

Summer School 2022

<https://www.shu-rouen-schools.com>

- | • Welcome
- Summer School Overview
- Data Sources

**Sheffield
Hallam
University** | Staff



Schedule

Monday 30th May	Session Title	Room	Session Leader/s
09:00-10:45	Summer School Introduction and Project Overview	A201	Joe Stone
11:00-12:30	Identifying the Project Issue	A201/A004	Ben Strafford & Joe Stone
12:30-14:00	Lunch and Group Work	HoC Café	
14:00-16:00	Ecological Dynamics & Department of Methodology	A201	Keith Davids
16:00-18:00	Group Work	A201/A004	JS/BS/LC
18:00-Onwards	Optional drinks/dinner-Venue TBC	City Centre	

Tuesday 31st May	Session Title	Room	Session Leader
09:00-10:45	Psychology in a Department of Methodology	A201	Laura Carey
11:00-12:30	ASM & Donor Sports	A201/A004	Ben Strafford
12:30-14:00	Lunch and Group Work	HoC Café	
14:00-16:00	Intervention Designs using Non-Linear Pedaogoy	A201	Joe Stone
16:00-17:30	Group/Project Work Update	A201/A004	Joe Stone
17:30-onwards	Optional: Walk/Sport Activity (depending on the weather)	Endcliffe Park	Joe Stone

Wednesday 1st June	Session Title	Room	Session Leader
09:00-10:45	Group/Project Work	A201/A004	JS/LC
11:00-12:30			
12:30-14:00	Lunch	HoC Café	
14:00-16:00	Group Presentations	A201/A004	JS/LC/LS/JW
16:00-17:00	Optional: Social Drinks	Nursery Tavern	

- Work in small teams to solve applied sport science problems



- Focus on Women's' Professional Football Teams

- Each group will adopt the role of the coaching and sport science team for a professional English woman's team
- Define a performance related problem and seek to develop intervention strategies using data to support your plan

The Scenario

- Sat • Match Day
- Sun • Rest Day
- Mon • Previous Match Review
- Tues • Next Match Planning and Intervention Design
- Wed • Intervention Design ready for afternoon training
- Thurs • Implement Intervention Design
- Fri • Implement Intervention Design
- Sat • Match Day

Key Project Milestones

- 1. Evaluate data sources
- 2. Select on **ONE** key performance area to focus upon
- 3. Develop evidence on the performance area
- 4. Create a short-term intervention design using principles of Ecological Dynamics which could be implemented ready for the next fixture
- 5. Suggest strategies for longer term development of the performance area

Groups and Teams



Team	Arsenal	Chelsea	Manchester City	Manchester United	Everton
	Group 1	Group 2	Group 3	Group 4	Group 5
Shu	Tony Ker	Sian Judd	Cavan Aulton	Hayden Young	Colin Midgley
Shu	Adam Lickess	Andrew Mulvey	Jack Stevens	Andrea Hart	
Rouen	Bouaicha Mountasser	Buzzi Romain	Drouet Julie	Dubas Alexis	Lecouturier Hugo
Rouen	Miellet Pierre	Bricaud Elise	Cholet Alexis	Confesson Antoine	Dehorne Aurelien
Rouen	Houde Titouan	Lefevre Lucas	Lefevre Thomas	Lhotte Thibaut	Lucas Nathan
		Royer Mathis		Offerle Paul	Vitel Victor

Get to know your groups

- Your name
- Sport or exercise you like to play/watch
- Your main discipline area (e.g., Psychology, S&C, Performance Analysis....)
- Favourite food
- A “fun” fact about yourself



The Project Focus

- Dynamic systems of play in invasion sports

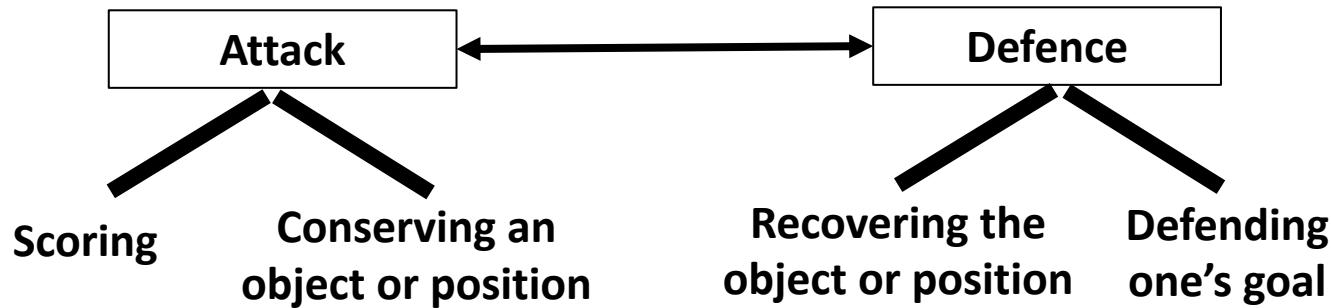
Attack



Defence

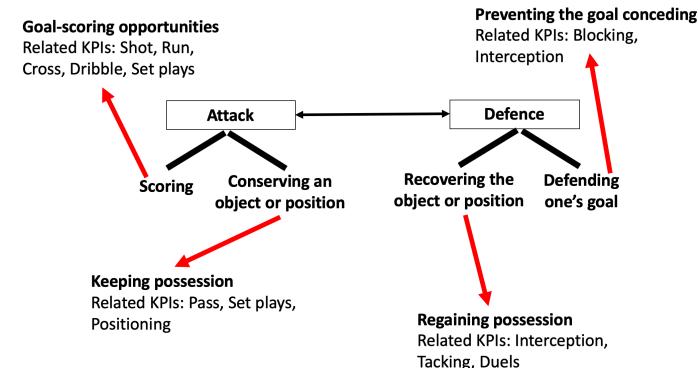


Dynamic System of Play



Tactical Problems: Invasion

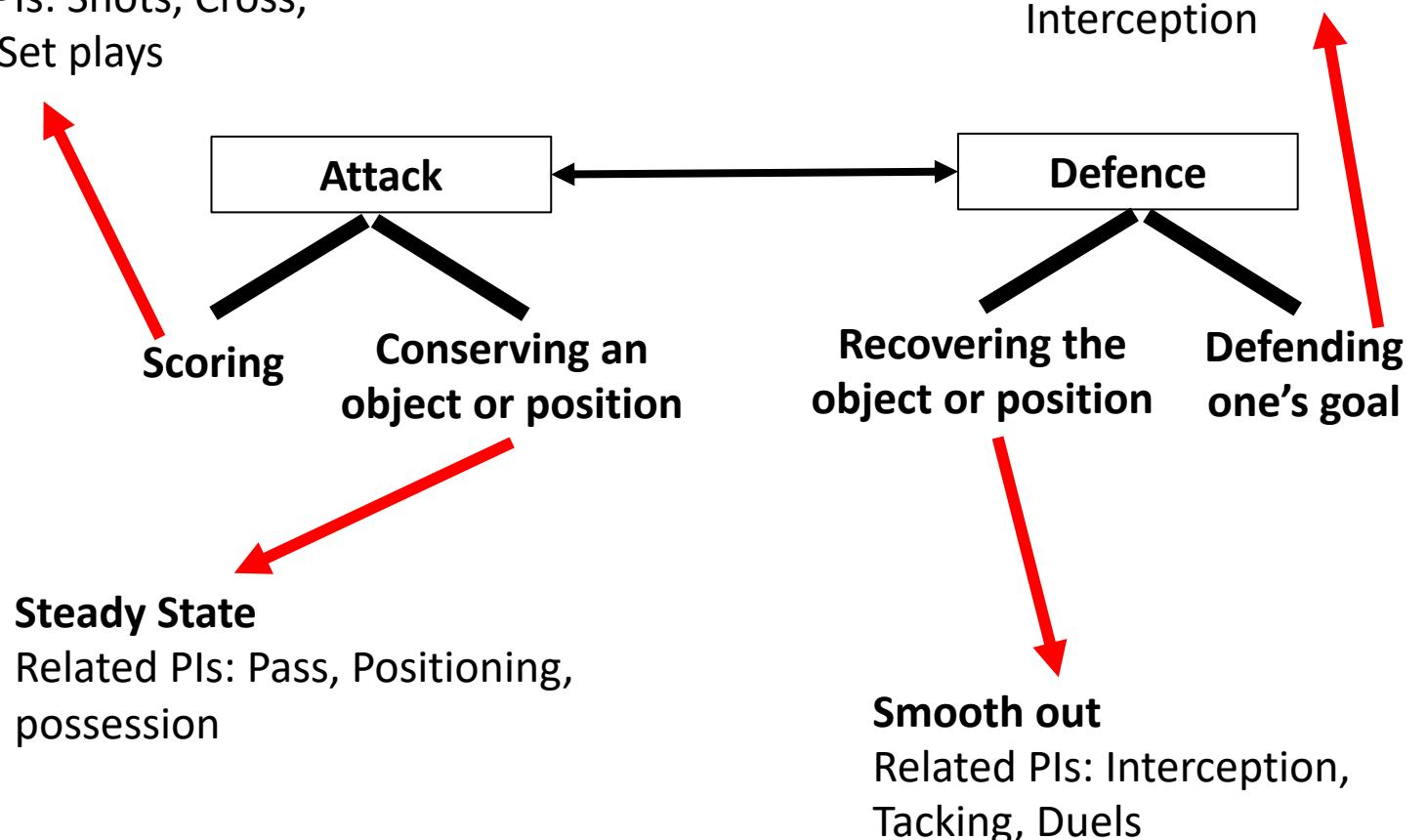
- **Scoring:** What is the main problem for **poor conversion rate**?
- **Scoring:** What is the reason for poor **attack efficiency**?
- **Scoring:** Where is the **effective area** for creating chances?
- **Scoring:** What is the **temporal pattern** of shot attempts?
- **Conserving:** What is the best strategy for building up attacks in terms of **passing styles**?
- **Conserving:** What are the **reasons for losing the ball** possession?
- **Conserving:** What is the role of **speed in counter-attack** play after the ball is regained?
- **Recovering:** How the team **recovers the ball** to prevent goal conceding?
- **Defending:** Where is the most **vulnerable area** to concede a goal?



Examples: *Invasion sports*

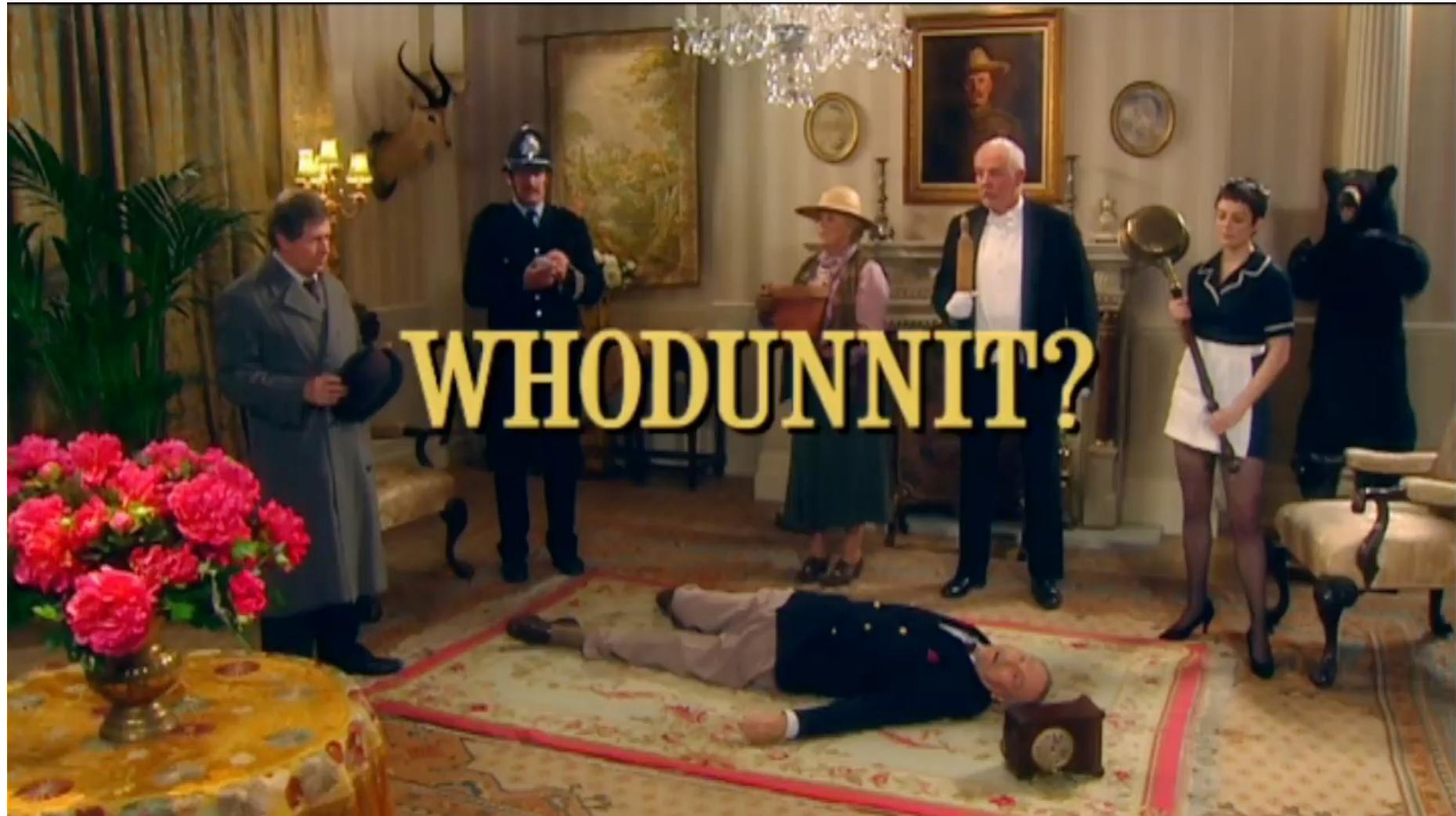
Critical Incident

Related PIs: Shots, Cross,
Dribble, Set plays



Data Sources

Why do we need data?



Why use Performance Assessment?

- We can collect **data** to aid with observation of performers which **we may miss** in real time
- In your groups write down **as many reasons** as you can to why we might **assess or record data** during **training and/or competition?**

Why use Performance Assessment

Adapted list from Carling, Reilly and Williams (2009):

1. To establish a **baseline profile** for each player and the squad
2. To identify individual **strengths** and **weaknesses**
3. To provide **feedback** to **players** and **coaches** about their capabilities and weaknesses
4. To **evaluate objectively** the effectiveness of specific intervention and practise
5. To **monitor** the team performance during season
6. To monitor a relationship between **individual** and **team performance**
7. To evaluate and compare the demands of **competition** and **practise**
8. To assist in identifying **talented players**
9. To **predict future performance** according to current norms and statistics
10. To solve a **specific problem** through a scientific approach such as academic research

Typical Data Sources



wyscout



STATSBOMB

Data for the week

https://drive.google.com/drive/folders/1W5fEUOFRylBYt_6KLTExEtr_pzlzhi?usp=sharing



Watch the Video



Code/Tag Data

- Pen and Paper, Excel or Nacsport



The image shows a screenshot of the Nacsport software interface. At the top, there is a video player window showing a rugby match between Paignton and Burnham On Sea. Below the video player is a timeline and playback controls. The main interface is divided into several sections:

- Rugby Possession Analysis 2:** A chart showing possession percentages (Paignton 49%, Opp 51%) and a summary of tries scored (3), conversion rates (Own 3/3, Opp 2/3), and points conceded (Opp 7).
- Set Piece Success:** A table showing success rates for lineouts, scrums, and restarts for both teams.
- Sources Of Our Possessions:** A table showing the number of possessions from set pieces (23) and kicks (4).
- How Our Possessions Ended:** A table showing the reasons for possession endings (Handling Error, Kicked, Ran Into Touch, etc.).

The bottom section of the interface shows a timeline with play-by-play details, including possession events and lineouts.

Pre-Tagged Wyscout Data

Date	Match	Competition	Duration	Team	Scheme	Goals	xG	Shots / on target	Passes / accurate	Possession, %	Losses / Low / Medium / High	Recoveries / Low / Medium / High	Duels / won													
Arsenal						2.86	2.43	16.09	7.00	43.50	575.86	485.86	84.37	63.38	114.59	19.59	37.41	57.59	84.59	33.68	32.05	18.86	213.91	100.95	47.20	
Opponents						0.68	0.89	7.18	2.41	33.54	321.36	239.55	74.54	36.62	108.45	27.00	38.59	42.86	83	23	30	30	233	114	48.93	
2021-05-09	Arsenal - Aston Villa 0:0	England. WSL	99	Aston Villa	4-2-3-1 (47.64%)	0	1.03	15	4	26.67	677	572	84.49	75.61	121	7	28	86	69	42	24	3	233	113	48.93	
2021-05-02	Everton - Arsenal 1:2	England. WSL	95	Arsenal	5-4-1 (100.0%)	0	0.17	2	0	160	101	63.13	24.39	102	47	35	20	88	30	36	22	187	69	36.9		
2021-04-28	Arsenal - West Ham United 2:0	England. WSL	94	West Ham United	4-3-3 (60.15%)	1	0.21	4	1	35.25	345	263	52.02	50.09	104	27	34	34	76	37	51	17	186	97	59.6	
2021-04-25	Arsenal - Brighton & Hove Albion 2:0	England. WSL	95	Brighton & Hove Albion	4-3-3 (93.51%)	2	1.87	17	6	35.29	667	589	88.31	69.25	112	15	26	71	74	20	25	29	200	80	47.31	
2021-04-04	Bristol City - Arsenal 0:4	England. WSL	96	Bristol City	4-1-4-1 (73.09%)	4	5.64	27	12	44.44	634	538	84.86	69.84	106	5	36	65	65	43	10	12	200	98	49	
2021-03-27	Tottenham Hotspur - Arsenal 0:3	England. WSL	95	Tottenham Hotspur	4-4-2 (100.0%)	0	1.19	9	4	44.44	353	274	77.62	35.97	91	24	29	31	100	29	41	30	211	96	45.5	
2021-03-19	Arsenal - Manchester United 2:0	England. WSL	97	Manchester United	4-1-4-1 (66.21%)	2	0.74	10	3	30	301	221	73.42	40.92	116	23	55	38	77	49	15	13	290	132	45.52	
2021-03-07	Birmingham City - Arsenal 0:4	England. WSL	95	Birmingham City	4-2-3-1 (100.0%)	0	1.19	10	3	30	505	409	80.99	59.08	118	16	28	74	88	28	44	16	290	148	51.03	
2021-02-28	Aston Villa - Arsenal 0:4	England. WSL	95	Aston Villa	4-3-3 (100.0%)	4	4.79	27	10	37.04	687	612	89.08	75.42	99	14	25	60	76	23	35	18	174	91	52.3	
2021-02-10	Chesterfield - Arsenal 3:0	England. WSL	95	Chesterfield	4-3-3 (100.0%)	4	3.86	26	10	38.46	749	634	84.65	77.11	118	12	34	72	93	27	40	26	200	95	51	
2021-02-07	Arsenal - Manchester City 1:2	England. WSL	98	Manchester City	4-3-2-1 (100.0%)	0	0.21	3	0	204	131	64.22	22.86	119	35	49	35	61	38	15	8	174	81	46.55		
2021-01-17	Reading - Arsenal 1:1	England. WSL	101	Reading	4-4-2 (100.0%)	1	0.35	5	2	40	293	209	71.33	39.08	118	23	41	54	93	27	40	26	200	102	51	
2020-12-20	Arsenal - Everton 4:0	England. WSL	95	Everton	4-3-3 (49.57%)	4	2.75	15	7	46.67	608	530	87.17	62.78	97	22	34	41	74	38	23	13	209	103	49.55	
2020-12-13	Manchester City - Arsenal 2:1	England. WSL	97	Manchester City	4-2-3-1 (78.11%)	0	0.5	3	1	33.33	335	319	71.17	52.22	93	19	28	46	88	38	43	17	124	76	49.55	
2020-12-06	Arsenal - Birmingham City 3:0	England. WSL	96	Birmingham City	4-2-3-1 (100.0%)	1	0.39	8	4	50	544	435	79.85	57.77	151	34	46	76	71	39	24	8	228	116	47.15	
2020-11-15	Arsenal - Chelsea 1:1	England. WSL	97	Chelsea	4-3-2-1 (67.38%)	3	1.15	8	5	62.5	352	245	69.6	34.23	123	24	48	51	84	22	28	14	246	116	47.15	
2020-10-26	Arsenal - Manchester City 1:1	England. WSL	95	Manchester City	4-2-3-1 (100.0%)	1	0.39	5	3	60	479	387	80.79	51.88	116	28	34	54	70	28	34	8	228	108	47.37	
2020-10-11	Brighton & Hove Albion - Arsenal 0:5	England. WSL	94	Brighton & Hove Albion	4-4-1-1 (100.0%)	0	0.99	7	5	71.43	357	284	80.67	34.86	111	24	38	49	78	31	32	15	228	115	50.44	
2020-10-04	Arsenal - Bristol City 3:1	England. WSL	95	Bristol City	4-1-4-1 (100.0%)	1	1.75	13	6	46.15	412	322	78.16	48.12	114	24	38	49	84	32	37	15	254	110	43.31	
2020-09-12	West Ham United - Arsenal 1:9	England. WSL	96	West Ham United	4-2-3-1 (48.53%)	1	1.16	9	0	0	378	350	74.87	45.82	120	27	45	48	86	33	31	22	241	109	45.23	
2020-09-06	Arsenal - Reading 6:1	England. WSL	95	Reading	4-3-2-1 (100.0%)	0	0.63	9	2	22.22	435	335	76.48	55.55	107	16	41	50	83	35	31	17	241	128	53.11	
2020-08-29	Manchester United - Arsenal 1:0	England. WSL	98	Manchester United	4-2-3-1 (100.0%)	1	2.83	23	5	21.74	400	296	74	46.35	118	19	39	60	97	22	34	41	209	103	48.03	
2020-08-22	Arsenal - Tottenham Hotspur 6:1	England. WSL	97	Tottenham Hotspur	4-2-3-1 (100.0%)	6	2.37	13	10	76.92	650	568	87.38	67.2	108	20	43	45	87	48	27	12	206	109	52.91	
2020-08-15	Brighton & Hove Albion - Arsenal 0:5	England. WSL	94	Brighton & Hove Albion	4-4-1-1 (38.82%)	1	1.84	9	3	33.33	280	203	72.5	32.8	94	18	35	41	68	27	30	11	206	89	43.2	
2020-08-08	Arsenal - Arsenal 1:1	England. WSL	95	Arsenal	4-2-3-1 (100.0%)	5	1.99	14	6	42.86	699	598	85.55	65.14	121	23	35	63	93	35	35	23	188	92	48.94	
2020-07-29	Arsenal - Chelsea 1:1	England. WSL	97	Chelsea	4-3-3 (93.16%)	3	2.3	21	9	42.86	875	758	86.63	77.75	124	4	25	95	103	40	32	31	188	98	49.49	
2020-07-22	Arsenal - Bristol City 3:1	England. WSL	95	Bristol City	4-1-4-1 (100.0%)	1	0.19	4	2	50	214	130	72.25	22.25	114	20	45	55	61	41	5	5	188	92	46.03	
2020-07-15	Arsenal - Reading 6:1	England. WSL	95	Reading	4-2-3-1 (70.00%)	9	3.69	24	18	75	51	430	484	84.15	58.65	96	17	28	51	83	35	28	20	204	100	49.03
2020-07-08	West Ham United - Arsenal 1:9	England. WSL	96	West Ham United	4-1-4-1 (35.59%)	1	0.33	4	2	50	313	246	78.59	41.15	96	23	30	43	63	36	16	11	204	90	44.12	
2020-07-01	Arsenal - Arsenal 1:1	England. WSL	95	Arsenal	3-4-2-1 (48.66%)	6	4.89	22	13	59.09	457	378	82.71	54.22	97	18	45	34	82	35	31	16	191	98	51.31	
2020-06-24	Arsenal - Reading 6:1	England. WSL	95	Reading	4-3-1-2 (79.06%)	1	1.13	11	3	27.27	349	264	75.64	45.78	110	25	36	49	77	31	29	17	191	89	46.6	

Pre-coded data

```
27
28 This chunk of code imports the specific competition and season of data we need. the WSL 20-21 season
29 ````{r}
30 Comp <- FreeCompetitions()
31 Women_Prem <- FreeCompetitions() %>%
32   filter(competition_id==37 & season_id==90) #this loads the specific WSL 20-21 season
33 Matches <- FreeMatches(Women_Prem)
34 StatsBombEvents <- StatsBombFreeEvents(MatchesDF = Matches, Parallel = T)
35 ````
```

28:52 (Top Level) R Markdown

Environment History Connections Tutorial

Import Dataset | R Global Environment | List | C

Data

- Comp 40 obs. of 12 variables
- Matches 131 obs. of 42 variables
- StatsBombEvents 443305 obs. of 146 variables
- Women_Prem 1 obs. of 12 variables

131 matches of data



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131 matches of data

146 variables of data

443,305 observation



Pre-coded data

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```

28:52 (Top Level) R Markdown

Environment History Connections Tutorial

Import Dataset

R Global Environment

Data

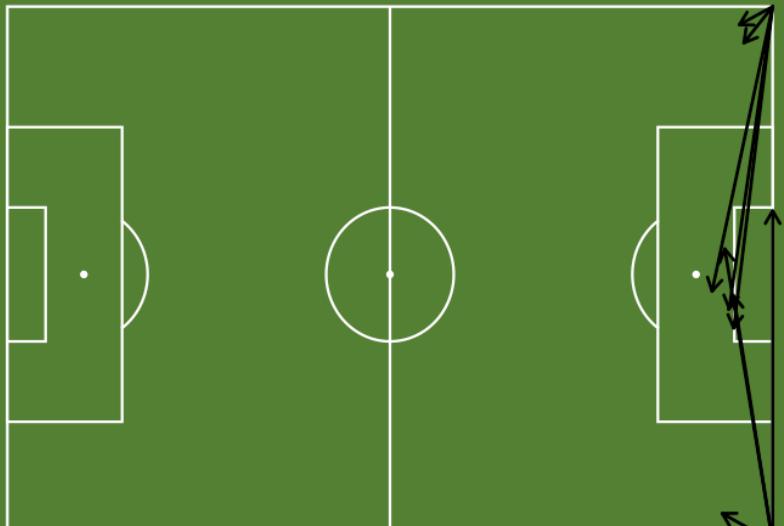
Comp	40 obs. of 12 variables
Matches	131 obs. of 42 variables
StatsBombEvents	443305 obs. of 146 variables
Women_Prem	1 obs. of 12 variables

Results in **64,722,530** bits of data



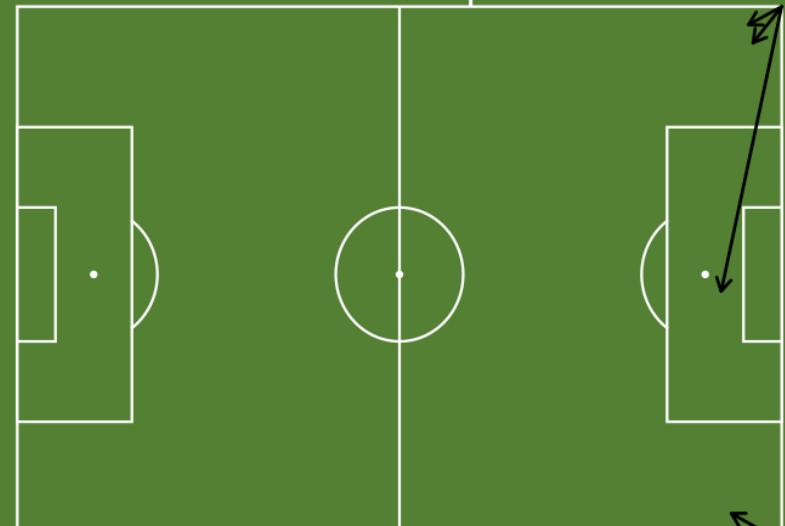
Example Output

Corner Distribution



Aston Villa WSL

Corner Distribution with Completed First Contact



Aston Villa WSL

Is having more data better?

<http://www1.skysports.com/watch/video/sports/rugby-union/9756589/sports-science-in-rugby-union>

- **What's and Wherefore's**
- Data **interpretation** is **critical**
- Coaches running the data, not the data running the coaches

<http://www1.skysports.com/watch/video/sports/rugby-union/9756589/sports-science-in-rugby-union>

- What data and interpretation does your group require to support issue and proposed intervention?



Which data to use?

- Time is short, like in professional sport
- Use the skillset of your group
- Plan and distributed the work
- Use the staff for advise to help if you are unsure
- You need to be ready to present on **Wednesday** afternoon

- 1. Map out which areas you want to start investigating
- 2. Start to examine the data sources
- 3. Define the area of interest you will investigate