



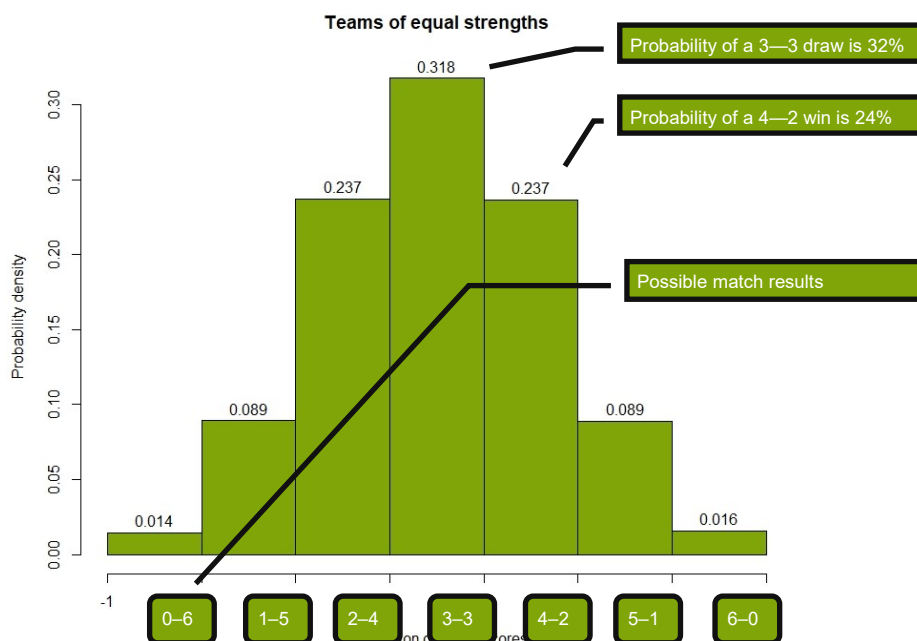
## Match tactics for captains

### Does it make a difference if players are not played in order of strength in a mens or ladies 4?

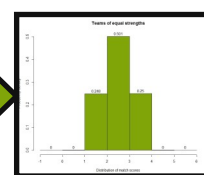
Wonder, no longer. Sophisticated modelling techniques now demonstrate what you may have intuitively suspected. Switching the order of players' strengths increases the chances of a match resulting in a draw. So if you believe your team is the weaker team, it pays to break with convention! If, as the season closes, you only need a draw and would rather not risk losing even if there is more chance of winning, then break with convention.

### Analysis

The diagrams below and on the following page show the results of simulating a large number of mens or ladies 4 matches. Each player is given a 'strength' rating and the first team plays them in order of strength, player 1 being the strongest. The other team can choose to do the same or try different tactics. The results show the distribution of overall match scores. The bar on the histogram to the left of "3" represents a draw (3—3). The bar to the left of "1" represents a score of (1—5) — a loss to the first team and a win for the second. The height of each bar represents the probability of each possible score being the overall result. Given that there is a degree of luck in each match, there is a small probability that the weakest team can win or at least draw. Let's start with teams are of equal strength and both play their strongest player in position 1.



Turn to the next page to see players switched

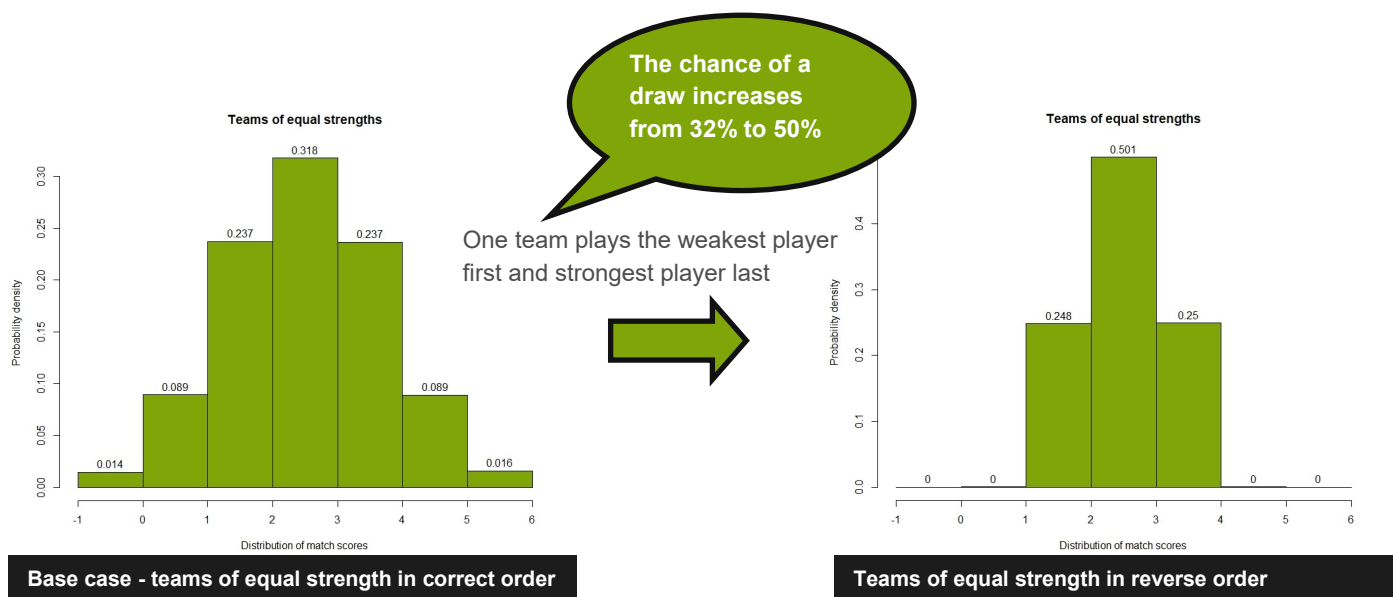


### In this issue

- Tactics for team captains
- Follow along to learn new programming skills in "R"
- Recommendations for badminton viewing whilst not playing
- How to train at home

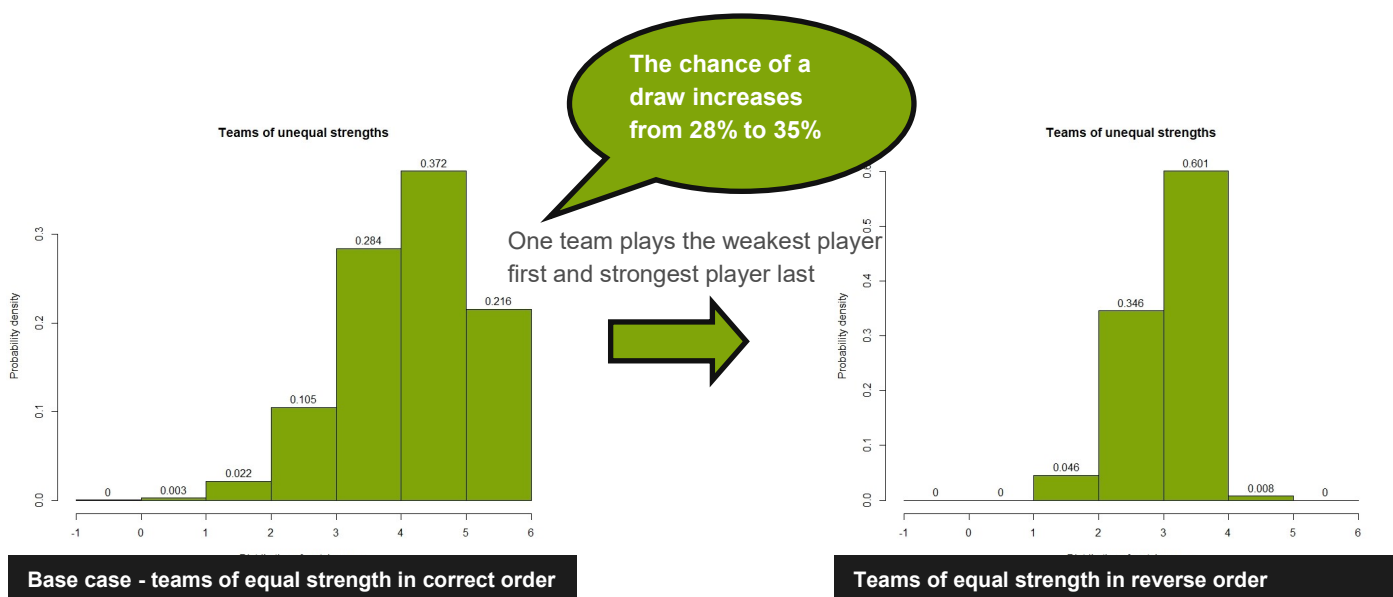
The base case — both teams are equally strong and play in the 'correct' order

# The results...



## What if one team is stronger than the other?

Much more commonly, one team will be stronger than the other. Take the case where every player on one team is stronger than their corresponding player on the other team. What should you do if you suspect you are the weaker side? In this example reversing the order of play increases the chance of a draw from 28% to 35% and, even better, **the chance that the weaker team unexpectedly wins doubles** (well, only from 2% to 4%, but there's hope!)



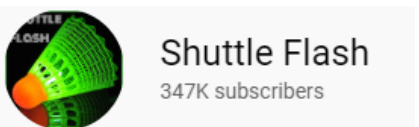
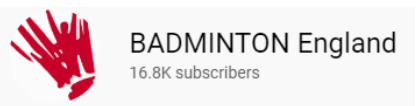
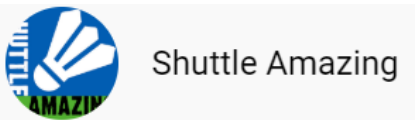
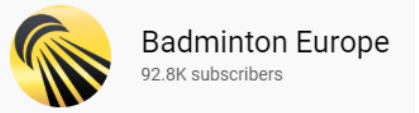
## What do the rules say?

Clearly league organisers consider it important for team captains not to fiddle with the order of players tactically since Rule 23 of the Southwest Herts Badminton League requires captains to 'exchange' — implying simultaneity — the names of their players. However, there is no constraint in the rules concerning the order chosen. And, in any event, any judgement as to the relative strength of players would be subjective at local league level (unlike for professional players playing in World Badminton Federation ranking tournaments). So any such rules would be unenforceable. Nonetheless it is an unspoken convention to play players in order of strength.

### Match result sheets

23. Team captains will exchange names of players before the first rubber of any match commences and no alterations shall be made thereafter except with the agreement of the opposing captain. A player's surname must be entered as registered on the league's website.

Extract from SWHBL rules



## What to watch?

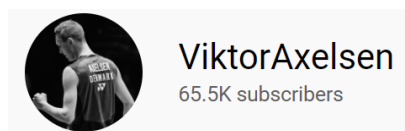
Missed the live streams on BBC Sport, do not worry, the full games from this year's Yonex All England Open played in Birmingham in March are now available on the [BadmintonWorld.tv](https://www.badmintonworld.tv) channel on YouTube. At least two club members attended — can you spot them in the crowd? This was the last major sporting event to take place before the coronavirus protection measures were put in place; who knows when the next will be, so make the most of the time to watch the professionals show how it should be done.

Of course there are other badminton channels worth watching to catch up on those all-important tournaments. **See pane on the right.**

## Follow the stars

Perhaps more interesting however are the channels of the major badminton stars.

Harder to find those in English, but one of my favourites is that of Viktor Axelsen, Denmark's top singles player and (spoiler alert) winner of the All England. Over 65,000 subscribers can't be wrong.



And there's lots to listen to as well

So when you are out for your daily exercise, why not take a podcast with you to listen to? What could be better than **The Badminton Podcast** hosted by Jeff Tho and Henry Wong containing “interviews with players from all walks of life to push you to grow as a player and a person”. Subscribe to it on [Spotify](#) here: or paste the RSS feed directly into your favourite player: <https://anchor.fm/s/c8f93e4/podcast/rss>

# What's it like playing badminton in China?

Follow along with [Badminton Becky's](#) vlog to see how much badminton is still being played in China during the coronavirus pandemic. The answer may surprise you!





## Want some on-line coaching?

Recommended websites on the internet are:

**THE Badminton Bible**

[Badminton Bible](#)

Very clear and well reasoned advice and information prepared by Mike Hopley - a level 2 coach.

[Coaching badminton](#)



Lee Jay Bok - former Korean international player and coach offers a comprehensive YouTube channel .

[Badminton Family](#)



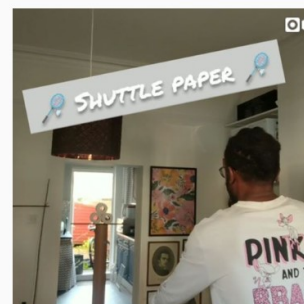
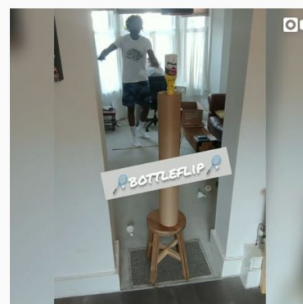
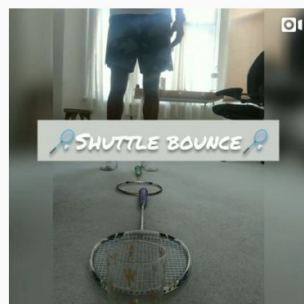
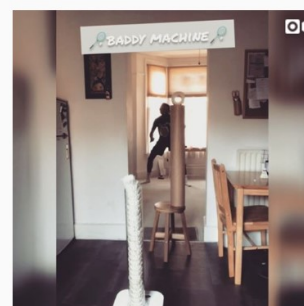
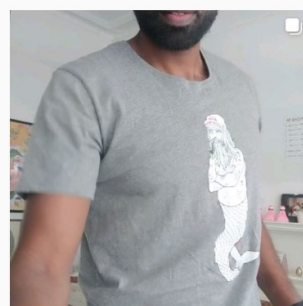
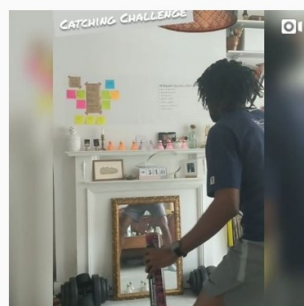
Rasmus Tran, Thomas Laybourn and other Danish professional badminton players and coaches offer advice, vlogs and training courses.

## Coming soon...

- Peg boards — who needs them? Real wooden pegs, websites, new Apps under development
- Reaction from South-west Herts Badminton

Instagram

Search



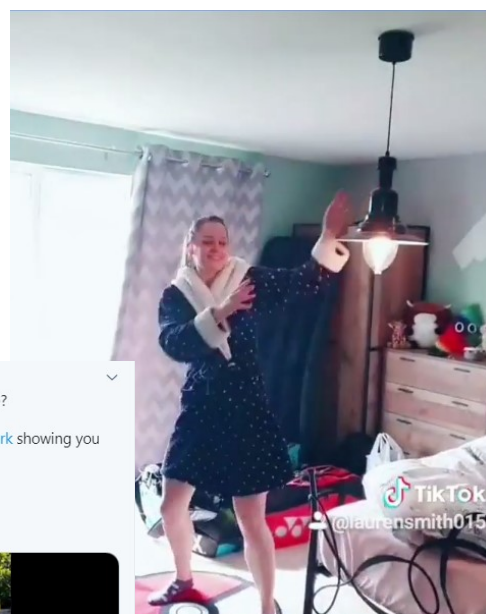
Badminton challenges to try at home (follow [@badmintonnews1](#) on Instagram)

## How to train at home

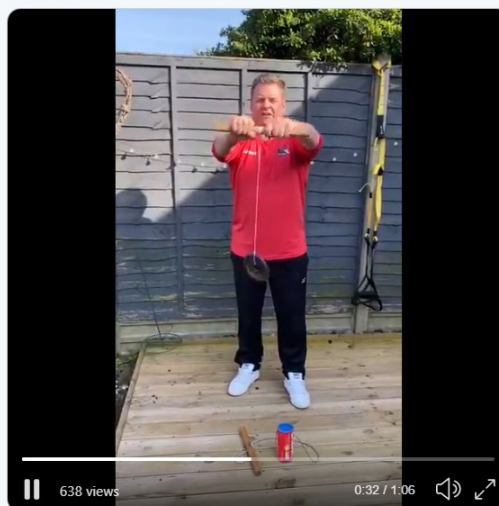
Ever wondered what to do with those surplus rolls of toilet paper? Stack them up and see how many shuttles you can serve into the holes (bottom right picture above).

[@badmintonnews1](#) on Instagram has daily challenges to keep you entertained.

Alternatively follow how our Badminton England stars are keeping busy at home with the crazy antics of [@laurensmith015](#) posted on TikTok.



**Badminton England** @BadmintonEnglnd · 6h  
Need some badminton training ideas while you're at home?  
Don't worry we've got you covered, here's [@anthonyianclark](#) showing you an exercise for wrist training.  
Why not give it a go and share your videos with us!  
[#StayInWorkOut](#)



Badminton England's twitter feed includes coach Anthony Clark's ([@anthonyianclark](#)) idea for home wrist training

# For the geeks

OK, so I'm a novice and this is just an excuse for me to learn a bit about programming in 'R'. But below is the code I used. If anyone want's to try to follow this, then good luck! But if there are any experts out there who can give some tips and suggestions to improve how this is written then please get in touch.

For those unfamiliar with R, it is a free software environment for statistical computing and graphics.

```
1 # DEFINE TEAMS AND STRENGTHS ----
2
3 # playernumber is the postion the player plays in
4 # playerstrength is how strong a player is between 1 and 10 (10 being strongest)
5 playernumber <- c(1,2,3,4)
6 playerstrength <- c(2,4,6,8)
7 TeamA <- data.frame(playernumber = playernumber, playerstrength = playerstrength)
8
9 playernumber <- c(1,2,3,4)
10 playerstrength <- c(8,6,4,2)
11 TeamB <- data.frame(playernumber = playernumber, playerstrength = playerstrength)
12
13 # define the standard deviation used to adjust the probability of a game being won
14 sd <- 1
15
16 # DEFINE FUNCTION FOR PLAYING ONE GAME ----
17
18 # p1 <- 1 player numbers
19 game <- function(p1, p2, p3, p4){
20   A <- 0 #initial score of team A
21   B <- 0 #initial score of team B
22   #compare team strenghts
23   s1 <- TeamA[p1,2]
24   s2 <- TeamA[p2,2]
25   s3 <- TeamB[p1,2]
26   s4 <- TeamB[p2,2]
27   Difference <- (s1 + s2 - s3 - s4) / 2
28   Luck <- rnorm(1,mean = Difference,sd = sd)
29   if (Luck > 0) {
30     A <- A + 1
31   }
32   else
33     B <- B + 1
34   result <- c(A,B)
35   return(result)
36 }
37
38 # DEFINE FUNCTION FOR PLAYING ONE MATCH ----
39
40 match <- function (p1, p2, p3, p4){
41   #play first game
42   game1 <- game(p1, p2, p3, p4)
43   #play second game
44   game2 <- game1 + game(p1, p2, p3, p4)
45   if(max(game2) == 2){
46     if(game2[1] == 2){
47       game2 <- c(game2,1,0)
48     }
49     else game2 <- c(game2,0,1)
50     return(game2)
51   }
52   #play third game
53   game3 <- game2 + game(p1, p2, p3, p4)
54   if(game3[1] == 2){
55     game3 <- c(game3,1,0)
56   }
57   else game3 <- c(game3,0,1)
58   return(game3)
59 }
60
61 # DEFINE OVERALL MENS OR LADIES 4 MATCH ----
62 overallmatch <- function(TeamA, TeamB){
63   #play six matches
64   pair1 <- match(1,2,1,2)
65   pair2 <- match(1,3,1,3)
66   pair3 <- match(1,4,1,4)
67   pair4 <- match(2,3,2,3)
68   pair5 <- match(2,4,2,4)
69   pair6 <- match(3,4,3,4)
70   scoresheet <- data.frame(pair1, pair2, pair3, pair4, pair5, pair6)
71   scoresheet
72 }
73
74 # OVERALL MATCH RESULT SUBMITTED
75
76 winners <- NULL
77 submission <- overallmatch(TeamA, TeamB)
78 a <- sum(submission[3,])
79 b <- sum(submission[4,])
80 score <- c(a,b)
81 winners <- cbind(winners, score)
82
83 # SIMULATE MANY MATCHES AND AGGREGATE RESULTS ----
84
85 winners <- NULL
86 for(i in 1:10000){
87   submission <- overallmatch(TeamA, TeamB)
88   a <- sum(submission[3,])
89   b <- sum(submission[4,])
90   score <- c(a,b)
91   winners <- rbind(winners, score)
92 }
93
94 # PLOT HISTOGRAM OF RESULTS ----
95 hist(winners[,1], breaks = c(-1,0,1,2,3,4,5,6), freq = FALSE, col = "lightblue",
96      labels = TRUE, main = "Teams of equal strengths", xlab = "Distribution of match scores",
97      ylab = "Probability density")
98 }
```

The program runs simulations of 10,000 badminton matches in Mens-4 or Ladies-4 format.

Each team's players are given a relative strength rating of between 1 and 10.

In the examples given on page 2 of this newsletter, the 'equal strength' teams had players with strengths as follows:

Player position	Team A strength	Team B strength
1	8	8
2	6	6
3	4	4
4	2	2

And then the order of Team B's players was reversed:

Player position	Team A strength	Team B strength
1	8	2
2	6	4
3	4	6
4	2	8

Next, every player in Team A was made slightly stronger:

Player position	Team A strength	Team B strength
1	8.5	8
2	6.5	6
3	4.5	4
4	2.5	2

And again Team B reversed:

Player position	Team A strength	Team B strength
1	8.5	2
2	6.5	4
3	4.5	6
4	2.5	8

# Want to get involved?

Use your unexpected free time to submit articles for next month's edition.

Suggestions for improvements welcome.

Ideas to submit to the social secretary when the club resumes and social distancing policies are lifted?

## Contact Us

Editor

Tom Crossland

[admin@harpendenracqueteers.com](mailto:admin@harpendenracqueteers.com)

Visit us on the web at

[www.harpendenracqueteers.com](http://www.harpendenracqueteers.com)

Publication deadline 14 April 2020