

How Katrine Lunde Became the Most Decorated Female Handball Player in History

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Abstract

How does Katrine Lunde describe and make sense of her journey to becoming the most decorated female handball player in history? How does she understand her ability to sustain world-class performances over more than two decades? These questions are explored in this qualitative single-case study of arguably the greatest female handball goalkeeper in the history of the sport. We utilized two distinct approaches when interviewing the athlete, namely the timeline approach and the photo elicitation approach. The interview was analyzed using reflexive thematic analysis and interpreted using the bioecological model as a theoretical framework. The analysis yielded three themes: (1) The player: I don't have to win, I just don't want to lose; (2) The family: Whatever you choose to do, be the best; and (3) The national team: A match made in heaven. Katrine's story highlights the importance she places on adaptation, discipline, and support in making sense of her career. Her journey offers insights into how long-term success in elite sport may be understood, experienced, and sustained by an athlete competing at the highest level.

Keywords

expertise, excellencism, goalkeeper, bioecological model, winning, Norway

Introduction

Some athletes appear to be built for the big stage, and they tend to deliver when the stakes are high and everything is on the line (Hufton et al., 2024; Schweickle et al., 2021; Solomonov et al., 2015). One of those athletes is the Norwegian handball goalkeeper Katrine Lunde. In the popular Danish handball podcast *Mediano håndbold*, the hosts often talk about the “Katrine Lunde rule.” The rule states that whichever team has Katrine Lunde will win the championship (Ladegaard, 2024). While the rule is of course a bit tongue in cheek, it's not that far from the truth. Indeed, Katrine is the most decorated female handball player of all time, with her

thirteen gold medals from major international championships (2004–2024) and seven champions league titles. But what lies behind such an extraordinary career? How does Katrine describe and make sense of her journey to becoming the most decorated female handball player in history, and how does she understand her ability to sustain world-class performances over time? That is the focus of this qualitative single-case study, which draws on the bioecological model (Bronfenbrenner & Morris, 2007) as a theoretical framework.

Background

While there are several single-case studies detailing the physiological characteristics or training adaptations of world class athletes (i.e., Ishida et al., 2023; Mujika, 2014; Schmitt et al., 2020; Solli & Sandbakk, 2018; Solli et al., 2017), there are not many single-case studies that delineate or explore the development of such athletes, and how they obtained their expertise. A notable exception is O'Sullivan et al. (2021) delineation of how the Russian ice hockey player Pavel Datsyuk became “the Magic Man.”

However, there is no shortage of studies on the development of sporting expertise in the broad sense, with the great British medalist project being an interesting example (e.g., Güllich et al., 2019; Hardy et al., 2017; Rees et al., 2016). The findings from that project indicated that athletes at the very top of their sport were generally raised in a culture of striving, marked by expectations of achievement and a strong work ethic (Hardy et al., 2017). Their motivation and behavior were often shaped greatly by early life experiences that created a need to succeed, and they channeled these efforts into sport. This drive manifests as obsessive preparation, perfectionism, resilience under pressure, and a relentless focus on both mastery and winning (Güllich et al., 2019; Hardy, et al., 2017). While these qualities underpin extraordinary achievement, they also demand careful balance to protect long-term well-being beyond sport (Hardy et al., 2017).

Other studies on expertise have also shown that, while early specialization and intensive training often lead to adolescent success, they do not reliably predict senior elite achievement (Güllich & Emrich, 2014; Güllich et al., 2022). Instead, long-term success is more common among athletes who specialized later, trained more gradually, and gained experience across a variety of sports (Güllich et al., 2022).

Even though these studies give valuable insights into the development of expertise and the difference between elite and super elite athletes, they are not sport specific and give a decontextualized description of the development of expertise. Our study is not just interested in

Katrine's general status as a multiple Olympic gold medalist, but as an expert handball goalkeeper—a goalkeeper who has defied limits set by biological constraints and the processes of aging and performed at the absolute highest level throughout her entire career. Insights into her development and how she approaches her craft could offer valuable knowledge that future generations of goalkeepers can reflect upon.

Some sports, especially the ones often referred to as centimeter-gram-second sports, are cut and dried, and rely solely on physiological capabilities, whereas other sports are more layered and offer athletes with varying physiological profiles the opportunity to succeed (e.g., Zhao et al., 2019). Handball is an example of such a sport (Laxdal & Haugen, 2024; Michalsik, 2018). While there are multiple positions on a handball team with differing requirements, one position is completely unlike the others, namely the goalkeeper. The goalkeeper's role is to stay within the goal area and guard the goal from incoming shots from the opposing team. Because the ball moves too quickly for the goalkeepers to react to its flight during a save attempt, they must instead anticipate its trajectory by reading cues from the shooter's body (i.e., predict the ball's path by interpreting the shooter's body movements [Cocić et al., 2021; Huesmann et al., 2025]).

Previous research on goalkeepers has found that goalkeepers are more skilled at anticipation and reading the game than novices, and more experienced goalkeepers are better than their less experienced counterparts (Huesmann et al., 2025). Expert goalkeepers refine anticipation through focused training and prolonged exposure, selectively perceiving key movements such as hip and upper body rotation, ball position relative to the body, and shoulder width (Hatzl, 2000). These perceptual cues are part of a broader set of kinematic and contextual information sources that include thrower and block position, team dynamics, and psychological factors that goalkeepers use to anticipate throw outcomes (Huesmann et al., 2023). By grouping these cues into larger motor programs, they recognize patterns faster, shorten

reaction times, and more accurately predict shot direction (Cocić et al., 2021; Le Menn et al., 2019).

When the goalkeepers prepare by studying their opponents' tendencies, such as favored direction or technique, they enhance their ability to anticipate and react effectively to shots. This personalized information not only improves decision-making but also increases save rates, particularly when the opponents stick to their usual patterns (Murta et al., 2022). Under pressure, shooters often revert to instinct, returning to their preferred techniques and target corners (Huesmann et al., 2023), which further reinforces the value of individualized preparation for goalkeepers.

Theoretical Framework

To gain a better understanding of the interplay between Katrine and the contexts that shaped her, we utilized Bronfenbrenner's bioecological model as a theoretical framework (Bronfenbrenner & Morris, 2007).

Bronfenbrenner posits that our developmental outcomes are shaped by four key elements, namely process (enduring interactions between the individual and their environment; the most developmentally potent of the four), person (personal characteristics influence and are influenced by the various interactions), context (settings in which the individual is found), and time (development unfolds over both person-specific timeline [e.g., season or career] and socio-historical time [e.g., rule changes and game development]; Bronfenbrenner, 1999).

The bioecological model (Bronfenbrenner, 1999) consists of a four-level nested system, centered around the individual (in this case the athlete). The microsystem includes the immediate environments where the athlete regularly participates and interacts, such as training sessions, competitions, and relationships with coaches and peers. These settings involve close interpersonal roles that shape the athlete's experiences and skill development. The mesosystem refers to the connections between these microsystems, for example, how communication and collaboration between coaches, family members, and schools

impact the athlete's growth and motivation. Both the microsystem and mesosystem exist within broader contexts that influence the athlete indirectly. The exosystem includes environments that the athlete does not engage with directly but still affect their development, such as the club's sports plan or guidelines for training times. The macrosystem reflects the larger cultural, economic, and social factors such as national sports culture, funding priorities, societal attitudes toward athletes, and historical trends in sports participation, all of which shape the conditions for athlete development (Bronfenbrenner & Morris, 2007).

The Case

Katrine Lunde was born in 1980 and raised in the city of Kristiansand in Norway. She started playing handball at the age of nine, when she and her identical twin sister, Kristine, were recruited by some friends who needed more players on their local team. The sisters both took to sport quickly and were generally regarded as talented prospects. During their early years, they were also involved in several other sports, including football, swimming, and gymnastics, although handball gradually became their primary sporting focus.

The reason Katrine ended up in goal is somewhat disputed. She claims it's because nobody else wanted to, but Kristine claims that everyone wanted to and Katrine was the most adamant about tending the goal (K. Lunde-Borgersen, personal communication, 3. June 2025). After debuting for the senior national team in 2004, Katrine moved abroad to start her professional career, which lasted until 2026. She has played with many of the very best teams in the world and has been awarded numerous personal accolades for her performances, both with her clubs and the national team.

Kristine was equally talented but followed a more "typical" national team career path, winning Olympic gold, World Championship, and European Championship titles, as well as two Champions League trophies. Unlike Katrine, however, she played as a left back, had three children, and ended her career considerably earlier. The sisters played together

for several professional clubs and were teammates on the national team for more than a decade.

Women's handball is extremely popular in Norway, both when measured using participation numbers and television spectators (Hofsrud, 2024; The Norwegian Olympic and Paralympic Committee and Confederation of Sports, 2023), and the women's national team is among the most beloved sporting teams in the country. The Norwegian women's handball team has been a national phenomenon since winning bronze in 1986, earning 33 international medals, including Olympic gold in 2008, 2012, and 2024.

The national team is somewhat unique and is known for having a strong culture, where personal responsibility and autonomy are key values. The team has a relatively flat hierarchy where the coaches routinely demonstrate collaborative leadership, and the team always comes before the individual. The team also follows a long-term development pathway for national team players. Some join early as "apprentices" before gradually taking on more central roles. Young players are selected without expectations of immediate top-level performance; they are given time and multiple opportunities to develop. The 2024 Olympic champions had an average age of 32.4 years but debuted on the national team at an average age of 21, indicating a lengthy developmental period (Kristiansen et al., 2026). The team has been marked by continuity at the helm, with only two head coaches during a 30-year spell (from 1994-2025). Other coaches and support staff also hold their positions for multiple years, illustrated by Katrine having a single goalkeeping coach for almost the entirety of her national team career.

Method

This study employed an instrumental interpretive single-case study design (Stake, 1995), guided by a relativist ontology and a constructionist epistemology (Lincoln et al., 2018; Sparkes & Smith, 2013). In line with relativist ontology, we assume that individuals construct their own realities, shaped by their social and cultural context. From a

constructionist perspective, meaning is co-created through the interaction between participant and researcher, with both influenced by their own interpretations of reality. As interpretivist researchers, we aim to understand participants' experiences within their specific time and place, recognizing that this interpretation is context-specific and unique (Mallett et al., 2025).

Data Collection

Following institutional ethics committee approval, Katrine was contacted and invited to participate in an interview. She was fully informed of the study's aims, the potential implications of being identified, and her right to anonymity. As she is a public figure, with a unique profile, who has previously made public statements on similar topics, she would have been easily recognized from the descriptions, and therefore she was not anonymized.

The interview was conducted in situ by the first and the last author. In preparation for the interview, the same two authors interviewed Katrine's twin sister and her long-time goalkeeping coach. Each of those interviews lasted around 70 minutes and gave important context and perspectives that were used in the interview of Katrine. The interview with her sister revolved mainly around the timeline (see further details below), their upbringing and early life, their shared career progression, the national team, and Katrine's personality, while the interview with her goalkeeping coach revolved mainly around training, preparation, performing, and goalkeeping in general.

The interview with Katrine lasted approximately three hours and consisted of two main approaches. First, there was the timeline interview approach (Adriansen, 2012), which promotes shared analytical power by involving interviewees in structuring the narrative, while serving not as a linear account but as an organizing device that facilitates connections between personal experiences and broader contexts. Second, there was the photo-elicitation approach (Harper, 2002), which is argued to generate distinct kinds of data by eliciting unique emotions, memories, and insights that

arise from the photograph's visual and representational qualities.

The timeline was constructed using mostly publicly available information related to Katrine's career and early development, but further details that were not publicly available were provided by her twin sister. To help elicit memories and emotions and thoughts related to the different periods in her career, we included details related to the clubs she played for, the players she played with, the coaches she had, and the titles she won at her various clubs and with the Norwegian national team. Because of the volume of information needed to convey her long and industrious career, and for her convenience, the timeline was printed out on three A3 sheets of paper that were glued together (the full timeline, translated into English, can be seen here:

https://figshare.com/articles/figure/Full_timeline_-_Katrine_Lunde_interview/32761233?file=65766339).

To elicit thoughts and reflections on her mental- and game specific preparation, we used 21 photos of six prominent female handball players that Katrine has either played with or against (usually both) with the national team or at her many clubs. The players were a mix of back court players, wingers, and line players, with various playing and shooting profiles. Both right-handed and left-handed players were included. All photos depicted the players in a shooting motion, facing the goalkeeper. During that phase of the interview, Katrine showed us pictures of how she draws up her upcoming opponents' shooting profiles and drew up a new profile for one of the aforementioned players.

Analysis

An audio recording of the interview was transcribed verbatim, and the data were analyzed using a reflexive thematic analysis (Braun & Clarke, 2019). This method is a theoretically flexible and interpretive approach to qualitative analysis, facilitating the identification and examination of patterns or themes within a dataset (Terry et al., 2017). Importantly, it recognizes the researcher's active role in meaning-making, where themes are not

seen as passively emerging from the data, but rather co-constructed through the interplay of the researcher's theoretical lens, analytic skills, and the dataset itself (Braun & Clarke, 2019).

The initial analysis was conducted by all three authors, who read the transcribed material multiple times while taking reflexive notes. This process yielded preliminary analytical insights, including noting the identification of interesting quotes and emergent conceptual ideas. Subsequently, codes such as "development" and "national team culture" were identified before codes with shared meanings were combined into themes in the next phase. Themes such as "be the best" and "adaptive perfectionism" were subsequently refined to clearly articulate their core meanings. Finally, the themes were presented in the manuscript in the final phase of the analysis. Throughout the analytic process, the authors discussed codes and themes in order to reflect on their dependability and consider alternative interpretations (Braun & Clarke, 2019). When the analytic process was finalized, Katrine was given the opportunity to discuss and clarify the authors' interpretations and contribute new or additional perspectives as a form of member checking (Baxter & Jack, 2008).

Methodological Rigor

To ensure methodological rigor, the study followed established principles of qualitative inquiry, emphasizing transparency, reflexivity, and trustworthiness (Smith & McGannon, 2018). Steps were taken to minimize bias and preserve the authenticity of Katrine's voice throughout the research process, while acknowledging the researchers' active and interpretive roles. We recognize that our own perspectives inevitably shape the interpretive process; therefore, we explicitly outline our positionalities. The first author is a former handball player and current coach, while the co-authors are experienced sport psychology consultants who have conducted extensive research on the development of expertise.

Findings

The analysis resulted in the following three themes: (1) The player: I don't have to win; I just don't want to lose; (2) The family: Whatever you choose to do, be the best; and (3) The national team: A match made in heaven. The first theme consists of two subthemes,

namely (1) I do my best; I want you to do your best; and (2) I know where the ball will end up. The structure of the themes and how they relate to the bioecological model that served as a theoretical framework for this study can be seen in Figure 1.

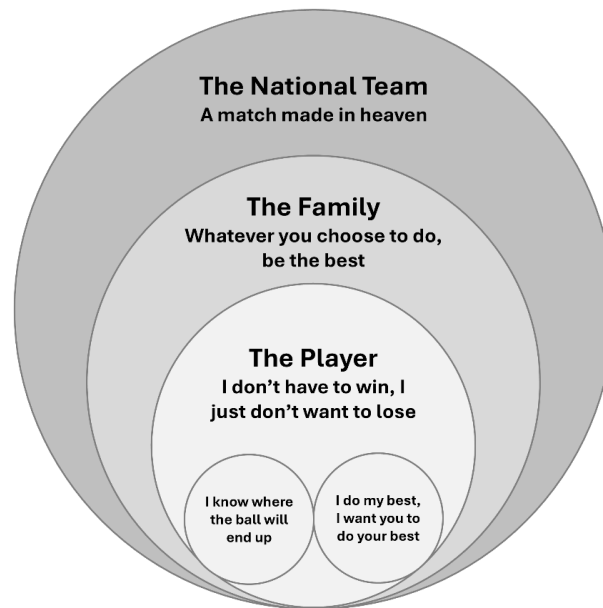


Figure 1. An illustration of the themes and subthemes as a nested system with the player at the center.

The Player: I don't have to win; I just don't want to lose.

Katrine is a fierce competitor who does not like to lose. This drive is reflected in the high standards she sets for both herself and those around her. She always gives it her all, no matter what she is competing in, and she expects everyone around her to do the same: "I just think you should give it your all. No matter what it is."

This theme encapsulates her as an individual and as a goalkeeper. These are two sides of the same coin, complementary aspects that make up the athlete that she has become. These two sides will be explored through the following two subthemes: "I do my best; I want you to do your best" and "I know where the ball will end up."

I do my best; I want you to do your best.

According to Katrine, she was highly

competitive and had high expectations of herself and others from a very young age. She always did the best she could and expected everyone around her to do the same. She noted that she was tough and uncompromising as a youngster and remembers her teammates yelling back at her after she scolded them for not doing what she told them to do: "Yeah, but we can't do everything right!" However, she is adamant that the high expectations are a show of care: "If I don't have any expectations of the people around me, that's even worse. Then I don't think they can do any better. I think they're glad that I scold them, it means I care."

Even though Katrine is best known for winning, she is not really that fond of playing games. She says that "Training is the best part. I'm not motivated by the games themselves." She loves the process of working on her craft

and is incredibly detail oriented in her approach: “I always analyze my gameplay and find my weaknesses, and then I work on them. That’s what I focus on at any given time.” She also likes to focus on “a couple of specific things at a time,” which remain priorities throughout every drill. Her coach supports this approach by providing feedback as she works to develop her skills and maintain her focus on self-improvement.

For Katrine, the games are more of an arena for testing herself and gauging how far she has come—a chance to measure herself against the best in the world. But she is full of contradictions as well, because she also noted this: “I like it when everything is on the line.” Indicating that she thrives under pressure and loves playing on the big stage.

She has the ability to look forward and does not waste any energy on things that have transpired. She analyzes shots that result in goals in the moment, to potentially improve the next go-around, but in general negative performances, crises, losses, they all just trickle off her back as she moves forward. She said, “I just put it behind me . . . if you can’t do anything about it you just have to move along.”

When asked about her accomplishments and titles she notes that “It’s the journey that is fun. And then the journey is over. That’s when you know whether you were able to do it or not, and then a new journey starts. Celebrating an accomplishment too much or for too long is not going to help you win the next go around.”

This commitment to excellence, combined with her focus on continual improvement, extends to her approach in goal, where meticulous preparation and anticipation allow her to read the game and predict opponents’ actions.

I know where the ball will end up.

Katrine’s success between the goalposts is mostly down to two interacting factors: the way she takes control of the defense in front of her, thus dictating (to a large degree) what shots she will face, and her ability to anticipate shots based on immense preparatory work and visualization.

Right from the get-go, she recognized that if she was to save shots she had to assume control and try to dictate which shots she would be asked to save. She used the defense as a funnel to lead the opposing players into positions where she was more comfortable and away from positions where she was uncomfortable. In other words, she was proactive and took charge, in an effort to improve her chances of success. Controlling where shots came from emerged as a central feature of how Katrine described her approach to goalkeeping:

I think I’m very rule-oriented, a bit of a rule-follower in general. So, I believe in having a concept — this is how we do things — and then it’s my job to help us stick to that. That also means I know where the shots are supposed to come from. Especially with the more experienced players, I think more carefully about *why* we’re doing it this way. . . . The point is that we want the shots to come from the areas we’ve agreed on. If I don’t understand the defense, I have much less time to read what’s happening. And if we don’t share the same understanding of where we want things to end up, then it becomes even harder for me to save shots.

But trying to dictate which shots you have to save is only the first step. Actually, saving the shots is the challenging part. While acknowledging that she has very good technique, and has always been in very good physical shape, Katrine talks at length about her preparation before games:

I’m pretty good at visualizing. Take a wing player for example. They usually have a lot of different shot types and ways of getting their shots off. I visualize their shots from different angles, both outside and inside. From the angle behind the player, the one

we usually see on TV, from the side, from my own point of view.

Her process is layered, relentless and meticulous, and relies on multiple different iterations. It all starts with drawing up every shot that the player she is working on has taken over a period of time, including the preceding movement. This process is not about knowing exactly what the players do, but to get an understanding of what they are capable of so that they won't surprise her. When she has charted all the shots, she has an understanding of the shots and movements they prefer. Then she sets out to visualize herself being on the receiving end of those shots, and she does not stop until she feels confident that she can make the save in a real-world setting:

I never give up until I see myself using good technique and actually stopping the ball. That can be challenging, because sometimes you see what the other player does, but you just can't get your own technique to work in time to block the shot. ... I never move on until I see myself making the save. Sometimes it takes a while to get there. For example, if I struggle with an outside shot, it can take me some time before I manage to see myself saving it, because I don't quite find the rhythm. Then I spend more time on it. I might move on for a bit and then come back to it. I don't give up until I see it, because otherwise I don't have a good feeling going into the match.

Katrine described this preparation, together with her management of the defense, as providing a framework for anticipating shots. According to her, these practices help her reduce uncertainty and support her reading of the game in real time:

Well, I don't always know for sure, but if I have a rough idea of where it's coming from, it's much

easier for me to find my position and know what to do. My mind goes there right away. If the shot comes from that side, then this is what happens. I've already pictured it. I've sort of stored it. Whether they raise their arm like this or like that, I know how I'm supposed to respond. It's not something I have to figure out in the moment; it's already there. So, when it happens, I see it again in my mind, and my body just reacts automatically.

She adds that most players "think they vary their shots . . . but from my point of view they shoot the same shots all the time, because they do the same movement before the different types of shots every time," indicating that she perceives recurring patterns in opponents' behavior that they themselves are not aware of. Katrine interpreted these patterns as cues that supported her anticipation of shots, including situations in which shooters attempted to disguise their intentions.

As Katrine's status as a goalkeeper grew, she became increasingly aware of the reputation she carried into matches and actively used it to her advantage. She acknowledged that successful saves and a strong presence in goal could shape how opponents approached future shooting situations:

The more experienced or higher status the goalkeeper is, the longer attackers tend to wait before shooting. Their jump phase gets drawn out, and then they can't do as much. If I can make them hang in the air until they're falling down, they lose power, their arm drops lower, and their options become fewer. That's a big part of it.

While Katrine's competitiveness and meticulous preparation define her as a player, her values and mindset cannot be fully understood without looking at the family environment that shaped them.

The family: Whatever you choose to do, be the best.

Katrine and her twin sister were raised in a family environment that placed a premium on hard work. Their father is a successful businessman who instilled the virtues of working hard in his daughters, and he was preoccupied with the idea of being the best: “I’m the best, that is what he imprinted in us. It had nothing to do with sports.” As a result, his daughters got the impression that they were free to follow any pursuit they wished to, but whatever they chose to pursue, they should strive to be the best. Simply participating was not sufficient, not even doing your best. Being the best was the benchmark.

Katrine noted that her parents were not what one would call “sports people.” But the fact that they weren’t especially interested in sports didn’t seem to bother Katrine; if anything, she seemed to appreciate it. When reflecting on her parents influence on her career and personality, she noted that “it’s actually really nice to have had a family that isn’t so focused on sports.” She never felt pressured and felt she had the freedom to make her own choices, at her own pace. We interpreted Katrine’s account as suggesting that her drive came primarily from within, guided by her own goals and standards rather than external pressure. She viewed this autonomy as an important part of her development as both a player and an individual.

Katrine also noted how important her sister was for her development, especially during her formative years. This influence extended beyond mere companionship; her sister served as an active partner in refining her handball skills. They were both fond of training and often trained together. Katrine noted how they drove each other to train a lot more than they probably would have without each other and how their different playing positions complemented each other and allowed them to train more effectively:

Because we were two, we could always do things together . . . one of us would always join when the other one wanted to train. It’s hard to play handball alone, or stand in goal alone, or shoot by yourself. In that way, it’s been good. That we

were different. It would’ve been rough if both of us only wanted to shoot and no one wanted to be the goalkeeper.

This hunger for training and becoming better also extended to the summer break:

We really enjoyed doing that [i.e., training] already early on, especially in the summer during the long break. That worked out well, because then there were two of us who can push each other. When you’re doing it together with someone else, it feels more natural to keep going.

With them both being fierce competitors, they could not be placed on opposite teams. That usually ended badly. So, they became accustomed to playing together. In fact, they played on the same team for the first 12 years of their senior career providing comfort and safety for each other in what could otherwise have been challenging years abroad.

If her family provided the foundation of Katrine’s work ethic and drive, it was the national team that gave her the structure and mentorship needed to refine those qualities and reach the highest level.

The national team: A match made in heaven

Katrine credits the Norwegian national team, their culture, and the coaches for helping her become the goalkeeper she is today: “I would never have gotten to where I am without the national team.” The national team represented an environment that matched her seriousness, where she learned to systematize the immense effort she was already putting into her training and how to set goals for development:

I learned so much about how to set goals for development. We had to keep those damn training journals where you had to write down how many minutes you practiced something. It was annoying, but in a way, you did learn from it. You’d think, “Okay, I practiced this today, so next time I need to work on something else.”

She notes how Marit Breivik [her first national team coach] showed her that everyone has an important role on the team, even the third goalkeeper, who usually does not step out on the floor. She also noted how Marit softened up her hard exterior and showed her the value of working as a team and adding value to the group. However, the coach who has had the most impact on Katrine's development is goalkeeping coach Mats Olsson, who has been her main goalkeeping coach since 2005. She vividly remembers one of their first conversations, when he challenged her to think differently: "I still remember one of the first times I ever talked to him, he got me to think right away 'Ok, so these are the type of questions that I will be asked'." One such question was whether she was the kind of keeper who wanted to save the ball or the kind who wanted to stand in the way. She had never considered the distinction between these styles, but as she noted, knowing your preferred style is crucial because "it impacts how you react."

That early exchange set the tone for their relationship. Katrine portrayed Olsson as encouraging her to think more intentionally about goalkeeping, grounding his training in cognitively challenging game-like drills and problem-solving exercises. This philosophy resonated with Katrine, who views goalkeeping itself as a form of problem-solving: "I play and train because I like to solve the problems I come up against."

In many ways, Olsson was a perfect match for Katrine. They both seek perfection, and work relentlessly on technique, form, and posture; with the idea in mind that no handball shot is unsavable. The following quote highlights the level of detail in their work:

I really enjoy technique, and I like focusing on the details . . . small things like a percentage here, a bit higher there, move forward, ten centimeters further. It's fun to have someone to spar with. Then we set some goals or smaller targets, or I set the targets, and I often give him updates about what we're going to work on.

Katrine even said that Olsson is one of the biggest reasons she is still playing and that the

knowledge he brings to bear, and the work they do together at the national team, is why she still has the drive she has. Our interpretation of the material indicates that Katrine views her club teams as a kind of placeholder for the national team. They are an arena for her to train and work on concepts and techniques that she will use and develop further the next time she meets up with the national team. She noted that the thought of taking a break sometimes appealed to her, as the handball schedule can be grueling, but the thought of missing out on the knowledge that the national team represented was unthinkable: "Sometimes I think that it would be nice to take it easy and not be 'on' all year round. But I know that if I opted out of the national team, I would be forgoing a lot of knowledge."

Katrine's descriptions highlight the importance she attributed to her environment and mentorship throughout her development as a goalkeeper. Her accounts suggest that deliberate goal-setting, technical refinement, and close collaboration with experienced coaches were central features of how she developed both her goalkeeping abilities and her strategic approach to the game.

Discussion

Through this qualitative case study, we explored how Katrine Lunde achieved such remarkable success and sustained high-level performance for more than two decades. Using the bioecological model (Bronfenbrenner & Morris, 2007) as a theoretical lens, we identified three main themes through which her development could be interpreted. These themes explore how her personality and process, her family environment and background, and the knowledge and culture at the Norwegian national team shaped the player she is today.

Katrine described growing up in a family culture that emphasized striving and excellence. This finding is consistent with a broader body of research on expert performers, which has highlighted the role of early socialization into environments that foster a sustained commitment to excellence (Güllich et al., 2019; Hardy et al., 2017; Turner et al., 2024). While

her family culture was central to her development, it was not the sole factor that contributed to her success. In line with previous research on sibling relationships and sporting excellence (e.g., Güllich et al., 2019; Hopwood et al., 2015; Taylor et al., 2018), Katrine emphasized her sister's positive role in her development and highlighted how they were each other's most important training partner, as they pushed and complemented each other.

Katrine comes across as obsessive about the art of goalkeeping, and in many ways, she appears to be searching for perfection. She and her goalkeeping coach work relentlessly on minute details with the ultimate, albeit unrealistic and highly idealistic, goal of keeping a clean sheet (i.e., not conceding a single goal during an entire match). While perfectionism is often viewed as having negative consequences for performers (e.g., Hill et al., 2018), studies on world-class athletes suggest that perfectionistic tendencies can coexist with high performance (e.g., Hardy et al., 2017; Turner et al., 2024). This apparent paradox is captured by Stoeber (2014), who describes perfectionism as a double-edged sword, where perfectionistic strivings are associated with positive outcomes and perfectionistic concerns are associated with negative outcomes.

Katrine does not appear to have perfectionistic concerns and does not seem to be bothered by failures or errors. Instead, she appeared to interpret failures and errors as opportunities for learning continued refinement. Gotwals and Spencer-Cavaliere (2014) referred to this kind of performers as healthy perfectionists, while others have labeled this profile "excellencism" (Gaudreau et al., 2022). Regardless of terminology, individuals with this profile appear to achieve success across contexts (Osenk et al., 2020). Katrine's descriptions also resonate with broader personality characteristics that may help illuminate her approach to training and performance.

The Big Five model of personality (McCrae & Costa, 2008) provides an interpretive lens for understanding Katrine's account. While personality traits were not formally assessed in the present study, Katrine's self-descriptions

appear consistent with characteristics associated with conscientiousness and openness. High conscientiousness is characterized by self-discipline, impulse control, systematic planning, and effective prioritization (McCrae & Costa, 2008). In athletes, conscientiousness has been associated with consistent training adherence, disciplined recovery routines, thorough tactical preparation, sustained performance, and a greater likelihood of occupying leadership roles (Allen et al., 2013). Many of these characteristics resonate with Katrine's descriptions of her approach to training and competition.

Katrine's account also appears consistent with openness, a dimension reflecting intellectual curiosity and receptiveness to new experiences and ideas. Throughout the interview, she demonstrated a strong interest in learning, problem-solving, and exploring new ways to refine her craft. In sport contexts, openness has been linked to creativity, adaptability, and willingness to engage with new approaches (Allen et al., 2013). Together, conscientiousness and openness describe a profile that combines disciplined practice and reliable execution with curiosity and adaptation, a profile that appears to capture several aspects of how Katrine approaches goalkeeping.

In line with other high performers, Katrine comes across as extremely process-oriented, without compromising on the outcome (Gotwals & Spencer-Cavaliere, 2014; Hardy et al., 2017; Turner et al., 2024). She recognizes mastery as a prerequisite for good outcomes, and while she never wants to lose, she does not appear to be afraid of losing or failing. She dislikes it, but she does not fear it. She is pragmatic and analytical, tries to learn from her setbacks, and then moves on. This distinguishes her from many other elite athletes, who report being more heavily burdened by the emotional toll of failure (e.g., Turner et al., 2024).

Her approach to teamwork and relationship with teammates seem to have evolved over time. While she alluded to a ruthless side earlier in her career, she credits the national team, and especially her coach Marit Breivik, for softening her outlook and helping her recognize that

teammates represent a resource rather than competitors or a source of stress. While she does not come off as ruthless or selfish, traits she acknowledges may have characterized her earlier career, it is apparent that the sport means a great deal to her, and she would not hesitate to make unpopular decisions if they contributed to her saving more shots or winning more games. This resonates with previous studies on world-class athletes (Güllich et al., 2019; Hardy et al., 2017; Turner et al., 2024). At the same time, she continues to expect those around her to give their all and maintain a strong work ethic, which aligns with Kristiansen et al. (2008), who noted that elite athletes set demanding standards not only for themselves but also for their teammates.

It is well established that goalkeepers rely on anticipation, and that expert keepers are better at anticipating and reading cues than their less skilled counterparts (Huesmann et al., 2025). However, Katrine does not seem to be content with merely anticipating her opponents' shots. She adopts a more proactive approach, actively assuming control of situations. Having a well-defined defensive structure and preferring some shots over others is common practice in handball, but Katrine seems to take it to the next level. This heightened proactivity reflects the demands of the position itself: Goalkeepers often lack the time to simply react and must instead rely on an ability to interpret a combination of physical and tactical cues in real time in order to anticipate the shot (Huesmann et al., 2023; Le Menn et al., 2019). When faced with a shot, goalkeepers have to make a series of micro decisions related to the shooter, their positioning, the reachable area, and the shot angle (Le Menn et al., 2019). Being able to limit the affordances available to the shooter, and thereby constrain their degrees of freedom, appears to be a valuable strategy for Katrine. For her, anticipation and environmental control appear closely intertwined. By organizing the defense and influencing where shots originate, she effectively simplifies the perceptual problem she faces as a goalkeeper (e.g., Müller et al., 2024).

Katrine's account also highlights the

collective nature of anticipation in team sports. Although anticipation is often conceptualized as an individual perceptual-cognitive skill, her descriptions suggest that successful anticipation emerges through coordinated interaction with the defensive unit. Her ability to read the game appears closely linked to the defensive structure in front of her and the shared understanding of where opponents should be directed. This can be situated within the literature on shared mental models (Cannon-Bowers et al., 1993; Giske et al., 2022), which are knowledge structures held by team members that enable them to generate accurate expectations and explanations of the task, thereby facilitating coordination and adaptation to the demands of the task and of other teammates. Furthermore, Katrine's ability to coordinate and direct her teammates is also consistent with Danielsen et al.'s (2019) concept of "cultural architects," defined as players who can continuously adapt to match demands and actively contribute to team coordination through shared mental models.

In addition to her proactive style, Katrine places significant emphasis on anticipation training through video sessions and visualization. While this is not unique, her process comes across as particularly detailed. Her approach is highly nuanced and layered, requiring considerable time and effort. It is systematic and iterative, and rather than envisioning an idealized version of herself or her saves, as others often do (e.g., Kristiansen et al., 2008), she focuses on a realistic representation that reflects her degree of preparedness and level of confidence. Her repeated descriptions of "knowing where the shot will end up" and having shots "stored" in memory also resonate with research on perceptual-cognitive expertise in sport, whereby extensive experience enables performers to recognize familiar situations rapidly and respond accordingly (Mann et al., 2007).

This detailed preparation may indeed be one of the factors that have prolonged Katrine's career and allowed her to perform at such a high level for so long. As Schorer and Baker (2009) found, even though perceptual abilities decline with age, skilled perception does not. This

appears particularly relevant in time-pressured sports, where experts rely on stable, learned cues that remain intact despite age-related decline. Similarly, expert athletes at advanced ages have also been found to compensate for the loss of abilities through utilizing more stable skills, or by acquiring new skills that offset the performance loss (Young & Medic, 2012). One possible interpretation is that her continued refinement of technique may have helped her adapt to age-related changes.

Her case also highlights broader implications for goalkeeper training. Goalkeeping coaches generally agree that decision-making skills are the most important attributes for a goalkeeper (Otte et al., 2023). However, this consensus is not consistently reflected in training practices. Otte et al., (2023) found that most goalkeeper training in soccer consists of repetitive and predictable technical drills, largely devoid of decision-making elements. The Norwegian national team's approach differs in that they constantly engage in problem-solving and decision-making activities. Such training is effective because athletes demonstrate their highest level of expertise when decision-making occurs in environments that approximate the perception-action demands of actual competition (Huesmann et al., 2021; Mann et al., 2010).

Our findings and interpretations should be considered in light of the limitations of the chosen methodology. The timeline approach was intended to provide structure and broad overview of a professional career spanning more than two decades, and a youth career that now lies in the distant past. While the interviews conducted with two of the most influential figures in Katrine's development were highly informative and helped shape the subsequent interview with her, we may have been affected by the curse of knowledge. In particular, we may not have sought Katrine's perspective on matters already raised by Mats Olsson and Kristine Lunde-Borgersen.

Given the length and illustriousness of Katrine's career, the timeline format risks reducing complex and nuanced experiences to a sequence of discrete events. Life events are not

always experienced or understood in linear order, and timelines may impose an artificial sense of coherence, making experiences appear more orderly than they felt. However, in practice the timeline functioned primarily as a tool. We adopted a flexible approach, moving back and forth across the narrative, asking a range of probing questions that were tied only partly to the events mapped out on the timeline.

A notable insight from the interview was that many elements we had assumed to be central to Katrine's development were downplayed by her (i.e., the club perspective). This highlights the need to elicit the individual's own account, since only they can clarify which experiences carried lasting weight, and which did not. External perspectives may offer valuable context, but they can also misrepresent the lived meaning of events. Recognizing this distinction matters, because a career is shaped not only by visible milestones but by how the individual interprets and weaves together experiences across different layers of contexts.

Conclusion

Katrine Lunde's story can be interpreted through the lens of dynamic interactions between the individual and her surrounding systems. Additionally, both the passage of time and her adaptation to performing on increasingly larger stages appear to have been important aspects of her development and career trajectory. Her achievements reflect an extraordinary level of effort and preparation. She works with remarkable diligence and discipline, consistently seeking to put herself in the best possible position to succeed. Rather than being a passive participant, she has acted as an active agent, training persistently to refine her technique. Her preparation is so thorough that, when a shot is taken, she feels that she knows where the ball will end up. Her account suggests that this outcome reflects years of systematic and deliberate practice. At the same time, such a perfectionist approach to goalkeeping is not appropriate for everyone and should not be viewed as a template for athletic development. As Hill et al. (2018) allude to, perfectionism is likely to be harmful for most

athletes most of the time. She has been part of a community of practice that has allowed her to develop and thrive. Katrine has unique individual qualities, but she also highlights the importance of the communities around her, first with her sister and later within clubs and national teams that supported her growth and development. Her success appears to have emerged from the interaction between these individual qualities and the environments in which they were nurtured.

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The study received ethical approval from the ethics committee at the Faculty for Health and Sport Sciences at the University of Agder (ref: RITM0308391). The participant gave written informed consent before taking part in the study.

The full transcript of interviews will not be made available as the participants did not give written consent for their data to be shared publicly.

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