular. With a better idea of how specializing affects sports success, parents, coaches, and athletes may rethink their views on the issue and be able to make more knowledgeable decisions.

Research Questions

These questions provided the basic direction for the study:

R1. How will early specialization affect the success of an athlete?

R2. How will early specialization affect an athlete’s enjoyment of his or her sport participation?

R3. Does the success of an athlete vary by early specialization in individual sports more than team sports?

R4. Does the relationship between the success of an athlete and early specialization vary by demographics?

Hypotheses

The hypotheses of the study were as follows:

H1. If an athlete specializes early, then the athlete will achieve greater success.
H2. If an athlete specializes early, then the amount of enjoyment the athlete receives will decrease.

H3. Early specialization will impact the success of athletes of individual sports more than athletes of team sports.

H4. Demographics do not matter.

Definitions

*Early specialization* is defined as participation in only one organized sport starting at an age of 12 or under. An *athlete* is a person who has participated in at least four years of organized sports and who is now 17 to 21 years old. *Success* is defined as being recruited or receiving an athletic scholarship for a collegiate sport. The study will focus on gaining college entrance and scholarships through sports. *Greater* means that athletes who specialize early are at least 10% more likely to achieve success than multiple sport athletes.

*Amount of enjoyment the athlete receives* is the athlete’s opinion of how much fun he or she had during sports participation on a four-point scale. *Decrease* is viewed as at least one point lower for the average enjoyment by athletes specializing early than by athletes playing multiple sports.

*Individual sports* are sports in which a single athlete competes, including swimming, tennis, gymnastics, track and field, and golf. *Team sports* are sports in which multiple athletes compete together against other teams, including volleyball, basketball, baseball, softball, football, soccer, and cheerleading. *Impact more than* means that
individual sport athletes will be 20% more likely to benefit with success from early specialization more than team sport athletes.

Demographics include race, gender, grade point average, and financial standing.

Literature Review

Overview

Many athletes today fantasize about becoming the next Michael Jordan or making millions in the NFL. Professional athletes are now given the status and salaries of movie stars, and in an attempt to become one, more and more young people strive to be the best at one sport. Not only do athletes have these high goals, but their parents and coaches do as well. This has created an increased trend of early specialization in children’s sports. With the ability for a child to play one sport year-round due to club sports and camps, there is consequently a heavy emphasis placed on early development and success.

However, this trend towards sport specific training is highly controversial. “Youth coaches and sports psychologists say that for most kids, early sports specialization is a bad idea that results in emotional burnout and less well-rounded athletes” (Wippel, 2005). On the other hand, many players feel pressure to specialize in one sport to have success in high school sports and to have potential for college scholarships.
Variety of Sports

Many experts disapprove of early specialization and encourage participation in multiple sports to produce a well-rounded athlete. They believe that year-round training prevents kids from expanding their other interests and having free time, which can lead to emotional and physical burn out (Stenson, 2004).

Playing one sport exclusively may cause children to treat the sport more like a job than as a means of enjoyment. Steve Marshall, an assistant professor of epidemiology and orthopedics at the Injury Prevention Research Center at the University of North Carolina at Chapel Hill says, “Youth sports have become about more than kids having fun. Frankly it’s beginning to get out of control. It’s almost a national obsession” (Stenson, 2004). The pressures to win and to improve too quickly, both possible products of this obsession, can often lead to children wanting to quit.

Physical burnout, another byproduct of early specialization, is thought to be prevented by playing a variety of sports. According to John DiFiori, MD, the Chief of the Division of Sports Medicine at UCLA, injuries due to repetitive activity are now becoming more prevalent along with sport-specific training, with 30 to 50 percent of all pediatric sports injuries caused by overuse (1999). Muscles developed and strengthened in a variety of sports can be advantageous to athletes, possibly preventing these overuse injuries. However, it is difficult to tell how closely overuse injuries are related to playing a single sport; overuse injuries can also be caused by being active in many sports.

In addition to a range of muscle development, multiple sport athletes can also benefit from a variety of movements. “Long before anyone ever heard of cross-training, the traditional boys regimen of football, basketball and baseball was producing well-
rounded athletes who were strong, tough, swift and explosive, with excellent hand-eye coordination” (Coomes, 2004). The combination of strength gained from football, quick footwork from basketball, and motor skills from baseball could make a more well rounded player for any sport. Daniel Wann, professor of psychology at Murray State University agrees, saying that skills can be transferred from one sport to another. While playing soccer, for example, an athlete can be becoming a better baseball player (Ripkin, n.d.). Not only can soccer help build endurance, but it can also increase vision skills, which are important to most sports including baseball, by training players to watch the entire field and to react quickly and accurately (Bailey, n.d.). However, these are logical opinions that have not been tested or proven with evidence.

Early Specialization

Only a few decades ago, children played sports according to the season (Buzby, 1998). Recently however, involvement in year-round competition through nonscholastic clubs, private instruction, and summer camps has greatly increased despite the advice of doctors and other authorities (DiFiori, 1999). Although most recommendations urge athletes to play multiple sports, the trend seems to be moving in the opposite direction. Many athletes, coaches, and parents feel that involvement in one sport is beneficial in many ways. With more and more youths wanting to achieve high levels of success, they feel that concentrating on one sport will help them reach their goals.

Athletes who desire to specialize feel that taking a break or playing a different sport would limit their scholarship opportunities. According to Tom Fakehany, a board chair of a Collegiate Volleyball Officiating Association, most athletes who aspire to win
a collegiate athletic scholarship believe that specialization is necessary to achieve that goal (1995). Many college athletic recruiters look at athletes outside of the high school season; they go to club tournaments, non-school leagues, and even summer camps, which are viewed by NCAA Division I basketball coaches to be a very important aspect of choosing players (Susanj & Stewart, n.d.). Head coach of University of Arizona women’s volleyball agrees, saying, “An athlete’s chances to receive a scholarship are higher if they play year-round as opposed to only during the school season” (D. Rubio, personal communication, February 14, 2005).

Another argument in favor of specializing is to protect athletes from avoidable injuries (Fakehany, 1995). By refraining from playing other sports during the off-season, injury opportunities are lessoned. By playing one sport, players become more adapted to the movements that sport requires and can react with more efficiency, which can also prevent injuries due to performing movements incorrectly. On the other hand, these benefits can be reduced, as injuries may be caused by the repetitive motions of playing only a single sport.

Some parents support early specialization with hopes that their child will have an advantage over other children who divide their efforts between multiple sports. Many high school coaches also feel that year-round play is beneficial to their programs because of increased exposure to the sport (Fakehany, 1995). Gaining fundamentals of one sport early can lead to learning more advanced skills instead of learning the basics of a variety of sports. They feel that this advantage outweighs the benefits of potentially becoming an all-around athlete.
Summary

There are many theories on the positive and negative effects of early specialization. On one side of the argument, children who specialize early become more advanced, but on the other side, those who play multiple sports seem to be more athletic all around. Injuries occur when playing one or many sports, and dropout can be a problem for athletes involved in any number of sports for any number of reasons. But the true teller of whether early specialization or a variety of sports is better is the success of the athlete.

There have not been any comparative studies done to determine an athlete’s success in playing one sport or many. This information would be useful in making decisions for our nation’s youth. Due to the recent surge of children participating in year-round athletics, more controversy has arisen. It is interesting to note that the trend is to specialize in one sport early, even though most experts suggest participating in a variety of athletic activities. There seems to be an attitude that early specialization will lead to greater success. As year-round sports become more popular, many believe that specializing is essential in order to advance in the sport. However, others feel that children have more success in competition from participating in multiple sports and becoming all-around athletes. Parents, athletes, and coaches need to have more direction when choosing the appropriate path to success.
Results and Conclusions

Scope

Data was gathered by distributing surveys to 27 University of Arizona athletes. The researchers stood outside of a university athlete training center. Every potential athlete entering or leaving was asked if he or she was an athlete. If the answer was yes, the athlete was asked to complete a survey. The researchers felt that this location was convenient because there were many athletes there that were of the appropriate ages and have had success according to the definition previously given. This location was also thought to be good because of the diversity of the student-body that would attend a university.

Additional data was collected from the researchers’ high school, a public school in a suburban, upper middle class setting. Surveys were distributed to 16 student athletes while standing in front of the parking lot and first asking the filter question “are you an athlete at our high school?” As well being convenient, the researchers chose to distribute at this high school because there was an abundance of the appropriate specified age group that could not have been collected by distributing surveys at the university alone. This location was also chosen because it had many varsity sports teams; therefore, a presence of student athletes was certain.

Methodology

This survey consisted of 12 questions. The first five questions dealt with the demographics of gender, age, grade point average, race, and family yearly income. The
next question was in a chart format. The first column was filter-like, regarding which 
sports were played; those sports played were circled. The next four columns were only 
filled out according to the answers of the first column. Two columns were open 
questions due to the wide variation of possible answers regarding the number of years 
played and the age at which they began playing. The last two columns were dichotomous 
yes or no questions regarding the success of the athlete. One asked if the athlete had been 
recruited and the other asked if he or she had received a scholarship. The last six 
questions were in Likert format, but only three of them dealt with the enjoyment that the 
athlete received from the sport(s). The other three were used to mislead the respondent 
and therefore prevent bias toward his or her answers. The Likert format was used to gain 
the level of intensity of the athletes’ enjoyment.

Surveys were handed to the athletes on clipboards after asking them a filter 
question, and they were given as much time as they needed to complete it. Each 
respondent’s survey was put at the bottom of a stack of other surveys to ensure 
anonymity. Exactly 29 surveys were distributed at the university. Two were rejected 
because the respondents were not in the defined age range. The other 27 were all usable. 
At the high school, 16 surveys were distributed and collected in the same manner and 
they were all usable.

Limitations

The most significant limitation the researchers encountered was in the distribution 
of surveys. The respondents at the university were all successful, while many of those at 
the high school were not. Since the surveys were given in front of a weight center used
by members of collegiate teams, all of the respondents were on a collegiate team and therefore successful athletes. This produced a high percentage of successful athletes, which caused an under-representation of those who were unsuccessful. Furthermore, it was not possible for the researchers to determine the actual talent level of the respondents because there was no way of knowing the athletic abilities of each athlete, which are a major factor in obtaining athletic scholarships and being recruited. The results only determined the success of an athlete and did not account for these differences in abilities, which would have more accurately shown the effects of early specialization.

There were also a number of limitations that dealt with demographics. One limitation was that very few respondents were exclusively individual sport athletes; therefore, the researchers could not determine a clear trend that differentiated between individual and team sport athletes. Another limitation was that the sample had an unbalanced distribution of grade point averages; higher ones were more prevalent. This might have been because athletes are required to have higher grade point averages to stay on the team. Although the distribution seems uneven for an entire student body, it is still a good sample of student athletes’ grade point averages. A third limitation was in the age distribution of the sample. There was a relatively high percentage of eighteen-year-olds surveyed, possibly because they attended both the high school and the university unlike the other ages. However, this unbalance did not matter because all age groups have had the same opportunity to specialize. Another limitation dealing with the sample surveyed was the income levels. The $88,001 to greater income range was extremely high due to the distribution areas, which were mainly upper middle class. Also, there was a very high percentage of the sample that marked “I prefer not to say,” which could have skewed the
data. This unbalance prevented the researchers from determining if success due to early specialization varies by income level.

Results

Description of Sample

Question one of the survey asked the gender of the respondent. The number of males and of females was surprisingly equal: 51% were males and 49% were females. See figure 1.

![Figure 1: Gender Demographics](image)

Question two of the survey asked the age of the respondent. The ages were well distributed except for the percentage of eighteen-year-olds (32%), as previously mentioned. The percentages of seventeen-year-olds (16%), nineteen-year-olds (12%), twenty-year-olds (21%), and twenty-one-year-olds (19%) were fairly equal. See figure 2.
Question three of the survey asked the grade point average of the respondent. As stated earlier, a high percentage of respondents (61%) had a grade point average of 3.1 to 4.0. See figure 3.
Question four of the survey asked the race of the respondent. The breakdown of the respondents was an unexpectedly good representation of the larger population with 65% white, 12% Hispanic/Latino, 12% African American, 2% Asian/Pacific Islander, and 9% mixed. The only race unaccounted for was Native Americans. See figure 4.

**Figure 4: Race Demographics**

![Race Demographics Pie Chart]

Question five of the survey asked the income of the respondent. A large percent of the sample (37%) preferred not to state their income, as discussed before. The next highest percentage of respondents (33%) was in the $88,001 to greater income bracket. See figure 5.

**Figure 5: Income Demographics**

![Income Demographics Pie Chart]
Hypothesis Testing

Hypothesis H₁ stated *if an athlete specializes early, then the athlete will achieve greater success*. The survey determined if the respondents were specialized and if they were successful by asking them which sports they played and if they were recruited and/or received a scholarship for athletics. Fifty-eight percent of those who specialized were successful, while only 12% of those who were unspecialized were successful. This result was far greater than the researchers’ predicted difference of 10%, which validated the hypothesis. See figure 6.

![Figure 6: Success of Specialized vs. Unspecialized](image)

Hypothesis H₂ stated *if an athlete specializes early, then the amount of enjoyment the athlete receives will decrease*. Three questions of the survey asked respondents about their enjoyment of their sports participation. Figure 7 combines these answers and compares the specialized and unspecialized respondents. On the four-point Likert scale used, the average enjoyment for specialized athletes was 3.54 and 3.46 for unspecialized
athletes. The researchers’ hypothesis was disproved because this result shows that the average enjoyment of specialized athletes is higher than unspecialized athletes by 0.08 point. The researchers expected unspecialized athletes to have a higher level of enjoyment by 1.00 point.

Hypothesis H3 stated *early specialization will impact the success of athletes of individual sports more than athletes of team sports*. The researchers were correct in that individual sport athletes were more often successful (40%) when they were specialized than team sport athletes were (28%). However, this is only a difference of 12% rather the predicted 20%. Although this data supports the hypothesis, it is less reliable than expected because the researchers did not anticipate athletes playing both team and individual sports. This “both” category limits the accuracy of the results since these athletes are not accounted for in the individual and team groups. Also, the low number of
individual sport respondents, as mentioned in the limitations, could have made the percentages unrealistic. See figure 8.

Hypothesis H₄ stated *demographics do not matter.* The researchers were only able to determine whether the relationship between the success of an athlete and early specialization vary by gender. Males were more likely to be successful due to early specialization (32%) than females were (24%). These results disproved the researchers’ hypothesis that gender would not matter. See figure 9.
However, results for whether the success due to early specialization varied by age, grade point average, race, and income level were inconclusive because there was insufficient data for many of these categories.

Conclusions

The most significant result found was that early specialization does lead to greater success for athletes. According to the data, those athletes that specialized early were recruited or received scholarships more often than those who were not specialized. This result was correctly predicted despite many expert and doctor opinions, which claimed that playing multiple sports is more beneficial. The benefits of early specialization might be due to developing talent in the chosen sport. However, success from early specialization may also be due to the many opportunities it provides to have talent noticed by college recruiters more than an athlete who plays only part time.

Unexpectedly, athletes who specialized and those who did not had very similar levels of enjoyment. This result contradicts the researchers’ prediction that there would be a significant decrease in the amount of enjoyment a specialized athlete receives. Many experts agreed, believing that multiple sport athletes receive more enjoyment and are less likely to “burnout” than single sport athletes are. However, both the researchers and experts’ theories were disproved by this study. Therefore, early specialization might not be the cause for athletes’ “burnout” and being involved in multiple sports may not be the way to prevent an athlete from tiring of the sport emotionally and physically. However, other factors such as teamwork, coaches, and especially winning may contribute greatly to athletes’ enjoyment of their sports participation.
The researchers were correct about specialized individual sport athletes being more often successful than specialized team sport athletes are. Although the data collected proved the researchers correct, it may not be reliable because of its limitations, as previously mentioned, and is therefore somewhat inconclusive. However, from the results obtained, individual sports may be affected more by early specialization because an individual achieves success on their own and cannot rely on the help of teammates. Team sports benefit from early specialization as well, but a team can be successful without each person having the same amount of experience.

Recommendations

Considering the positive effects that early specialization has on athletes, more athletes who desire to be recruited or to receive a college scholarship for athletics should focus on one sport starting at a young age. In order to promote the trend toward early specialization, elementary schools and junior high schools physical education teachers should encourage students to participate in outside sports clubs and programs in addition to school-organized sports. For example, the teachers could send home flyers informing children and parents of sign-ups and tryouts for these activities and of the benefits of specializing. This could make athletes better prepared for higher-level competition upon entering high school and for recruitment and scholarship opportunities. Furthermore, parents and coaches could be reassured that children likely will not sacrifice enjoyment if they specialize.

More comprehensive research would lead to more accurate results in a similar study. If the sample size were larger, it could be determined if the relationship between
the success of an athlete and early specialization varies by demographics such as race, income, and grade point average. Also the athletes being studied could be observed in order to determine their talent level. In this way, the study could take into account the athletic abilities of the athletes and therefore better conclude the extent to which early specialization impacts success. For example, researchers could follow young athletes, both specialized and not, and observe them at practices and games as well as examining their statistics. From these observations and statistics, talent levels could be distinguished to see how strongly talent impacts success. In addition, there may be other reasons for sports “burnout” besides early specialization because athletes who specialized and those whom did not both experienced very similar levels of enjoyment. An investigation should be done to see what actually makes athletes enjoy sports participation or tire of it. Researchers could compare the enjoyment of athletes on winning teams to those on losing teams and of athletes under coaches with varying coaching styles in order to examine the impact of factors such as these. Additionally, researchers could investigate the causes of sports dropout in those people who are no longer athletes. Further research of this kind will help to provide more precise recommendations about sports participation to our nation’s youth.
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References


Appendix A

Research Instrument

Thank you for taking the time to complete this survey. Please circle the answers that apply.

1. What is your gender? Male Female

2. What is your age? 17 18 19 20 21

3. What is your GPA? 0-1.0 1.1-2.0 2.1-3.0 3.1-4.0 4.1 or greater

4. What is your race?
   White/Caucasian
   Asian/Pacific Islander
   African American
   Hispanic/Latino
   Native American
   Mixed
   Other
   I prefer not to say

5. What is your family’s yearly income?
   $0-18,000
   $18,001-34,000
   $34,001-54,000
   $54,001-88,000
   $88,001-greater
   I prefer not to say

6. On the following chart, circle each sport that you have participated in for four or more years. For each sport that you circle, please fill in the chart for the number of seasons you have played, the age that you started playing, and if you were recruited for college for that sport or received a college scholarship for that sport.

<table>
<thead>
<tr>
<th>Sport that I have played for 4 or more years</th>
<th>Number of Years I Have Played</th>
<th>Age I Began Playing</th>
<th>Was I recruited by a college for this sport? (yes or no)</th>
<th>Did I receive a college scholarship for this sport? (yes or no)</th>
</tr>
</thead>
<tbody>
<tr>
<td>swimming</td>
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<td></td>
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</tr>
<tr>
<td>tennis</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>gymnastics</td>
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<td></td>
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<tr>
<td>track and field</td>
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<tr>
<td>golf</td>
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<tr>
<td>volleyball</td>
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<tr>
<td>basketball</td>
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<tr>
<td>baseball</td>
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<td>softball</td>
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<td>football</td>
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<tr>
<td>soccer</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>cheerleading</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Please circle the letter that applies to the following statements.
N = Never    R = Rarely    S = Sometimes    A = Always

7. I have enjoyed going to every practice.  N  R  S  A

8. At practice, I have concentrated on improving specific skills.  N  R  S  A

9. I have looked forward to playing in games.  N  R  S  A

10. I have gotten along with my teammates.  N  R  S  A

11. I have listened to my coach’s constructive criticism.  N  R  S  A

12. I have felt satisfied after playing the sport.  N  R  S  A

Thank you for your time.