

TYPES OF LAWN BOWLING TOURNAMENTS

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INTRODUCTION

Although there are many different types of tournaments, some are not suitable for sports such as lawn bowling. For example, *challenge competitions*, where a player may challenge a higher ranked player is not really useful in most sports (although it is common in boxing). The discussion, below, is intended for people who are interested in tournament formats that could be used in sports such as lawn bowling and curling. (In the following, the term *team* may refer to a single person or a single team, depending upon the context).

ROUND-ROBIN TOURNAMENTS

A pure round-robin tournament involves each team playing every other team in the tournament at least once. The winner of the round-robin is the team with the highest number of points following the completion of all games. This format is mathematically equivalent to a league without a playoff to determine the winner. However, most people think of league play as extending over a longer period of time and round-robin tournaments taking place over a shorter period – usually only a few days.

Round-robin tournaments may require many games, with the actual number increasing rapidly with increasing numbers of teams. In a pure round-robin, if n is the number of teams, then there will be $n(n-1)/2$ games. If n is even, there will be $(n-1)$ rounds with no byes. If n is odd, there will be n rounds with one team in each round having a bye. Here are three examples:

Sixteen teams: 120 games played over 15 rounds. Every team plays in each round.

Fifteen teams: 105 games played over 15 rounds. There will be a bye in each round.

Twenty-four teams: 276 games played over 23 rounds.

Round-robin tournaments are very popular. They usually have fixed schedules. Each team knows, in advance, who they will play and when they will play. Seeding usually is not a factor since all teams play all the other teams. However, when there is a significant difference in the caliber of play among the contestants, many games will be unsatisfactory from the point of view of those involved. Also, the character of the games may change as some teams begin to realize that they have little hope of winning.

Double or triple round-robins in which each team plays every other team more than once are probably best organized as leagues.

ELIMINATION (KNOCKOUT) TOURNAMENTS

The intent of elimination tournaments is to remove losers as quickly as possible. The most popular elimination tournaments are *single*, *double* and *triple* elimination tournaments. Elimination tournaments are popular in many sports either as stand-alone tournaments or as part of a *hybrid tournament*, described below. They are not popular in organizations where there is an emphasis on maximizing participation by its members.

The single elimination tournament is the easiest to organize and requires the fewest number of games. If a team loses a single game they are eliminated from further play. The

advantage is simplicity. The disadvantage is that luck plays a significant role in the outcome. However, if there are many teams and time is a factor, this may be the best approach. Single elimination tournaments are not suitable for games that require only a very short period of time to complete. Who wants to show up for a tournament in which they may be eliminated in only a few minutes?

The double elimination tournament is designed to remove the most obvious disadvantage of single elimination play, that is losing one game through bad luck or simply having one bad game. In a double elimination tournament, a team must lose two games to be eliminated from further play. Teams remain in the “*A*” *Event* until they lose their first game. Following a single loss, teams move to the “*B*” *Event*. In one form of double elimination play, the overall winner is the winner of the “*A*” *Event*. However, it is not uncommon for the winners of the two brackets to play in a championship match. In fairness, the winner of the “*B*” *Event* must defeat the winner “*A*” *Event* twice.

The triple elimination tournament takes the double elimination tournament a step further, allowing teams to play at least three games before being eliminated. This allows each team to play more games and further reduces the chances of being eliminated through bad luck. The disadvantage is that it introduces complexity in the playoff rounds (if they are included in the format). Ideally, the overall winner should win at least as many games as any other team. This could result in a championship playoff requiring the same two teams to play each other two or three times.

HYBRID TOURNAMENTS

Most leagues and most round-robin tournaments employ a playoff format to determine the overall winner. The playoff format is usually (but not always) some form of single elimination event.

If there are many teams involved in round-robin play, the teams are usually divided into *pools* (sometimes referred to as *sections*, *groups* or *divisions*).

It is important that the pools are balanced. This may involve some form of seeding, either by the players themselves or through some other method that is perceived as fair by the competitors.

When this occurs, the top teams in each pool are selected to play in some form of playoff. This may be a single elimination tournament or a hybrid form such as, for example, the Page playoff format commonly used in curling.

The number of teams selected for the playoff should be sufficient to almost guarantee that the best teams will be included.

OTHER TOURNAMENT FORMATS

The type of tournament format chosen might be influenced by the number and/or type of games played either in a round-robin or in the playoffs. For example, the National Hockey League has a playoff schedule that includes 18 teams. However, the chances of an inferior team winning the Stanley Cup is reduced by requiring the winning team to prevail in a best of seven format in each round.

In lawn bowling, sets play could be used to (somewhat) reduce the chances of a team losing because of bad luck in one game.

A review of the internet will turn up several other formats that could be used in lawn bowling. In most cases, the disadvantages outweigh the benefits. One class of formats involves multilevel elimination tournaments where there are winners declared at each level. These are common in some sports (e.g.; curling) but are seldom played in lawn bowling.

SINGLE ROUND-ROBIN TOURNAMENTS

A question that is often posed is: How many **games** are required to play a complete round-robin? An associated question is: How many **rounds** are required to play a complete round-robin?

These questions arise when tournament directors are required to create round-robin schedules that are practical, given the number of participants, the time available, and the number of rinks available for play.

Most people know, intuitively, that the number of games rises rapidly with the number of participants. It turns out that it is not difficult to develop an algorithm (formula) to determine, exactly, the number of games required in a complete round-robin.

First, each team will play every other team exactly once. For example, if there are six teams, then each team will play exactly five games (one game against each opponent). Through induction, this can be expressed as each of n teams will play $(n-1)$ games. This would result in $n(n-1)$ games in total. However, we realize that this will include (Team A) playing (Team B) and (Team B) playing (Team A) – obviously, this is only one game. Therefore, we must divide the preceding formula by two. The total number of games involving n teams will be

$$n(n-1)/2$$

The number of rounds required to play these $n(n-1)/2$ games (assuming there are sufficient rinks available) must be equal to one fewer than the number of teams in the round robin. For example, if each of six teams must play the other five, then there must be five rounds. Again, using induction, if n is even, there will be $(n-1)$ rounds with no byes. If n is odd, there will be n rounds with one team in each round having a bye.

Below is a table based on these algorithms.

Number of Teams	Number of Games	Number of Rounds
4	6	3
6	15	5
7	21	7
8	28	7
9	36	9
10	45	9
12	66	11
14	91	13
16	120	15

If there are many teams involved in a round robin tournament, the number of games and rounds can be reduced by using various forms of sectional play, which is the subject of the next section.

SECTIONAL PLAY

The obvious solution to the problem of having too many games or rounds is to divide the field into two or more sections. For example, if twelve teams are involved in a round robin tournament, we would require **66 games played in 11 rounds** to complete the tournament.

What would happen if we divided the twelve teams into two sections of six teams each? From the table in the previous section, we would play a total of 30 games over 5 rounds. If we want to know which are the top two teams, we would need to choose the top two teams in each section (since the top two teams could, conceivably, be in the same section). We would have to add two playoff rounds resulting in an additional three games and two rounds. Thus, we would have a total of **33 games played over a total of 7 rounds**. This is half the number of games and 4 fewer rounds compared to a single round-robin involving 12 teams.

In general, more sections will result in fewer games and rounds. Without going into detail, dividing twelve teams into **three sections would result in 23 games**. Dividing the twelve teams into **four sections would result in 19 games**. (A larger number of sections would result in more playoff games and this is reflected in the numbers above).

HOW TO RESOLVE TIES FOLLOWING A ROUND-ROBIN

One of the downsides of a round-robin tournament is that two or more teams may be tied after the round-robin has been completed. At this point the coordinator must manage some form of tie-breaker in order to establish the winner.

Whatever method it chosen, it must be described in the *Conditions of Play* which are published before the tournament begins.

Several methods are available, some of which are described in the Rule Book. The one chosen by the coordinator needs to address two needs: (a) it should be considered fair by the contestants, and (b) it must be practical from a time perspective.

The following is a brief summary of some of the techniques that can be used to break ties.

- (a) **Shots differential:** There are two ways to use shots differential to break ties. The first approach is to subtract the total number of shots scored against a team from the total number of shots for. For example, during the round-robin, a team scores 95 shots against all opponents and has 73 shots scored against it. The shots differential would be $95 - 73 = 22$. The second approach is to divide the number of shots against a team into the number of shots for. In the previous example, the shots differential would be $95 \div 73 = 1.30$. The rule book (2015) favours dividing the total shots for by the total shots against (rule 27.4)

The advantage of shots differential is that it is quick and easy to use. It also appears in the Rule Book as a suggested method of breaking ties. Because of these advantages, many bowlers accept shots differential as a fair method to resolve ties in a round-robin.

(The astute observer may notice that the two methods of calculating shots differential could lead to contradictory results. For example, suppose Team A scored 100 points against all opponents and had 50 points scored against it, and Team B scored 50 points against all opponents but had only 20 points scored against it. Using the first approach,

Team A would win over Team B. However, using the second approach, Team B would win over Team A.)

Another disadvantage, of course, is that a single “blowout game” could skew the results, resulting in the “wrong” team winning the event.

Shots differential is not recommended for CLBC championship tournaments.

- (b) **Shot percentage:** A team’s points scored are divided by the total points scored for and against the team throughout the tournament. The highest percentage wins. For example, Team A scores 40 points and gives up 16 points during the round-robin. Team A then has a shot percentage of 71.4% [$(40/56) * 100$].
- (c) **Shots against:** This method is somewhat similar to shots differential but *may* avoid the problem of a single “blowout game”. The procedure is to add up the total number of points scored against a team. Teams are ranked from the lowest number of shots scored against to the highest number. This method encourages defensive play. (The obvious counterpart to *shots against* is to use *shots for* to determine the winner. That method would encourage offensive play.)
- (d) **Ends won:** This method simply adds up the total number of ends won during the round-robin. The team with the largest number of ends won wins the tournament. The advantages of this method are (i) it uses actual playing conditions to determine a winner, (ii) it is quick and easy to do, and (iii) it may appear to be fair to the contestants.
The disadvantages are (i) all games must be played to conclusion to be fair, (ii) the method could distort the way in which players approach the game, and (iii) as in shots differential, a single “blowout game” could skew the results, resulting in the “wrong” team winning the event.
- (e) **Head-to-Head:** If two or more teams are tied, the order of finish could be based on the *head-to-head* results during the round-robin. The advantages to this method are (i) it is simple and easy, and (ii) there is general acceptance that the method is fair. The disadvantages are (i) it may be difficult to use if there are more than two players tied (since the technique could fail in some cases) and (ii) the “fairness” is deceptive. For example, one could argue that (since the teams are tied) we should look at who has had the most success against their common opponents – and that would lead to a different conclusion. (If only two players or teams are tied, they could play a tie-breaker game, as described below.)
- (f) **Modified Cut-Throat:** A three-way tie could be resolved by playing a mini three-end cut-throat game. The following description is one possible approach: At the start, a coin toss would determine the order of play in the first end. In the second and third ends, normal order of play would be followed. The first player to win two ends would be declared the winner. (An alternative is to rotate the mat among the players).
- (g) **Mini-Game Tie-breakers:** Many short, tie-breaking games could be used. One example would be to play a short, three-end game in which the winner is the team who wins two of the three ends or is the team that wins the most points in the three ends. Generally, a coin toss is used to determine who must take the mat. In some implementations, the mat alternates between the players; sometimes the mat is taken by the winner of the previous end. The advantage is that the method reflects actual game-play. The disadvantages are (i) the time required to play the tie-breaking games

and (ii) that one team (in a three-way tie) would have a bye unless the mini-games were carried out as a mini round-robin – which could also result in a three-way tie!

- (h) **Bowl to the Jack:** One or more team members deliver one or more bowls to the jack. The team with the bowl closest to the jack wins. As you can imagine, there are several ways to conduct this form of tie-breaker. Sometimes, the bowl to the jack is done prior to the beginning of the tournament, thus eliminating the need for a playoff following the completion of the round-robin.

It is strongly recommended that the method chosen to resolve ties reflect actual game play to the greatest possible extent.