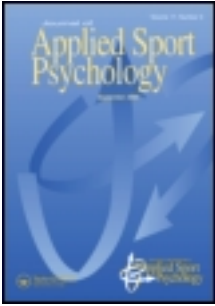


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A Survey of mental skills training knowledge, opinions, and practices of junior tennis coaches

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A Survey of Mental Skills Training Knowledge, Opinions, and Practices of Junior Tennis Coaches

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Junior tennis coaches (N = 153) were surveyed to determine their opinions about the importance of mental skills training, the specific mental skills they teach, strategies they use to teach mental skills, and recommendations for making mental skills training more effective. Mental skills thought to be most difficult to teach included reframing pressure, crisis management, self-confidence, and emotional control. Roadblocks to mental skills training included a lack of time, a lack of player interest, difficulty evaluating mental skills training success, and a lack of models or examples of coaches actually teaching mental skills. Coaches also indicated a need for practical mental skills training exercises that could be taught in 10–15 minutes, strategies for better engaging players in mental skills training, and the need for mental skills training videos to use with players. Differences in the coaches' opinions were compared between more and less experienced and sport psychology trained and untrained coaches.

Interest in the psychology of coaching dates back to the seminal work of Coleman Griffith, the father of North American sport psychology, whom in 1926 published the book *The Psychology of Coaching*. Sport psychology has progressed much since Griffith first published his book. However, more emphasis has been placed on sport psychology in general than on the psychology of coaching.

Although the psychology of coaching has not been studied as extensively as other areas in sport psychology, it has not been completely

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ignored. For example, a number of studies have examined effective and ineffective coaching behaviors, as well as the effects of coaching behaviors on athlete motivation, self-esteem development, and competitive anxiety (Horn, 1985; Smith & Smoll, 1996; Tharp & Gallimore, 1976). Moreover, while Smith and Smoll's (1996) research has clearly demonstrated that coach behaviors directly relate to changes in athletes' psychological states and characteristics, they have primarily focused attention on behavioral strategies such as coach reinforcement and feedback patterns. How coaches directly teach and develop such psychological strategies as positive self-talk, arousal control, and team cohesion has not been extensively studied in a scientific manner.

Exceptions to this pattern include several published interviews of how outstanding coaches, such as swim coach James "Doc" Counsilman (Kimiecik & Gould, 1987) and basketball coach Pat Head Summit (Wrisberg, 1990) used mental skills in their coaching. Additionally, Gould, Hodge, Peterson, and Giannini (1989) and Weinberg, Grove, and Jackson (1992) surveyed coaches to better understand what self-efficacy enhancing strategies they employed with their athletes and the effectiveness of those strategies. Results revealed that the performance-based techniques of instruction-drilling and using hard physical conditioning drills were two of the highest rated strategies for developing self-efficacy, while non-performance-based techniques such as imagery, peer models, relaxation, and reattributions received lower ratings. Authors in both studies recommended that sport psychology researchers make greater efforts to assess what psychological techniques practitioners use in the field and determine the effectiveness of those coaching psychology efforts.

Thus with the exception of self-efficacy and a few isolated case studies, we know relatively little about how coaches teach mental skills to their athletes. Hence, this investigation was designed to help remedy this state of affairs.

Specifically, because the United States Tennis Association (USTA) Player Development Division was also concerned with this issue an opportunity existed to study coaches' opinions regarding the teaching of psychological skills. That is, in recent years the USTA has increased its efforts to better educate coaches both in the sport sciences in general and specifically in sport psychology. They wondered, however, about the effectiveness of their efforts and whether the information provided in their sport psychology coaching education curriculum had been successfully employed by coaches who had been trained. Therefore, they asked our investigative team to conduct an initial exploratory study to examine this issue in junior tennis coaches (Gould, Damarjian, & Medbery, in press). The initial study was designed to understand how mental skills training information is and is not being used by junior tennis coaches and to identify ways to more efficiently and effectively convey this information to them. Given the exploratory nature of the study and lack of previous sport psychology research on the topic, a focus group methodology was deemed most appropriate. Four focus-group interviews were conducted

with 20 elite junior tennis coaches (5 per group) participating in a USTA coaches development educational program. Consensual hierarchical content analysis of the transcripts of the four focus groups showed that the coaches defined mental skills training as including emotional control, focus and readiness, passion, and the ability to develop a winning strategy. A need for more mental skills training for coaches was identified, as was the need for coaches to become more comfortable in teaching mental skills. Moreover, it was indicated that coaches' mental skills education should focus on both content information and information regarding the actual process of teaching mental skills. Finally, the coaches suggested that mental skills training information could be made more user-friendly by: (a) focusing on the development of "hands-on" concrete examples and activities; (b) having more mental skills training resources, particularly with audio and video formats; and (c) actively involving coaches in the actual process of learning how to teach mental skills.

While the results of this initial investigation were both informative and encouraging, they are not without limitations. First, opinions were solicited from only 20 coaches, all of whom were selected to participate in the USTA educational program where the data was collected because of their potential to develop as a coach. A need exists to determine what a larger, more representative sample of tennis coaches would think about the issues identified in the initial study. Second, consistent with focus group methodology, the four groups of coaches did not necessarily discuss identical issues to an equal degree. Hence, there would be some benefit to asking a large group of coaches to respond to a number of standardized questions.

Given the above, a need existed to survey a large national sample of junior tennis coaches concerning their use of mental skills training with players. In response, the present study was designed to survey junior tennis coaches and determine their opinions relative to the importance of mental skills training, what mental skills they teach, how they teach mental skills, and recommendations for making mental skills training more effective. In addition to surveying the coaches as a group, differences in the coaches' opinions were compared between more and less experienced coaches and coaches with more versus less sport psychology training.

METHOD

Participants

Participants were junior tennis coaches attending the 1997 United States Tennis Association (USTA) Area Training Center Workshop held at the USTA Player Development Center in Key Biscayne, Florida. The workshop was held January 2 through 5. Three hundred twenty-five coaches were invited to attend this workshop based on their involvement in coaching junior tennis in one of 120 USTA area training centers located throughout the United States. Hence, these coaches represented all regions of the United States.

One hundred fifty-three of the 325 coaches attending the workshop returned surveys (47%). Of the 153 coaches, 125 (82%) were males and 28 (18%) were females. One hundred thirty-seven of the coaches were Caucasian (90%), 7 were African-American (5%), 3 were Hispanic (2%), 1 was Asian-American (1%), and 3 were of other descent (2%). The coaches varied in both age and experience. The youngest coach was 24 and the oldest was 68 years of age with a mean age of 38.09 (SD = 7.14). Coaching experience ranged from 1.5 to 45 years ($M = 16.25$, $SD = 7.34$). On average coaches were working with 10.9 sectionally ranked players ($SD = 8.78$, range = 0–45) and 2.5 nationally ranked players ($SD = 2.13$, range = 0–12).

Questionnaire¹

The coaches survey consisted of 61 open- and closed-ended items. These items were based on the findings of a previous qualitative focus group study of 20 junior tennis coaches who discussed their use and opinions about mental skills training in junior tennis (Gould et al., in press). The questionnaire consisted of seven sections, each of which is described below.

Demographic Information

In this section of the survey respondents indicated their name, age, gender, and ethnic background.

Background-education

The background-education section of the questionnaire consisted of seven fill-in-the-blank or check-off type questions concerning such things as years of coaching experience, education, number of ranked players coached, and whether they had taken a sport psychology course. In addition, the coaches rated their general sport psychology knowledge on a Likert-type scale ranging from 1 (*Very Little*) to 7 (*Extensive*), as well as ranked the importance of eight major ways they developed their coaching psychology knowledge (e.g., modeled or observed others, watched videos).

Importance of Mental Skills in Junior Tennis

Four questions comprised this section of the survey. The coaches indicated the percentage of their players who experienced problems with their mental games and also that need little or no help with their mental games. They also indicated whether parents interfere with mental skills development. Finally, they rated the importance of mental skills in junior tennis on a Likert-type scale ranging from 1 (*Not Important*) to 10 (*Extremely Important*).

¹ A copy of the survey used in this investigation is available upon request from the first author.

Mental Skills Taught

In this section of the questionnaire coaches rated the importance of 24 mental skill topics (e.g., focus/concentration, goal setting, team unity) for junior tennis players on a Likert-type scale ranging from 1 (*Not Important*) to 10 (*Very Important*). They also listed the three most important mental skills needed in each of three junior tennis age groups (12 and under, 14 and under, and 16 and under).

How to Teach Mental Skills

Fourteen questions comprised the teaching mental skills section of the survey. The majority of the questions consisted of check-off or fill-in-the-blank responses. Example questions included such statements as “how many minutes do you devote to mental skills training,” “list the three most difficult mental skills to teach junior tennis players,” and “list the most effective things coaches do to teach mental skills in practices and games.” Several questions consisted of Likert ratings (e.g., rate your ability to teach mental skills) ranging from 1 (*Poor*) to 7 (*Excellent*). Additionally, on Likert scales ranging from 1 (*Not at All Difficult*) to 10 (*Very Difficult*) the coaches rated their comfort in teaching 24 mental skills (e.g., self-confidence, time management, media skills). Similarly, they rated on 1 to 10 Likert scales ranging from 1 (*Never a Problem*) to 10 (*Always a Problem*) the frequency they experienced 12 problems or roadblocks that can be confronted in mental skills training (e.g., lack of time, current materials too complex).

Opinions About Mental Skills Training

The opinions about mental skills section consisted of 20 statements (e.g., mental skills should be emphasized to a greater degree as players become more intense/competitive). The coaches indicated their agreement with each statement on a Likert-type scale ranging from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*).

Opinions of Mental Skills Training Resources

The final section of the survey consisted of 12 questions. Most of the questions asked the respondents to indicate whether they had done something (e.g., read a sport psychology book) or to estimate what percentage of their players would do something (e.g., read a book, watch a mental skills training video). Still other questions asked respondents to list such things as the best and worst sport psychology books read. Finally, the coaches were asked to rate on 1 to 10 Likert scales the degree to which various resources (e.g., mental skills training video) would be useful to their players.

Procedure

The purpose of the study and the coaches' rights as human subjects were explained at the initial session of the workshop. The coaches were

then asked to complete the survey during the next three days and to return it by the end of the conference. Although the coaches included their names on the survey, their participation as well as their specific results were kept strictly confidential and were not shared with USTA staff.

RESULTS

Educational Profile of Sample

The educational background of the sample included 11 coaches (7.1%) whose highest degree included a high school diploma, 7 (4.5%) a junior college degree, 106 (68.6%) a B.S. or B.A., 24 (15.6%) a M.S., and 2 (1.3%) a Ph.D. or Ed.D. Four coaches (2.6%) had attained other types of educational experience.

One hundred four (67.5%) of the coaches in this sample held certification in United States Professional Tennis Association (USPTA) and 16 (10.4%) of the coaches held United States Professional Tennis Registry (USPTR) certification. Twenty additional coaches (13%) held certification in both organizations, while 13 (8.4%) held no certification. The USPTA and USPTR Certifications involve passing written and on-court tests focusing on playing and teaching the game of tennis. The majority of coaches (64.3%) had achieved Level I competency in teaching tennis as determined by USTA Sport Science Division. This involves reading a tennis specific version of the book *Successful Coaching* (Martens, 1990) that discusses the philosophical, psychological, pedagogical, physiological, and management aspects of coaching. Nineteen (12%) had Level IIA (sport psychology/motor learning), 10 (6.5%) had Level IIB (physiology/nutrition), 22 (14.3%) had Level IIC (sports medicine/biomechanical), and four (2.6%) had no USTA competency rating. Each of these Level 2 competencies involved reading two books on the various topics and passing self-study tests on the book content.

When the coaches were asked about their degree of sport psychology knowledge, the mean Likert scale response was 4.77 ($SD = 1.05$), with anchors ranging from a low of 1 to a high of 7. Ninety-four (61%) of the coaches had taken some type of course in sport psychology. Rankings of eight different methods of developing sport psychology training skills (e.g., experience working with players, coaching clinic and presentations, sport psychology coaching course, watching videos/listening to audio tapes) revealed that the most important ways that coaches developed their skills for teaching mental skills to their athletes were experience working with the players and coaching clinics and presentations. The least important method of developing mental training coaching skills was listening to audiotapes.

Importance of Mental Skills Training in Junior Tennis

The coaches were asked four questions to determine the importance and need for teaching mental skills. Responses made on a Likert scale, with 1 signifying not important and 10 very important, revealed that the

coaches felt that mental skills are important to junior tennis success ($M = 8.91$, $SD = 1.71$). The coaches also noted that on average 79.54% of their players had problems with the mental aspects of their game and these problems kept them from playing up to their potential. Only a small percentage of players, 9.13% were thought to need little or no help with the mental aspect of their game. However, there was great variability in the coaches' responses to this question. The coaches' estimates of the percentage of players needing help with the mental aspects of the game ranged from 0 to 100%.

Another area of great variability pertained to the influence of parents. When asked what percentage of junior tennis players have parents who interfere with the mental aspects of the games, the coaches responded with as few as 0% and as great as 100%. The mean estimate of the percentage of their players who have parents who interfere with the mental part of their children's games was estimated to be 59.76% ($SD = 29.38$).

Mental Skills Taught by the Coaches

The coaches were asked to rate the importance of specific mental skills needed in junior tennis on a scale of 1 to 10 with 1 signifying not important and 10 very important. The responses of the coaches are summarized in Table 1. Eight of the skills had a mean score above nine. The skills rated as most important were enjoyment/fun, focus/concentration, self-confidence, emotional control, honesty/integrity, motivation/passion, practice intensity, and positive thinking/self-talk. The skills that coaches thought were least important for junior tennis players were post-match speech and media skills.

The coaches were then asked to select the three most important mental skills for three junior tennis age-groupings: 12 years and under, 14 and under, and 16 and under (see Table 2). The two highest selections for all three age groups were enjoyment/fun and focus/concentration. Enjoyment/fun was ranked most important for the younger age groups. The coaches felt that focus/concentration was more important than enjoyment/fun for the 16 and under players. The skills considered least important were positive thinking/self-talk for both the 12 and under players and the 14 and under players. Additionally, goal setting was not thought to be important for the 12 and under players. The coaches selected personal responsibility the least often for the 16 and under players.

Teaching Mental Skills

Several questions about how the coaches currently teach mental skills were asked. The coaches reported that they spend an average of 66.82 minutes ($SD = 165.94$) per week on mental skills training. However, they also indicated they would be willing to spend an average of 106.37 minutes ($SD = 200.11$) each week on mental skills training.

The coaches' Likert scale response ratings (ranging from a low of 1

Table 1
Importance of specific mental skills needed in junior tennis

Mental skill	Importance rating	
	<i>M</i>	<i>SD</i>
Enjoyment/fun	9.70	1.01
Focus/concentration	9.63	0.82
Self-confidence	9.45	1.25
Emotional control	9.31	1.16
Honesty-integrity	9.11	1.65
Motivation/passion	9.10	1.50
Practice intensity	9.09	1.35
Positive thinking/self-talk	9.05	1.29
Positively managing mistakes	8.96	1.44
Keeping competition in perspective	8.80	1.73
Personal responsibility	8.78	1.58
Goal setting	8.63	1.73
Good decision making/problem solving	8.50	1.76
Positive body image-language	8.42	1.80
Crisis-adversity management	8.05	1.99
Independence	7.93	1.93
Serve & return ritual	7.86	1.91
Imagery/visualization	7.80	2.02
Reframe pressure	7.53	2.22
Time management	7.47	2.26
Breath control	7.26	2.23
Team unity	6.88	2.39
Post match speech	4.58	2.99
Media skills	4.10	2.72

Note. A rating of 1 signifies not important and 10 very important.

and a high of 7) concerning their perceived ability to develop mental skills in players and the difficulty of teaching mental skills were similar. The coaches rated themselves as slightly above average ($M = 5.17$, $SD = 1.25$) in their ability to teach mental skills. They also felt that it is somewhat difficult to teach mental skills to junior tennis players ($M = 4.97$, $SD = 1.4$).

When asked how comfortable they felt teaching specific mental skills, the coaches in this sample felt that the skills were slightly to somewhat difficult to teach. The specific means for each skill, based on 1 to 10 point Likert scale responses, are listed in Table 3. The most comfortable skill for the coaches to teach was the service and return ritual. The coaches felt least comfortable teaching players to reframe pressure situations.

The coaches were then asked which skills were the most difficult to teach. The three most difficult mental skills to teach were listed by each coach and then summed over all coaches. Results revealed that the skills judged most difficult to teach and the percent of coaches identifying them

Table 2
The three most important mental skills needed by junior tennis age groups

	Age groups			
	12 and under	14 and under	16 and under	
Enjoyment/fun	27.3%	Enjoyment/fun	Focus/concentration	12.1%
Focus/concentration	10.0%	Focus/concentration	Enjoyment/fun	10.8%
Emotional control	8.2%	Goal setting	Motivation/passion	8.4%
Honesty-integrity	8.2%	Self-confidence	Goal setting	8.0%
Self-confidence	7.8%	Motivation/passion	Practice intensity	6.7%
Motivation/passion	7.8%	Emotional control	Self-confidence	6.3%
Keeping competition in perspective	6.9%	Practice intensity	Emotional control	6.1%
Positive thinking/self-talk	5.6%	Positive thinking/self-talk	Personal responsibility	5.4%
Goal setting	5.4%			

Note. Mental skills given by respondents greater than 5% of the time are in the table.

Table 3
Coaches level of comfort teaching mental skills

Mental skill	Difficulty rating	
	<i>M</i>	SD
Reframe pressure	4.59	2.41
Crisis-adversity management	4.57	2.41
Media skills	4.55	2.83
Self-confidence	4.50	2.92
Emotional control	4.35	2.52
Time management	4.24	2.38
Motivation/passion	4.20	2.89
Positively managing mistakes	4.09	2.55
Imagery/visualization	4.05	2.55
Independence	4.00	2.40
Post match speech	3.81	2.85
Keeping competition in perspective	3.80	2.41
Focus-concentration	3.78	2.40
Good decision making/problem solving	3.78	2.41
Personal responsibility	3.74	2.57
Motivation: practice intensity	3.63	2.48
Positive thinking/self-talk	3.35	2.45
Breath control	3.30	2.45
Positive body image-language	3.21	2.52
Team unity	3.11	2.39
Honesty-integrity	3.03	2.61
Goal setting	3.00	2.44
Enjoyment/fun	2.70	2.37
Service return & ritual	2.42	2.46

Note. A rating of 1 signifies not difficult and 10 very difficult.

included: emotional control (11.5%), motivation/passion (9.5%), self-confidence (9.3%), crisis-adversity management (7.6%), positively managing mistakes (6.3%), imagery/visualization (6.3%), and keeping competition in perspective (5.2%). Hence, emotional control was judged as the most difficult skill to teach. Moreover, with the exception of imagery/visualization, all the skills that are difficult for the coaches to teach deal with understanding and controlling player emotions.

In order to better understand some of the difficulties these coaches experience in teaching mental skills, they were given a list of possible problems or roadblocks. The coaches rated each item on the list based on a Likert scale with a rating of 1 indicating there was never a problem and 10 always a problem. Table 4 describes the roadblocks and the frequency rating of the coaches. The biggest problem was the lack of time for the coaches to teach mental skills, whereas a lack of knowledge and experience were not perceived as major roadblocks. A follow-up question asking what would make the coaches feel more confident about teaching

Table 4
Roadblocks to teaching mental skills

Roadblock	Frequency rating	
	<i>M</i>	<i>SD</i>
Lack of time	6.04	2.83
Lack of interest on part of players	5.47	2.20
Difficult to evaluate mental skills training success	5.07	2.26
Lack of models/examples of other coaches teaching mental skills to junior players	4.83	2.68
Little parental support for mental skills training	4.76	2.44
Lack of practical resources	4.62	2.29
Lack of information on how to "individualize" general principles to specific players and situations	4.28	2.27
Do not know how to engage players by making material exciting	4.09	2.10
Not enough specific on-court examples to give players	3.89	2.50
Current materials too complex	3.72	2.05
Lack of mental skills training knowledge	3.26	1.84
No experience in teaching mental skills	2.97	1.90

Note. A rating of 1 signifies never a problem and 10 always a problem.

mental skills to their players revealed that: 57 coaches indicated more/better knowledge, resources, and tools; 38 more/better models and examples; 35 more time; 28 more experience/training practice; and 20 greater player interest.

To better understand how mental skills are taught to junior tennis players, two questions were asked concerning how mental skills are taught during practice. The majority of mental skills are taught on-court in practice ($M = 74.73\%$, $SD = 23.34$, range = 9 – 100%), with the remaining 24.73% ($SD = 22.74\%$, range = 0 – 90%) of mental skills practice training occurring off-court. The time spent teaching mental skills (such as stress management) to prevent problems from occurring was only slightly less ($M = 49\%$; $SD = 22.54\%$) than the time spent reacting to specific player problems ($M = 50.82\%$, $SD = 22.86$).

When asked about the age that players should be introduced to mental skills, coaches responded that players should be exposed between ages 4 and 14 ($M = 9.93$, $SD = 2.11$). There was agreement that the need for mental skills training increases with the skill level of the player. The coaches gave the following responses when asked to rate the importance of introducing players of different levels to mental skills training on a Likert scale of 1 to 10 (1 = Not at all important and 10 = Very important). For novice and recreational level players, mental skills are viewed as somewhat important ($M = 5.13$, $SD = 3.0$). For local tournament players, mental skills were rated as more important ($M = 7.95$, $SD = 2.07$). For sectionally and nationally ranked players, the coaches felt that

mental skills training is very important ($M = 9.68$, $SD = .93$ and $M = 9.85$, $SD = .81$, respectively).

Finally, the respondents were asked, "what are the most and least effective things coaches do while teaching mental skills to junior tennis players in practice and competition?" For practices, the most effective strategies and the number of coaches citing them included: guided participation/simulation (30), evaluation/feedback (21), and explanation/discussion (15). Ineffective strategies included: being negative/yelling at players (21), ignoring mental skills (19), and not enough practice/too much talk (17). Results for competition indicated that evaluation/feedback (26), goals/goal setting (13), precompetition plans/preparation (12), and staying positive (11) were the items most often cited as being effective. Ineffective competition strategies most often cited included being overly critical/negative (28), results-oriented (11), a lack of feedback (8), and ignoring mistakes (7).

Opinions About Mental Skills Training

Coaches were asked to rate their agreement with a series of 20 questions about mental skills training using a Likert scale, where 1 signified strong disagreement and 7 signified strong agreement. They were also able to respond with a "no" if they did not have an opinion or did not know about a particular issue. Table 5 lists the mean score for each item. The coaches tended to agree with the need for individualizing mental skills training based on gender and player training. They disagreed with generalizations concerning specific ways to interact with males and females.

Opinions About Mental Skills Training Resources

A number of questions were asked to determine the use of and demand for mental skills training resources in tennis. Results revealed that 71% (109 coaches) had read a sport psychology book while 24% (37 coaches) had not. For the coaches who had read a sport psychology book, they rated them as being helpful ($M = 7.28$, $SD = 2.55$) using a 1 to 10 Likert scale (1 = not helpful and 10 = extremely helpful).

The coaches were then asked to rate the usefulness of several resources and mediums for conveying mental skills training information (see Table 6). Though all of the suggestions were thought to be useful, specific mental skill forms for use with players and a video that can be watched by the players were rated as the most useful. Creating a tennis specific mental skills training web page on the internet was rated the least useful. This is not surprising given only 58.4% have internet access.

If a series of mental skills drills and forms were developed, 39% (60) of coaches thought that they should take a maximum of 10 minutes to complete, whereas 34.4% (53) of coaches thought that the drills should be limited to 15 minutes. In addition, 1.9% (3) of coaches thought the drills should be limited to 17.5 minutes, 16.9% (26) of coaches thought

Table 5
Opinions about mental skills training

Opinions	Agreement rating	
	<i>M</i>	<i>SD</i>
Players of all levels and abilities need mental skills training, but how this material is packaged may change with experience and player ability levels.	6.22	1.29
Male and female players are different emotionally and because of this may react in a different way to the same situation.	6.20	1.26
Coaches must practice mental skills themselves if they are to have confidence teaching them to junior tennis players.	5.86	1.66
Mental skills should be emphasized to a greater degree as players become more intense/competitive.	5.74	1.77
Coaches must be better taught how to detect and analyze player mental skill needs and abilities.	5.65	1.47
It is important to develop instruments to evaluate mental skills in junior players so players can assess their improvements in the area.	5.53	1.53
It is important to develop a sense of team unity if one is to have a successful junior tennis program.	5.50	1.52
Coaches should be more directive with younger players and encourage more independence in older players.	5.27	1.72
High status coach and peer models are good ways to teach or convey critical mental skills information.	5.11	1.65
To effectively influence a player's mental skills, a player's parents must be involved in the teaching process.	4.87	1.80
Homework assignments are a useful way to help teach mental skills with junior tennis players.	4.75	1.68
While male and female players differ psychologically in many respects and may need to be approached differently in some situations, they are more similar than different.	4.55	1.82
Most mental skills training articles and books do not make mental skills strategies concrete and tangible enough for effective use with younger players.	4.08	1.82
Not enough information exists on teaching coaches how to teach mental skills.	3.91	2.00
Enough information exists relative to how to individualize mental skills training.	3.28	1.95
Coaches need to focus more attention on communication with female as compared to male players.	3.28	2.15
Junior tennis players are not interested in mental skills training.	3.02	1.89
Females tend to keep their feeling inside more than male players who tend to be more expressive and sensitive.	2.86	2.07
Coaches should be leery of emphasizing mental skills with younger players because they will begin to think too much and experience "paralysis by analysis."	2.71	1.80
Coaches need to emphasize performance or self improvement goals more with male than female players.	2.27	1.72

Note. A rating of 1 signifies strongly disagree and 7 strongly agree.

Table 6
Types of materials/resources most helpful in teaching mental skills to junior tennis players

Materials/resources	Utility rating	
	<i>M</i>	<i>SD</i>
Mental skills, drills, and exercise forms	8.48	1.99
Mental skills training video	8.39	2.30
Junior tennis mental skills training book	7.67	2.49
Video showing coaches giving mental skills talks and leading exercise	7.58	2.78
Book explaining mental skills, drills and exercises	7.41	2.45
CD ROM or computer disk explaining mental skills, drills and exercises	6.34	2.88
CD ROM or computer disk of mental skills, drills and exercises	6.20	2.93
Mental skills training audiotape	5.65	2.85
Tennis specific mental skills training Internet web page	5.34	3.07

Note. A rating of 1 signifies not very useful and 10 very useful.

drills could be 20 minutes in duration, 2.6% (4) of coaches thought drills could be 25 minutes, and 1.3% (2) of coaches thought that 30 minutes would be a realistic length for each exercise. The mean maximum duration recommended for mental skills drills by the coaches was 14.38 minutes (*SD* = 4.49).

The coaches were also asked what percentage of their players would read a tennis psychology book or watch a tennis psychology video if recommended by the coach. The coaches thought that 68% (*SD* = 27.62%, range = 3–100) of their players would watch a video, and only 35% (*SD* = 25.88%, range = 0–100) of players would read a book about tennis mental skills training.

Discriminant Analysis Results²

To determine if differences between various groups of coaches (e.g., more versus less experienced) existed on responses to the previously discussed questions, a series of discriminant function analyses were conducted. In the case of a significant overall discriminant function, univariate mean comparisons and standardized discriminant function coefficients were inspected to determine the variables contributing most to the overall significant effect. Those variables having both high standardized discriminant function coefficients and significant univariate differences were

² Space limitations made it impossible to include all the significant discriminant function statistical summary tables in the text. However, these tables are available from the first author.

judged to be most important, followed by those with only high discriminant function coefficients.

Gender Differences

Because only 18% of the coaches were females, it was not possible to conduct a gender discriminant analysis.

Sport Psychology Course Background

Background and education. When coaches who completed a sport psychology course ($N = 94$) were compared to those coaches who did not ($N = 58$) on the five background and educational variables (achieved current tennis certification, age, achieved USTA coaching competency, ethnic background, sport psychology knowledge) a significant discriminant function emerged, Wilk's Lambda = .84, $\chi^2 = 25.63$, $p < .01$. Moreover, an inspection of the standardized discriminant function coefficients and univariate tests revealed that coaches who had taken a sport psychology course felt they were more knowledgeable about mental skills training ($M = 5.03$) than coaches who had not taken a course ($M = 4.25$). These coaches were also more likely to have some sort of USTA tennis coaching competency (M coaches with course = 1.84; M coaches with no course = 1.62).

Mental skills taught. When coaches who had and had not taken a sport psychology course were compared on ratings of the importance of 14 mental skills that could be taught, the discriminant function was not significant.

Teaching mental skills. Results of the comparison of the two groups of coaches on teaching mental skills questions revealed that the discriminant function failed to reach significance.

Opinions about mental skills training. When the coaches' responses about mental skills training were examined, a significant discriminant function emerged, Wilk's Lambda = .89, $\chi^2 = 18.10$, $p < .05$ (See Table 7). Furthermore, an inspection of Table 7 reveals that three opinion items most discriminated between the groups (based on the high standardized discriminant function coefficients and significant univariate comparisons). In particular, coaches who had a sport psychology course were more likely to respond that coaches need to be better taught to analyze and detect player mental skills and abilities, that coaches must practice mental skills themselves to have confidence in teaching them to junior players, and that it is important to develop a sense of team unity in junior tennis. In addition, based on a high discriminant function coefficient, an important variable discriminating between the groups was the finding that coaches who did not have a sport psychology course more likely agreed with the statement that mental skills should be emphasized more as players become more intense/competitive.

Years Of Coaching Experience

The coaches were subdivided into approximately two equal groups based on their years of coaching experience. One group ($N = 75$) con-

Table 7
Discriminant analysis of opinions about mental skills training if the coaches took a sport psychology course

Variable	t-test <i>p</i>	Discriminant coefficient	Completed sport psychology course	
			Yes	No
Not enough information on how to teach mental skills	—	.270	4.06	3.65
Player's parents must be involved in teaching process	—	.006	5.02	4.67
Must be taught to detect/analyze player mental skills needs/abilities	.05	.336	5.88	5.32
Male and female players emotionally react differently	—	-.165	6.19	6.18
Emphasize mental skills as players become more intense/competitive	—	-.453	5.66	5.82
Leery of emphasizing mental skills to younger players	—	.008	2.70	2.73
Must practice mental skills to have confidence teaching to players	.01	.601	6.15	5.41
Directive with younger players/encourage independence older players	.10	.218	5.46	4.98
Important to develop team unity to have successful junior program	.05	.439	5.72	5.16
Junior players are not interested in mental skills training	—	-.231	2.98	3.10

The discriminant function analysis reached significance, Wilk's Lambda = 0.891, $\chi^2(10) = 18.10$, $p < .05$.

sisted of coaches who had less than 15 years of experience while the second group ($n = 75$) consisted of coaches who had more than 16 years of experience. Four separate discriminant functions were then conducted based on conceptually similar items in the general areas of background and education, mental skills taught, attitudes about teaching mental skills, and opinions about mental skills training. Each of these results are discussed below.

Background and education. When more versus less experienced coaches were compared on five background and educational variables (achieved current tennis certification, age, achieved USTA coaching competency, ethnic background, sport psychology knowledge), a significant discriminant function emerged, Wilk's Lambda = .58, $\chi^2 = 76.46$, $p < .001$. Moreover, the discriminant function coefficients and univariate analyses revealed that two variables most differentiated between the groups. These included coach certification, with experienced coaches more often being certified (M more experienced = 1.83; M less experienced = 1.57), and coach knowledge of sport psychology, with experienced coaches reporting greater knowledge of the topic ($M = 4.91$) compared to less experienced coaches ($M = 4.62$).

Mental skills taught. When more versus less experienced coaches were compared on ratings of the importance of 14 mental skills that could be taught, the discriminant function was not significant. Hence, more versus less experienced coaches did not differ in their ratings of importance of the various mental skills training topics.

Teaching mental skills. Results of the comparison of the two groups of coaches on teaching mental skills questions showed that the discriminant function was significant, Wilk's Lambda = .93, $\chi^2 = 11.298$, $p < .05$. The most important variable discriminating between the groups was the importance of introducing mental skills to local tournament players with more experienced coaches rating this as having greater importance ($M = 8.36$) than the less experienced coaches ($M = 7.55$). Interestingly, high standardized discriminant functions revealed an important group distinction on the importance of the percentage of time coaches felt it was important to integrate mental skills into on- and off-court training. Specifically, less experienced coaches would spend more time with on-court mental skills ($M = 76.82$ versus $M = 73.26$) while the more experienced coaches would spend more time with off-court mental skills ($M = 25.66$ versus $M = 23.16$).

Opinions about mental skills training. When the coaches' opinions about mental skills training responses were examined, significant differences were found between the more and less experienced coaches, Wilk's Lambda = .84, $\chi^2 = 10$, $p < .006$ (See Table 8). The variables most discriminating between the groups were the items relating to the needs of coaches to be better taught how to detect and analyze player mental skill needs and abilities, the importance of coaches being more directive with younger players and encouraging more independence in older players, the importance of developing a sense of team unity if one is to have

Table 8
Discriminant analysis of opinions about mental skills training based on years of coaching experience

Variable	t-test <i>p</i>	Discriminant coefficient	Years of coaching experience	
			<15 Years	>16 Years
Not enough information on how to teach mental skills	—	-.199	3.96	3.85
Player's parents must be involved in teaching process	.100	.275	4.66	5.17
Must be taught to detect/analyze player mental skills needs/abilities	.005	.465	5.28	5.99
Male and female players emotionally react differently	—	.226	6.04	6.31
Emphasize mental skills as players become more intense/competitive	—	-.281	5.70	5.72
Leery of emphasizing mental skills to younger players	—	-.136	2.91	2.50
Must practice mental skills to have confidence teaching to players	.010	-.115	5.86	5.98
Directive younger players/encourage independence older players	.050	.415	4.93	5.61
Important to develop team unity to have successful junior program	.050	.308	5.23	5.73
Junior players are not interested in mental skills training	.050	-.570	3.28	2.66

The discriminant function analysis reached significance, Wilk's Lambda = 0.84, $\chi^2(10) = 24.65$, $p(0.006)$.

a successful junior tennis program, and the idea that to effectively influence a player's mental skills, a player's parents must be involved in the teaching process. In all cases, more experienced coaches agreed with these statements more often than the less experienced coaches.

DISCUSSION

The present study was designed to survey junior tennis coaches and determine their opinions relative to the importance of mental skills training, the mental skills they teach, how they teach mental skills, and recommendations for making mental skills training more effective. In addition to surveying the coaches as a group, differences in the coaches' opinions were compared between coaches with more versus less experience and coaches who had or had not taken a sport psychology course. The findings are discussed relative to five issues: (a) the need for mental skills training for junior tennis coaches in general, (b) specific mental skills training needs, (c) the ability of coaches to teach mental skills, (d) roadblocks to teaching mental skills, and (e) recommendations concerning mental skills training resources. Individual differences in the coaches' responses will also be examined, as well as methodological strengths and limitations of the study.

The Need for Mental Skills Training for Junior Tennis Coaches

The coaches who completed this survey felt that mental skills training was fairly important for junior tennis success. This finding is consistent with other survey studies of coaches representing a variety of sports who also indicated considerable interest in sport psychology (Gould, Giannini, Krane, & Hodge, 1990; Gould, Hodge, Peterson, & Petlichkoff, 1987; Silva, 1984). Our results also showed that almost 80% of the players that these tennis coaches work with experience problems with the mental part of the game that prevent them from playing up to their potential. Additionally, approximately 60% of players' parents were rated as interfering (knowingly or unknowingly) with the mental part of their child's game. These findings support the need for sport psychological education within junior tennis and the notion that coaching education competencies should reflect this need. Especially important is the need to better educate parents as to the effects they have on their child's mental game and to better train coaches to work with parents.

Interestingly, sport psychology researchers have recently turned their attention to studying the role that parents play in youth sports (Brustad, 1993; Streat, 1995), thus information exists to help coaches better inform and work with parents. Moreover, the American Sport Education Program (1994) has developed a sport parent course that coaches can use to educate parents on this topic. Efforts, however, must be made to disseminate this information through coaching education programs.

Specific Mental Skills Training Needs

When asked to rate the most important mental skills for junior tennis players to develop, the coaches indicated enjoyment/fun, focus/concen-

tration, self-confidence, emotional control, honesty/integrity, motivation/passion, practice intensity, and positive self-talk/thinking. In addition, few of the extensive list of mental skills the coaches were asked to rate were deemed unimportant. These findings generally parallel those of survey studies with other groups of coaches. For example, Silva (1984) found that player confidence, concentration, player misunderstanding role, underachievement, dealing with competitive stress, concentration, emotional control, personal problems, and selfishness were critical issues for a sample of 236 high school and college coaches. Similarly, in a study of intercollegiate wrestling coaches, Gould et al. (1987) found that mental toughness, positive attitude, motivation, attention-concentration, goal setting, and mental preparation were topics coaches reported as critical to success.

It is also encouraging that in the present study the vast majority of the mental skills rated as most important by these coaches are reflected in USTA player competencies (USTA, 1996). However, a review of the applied tennis mental training literature conducted by the authors shows that while some of these areas are often discussed (e.g., concentration/focus), few if any, concrete strategies for teaching mental skills are conveyed. A need exists to develop concrete strategies for coaches to employ with their players.

Although they were not asked to rate the importance of items, these coaches were asked to list what coaching practices they felt were most and least effective with junior players. Interestingly, many of the practices identified focused on relationship issues (staying positive, being negative, being overly critical, being results oriented). This supports the results of the focus group investigation of junior tennis coaches conducted by the authors (Gould et al., in press), where it was found that coaches not only need to be able to teach mental skills drills, exercises, and activities, but they must also establish positive relationships with their players. It is also consistent with the two decades of research by Smith, Smoll, and their colleagues (see Smith & Smoll, 1996, for a review) where it has been repeatedly shown that coach reinforcement and communication patterns directly influence important athlete psychological variables such as self-esteem, enjoyment, motivation, and anxiety. Hence, establishing positive, supportive, and trusting relationships may be a key prerequisite for successful mental skills training efforts initiated by coaches.

The Ability of Coaches to Teach Mental Skills

In terms of their ability to teach mental skills to players, this group of coaches seemed fairly well prepared. First, they were found to be well educated as most had a college degree. In addition, many had some type of tennis coaches' certification, although this may or may not have involved a sport psychology component. Lastly, they rated their ability to teach mental skills as slightly above average and carried out most of their mental skills training on (versus off) court.

It was interesting to note that while the coaches felt that they were fairly knowledgeable in sport psychology, their mental skills training knowledge did not come from books or formal courses. They indicated that they were most influenced in this regard through actual experience working with players and from clinics. The importance of actual experience as a primary teaching mechanism for coaches parallels existing literature (Gould et al., 1990). It also parallels a conclusion from the focus group study, which emphasized the need to engage coaches more in experiential learning versus lecturing to coaches in a classroom. Finally, the coaches were asked to rate what mental skills were most and least difficult for them to teach. Mental skills rated least difficult to teach included service-return ritual, fun, and goal setting. In contrast, mental skills judged to be most difficult to teach included reframing pressure, crisis management, self-confidence, and emotional control. It is encouraging that this list of the most difficult mental skills identified have been extensively studied in both the psychology and sport psychology literatures. For example, a video has recently been produced to help tennis players perform more effectively under pressure (Human Kinetics, 1997). Also, Gould et al. (1989) identified over 13 strategies that coaches could use to enhance self-efficacy in athletes. These strategies included such techniques as instruction-drilling, encouraging positive self-talk, modeling confidence oneself, and the liberal use of rewarding statements. Moreover, Weinberg et al. (1992) have examined which of these strategies are perceived to be most effective when used by tennis coaches. Hence, information is available to assist coaches in this regard.

Roadblocks to Teaching Mental Skills

Valuable information was obtained from this sample of coaches regarding the roadblocks coaches face in mental skills training efforts. In particular, the biggest roadblocks identified by the coaches included: lack of time, lack of player interest, difficulty evaluating mental skills training success, and lack of models and examples of coaches actually teaching mental skills. Similarly, when asked how to make coaches more confident in teaching mental skills to players, the participants indicated that more resources and tools need to be available, more and better models must be provided, and mental skills must be made more time efficient. To help coaches overcome these obstacles, sport psychologists must develop mental skills training drills and exercises for coaches to employ that are relatively short in duration and develop ways to evaluate player progress in the area of mental skills development. Paralleling the findings of the focus group study, these results also suggest the need to teach coaches how to engage and peak player interest in mental skills training as well as the need to provide models and examples of coaches actually conducting mental skill training sessions. Interview articles, such as the ones conducted with Counsilman and Summit discussed at the outset of this manuscript, might be especially useful in this regard.

Recommendations Concerning Mental Skills Training Resources

In addition to the previously discussed recommendations, the coaches indicated that there is a need for practical mental skill drills, forms, and exercises that coaches can use with their players. Because a lack of time for mental skills training is a roadblock for coaches, however, these drills and exercises must be relatively short in duration (10 to 15 minutes based on these coaches' responses). Finally, the coaches indicated that mental skills training videos for use with players would be helpful as they felt almost 70% of their players would watch a video versus 35% who might read a book.

Individual Differences in Coaches' Opinions and Ratings

A secondary purpose of this study was to determine if individual differences in terms coaching experience and sport psychology training affected the coaches' responses in this study. Those coaches who had taken a sport psychology course differed from those who had not. Specifically, those coaches who had taken a course were more likely certified, felt they had more sport psychology knowledge, felt it was more important for coaches to analyze and detect a player's mental skills and abilities, felt they must practice mental skills themselves to become confident in teaching them, and indicated it was more important to develop team unity. Coaches who had not taken a sport psychology course felt it was more important to implement mental skills as a player becomes more intense. Not surprisingly, having taken a sport psychology course seems to be related to increased coach awareness and knowledge about mental skills training. Moreover, these results support previous findings with collegiate wrestling coaches. Certified collegiate wrestling coaches felt psychological characteristics were more amenable to change and that they were more successful in changing these skills (Gould et al., 1987).

Finally, the greatest number of differences between the groups were evident on the coach experience factor. Coaches with more (versus less) experience were more likely certified, rated their sport psychology knowledge as higher, felt it was more important to introduce mental skills training to local players, and felt it was more important to spend more time off-court on mental skills training. The more experienced coaches also felt it was more important to detect a player's mental skills and abilities, indicated it was important to be more directive with younger players and give older players greater independence, felt it was more important to develop team unity, and indicated that it was more important to involve parents in mental training efforts. More experienced coaches, then, had different views and knowledge of mental skills training than their less experienced counterparts.

Methodological Limitations

While the results of this investigation have important implications relative to mental training programs for coaches, several methodological

limitations must be considered when making interpretations. First, because this was an exploratory survey study, the questionnaire used was not psychometrically validated. No reliability and validity evidence was obtained. Second, while the total sample size was adequate for the study, only 47% of the coaches attending the conference returned questionnaires, despite repeated request over the three days to do so. The question remains as to whether the coaches who did not return surveys were less interested in mental training or just did not have the time complete the questions. This return rate also weakens the samples' generalizability. Finally, as with all survey research, the responses reflect the expressed opinions and not necessarily the actual behaviors of the participants. Additional research is needed to assess the actual mental skills training behaviors of coaches.

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