BALTIC JOURNAL OF SPORT & HEALTH SCIENCES
No. 2(135); 2025; 40 – 53; ISSN 2351-6496 / eISSN 2538-8347
DOI: https://doi.org/10.33607/bjshs.v2i135.1620

Analysis of Offensive Efficiency and Goal Scoring in the Stanley Cup Finals 2023 and 2024

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ABSTRACT

Background: The purpose of this study was to investigate the types of situations in which goals are scored at the highest level of ice hockey. The study focused on the Stanley Cup Final games (n=12).

Methods: Two different game analysis methods based on systematic observation were used. The observation was conducted using video recordings after the games. The data consisted of (n=) 1477 shots, (n=) 79 goals, and (n=) 3619 even-strength attacks.

Results: Teams had (n=) 181 even-strength attacks per game. The overall attack efficiency was 7%. For scoring goals, defensive play in the offensive zone was particularly important, as the scoring efficiency of attacks starting in the offensive zone was statistically highly significant compared to the defensive and the neutral zones ($p<0.001$).

Goal-scoring situations were classified based on the number of players on the ice and the different zones of the rink. Most goals were scored during 5 vs. 5 play (71%), with the remaining goals coming from 5 vs. 4 power plays (9%) or other situations (20%).

The majority of goals were scored from close to the net. Scoring efficiency was statistically significant in sector 1 ($p<0.05$) compared to sector 2, and highly significant ($p<0.001$) compared to sectors 3–4.

Conclusion: Scoring becomes easier when: 1) The attack starts in the offensive zone, and 2) the shot is taken close to the net. If the attack starts further away, fast and counter-attacks improve scoring chances, as the opponent does not have time to organize their defense.

Keywords: ice hockey, goal scoring, tactics, game analysis, attack, NHL

INTRODUCTION

For many, the NHL Stanley Cup Final is the highlight of the season. The journey to the final is extremely challenging, and the difference between winning and losing can be very small.

The NHL regular season consists of 32 teams. After the regular season, half of the teams advance to the playoffs, where they compete in best-of-seven series for a spot in the final. The winner of each series moves on to the next round by defeating their opponent. Ultimately, the two best teams face off in the Stanley Cup Finals to determine the champion (National Hockey League [NHL], 2024).

During the season, teams may face many challenges. For some, like endurance training, coaches can find answers in scientific research. However, other challenges, such as scoring relative to the opponent, remain for the team to solve. This study aims to provide additional insights into the volume of offensive plays in different areas of the rink during even-strength play. Additionally, the goal is to analyze offensive efficiency and determine the types of situations that lead to goals in the Stanley Cup Finals.

BACKGROUND

In various team sports tactics and performance have been studied through game analysis (Hughes & Franks, 2008). These sports include for example soccer (Camerino, Chaverri, Anguera & Jonsson, 2012; Tenga, Holme, Ronglan & Bahr, 2010),

basketball (Csataljay, O'Donoghue, Hughes & Dancs, 2009; Gomez, Lorenzo, Ibanez & Sampaio, 2013), rugby (James, Mellalieu & Jones, 2005; Jones, Mellalieu & James, 2004), field hockey (Sunderland, Bussell, Atkinson, Alltree & Kates, 2006) and handball (Meletakos, Vagenas & Bayios, 2011).

In ice hockey, research related to tactics and scoring is quite limited (Lignell, Vincenzo & Mohr, 2020; Luimula, 2025; Tian & Xu, 2024). Searching for terms like "game analysis," "scoring," or "tactics" in academic databases such as Google Scholar, PubMed, or ResearchGate yields only a few results related to ice hockey. Previous studies have investigated for example the physiological effects of various drills on athletes (Naimo et al., 2015), sport-specific skills like skating (Buckeridge, LeVangie, Stetter, Nigg & Nigg, 2015), injuries (Lorentzon, Wedren & Pietilä, 1988) and players' physical attributes such as speed (Bournival, Martini, Trudeau & Lemoyne, 2023), strength (Vescovi, Murray, Fiala & VanHeest, 2006) and endurance (Montgomery, 1988).

In research on tactics and scoring in other sports, counterattacks have been found to be effective for scoring (Calin, 2010; Tenga et al., 2010; Zelenovic, Bozic, Tijana & Bjelica, 2021). Similarly, the shooting location (Ensum, Pollard & Taylor, 2005; Pollard, Ensum & Taylor, 2004) and the area where the ball is gained close to the opponent's goal, can increase attack efficiency (Tenga et al., 2010).

TACTICS

Ice hockey games are played in a rink that is divided into three zones: the defensive zone, the neutral zone, and the offensive zone. According to the International Ice Hockey Federation (IIHF), the standard rink size is 60 x 26–30 meters (IIHF, 2023). However, the NHL rulebook states that the NHL rink size is 61 x 26 meters (NHL, 2023).

Teams often plan their offensive and defensive strategies based on different areas of the ice. Offensive systems in ice hockey include breakout plays from the defensive zone, neutral zone attacks, and offensive zone plays. Defensive systems consist of defensive zone coverage, neutral zone defense, and forechecking in the offensive zone (Westerlund, 1997).

In a single game, a team executes approximately 160–200 offensive plays. Of these, 80–100 occur in the defensive zone, 35–45 in the neutral zone, and 25–35 in the offensive zone (International Ice Hockey Centre of Excellence [IIHCE], 2008; Luimula, 2013; Westerlund, 1997). Teams use both pressure-based breakouts and slower, more organized breakouts in the defensive zone (Luimula, 2013). The offensive efficiency, meaning the percentage of attacks that result in a shot on goal from scoring areas 1–3, is 4–10% for breakouts from the defensive zone (IIHCE, 2008; Luimula, 2013; Westerlund, 1991). The turnover rate for attacks starting in the defensive zone is 8–14% in the defensive zone and 11–23% in the neutral zone (IIHCE, 2008; Luimula, 2013). The offensive efficiency for attacks originating from the neutral zone is 6%, while the turnover rate is 12–23% (IIHCE, 2008; Luimula, 2013).

Offensive plays from the defensive and neutral zones are categorized into slow attacks, fast attacks, and counterattacks. A slow attack occurs when the opposing team has managed to set up 4–5 players in a defensive formation. In fast attacks, both the defending and attacking teams typically have the same number of players involved (1 vs. 1, 2 vs. 2, 3 vs. 3). In counterattacks, the attacking team has a numerical advantage over the defending team (1 vs. 0, 2 vs. 1, 3 vs. 2). The efficiency of slow attacks is 10%, fast attacks 40%, and counterattacks 80% (Westerlund, 1991.)

If the attacking team faces difficulties carrying the puck into the offensive zone, they may use a tactic where the puck is dumped from the neutral zone into the offensive zone's end boards, aiming to regain possession. However, studies indicate that attacking is more effective when teams attempt to carry the puck into the offensive zone rather than relying on the "dump and chase" tactic (Thomas, 2006).

In defensive play within the offensive zone, teams use strategies such as single-player pressure, 1-2-2, or 2-1-2 defensive systems (Luimula, 2013). Offensive zone defense is characterized by aggressive forechecking (Parnican, Peracek & Toth, 2021). The offensive efficiency of attacks originating from the offensive zone is 20–23% (IIHCE, 2008; Luimula, 2013). Teams aim to score by coordinating forwards in board play. Another option is passing the puck to a defenseman at the blue line, followed by forwards screening the goalie and attempting to capitalize on rebounds in front of the net (Luimula, 2013).

Shot maps are used in research to analyze shooting situations. This study employs a shot map in which the offensive zone is divided into four sectors (IIHCE, 2008; Luimula, 2013). In some studies, slightly different shot maps have also been used. For example, in the shot map used by Lignell et al. (2020), sectors 1–2 are positioned slightly farther from the goal than in the shot map used in this study.

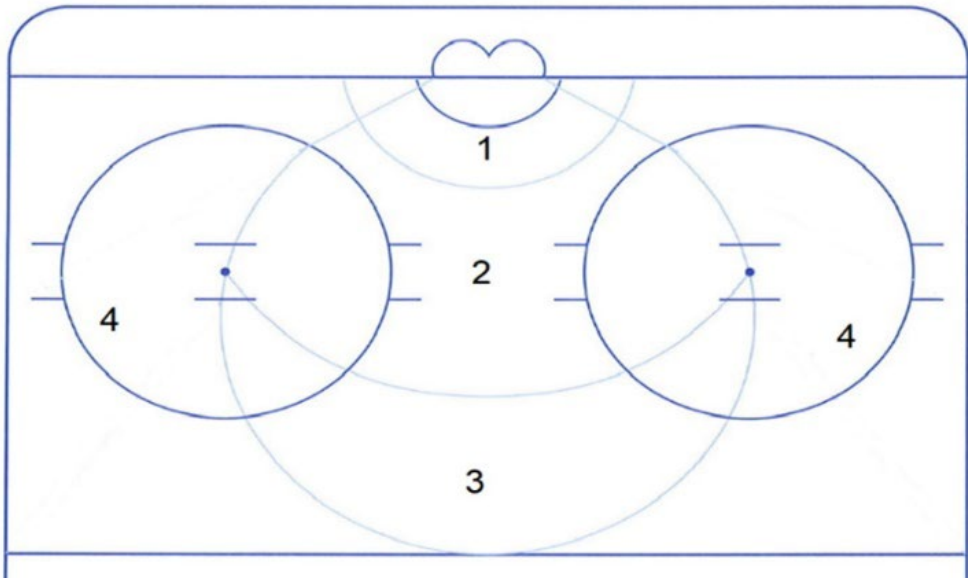

Figure 1. **The shot map used in the study (IIHCE, 2008; Luimula, 2013).**

Teams play defensive zone coverage using zone defense, man-to-man defense, or a hybrid of both (Luimula, 2013). The primary objective is to protect the area in front of the net. Sectors 1–2 form the so-called scoring area, and controlling this area is a key goal for teams. Previous studies have shown that 65–81% of goals are scored from sectors 1–2 (IIHCE, 2008; Luimula, 2025). The distribution of goals by sector is as follows: sector 1 accounts for 30%, sector 2 for 35%, sector 3 for 25%, and sector 4 for 11% of all goals (Luimula, 2025).

Shot efficiency refers to how many shots are required to score a goal. In general, a team needs approximately ten shots to score one goal. Lignell et al. (2021) reported a shot efficiency of 13.2% in their study.

Comparing shot efficiencies from different scoring sectors further highlights the importance of controlling the scoring area. Shot efficiency is 18–30% in sector 1, 5–10% in sector 2, 0–4% in sector 3, and 0–3% in sector 4 (Luimula, 2013; Westerlund, 1991). Lignell et al. (2020) found that the probability of scoring is statistically significant ($p<0.01$) when comparing sector 1 to sector 2.

The majority of goals in ice hockey games are scored during even-strength play. Luimula (2025) states that 63% of goals occur in 5-on-5 play, 21% on 5-on-4 power plays, and 16% in other game situations.

Of the goals scored during 5-on-5 play, 61% originate from offensive zone play, 8% from neutral zone attacks, and 31% from defensive zone attacks. Most goals are scored from offensive zone board play and turnovers. Additionally, fast breaks and counterattacks from the defensive zone account for a significant portion of goals (Luimula, 2025). Parnican et al. (2021) state that offensive zone play is statistically significant for scoring compared to other game situations ($p=0.00305$). Luimula (2013) also emphasizes the importance of offensive zone defense for goal scoring, as the scoring efficiency of attacks originating from the offensive zone is statistically significant ($p=0.006$) compared to the defensive zone and nearly significant ($p=0.01$) compared to the neutral zone.

During 5-on-4 power plays, 21–33% of a game's goals are scored (Luimula, 2013; Luimula, 2025). Of these, 89% originate from the offensive zone, 2% from the neutral zone, and 9% from the defensive zone. The majority of power-play goals come from offensive zone board play (Luimula, 2025).

The methods of goal scoring in games have been analyzed in different ways. IIHCE (2008) reports that of the goals scored from the scoring area, 2% result from breakaways, 26% from passes, 53% from direct shots following puck carry-ins, and 19% from rebounds or deflections. Luimula (2025), on the other hand, states that 47% of all goals are scored from direct shots, 30% from passes, 15% from deflections, and 6% from rebounds.

GAME ANALYSIS

Sports performances have often been studied through observation. Observation means monitoring and making observations, and there are several observation methods. Systematic observation is a method where observations are made according to a detailed pre-planned structure (Uusikylä, 1980).

Systematic observation is often used to assist in

game analyses across different sports. Game analyses can reveal, for example, the playing styles used by teams (Pollard, Reep & Hartley, 1988). Hughes and Frank (2004) note that game analyses were originally done with manual notations. Although computers and video recordings are now used, the basic principle of data collection has remained the same.

Modern technology and artificial intelligence have opened new possibilities for sports analysis, but this approach has so far been used relatively little in ice hockey. Schulte et al. (2017) developed a Markov game model to evaluate player actions, positions, and team performance. New technology (smart puck) has been utilized also in thesis (Heikkilä, 2024).

Team performance has been described using metrics like Corsi and expected goals (xG). Johansson, Wilderoth and Sattari (2022) state that Corsi is based on shot counts. Expected goals (xG) also count shots, but take into account the number, location, and quality of the shots. The NHL has published Corsi statistics since the 2010–2011 season, and up until 2016, teams that won the Stanley Cup were among the league leaders in Corsi ratings during the regular season. After that, expected goals (xG) have become a key metric for evaluating team performance and success (Johansson et al., 2022.)

The aim of this study is to analyze the number of offensive plays, offensive efficiency, and goal scoring in Stanley Cup Finals. Previous research has shown that offensive effectiveness depends on several factors, such as the type of the attack and shot locations. This study examines how these factors influence goal scoring in elite-level ice hockey games.

The Finals provide a unique environment where game intensity and tactical preparation are at their peak. Analyzing these games can offer valuable insights into which offensive strategies and tactical decisions are most effective at the highest level of hockey. The results of this study may be useful for coaches as they develop strategies and optimize scoring opportunities in future matches.

2 METHODS

2.1 MATERIALS

The research data consisted of official game statistics and goal highlights from all twelve final matches played during the 2022–2024 seasons, available on the NHL's official website. Additionally, recordings from ten matches were used as research material, with five (games 1–5) from the 2022–2023 season and five (games 3–7) from the 2023–2024 season.

2.2 DATA COLLECTION

The methods used included goal and team game analyses based on systematic observation, as well as an analysis of shot location and outcome.

Shot sector and shot outcome. The analysis of shot sector and outcome was based on NHL statistics from all 12 final matches (NHL, 2023; NHL, 2024). NHL arenas are equipped with 20 cameras, with the puck emitting an infrared signal 60 times per second (NHL, 2023). Based on this tracking method, NHL statistical services display a shot map that individually marks all shots taken during the games. Additionally, the statistical service provides the game time at which each shot was taken. The statistics also indicate the outcome of the shot, categorized as: a) goal, b) shot on goal, c) missed shot, d) blocked shot.

The determination of shot location from the NHL's statistical website shot map was carried out by placing a plastic film over the computer screen, onto which a sector template was drawn.

Goal scoring analysis. All goals scored in the 12 final matches were analyzed based on the goal highlight videos available on the NHL's website (NHL, 2023; NHL, 2024). The goal scoring analysis method considered the type of attack, the game situation in terms of the number of players on the ice, the scoring method, and the shot sector. Table 1 presents a more detailed goal scoring analysis (Luimula, 2025).

Table 1. **Goal scoring analysis (Luimula, 2025).**

1. Type of attack	**Defensive zone** • Slow attack: Puck possession in the defensive zone, leading to a direct attack into the offensive zone. The defending team has 4–5 players in the defensive zone when the attacking team carries the puck into the offensive zone. • Fast attack: Puck possession in the defensive zone, leading to a direct attack into the offensive zone. The defending team has 1–3 players in the defensive zone when the attacking team carries the puck into the offensive zone. The defending team has at least as many players as the attacking team (1 vs. 1, 2 vs. 2, 3 vs. 3). The attacking team may also have fewer players than the defending team. • Counterattack: Puck possession in the defensive zone, leading to a direct attack into the offensive zone. The attacking team has more players than the defending team when carrying the puck into the offensive zone (1 vs. 0, 2 vs. 1, 3 vs. 2). The defending team has no more than two players. **Neutral zone** • Slow attack: Puck possession in the neutral zone, leading to a direct attack into the offensive zone. The defending team has 4–5 players in the defensive zone when the attacking team carries the puck into the offensive zone. • Fast attack: Puck possession in the neutral zone, leading to a direct attack into the offensive zone. The defending team has 1–3 players in the defensive zone when the attacking team carries the puck into the offensive zone. The defending team has at least as many players as the attacking team (1 vs. 1, 2 vs. 2, 3 vs. 3). The attacking team may also have fewer players than the defending team. • Counterattack: Puck possession in the neutral zone, leading to a direct attack into the offensive zone. The attacking team has more players than the defending team when carrying the puck into the offensive zone (1 vs. 0, 2 vs. 1, 3 vs. 2). The defending team has no more than two players. **Offensive zone** • Turnover: The defending team gains puck possession from the opponent in the offensive zone. A goal is scored within 5 seconds of gaining possession. • Face-off win: The team wins a face-off in the offensive zone. A goal is scored within 5 seconds of gaining possession. • Board play: The puck is held in the offensive zone for more than 5 seconds before scoring. Attacks originating in the defensive or neutral zone are also marked as board play if they do not lead to a direct shot (e.g., the puck is carried behind the net or into the corner). Similarly, the “dump and chase” strategy is marked here if the puck has not been lost to the opponent.
2. Game situation	Goals are analyzed based on the type of attack and game situation. Exceptions include a delayed penalty or penalty expiration, in which case the goal is analyzed according to the situation in effect before the player returns to the defensive zone (e.g., if a penalty ends 1 second before a goal, the goal is counted as a power play goal, not an even strength goal). • 5 vs. 5: Even strength • 5 vs. 4: One-player power play • 4 vs. 5: One-player penalty kill • 5 vs. 3: Two-player power play • 3 vs. 5: Two-player penalty kill • 6 vs. 4: One-player power play, with the goalie pulled • 4 vs. 6: One-player penalty kill, with the opponent’s goalie pulled • 4 vs. 4: Both teams missing one player • 4 vs. 3: One-player power play • 3 vs. 3: Overtime • Penalty shot • Shootout

3. Type of goal	• Direct shot: Goal from a shot or deke. • Off a pass: One-timer or a goal when the goalie is still moving. • Deflection: A player positions themselves between the shooter and goalie and scores by deflecting the puck. Also includes deflections off a skate or other object. • Rebound: Goal scored after a shot is saved by the goalie. • Empty net: Goal scored when the opposing goalie has been pulled.
4. Location of goal	• Sectors 1–4

Team game analysis. Game recordings from ten final matches were used as the basis for analyzing the number of attacks and their outcomes. From the 2022–2023 season, matches 1–5 was analyzed, and from the 2023–2024 season, matches 3–7 (Mainostelevisio, 2024; Yleisradio, 2023).

The videos were examined to determine in which area of the rink the puck was gained. The outcome of the attack was then recorded as one of the following: puck loss (location), stoppage of play, a shot on goal from sector 4, or a shot on goal from sectors 1–3.

For shots, the observation was verified using the game time from the match recording and the official NHL game statistics available on the NHL website, which provided both the game time of the shot, and its location based on the tracking system. Table 2 presents a more detailed description of the team game analysis method.

Table 2. **Team game analysis (adapted from Luimula, 2013).**

	Puck possession in the offensive zone	Puck possession in the neutral zone	Puck possession in the defensive zone
Shot on goal from sector 1–3			
Shot on goal from sector 4			
Play stoppage			
Puck loss in the offensive zone			
Puck loss in the neutral zone			
Puck loss in the defensive zone			

2.3 DATA ANALYSIS

Shot sector and shot outcome. For each shot taken during the games, the sector from which it was taken was recorded in an Excel spreadsheet. The total number of shots from each sector was then calculated, along with the proportion of shots from each sector relative to the total number of shots. The same method was used to analyze shot outcomes (goal, on goal, missed, or blocked).

Scoring method. In the first phase, the total number of goals in all categories was calculated using Excel. Then, the proportion of each subcategory and main category relative to the total number of goals was determined. This analysis made it possible to illustrate the percentage of goals scored from different game situations.

Team game analysis. Each instance of puck possession and its outcome was first recorded in the team game analysis template presented in Table 2. After the game, the observations were transferred to Excel, allowing for the analysis of the number of attacks initiated from different areas of the rink and their outcomes, including the number of puck losses and overall offensive efficiency.

Z-Test. Finally, a Z-test was used to examine the effect of shot location (sector) on goal scoring success. Additionally, the Z-test was applied to analyze how the starting area of an attack influenced offensive and scoring efficiency. The significance level was set at $p<0.05$.

3 RESULTS

The results present the shots and goals scored in all the Stanley Cup Final games (n=12). Additionally, the results include the even-strength attacks that occurred in ten games, along with their outcomes from different areas of the rink.

3.1 THE OUTCOME AND NUMBER OF ATTACKS

Table 3 presents key events related to offensive play in 5 vs. 5 situations. On average, teams had (n=) 181 attacks per game during even-strength play.

Table 3. **Results of team game analysis from different areas of the rink.**

	Number of attacks (n=)				Puck loss (%)				Efficiency (%)			
	OZ	NZ	DZ	TOTAL	DZ	DZ to NZ	NZ	OZ	OZ	NZ	DZ	TOTAL
Average	35	36	110	181	20	20	18	65	19	5	4	7
Min	20	21	87	148	13	14	7	50	4	0	0	2
Max	50	50	133	210	27	24	48	83	32	11	8	11
OZ = offensive zone; NZ = neutral zone; DZ = defensive zone; puck loss = percentage at which the puck is lost to the opponent; efficiency = percentage at which attack ended in a shot on goal from sectors 1–3.												

Defensive zone (n=2193). Teams started their attacks from the defensive zone an average of (n=) 110 times per game. Of the attacks starting in the defensive zone, teams lost possession to the opponent in 20% of attacks within the defensive zone and 20% in the neutral zone. The offensive efficiency from the defensive zone was 4%.

Neutral zone (n=719). Teams gained possession in the neutral zone an average of (n=) 36 times per game. Of these attacks, 20% ended in a puck loss within the same zone. The offensive efficiency was 5%.

Offensive zone (n=707). Teams gained possession in the offensive zone an average of (n=) 35 times per game. Of these attacks, 65% ended in a puck loss. The offensive efficiency was 19%.

Comparing different areas of the rink in terms of offensive efficiency revealed that the offensive zone is statistically highly significant ($p<0.001$) compared to both the defensive and neutral zones (Table 4).

Table 4. **Offensive efficiency by zone.**

Offensive efficiency	**p-value**
offensive zone vs. defensive zone	p<0.000*
offensive zone vs. neutral zone	p<0.000*
defensive zone vs. neutral zone	0.978

3.2 SHOTS

A total of (n=) 1477 shots were taken. According to Table 5, five percent of the shots resulted in a goal. Most of the shots in the games were taken from sector 2.

Table 5. **Shot outcome distributions.**

	1.sector (%)	**2.sector (%)**	**3.sector (%)**	**4.sector (%)**	**All shots distribution (%)**
Goal	37	34	20	9	5
Shot on goal	17	26	27	29	46*
Blocked shot	9	52	30	9	29
Missed shot	9	28	32	31	25
All shots	13	34	29	24	
					*includes goals

Shot on goal. Of all the shots taken during the Finals, 46% were on goal. The number of shots increased by sector the farther away from the goal they were taken.

Missed shot. In total, 25% of all shots in the Finals missed the net. The most missed shots came from sectors 3 and 4.

Blocked shot. 29% were blocked by the opponent. The clear majority of blocked shots, 52%, came from sector 2.

3.3 GOALS SCORED

A total of (n=) 79 goals were scored.

Shot sector. The most goals were scored from the sectors 1 (37%) and 2 (34%) (Table 5). Goals were also scored from a bit farther away, with 20% coming from sector 3. The fewest goals were scored from sector 4 (9%). In total, 71% of goals were scored from the high-danger scoring area (sectors 1–2).

Shot efficiency increased the closer the shot was taken to the net. Teams scored with 25% efficiency from sector 1, 15% from sector 2, 9% from sector 3, and 4% from sector 4. On average, the shot efficiency across all final games was 11.7%. Scoring efficiency was statistically significant in sector 1 ($p<0.05$) compared to sector 2, and highly significant ($p<0.001$) compared to sectors 3–4 (Table 6).

According to Table 6, the scoring efficiency of attacks starting in the offensive zone was statistically highly significant compared to the defensive and the neutral zone ($p<0.001$).

Table 6. **Scoring efficiency by sector and zone.**

Scoring efficiency	**p-value**
sector 1 vs. sector 2	0.031*
sector 1 vs. sector 3	p<0.000*
sector 1 vs. sector 4	p<0.000*
sector 2 vs. sector 3	0.052
sector 2 vs. sector 4	p<0.000*
sector 3 vs. sector 4	0.036*
offensive zone vs. defensive zone	p<0.000*
offensive zone vs. neutral zone	p<0.000*
defensive zone vs. neutral zone	0.193

Scoring method. The majority of goals (44%) were scored with a direct shot. The remaining goals were distributed as follows: 19% from a pass, 10% from a rebound, and 6% from a deflection.

3.4 GOAL SCORING IN DIFFERENT GAME SITUATIONS

Teams scored 71% of their goals in 5 vs. 5 play, 9% during 5 vs. 4 power plays, and 20% in other game situations. Table 7 presents the distribution of goals across different play situations.

Even strength (5 vs. 5). 51% of the goals came from the offensive zone, 41% from the defensive zone, and 7% from the neutral zone.

According to Table 7, the most goals came from offensive zone turnovers, defensive zone counterattacks, offensive zone board play, and fast breakouts from the defensive zone. Significantly fewer goals originated from the neutral zone.

Table 7. **Goal distribution by game situation.**

	5vs.5 (n=)	**5vs.4** (n=)	**4vs.5** (n=)	**5vs.3** (n=)	**4vs.4** (n=)	**6vs.5** (n=)	**4vs.3** (n=)	**5vs.6** (n=)	**others** (5vs.4) (n=)
Defensive zone									
-slow attack	2	2	0	0	0	0	0		
-fast attack	8	1	0	0	1	0	0		
-counterattack	13	0	2	0	1	0	0		
**Empty net*								*5	*1
Neutral zone									
-slow attack	1	0	0	0	0	0	0		
-fast attack	1	1	1	0	0	0	0		
-counterattack	2	0	1	0	0	0	0		
Offensive zone									
-turnover	17	0	0	0	0	0	0	*1	
-board play	11	3	0	1	0	1	1		
-face-off	1	0	0	0	0	0	0		

5 vs. 4 power play. 43% of the goals came from the offensive zone, and the same percentage (43%) from the defensive zone. The neutral zone accounted for 14%.

The most crucial factor in power play goals was offensive zone board play. Also, breakouts from the defensive zone played an important role.

In other game situations, most of these goals happened when one team had pulled their goalie. Most of the goals were scored into an empty net in 5 vs. 6 play.

3.5 STANLEY CUP FINALS 2023 AND 2024

Finals 2023. Las Vegas defeated the Florida Panthers 4–1 in the series. According to Table 8, both teams had nearly the same number of attacks per game on average. The number of attacks was almost equal in the defensive and neutral zones. In the offensive zone, Florida gained puck possession more often (n=38) than Vegas (n=30).

Table 8. **Results of the team game and goal scoring analysis by team.**

	Las Vegas 2023	**Florida 2023**	**Edmonton 2024**	**Florida 2024**
AVERAGE OF ATTACKS OUTCOMES				
-Defensive zone (n=)				
Puck loss in DZ (%)	111	110	108	110
Puck loss in NZ (%)	21	19	22	19
Efficiency (%)	20	22	19	19
-Neutral zone (n=)	5	4	5	3
Puck loss (%)	40	36	33	34
Efficiency (%)	16	25	15	15
-Offensive zone (n=)	4	7	4	3
Puck loss (%)	30	38	34	39
Efficiency (%)	61	71	67	62
-Total (n=)	25	17	17	17
Efficiency (%)	182	184	178	180
	8	7	7	6
GOALS (n=)				
-5vs.5				
Defensive zone				
Slow attack	0	1	0	1
Fast attack	3	0	3	2
Counterattack	4	0	7	2
Neutral zone				
Slow attack	0	1	0	0
Fast attack	1	1	0	0
Counterattack	0	0	1	0
Offensive zone				
Turnover	6	4	0	7
Board play	4	2	3	2
Face-off	0	1	0	0
-5vs.4	4	0	2	1
-Others	4	2	7	3
SHOT ON GOAL (n=)				
-1–2 sectors	152	155	189	177
-total	85	60	86	60

The teams' offensive efficiency was quite similar in the defensive and neutral zones. However, Vegas was significantly more efficient in the offensive zone, converting 25% of their attacks into shots on goal compared to Florida's 17%. Overall, Vegas had a 1 percentage point higher offensive efficiency (8%) than Florida (7%).

Shot statistics show that the teams took nearly the same number of shots on goal across all game situations (Vegas n=152, Florida n=155). However, Vegas shot much more frequently from close to the net, in sectors 1–2 (Vegas n=85, Florida n=60).

Vegas outperformed Florida in scoring efficiency, with an overall shot efficiency of 17.0%, compared to Florida's 8.0%. This was reflected in goal analysis results, showing that Vegas converted attacks into goals significantly more often than Florida (Table 8). In 5 vs. 5 play, Vegas scored (n=) 18 goals, while Florida scored (n=) 10. The biggest difference came from attacks starting in the defensive zone, where Vegas scored six more goals than Florida.

Finals 2024. The Florida Panthers defeated the Edmonton Oilers 4–3 in the series. According to Table 8, both teams had almost the same average number of attacks per game. In the offensive zone, Florida gained puck possession slightly more often (n=39) than Edmonton (n=34).

The teams' overall offensive efficiency was nearly identical (Edmonton 7%, Florida 6%). The teams' offensive efficiencies were also very close to each other in different areas of the rink.

According to the shot statistics, Edmonton had 12 more shots on goal than Florida across all game situations (Edmonton n=189, Florida n=177). From close to the net, in sectors 1–2, Edmonton was more successful (n=86 vs. n=60).

Both teams scored nearly equally in terms of shot efficiency (Edmonton 12.0%, Florida 10.0%). This was reflected in the goal analysis, which showed both teams scoring (n=) 14 goals in 5 vs. 5 play (Table 8). Edmonton scored more goals from attacks starting in the defensive zone (n=10 vs. n=5), while Florida scored more from attacks beginning in the offensive zone (n=9 vs. n=3).

4 DISCUSSION

The Stanley Cup Finals represent the pinnacle of ice hockey, as the NHL features the world's best players, and the teams that reach the Finals have refined their tactics to perfection over a long season.

The goal of this study was to analyze the number and efficiency of attacks from different areas of the rink in the Finals. Additionally, the study aimed to identify the types of game situations that lead to goals in elite-level hockey. No previous research has focused specifically on NHL final games in this way.

Number and outcomes of attacks. The results showed that finalist teams had nearly the same number of attacks in individual games. At even strength, teams gained puck possession an average of (n=) 181 times per game. The distribution of attacks was as follows: defensive zone (n=) 110, neutral zone (n=) 36, and offensive zone (n=) 35. The results have been almost the same in previous studies. The total number of attacks has been between (n=) 160–200. The number of attacks in the defensive zone has been (n=) 80–100, in the neutral zone (n=) 35–45, and in the offensive zone (n=) 25–35. (IIHCE, 2008; Luimula, 2013; Westerlund, 1997).

According to the study, offensive efficiency was 4 percent in the defensive zone, 5 percent in the neutral zone, and 19 percent in the offensive zone, with an overall efficiency of 7 percent. In previous studies, the attack efficiency in the defensive zone has been 4–10 percent, in the neutral zone 6 percent, and in the offensive zone 20–23 percent (IIHCE, 2008; Luimula, 2013).

A previous study on soccer found that gaining possession of the ball near the goal is crucial for scoring (Tenga et al., 2010). In this study comparing different areas of the rink in terms of both offensive and scoring efficiency revealed that the offensive zone is statistically highly significant ($p<0.001$) compared to both the defensive and neutral zones. This result differs slightly from earlier research, which found that scoring efficiency in attacks starting from the offensive zone was statistically significant compared to the defensive zone ($p=0.006^{**}$) and nearly significant compared to the neutral zone ($p=0.01^{*}$) (Luimula, 2013). When compared to the results of another study, the outcome is still very similar. Parnican et al. (2021) stated that offensive zone play is statistically significant for goal scoring compared to other game situations ($p=0.00305$).

The research results differed slightly from previous findings in terms of the number of puck losses in attacks starting from the defensive zone. In attacks starting from the defensive zone, the puck was lost to the opponent in 20 percent of the attacks in the defensive zone and 20 percent in the neutral zone. In previous studies, the corresponding results were 8–14 percent in the defensive zone and 11–23 percent in the neutral zone (IIHCE, 2008; Luimula, 2013).

The differences in the results in the defensive zone may be explained by the fact that in the Stanley Cup Finals, the defending team aimed for more active defensive play and puck recovery in the offensive zone, which exposed the opponent to mistakes. The attacking teams' goal may also have been to avoid mistakes by using dump passes when there was no opportunity for puck possession. If the dump pass failed, the opponent gained control of the puck already in the offensive zone.

Goal scoring. The research results regarding shooting efficiency, scoring methods, and shooting locations were very consistent with previous studies. The most effective shots came from close

to the net. A comparison of scoring efficiency between *shooting sectors* showed that the efficiency of sector 1 was statistically significant ($p<0.05$) compared to sector 2 and highly significant ($p<0.001$) compared to sectors 3–4. Previously Lignell et al. (2020) found that the probability of scoring is statistically significant ($p<0.01$) when comparing sector 1 to sector 2. The distance of the shot from the goal appears to be similarly significant as in studies conducted in football (Pollard et al., 2004).

In this study, the shooting efficiency was 11.7 percent, while it was 13.2 percent in previous study (Lignell et al., 2020). The distribution of goals by shooting sectors was as follows: 1. sector 37 percent, 2. sector 34 percent, 3. sector 20 percent, and 4. sector 9 percent. In the previous study, the percentages for sectors 1–2 were slightly lower. Luimula (2025) reported, that the distribution of goals was: sector 1. 30 percent, sector 2. 35 percent, sector 3. 25 percent, and sector 4. 11 percent.

71 percent of goals came from the high-danger scoring area (sectors 1–2). Similar results have been reported in previous studies, with outcomes ranging from 65 to 81 percent (IIHCE, 2008; Luimula, 2025). In field hockey, a large portion of goals are also scored from close to the goal (Sunderland et al., 2006).

The goal distribution by game situations showed that 5 vs. 5-play played a major role in scoring, accounting for 71 percent of all goals. Power plays (5 vs. 4) accounted for 9 percent, and 20 percent of goals came from other game situations. The result differs from the previous study, where the share of 5 vs. 5 play was slightly lower. In that study, the share of 5 vs. 5 play was 63 percent of the goals, 5 vs. 4 power play was 21 percent, and other situations accounted for 16 percent. (Luimula, 2025.)

In this study the proportion of power play goals was lower than in previous studies, where the share ranged from 21 to 33 percent (Luimula, 2013; Luimula, 2025). The lower figure in this study can be explained by the teams' weaker power-play efficiency. In the 2022–2023 season, Vegas had a power-play efficiency of 31.6 percent, while Florida had 0 percent. In the 2023–2024 season, Florida's power-play efficiency was 4.8 percent, and Edmonton's was 12.5 percent (Statmuse, n.d.).

In 5 vs. 5 play, 52 percent of goals came from offensive zone play, 41 percent from attacks starting in the defensive zone, and 7 percent from neutral zone attacks. These results differ slightly from a previous study conducted on Finland's Liiga regular season, where goals were distributed as follows: offensive zone 61 percent, defensive zone 31 percent, and neutral zone 8 percent (Luimula, 2025). The 9–percentage point difference in offensive zone goals between the NHL Finals and the Liiga regular season could be explained by teams in the Finals prioritizing tighter defensive zone coverage, making it more difficult to score from extended offensive zone board play. The smaller rink used in the NHL may also explain the difference.

However, the results show that offensive zone tactics play a significant role in scoring. In the Stanley Cup Finals, (n=) 56 goals were scored at even strength. Of these, 20 percent resulted from *offensive zone board play*, and 30 percent came from *puck recoveries* following defensive plays in the offensive zone. The importance of the defensive zone for scoring was also significant: 14 percent of goals came from *fast breakouts*, and 23 percent from *counterattacks*. These findings support previous research, which concluded that offensive zone board play and turnovers generate a large portion of goals at even strength (Luimula, 2013; Luimula, 2025). The results related to defensive zone attacks were also consistent with earlier studies, which found that fast breakouts and counterattacks are crucial for scoring (Luimula, 2025; Westerlund, 1991). The results also support observations made in other sports that counterattacks are effective for goal scoring (Calin, 2010; Tenga et al., 2010; Zelenovic et al., 2021).

Analyzing team performance can help teams improve their chances of success. The analysis provides objective data on what worked well and what did not. It can be assumed that the differences in Florida's results across the two seasons presented in this study are partly due to the coaching staff analyzing why Florida lost the 2022–2023 Stanley Cup Finals. In that series, Florida mainly scored from offensive zone play, while Vegas scored at even strength through fast and counterattacks from the defensive zone, as well as from offensive zone turnovers and board play.

By the 2024 Finals, Florida had improved both offensively and defensively, as reflected in the statistics. Offensively, Florida scored more frequently from various rhythms starting in the defensive zone than in the previous season. Their breakout play was also more effective, preventing opponents from creating scoring chances through offensive zone takeaways. Defensively, Florida limited the opponent's scoring success in extended offensive zone plays compared to the previous year. The improvement in defensive play was also evident in the opponent's

shot efficiency, which dropped from 17.0 percent to 12.0 percent.

However, the goal analysis still highlighted areas for improvement in Florida's defensive readiness. In the 2023–2024 Finals, Florida and Edmonton scored the same number of goals at 5-on-5 play (n=14). Edmonton excelled in attacks starting from the defensive zone (n=9 vs. n=5), whereas Florida scored more goals from offensive zone situations (n=9 vs. n=3).

This study provides coaches with valuable insights into the types of situations that lead to goals at the highest level. The results and analysis methods can help coaches assess and develop their team's performance more effectively.

Based on the study, the number of offensive plays in the Stanley Cup Finals aligns with previous research. Teams most often start their attacks from their own defensive zone, but the highest scoring efficiency is achieved from attacks originating in the offensive zone. Key tactical elements for scoring goals include: 1) offensive zone board play and scoring from turnovers, 2) fast and counterattacks from the defensive zone, and 3) power plays.

A successful team must also consider goal prevention: puck management in the offensive and neutral zones should be organized to prevent the opponent from launching counterattacks. In the defensive zone, protecting the high-danger scoring area is especially crucial.

The realization of the above is facilitated if the team plays tightly as a cohesive five-man unit. This means that both forwards and defensemen participate in both offense and defense. In the Finals, this was reflected in the way defensemen did not just stay on the blue line in the offensive zone, but, based on free observation, occasionally joined the attack by providing passing options or actively playing the puck themselves. When the entire five-man unit is involved in the offensive play across all areas of the rink, it gives the puck carrier more passing options. At the same time, defensive play becomes more effective, as concentrating forces and applying active pressure can steer the opponent's puck carrier toward areas where progressing or scoring becomes more difficult.

According to the results, teams' overall scoring efficiency was 7 percent in the 2023 and 2024 Stanley Cup Finals. Defensive efficiency, at 93 percent, indicates that scoring chances were scarce, as teams focused heavily on tight defensive play. Analyzing games and scoring situations is therefore crucial for teams to discover new ways to create scoring opportunities.

5 CONCLUSIONS

Previous studies in both ice hockey and other ball games have shown that gaining possession of the puck/ball near the opponent's goal is crucial for scoring (Luimula, 2013; Parnican et al., 2021; Tenga et al., 2010). The results of this study reinforce previous findings: attacks that begin in the offensive zone are statistically significant for goal scoring compared to those starting in the neutral or defensive zones. Therefore, active forechecking and efforts to regain puck possession in the offensive zone are essential tactical elements for teams.

Previous studies have shown that counterattacks are effective for scoring goals (Calin, 2010; Tenga et al., 2010; Zelenovic et al., 2021). If an attack starts from farther away, teams should aim for a quick transition or counterattack, as this prevents the opponent from organizing their defense in time. This study supports that conclusion, as well as previous findings that shots taken from close to the goal are statistically more significant for scoring compared to long-range shots (Lignell et al, 2020; Pollard et al., 2004).

The findings of this study are important, as goal-scoring in ice hockey has been relatively under-researched. The study's significance is further reinforced by the fact that it focused on the highest level of the sport – the NHL Stanley Cup Finals. This provides valuable insight into how top-level teams score goals. Coaches can use this information to develop their team's playing style and potentially improve their chances of scoring in future games.

The results of this study can be considered reliable, as the researcher had prior experience with game analysis both as a researcher and as a coach. All analysis methods used in the study were based on systematic observation. Game analysis and systematic observation have been widely used and validated methods in sports research (Hughes & Frank, 2004; McGarry & Franks, 2005).

The reliability of the analysis method used in the study can be evaluated by comparing measurements made by two different researchers or by repeating the same measurement by the same researcher (Alkula, Pöntinen & Ylöstalo, 1994; Siedentop & Tannehill, 2000). In this study, no actual repeat measurements were conducted, as the researcher had previously used the same research methods. In earlier studies, the agreement between two observers in goal-scoring analysis was 92.5 percent, and in team game analysis, it was 92.3 percent.

Since the observation was done using videos,

the researcher had the opportunity to review each game situations multiple times. However, the reliability of the results is weakened by the fact that the researcher could not influence the camera angles. As a result, it was sometimes challenging to analyze certain sequences leading puck position. In future research, it would be beneficial to film games with multiple cameras from different angles around the rink, allowing for a more detailed analysis of the situations. The use of modern technology, such as GPS tracking, could also improve the accuracy of game situation analysis.

Goal-scoring and tactics offer interesting avenues for future research, as limited data is available on these aspects. It would be valuable to study goal-scoring, for example, in terms of how teams create turnovers or how they execute offensive zone board play.

Acknowledgements: Funding: none

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Received on March 31, 2025
Accepted on May 22 , 2025