

## **On the Learning, Transmission, and Embodiment of Swimming's Haptic Grammar**

### **Abstract:**

This paper develops the concept of 'haptic grammar' to encourage greater scholarly focus on the sensory aspects of bodily motion used to generate movement, knowledge of one's body in an environment, and thus being-in-the-world. It ethnographically examines how swimmers learn specific motions - 'the catch,' sculling, hand entry - to illustrate broader questions of how we learn to move our bodies. Focusing on these specific motions emphasizes the importance of shared sensory knowledge and perception for learning enskilled bodily movement. More than simply knowing what to move when and how, learning how to sense how one moves one's body parts is a crucial social process that swimmers become more skilful at via interlocutions amongst themselves and with their coaches regarding specific motions of specific body parts. This article illustrates how such socialized knowledge requires a shared haptic grammar to become more skilful at moving through the water and thus become 'swimmers.'

**Keywords:** body techniques; haptic grammar; sensory perception; mimesis; swimming

## Introduction

Coach Arthur<sup>1</sup> grabs a kickboard from the deck and uses it to tap fourteen-year-old Ida on the head, stopping her in the shallow end. Arthur, looming over the bulkhead, doesn't say anything as Ida as she looks up at him through mirrored goggles, her face expressing a query. He mimes a crossover freestyle hand entry, thrusting his arms forward and to the side across the midline of his body so that each hand ends up in line with the opposite shoulder. He then waggles his finger and shakes his head in a 'No' gesture. He returns to demonstrating a freestyle stroke, raising each elbow towards the ceiling in succession and, pointing his hands at a sloped angle, drives each hand through the 'surface' tension of the 'water' about a foot in front of his head. This time his hands and arms do not cross his body's midline. 'Got it?' Arthur asks. 'Yeah,' Ida says and returns to swimming. The crossover of her arms past the midline of her body is no longer present in her freestyle stroke.

Swimmers and coaches non-verbally demonstrate embodied knowledge pertinent to the movements and motions required to accomplish an arm pull or full stroke, to change body position, to scull, or even to help correct stroke cadence. Verbal communication, like the utterances between Arthur and Ida, can certainly confirm that one understands intent, but spoken words do not convey the requisite intricacies of swimming techniques. While coaches can emulate movements to communicate abstract ideas, a swimmer must learn the haptic grammar of a swimming stroke to generate certain kinds of movement through the water.

Previous research with competitive swimmers examined sociality and embodied identities (Heath, 2020), body image (Grahn, 2016; Scott, 2010), gender construction (Musto, 2014), and the 'body pedagogics' (McNarry et al., 2021a). These studies catalogue the experiences of having and being a swimming body in the social, material, and cultural environments of competitive swimming. Our focus is on understanding how swimmers learn how to move their bodies. Instead of using metaphor to convey proprioceptive sensations of a body in motion (see Paterson, 2007), such technical knowledge is learned by developing a specific haptic grammar.

The means of human movement rest upon the presumed universality of the human body's sensory apparatuses. Given that the ways in which we sense our bodies and surroundings are learned (Howes and Classen 2014), our very perceptions are skills we develop to varying degrees of aptitude (Noë 2006). Consequently, there is no universal manner by which all humans move. Culture plays a significant role in the shaping of bodily motions through conscious maintenance, modification, and mundanity of everyday routines (Chambliss 1989; Crossley 2005; Csordas, 1993). While we recognize that bipedal locomotion is instinctive, like the dive reflex in human infants (Goksör et al., 2002), the development of the abilities to walk and swim require cultural elaboration and augmentation to generate embodied knowledge. For example, the anthropologist Kathryn Geurts explicates the cultural specificities of how Anlo-Ewe people learn bipedal locomotion, beginning by privileging a sense of balance:

What appears to be a kind of “natural” development of abilities is culturally elaborated or augmented through habitual practices and everyday discourse. All over the world children learn, of course, to walk in a balanced manner and to carry objects. But in this setting, balancing seemed to be emphasized to a degree not found in all cultural groups, and after a certain point in a child's development in Anlo-land, head-loading, balancing, and walking became nearly inseparable (Geurts, 2002: 103-104).

Despite such cultural specificities, such as the moral education of Anlo-Ewe being through the inculcation of balance in learning to walk, there are common underpinning, learned structures to systems of movement that form in much the same way in that grammatical structures are formed. Language requires a grammatical structure comprised of phonemes, morphemes, lexemes, syntax, and context (McWhorter, 2016). Along with semantics and pragmatics, these components combine to create meaningful communication among individuals (Hussein, 2012). We suggest that bodily movement requires similar structures. Underpinning the movement of any body through space are discrete movements of

body parts combined into an embodied whole that enables an integrated enactment of perceiver-environment interaction. We develop a particular grammar of motion that enskills how we move through the world through the sensory capacities of our bodies and their immediate environments. Those underpinning structures are what we are calling a haptic grammar.

In this article, we introduce the concept of haptic grammar to provide greater focus on the kinaesthetic (perception of bodily movement) and proprioceptive (internal sensing of bodily positions) aspects of bodily motion used to generate enskilled movement, knowledge of one's body in an environment, and thus being-in-the-world. Greater focus on how the body generates movement through specific environments is a necessary development in the phenomenological examination of the human body in general and, more specifically, in the nexus of the study of the athletic body's various manifestations. Broad swath categories such as 'ensembles' of techniques (Crossley, 2005) are valuable in organizing conglomerates of shared social habits. However, conglomerates of social habits are too general for our purposes. This is because we concentrate on how skills for specialized motions are learned to facilitate specific kinds of movements through water. In grounding our examination of bodily phenomena in swimming practices, we understand perception as dynamic processes of interaction between perceiver (swimmer) and environment (water/pool/club/others) (Merleau-Ponty, 2012 [1945]; Gibson, 2014; Corwin and Erickson-Davis, 2020). Specifically, we examine swimmers' haptic grammars as the requisite parts of body motion required to produce movement through the environment.<sup>2</sup> We attend to various motions - sculling, the 'catch,' hand entry - as parts of swimming strokes.<sup>3</sup> To learn how to move through any environment, we have to learn how to undertake specific motions in certain ways to enable our movement through that environment. Those specific bodily motions are the grammatical parts of movement that one learns to be able to develop bodily movements.

## **Perception and the Environment**

How do we make sense of the world? One answer is, in short, that we do so through our bodies. Our ‘reality,’ everything we know about the world, our selves, and our place in the world, pivots on the sensory fulcrum of our body. Yet how we move, what we are taught to sense in those movements, and why we should perform a complex set of physical actions in specific patterns are all socially, historically, and culturally situated in particular times and places. The development of such embodied knowledge leads to our being-in-the-world resulting in a ‘life-world’ made out of the meanings people give to it (Heidegger, 1962; Merleau-Ponty, 2012). Perception is the direct interaction with the environment rather than an indirect process via the mediation of a representation. The environment is not an a priori, objective, mechanical world fixed by laws separate from the perceiving subject but a structure that emerges with the perceiver in constant, mutually constraining reciprocity. The world itself is the repository for information about it—not our sensations or intermediary reconstruction of it. It seems that the world is high resolution and continuous because the world is rich and continuously available to us for exploration. Thus, the act of perceiving is one of active exploration in which the perceiver moves through the environment dynamically as part of that environment (Gibson, 2014; Ingold, 2000).

This ecological model incorporates all sensory perception, whether it be touch, taste, smell, hearing, proprioception, and combinations thereof, as well as the presence of others. Perception is neither a matter of sensation nor mere feeling but is instead the ‘way we achieve access to the world’ (Noë, 2006: 2). From this ‘sensory ecology’ (Carter et al., 2022), perception of all kinds can be reframed as ‘varieties of presence’. One’s presence is enacted and experienced through the many ways we achieve skilful access to the world. Presence

necessarily includes moments of shared contact in which perceiver-dependent realities can in turn structure the realities of others as far as agents have the power to bring a shared, material reality into correspondence with their own imaginary visions of the world (West, 2007). We learn to be with each other through mutually recognized presences that come to be defined as social roles, such as swim teammate, coach, parent, academic collaborator, enacted in shared practices and habits. These roles are learned ways of being and the practices they involve shape how we recognize and experience each other. The development of those shared understandings requires the development of agreed upon sensory experiences of an environment.

Environments do not exist in and of themselves. They exist only in relation to the beings whose environment it is. Just as there can be no organism without an environment, so also there can be no environment without an organism (Ingold, 2011). Yet the environmental reality for the organism in question is not something wholly of the mind nor merely the immediate material conditions a lifeform's encounters (Ingold, 2000). Organisms certainly inhabit shared physical environments, but the experiential reality of an environment is not necessarily a shared perceptual reality (Merleau-Ponty, 2012). As spaces where beings dwell, the actual perception of those environments is down more to each individual's sensory skills and the way it formulates in its own existence (Carter, 2018). Those formations of being though are shared processes of becoming.

The phenomenological approach to perceiver-environment codetermination focuses on the micro-level interactions that form the immediate experiences between perceiver and environment but not inherent objects of that environment (Bateson, 2000; Merleau-Ponty, 2012). In this paradigm, an object does not exist apart from either itself as an isolated object or the perceiver's experience of it. An object, including one's own body, is realized—or

constituted—in the interaction between the environment-perceiver system, in a way that is at once fully material and tractable and fully codetermined. The term ‘body-subject’ uses this phenomenological dynamic of perception to place ‘the body’ as a locus of interaction of conscious experience of the social world (Crossley, 2005). This ‘carnal sociology’ (Crossley, 1995) of the body, while addressing the social world, social-structural influences, and embodied social interactions with others, does not account for cultural specificities of perception or of the environment as an agentic aspect of embodied perception (Kohn 2013).

### **Mimesis and Habit**

Developing a mutual understanding of the meanings of bodily gestures requires people to share a conceptual framework of the senses with which to perceive these motions and the environment where these motions occur (Le Breton, 2017 [2006]). Cultivating the requisite skills is an individual’s exploration and experimentation of one’s physical capabilities in socially circumscribed sets of activities. ‘Since sensory capacities can in part be cultivated like a skill, practitioners of capoeira [and swimming] are doing more than simply acquiring techniques of the body: they are also tuning their perceptions and actions, thereby creating a culturally and neurologically distinctive way of being’ (Dyck, 2015: 301). Capoeira practitioners' enskilment suggest the possibility of changes to visual perception (Downey, 2007), to the sense of equilibrium (Downey, 2012), and to the mechanical potential of the head as a limb (Downey, 2011). Similarly, swimmers also report changes to tactile perception, including pain and temperature (McNarry et al., 2021b, 2020), and buoyancy that incorporates a ‘feel for the water’ (Heath 2022). In short, physical movements and skills are not merely culturally meaningful but also physiologically and neurologically consequential.

Learning physical skills is not accomplished solely through individual trial and error. Many of the movements we learn are acquired through observation and copying of others as ‘imitation’ (Mauss, 1973[1934]), a form of mimesis, through processes of ‘guided discovery of skills’ (Downey, 2010: S36). Mimesis, as the communication of bodily movements and sensory capacities, occurs through verbal, visual, and gestural means that are both deeply physiologically and neurologically rooted while being sculpted in culturally specific ways. While ‘we may perceive others’ actions as meaningful by converting them into first-person simulations,’ there are significant consequences for intersubjectivity among people (Downey, 2010: S28). This intersubjective sharing draws attention to an aspect of mimesis found in all human kinaesthetic movement that differs from much of the theorization about mimesis across the social sciences and humanities. Most approaches, whether considering the theatre, semiosis, magic, or mode of production, treat mimesis as whole units of large-scale communicative competence (Adorno, 1997; Benjamin, 1968, 1986; Bhabha, 1984; Taussig, 1993). While these innovative analyses of mimesis have inspired significant insights, they leave unexplored the practical and perceptual capacities laying at the core of human mimesis in two ways.

The first is that these analyses presume that there is pre-existing shared embodied knowledge. While Nick Crossley’s re-working of *habitus* is a widely accepted standard in the sociology of sport for how to address the embodiedness of social knowledge and its presence in ‘techniques of the body’ (Mauss, 1973), these techniques ‘pre-exist individuals’ and will ‘outlive’ them (Crossley, 2005: 8). Insofar as techniques ‘pre-exist’ there must be a set of bio-socio-psychological capacities that are held by individuals and/or shared amongst a social group.<sup>4</sup> Adolescence is a ‘decisive moment’ when young people learn the techniques of the body that will be sedimented into a habitus retained for much of their lives (Bourdieu, 1977). For instance, Mauss’ (1973: 71) describes his ‘steamboat-like’ learned technique of



swallowing and spitting out water while he swam, noting that he cannot rid himself of this habit. For some, *habitus* is problematic in its conception as a ‘structuring structure,’ because it works through agents subconsciously to reproduce our class and cultural habits (Crossley, 2001; Nansen and Wilken, 2019). There is insufficient space here to provide a full critique of *habitus*. As it relates to sporting enterprises, there are several scholars who have already done (see Crossley, 2004; Downey 2014; Spencer, 2009). Our purpose in evoking *habitus* is to note that such ‘skilful know-how in situated and embodied action’ (Thompson, 2007: 13) are intentional acts, even though these acts are ‘animated by precognitive habits and sensibilities of the lived body’ (2007: 24). This is evident in some of the most basic physical movements we learn such as learning to walk, to run, and to swim. These acts are not formed of ‘collective re-representations’ or ‘forms of embodied, pre-reflective understanding, knowledge or reason’ (Crossley, 2005: 7) but arise in relation to ongoing experiences with one’s environs.

The second is that these analyses of mimesis do not acknowledge the learning required to enact mimesis necessitates components of embodied knowledge that can be used to construct whole units of meaning. Just as one does not learn to speak starting with uttering whole sentences, movement does not emerge as fluid motion. Learning to move is not mimicking an entire act of movement. For example, one does not learn to swim by jumping into water and swimming. One learns smaller, more controlled movements of the body and how to sense those bodily movements. One learns how to maintain one’s balance whilst floating horizontally, how to push the water in a particular direction without rolling over, how to kick one’s legs in synchronization to generate greater propulsion, and how to accelerate one’s movements to temporarily glide on top of the water with each stroke. All of which is learned through the refinement of proprioceptive senses used to regulate muscular contractions and relaxations. The entirety of movement is something that one becomes skilled

at enacting through learning to combine smaller controlled movements of specific parts of the body. In short, one learns to develop a haptic grammar by which one can construct gestures, movements, and effects.

The array of enskilled movements each individual learns is both culturally specific and biologically generic. The bodily movements we learn via the material physicality of interacting with our environment is both particular and universal. Learning any such haptic grammar is culturally based and thus a specific physical movement can convey very different contexts. A raised eyebrow or a specific combination of finger and thumb positions on a hand can convey very different meanings based on the culture in which they are enacted. The same is true for how one learns to walk and what one's walking communicates to others (Geurts, 2002). The different ways one can walk, run, or swim are culturally informed. However, learning to walk is something nearly every human being experiences. That process of learning is accomplished through mimesis. Mimesis relies on an array of refined sensory abilities, most especially the refinement of one's proprioceptive senses, to develop a set of resources that can be combined in multiple ways to form various kinds of movement – a haptic grammar.

Learning and refining techniques tack between subconscious 'doing' and continuous conscious attention as one attends to the perception of one's own body in the environment, the environment itself, other bodies, and one's capacity to make specific movements within an environment (see Mauss 1973). This is evident in the discrepancy between Crossley's (2007) account of swimmers' inability to articulate principles of motion in water - they 'just do it' - and McNarry et al.'s (2021a) account of 'mindful swimming.' Using the example of driving a car, Crossley notes that he just 'knows without knowing' how to drive. In other words, he just does it. Knowing how to be in the world via the body is what Crossley (2001),

borrowing the term ‘body schema’ from Merleau-Ponty (2012: 100-105), refers to as a ‘corporeal schema.’<sup>5</sup> For Merleau-Ponty, ‘body schema is ‘a manner of expressing that my [sic] body is in and toward the world’ (2012: 103). While for Crossley, the ‘corporeal schema’ is the way in which knowledge becomes sedimented in the body and that each action of a human being does not require reflective thought. Swimmers enact this ‘corporeal schema’ in their swimming, daydreaming and getting into swimming rhythms without thinking about what their bodies do. Yet swimmers simultaneously mindfully attend to technique refinement during drill sets or in the lead up to races. The ebb and flow between habituated movement patterns and mindful techniques do not simply ‘drive’ the body because they all are in processes of continual refinement and adaptation.

Culture helps us factor in how we learn, refine our knowledge, and transmit it through generations. Humans from cultures all over the world teach and learn how to swim (Carr, 2022; Dawson, 2018). Yet how we swim, and how we then learn to interact with water to move our bodies through it, to develop habits and techniques and cement those through repetition of action, is interdependent between perceiver-environment as the liquid environment in swimming offers certain affordances for movement, some more dramatic than others. We use these phenomenological experiences in this article to inform the analysis of learning, transmitting, and embodying bodily techniques, knowledges, and the haptic grammar of swimmers.

## **Methods and Context**

Ethnographic fieldwork, follow the anthropological tradition of ethnographic investigation (Dyck and Hognestad, 2015; Fabian and Rooij, 2008), was carried out by Sean Heath, hereafter written as Sean, over five months between 2014-2015 and over seventeen months

during the 2018-2020 competitive swimming seasons in Vancouver, Canada, and East Sussex, UK. At both of these field sites Sean involved himself in swimming clubs' everyday activities, ultimately working with mixed-sex swimming squads of young people between the ages of 13 and 21.<sup>6</sup> In both Canada and England swimmers were enrolled in year-long competitive-track programs running from September through July, with swimmers competing at local, regional, provincial, and national competitions.<sup>7</sup> Competitive swimmers at the age-group level in England and Canada typically spend between 10-20 hours per week training in the water. In addition, body-weight circuits might be given to swimmers beginning in their teenage years. Swimmers older than sixteen are typically given additional land-based training using weights in the gym, stationary cycling classes, and yoga sessions. This volume of training is widely accepted in the sport as typical and necessary in order to keep swimmers along athlete development trajectories (see British Swimming 2018; Swimming Canada 2020).

Unlike adopting a 'physical-cultural insider' position as assistant coach (McNarry et al., 2019), Sean chose not to immediately volunteer his previous experience as a swimming instructor and coach when negotiating access to conduct fieldwork. Rather, Sean presented himself as a curious researcher, opting to approach young people's swimming lifeworlds ethnographically while poolside through participant observation methods (see Dewalt and Dewalt, 2011). Adopting a 'least-adult' (Hadley, 2007) position, what Sean came to identify as a 'non-swimming swimmer' role, recognized the impossibility of complete separation from the hierarchical power-laden position of adult. The role of 'non-swimming swimmer' helped establish clear boundaries between himself and the coaching staff while on the pool deck, allowing for something closer to peer-based rapport building to occur between Sean and the swimmers.

Sean was unable to train with the young athletes in both locations as they did not hold qualifying times required to swim within the competitive squads. Still, he found alternative ways to be present in the spaces and activities of the squads. For example, Sean would walk the pool deck, conversing with swimmers and coaches as they either prepared for sessions, whilst they rested between sets during training, and spoke with interlocutors (swimmers, parents, and coaches) after training sessions. In addition to incorporating observational fieldwork practices other scholars have used when working with young people (Anderson, 2008; Dyck, 2012), Sean engaged in a swimming apprenticeship, a form of participation common to ethnographic fieldwork in sport (Downey, 2005; Throsby, 2016; Wacquant, 2004), as a strategy for deeper participation and integration into the social fabric of young people's swimming lives. Sean enrolled in the club's Masters squad, training and competing and thus incorporating a 'technical education' (Mauss, 1973: 71) into their own apprenticeship in competitive swimming. In this way, the technical education in competitive swimming became a shared practice between Sean and the young people.

Observations and experiences were initially recorded as jottings in a small notebook and expanded into full fieldnotes following training sessions, competitions, and social events (Emerson et al. 2011). Ethnographic interviews (Skinner, 2013), informed by Sean's regular presence at each club, were used to follow particular analytical threads that emerged from fieldwork. These interviews focused on specific topics around the sensory and affective experiences of being immersed in water, sensory and social experiences of pain, techniques to move in the water, swimmers' social relationships, and sociality in squads and clubs. Interviews ranged from thirty minutes to an hour and were conducted in an on-deck timing booth or a quiet lounge area in the pool recreation centre lobby. All told, a combined forty-two interviews were conducted during the fieldwork in England and Canada.

NVivo software was used to organize the ethnographic research materials, which included fieldnotes, memos, interview transcripts, news clippings, and policy documents. The software allowed us to easily identify recurring themes, ideas, thoughts, and descriptions of events and practices. Data was initially open coded following a ‘dialectic interplay’ (Emerson et al., 2011: 198) between data production and analysis. From this open coding framework themes, ideas, and issues the data suggested were noted before subjecting the data set to focused coding and memoing, which further refined topics and categories during coding and rereading of data (LeCompte and Schensul, 2013). Links and connections made between codes and memos were used to identify relevant quotes, situations, conversations, observations, and experiences that would deepen the analysis of the themes generated through shared practice and dialogue between Sean and the swimmers. It is through analysis of this data that learning, conveying/transmitting, and embodying haptic grammar emerged.

### **Learning a Haptic Grammar of Swimming**

Young swimmers have a vast wealth of knowledge about their embodied aquatic practices despite not necessarily having extensive swimming experience. Over the years, swimmers’ accumulated experiences to facilitate their development of a specific haptic grammar with skilled swimmers relying on haptic sensory input or ‘feel’ (Heath 2022). The subtlety of that ‘feel’ are ‘things you can’t describe,’ as Rod, a nineteen-year-old veteran swimmer, expresses it. He notes that without being immersed in the water, ‘you have lost your little touch,’ as he physically moves through a ‘catch’ motion for freestyle on the pool deck:

Rod extends his arm out straight in front of him at shoulder height, his torso slightly turned so as to allow for maximum extension of his arm forward in space. He bends his flat hand at the wrist down at a thirty-degree angle from his arm as if he were swimming freestyle and beginning the catch phase of the stroke. Extending both arms out in front of

him, slightly wider than shoulder width distance, he then performs a pressing in motion with his hands and forearms, as if they are turning around the outside corner of some invisible object, demonstrating what he would do when actually swimming breaststroke: moving from catch to anchor. Finally, there is a bit of sculling motion to his hand gesture indicating that this scull action is imperative to his understanding of feeling the water.

Similarly, another swimmer at the club, Sam, sixteen-years-old, draws upon the same haptic grammar to demonstrate his 'feel for the water'. He moves through the catch phase of breaststroke pull:

    Holding his large hands out at arm's length with fingertips pointed down and palms facing him, he 'pushes' the imagined water, as if spreading soft butter on toast, sweeping his hands and arms out past shoulder width.

    Developing a haptic grammar is more than abstract theory for swimmers. It is also more than the mere haptic sensations of being immersed in the water. The essential nature of a swimmers' haptic grammar becomes immediately apparent when Sebastian, one of the older performance squad swimmers, works through the grammar of each stroke on the pool deck, pointing out where the 'catch', an important piece of haptic grammar, is located for each stroke.

    'It's here, here, here, and here.' Sebastian reaches his right arm out in front of him, palm flat, and 'presses' his hand and forearm down. His shoulder rotates outward slightly as his elbow lifts up and slightly outwards. The elbow crook rotates from facing in and slightly up towards the midline of his body to facing downwards as his deltoid and latissimus muscles engage. He continues, replicating demonstrating both a butterfly and breaststroke 'catch.' He then stretches his arm up above his head, palm facing outwards in a backstroke hand/arm entry. His torso rotates as he reaches up and backwards 'catching' the imagined water and sliding hand and forearm into a position where he can 'anchor' at a ninety-degree angle to his body. He even goes up on his tiptoes as he makes this motion.

The ‘catch’ is a technical term used to denote a particular aspect of a swimmer’s stroke. In this case, Sebastian is referring to the hand and arm actions alone thereby demonstrating how the haptic grammar of a swimming stroke structures the collective bodily motions that make up a swimming stroke.

One way in which swimmers learn the haptic grammar of any stroke is analogous to the way rock climbers develop their own haptic grammar (Lewis, 2000; Ness, 2011). They move through the motions necessary to enact a climb without interacting with the rock face as swimmers do without interacting with the water to enact movement through the water. Climbers learn to move their bodies to the fixed anchor points on a rock face rather than pulling with their arms or legs to the next hand or foot hold (Dutkiewicz, 2015). By Sebastian’s reckoning, swimmers do something similar, interacting with and moving their bodies in the water from one fixed arm anchor point to the next to propel them forward. In developing the haptic grammar for these enskilled movements, the environment remains stable and immobile for swimmers and climbers as they develop their bodily fluency. Thus, different forms of movement through very different kinds of environments are enacted by developing similar haptic grammars that entail motions that grasp upon immovable points.

At first glance, replicating those particular bodily motions outside the environment of a pool would appear to render such embodied knowledge as nonsensical at best. Yet, as swimmers develop a more nuanced grammar of bodily motion, they become more skilled at propelling themselves through water. The power of haptic grammar is that no one needs to know the biological processes or material infrastructure of the body in order to learn how to move. Young swimmers do not need to know how the brain or muscles work. They do not need to know how the nervous system operates. While young swimmers do worry about the ‘appearance, performance, and transgressions’ (Crossley 2005: 2) of their bodies (McMahon



and Barker-Ruchti, 2017), they are less concerned about the body's biological structure and functioning. Instead, a kinaesthetic knowledge of bodily motion is structured into a specific haptic grammar that facilitates the demonstration of bodily sensations that cannot be easily articulated. Learning a specific haptic grammar, then, is more than simply 'what the body does' (Crossley, 1995: 43). These movements are 'biocultural processes of enskilment' (Downey, 2014: 116), in which the activity patterns and programs of skill acquisition sculpt and cultivate all our human tissues. Becoming skilled in the technical motions of swimming is more of a 'discovery or reinvention' and not mere replication (Downey, 2005: 49). Swimmers may very well modify that knowledge as they incorporate it into their own grammatical repertoires of motion with the potentiality of improving such techniques as they directly shape and are shaped by their own bodies. The haptic grammar of swimming strokes needs to be learned, developed, and expanded over time through the accumulation of sensory perceptions and experience.

Learning swimming's haptic grammar is essential in the education of any swimmer. They must learn to understand the subtle nuances of sensory information contained in these 'techniques of the body' (Mauss 1973). It is the culmination of hours and hours of practicing techniques in an attempt to refine one's movements (McNarry et al., 2021a). A technique is a bodily motion insofar as it is 'effective and traditional': 'There is no technique and no transmission in the absence of tradition' (Mauss, 1973: 75). To know why an individual makes one motion and not another 'neither the physiology nor the psychology of motor asymmetry in man is enough, it is also necessary to know the traditions which impose it' (Mauss, 1973: 78). Thus, swimming's haptic grammar, or any haptic grammar for that matter, is not simply learning how to move one's body through experimentation on one's own in isolation. The development of haptic grammar is not merely individualized embodied knowledge; a haptic grammar is embodied social knowledge. It is the transmission of

embodied knowledge embedded in tradition or, in short, where cultural knowledge meets phenomenological experience. Thus, developing one's haptic grammar is more than just the 'embodied "doing" of swimming' (McNarry et al., 2021a: 15). Becoming a swimmer also means learning the necessary haptic grammar to be able to express and understand the nuances of a stroke's grammar whether enacted on the pool deck or in the water.

### **Transmitting Haptic Grammar**

The embodied knowledge of a haptic grammar is not learned solely through individual trial and error, however. It is also learned from others through the transmission of such knowledge. A challenge swimmers encounter when attempting to learn the haptic grammar for a particular stroke is the apparent disconnect between enacting the requisite bodily motions and trying to learn these kinaesthetic acts verbally from others. Accumulating experience and having more exposure to technical terminology can provide swimmers with more eloquent verbal descriptions of their practices and this may, indeed, prove fruitful (McNarry et al., 2019: 143). Nevertheless, the inadequacy of verbal expression in capturing and conveying such embodied knowledge necessitates the use of haptic grammar through physical demonstration to begin to transmit such knowledge.

Taking off her goggles and climbing out of the pool to stand in the small circle formed by the swimmers on this side, Ellie listens patiently as the group tells her how her bodily motions detrimentally affect the pace of her movement. Chris says she is very flat in the water, that her body and shoulders don't roll very much. 'Maybe this is because you have such a long and graceful, precise front crawl stroke.' She should try to get her body to roll a bit more, he says while pointing both index fingers to his shoulders, bending at the waist, and alternating dipping each shoulder and rotating his torso. Megan agrees that she should try the roll. 'Maybe it'll be faster,' she says to Ellie, who agrees to try it during the next round of peer observation. After observing Ellie's next swim, Megan rejects her

earlier assessment, saying the roll messed up Ellie's stroke too much. Ellie agrees saying, 'It felt weird.'

The weirdness that Ellie sensed was an attempt to change the grammar of her stroke resulting in a disarticulation of her movement through the water. The reformulation of her bodily motions had to be attempted for Ellie to determine whether it would make her stroke more fluent. That it did not immediately do so highlights the sensory difference between the verbal transmission of embodied knowledge compared to mimetic transmission. This disjuncture is not unique to swimmers. It is found amongst athletes and other skilful practitioners that employ their bodies as the main tools of their practice whether they are dancers, craftspeople, or athletes (Marchand 2010; Sheets-Johnstone 2015[1966]). At times, these swimmers opted for miming the action when words failed to convey their meanings.

Ida, Yvette, George, Thomas and Yara all collectively chide Nathan during a training mock-race for 'not kicking'. If he had kicked AT ALL, then the race might have been different. Nathan catches [Sean's eye] and brings his hand up to eye height and holds his ring and pinkie finger in with his thumb against his palm. He moves his index and middle finger up and down past each other in a quick flurry of movement showing the flutter kick that his legs ought to be doing when he swims freestyle.

Nathan jokingly mimics his coach's action at Sean after Arthur had earlier chided Nathan with this same finger motion for not kicking during the warmup of this training session. Nathan is demonstrating that he has received the message from both coach and peers. His flurry of fingers stands in for his actual legs kicking, for it is easier to demonstrate a kick with fingers, hands, and arms, than it is to lie on the ground or a bench and repeat kicking motions through the air. Yet what is not clear is whether Nathan knows how to move the lower half of his body habitually while sprinting. In short, while he has conceptual knowledge apparently, it is not at all apparent that he has developed the necessary haptic grammar. Nathan knows

how to flutter kick, but he has not fully incorporated the haptic grammar of his front crawl to the point that he flutter kicks rapidly when doing this stroke.

Nathan's situation is the opposite of what swimmers' embodied grammatical knowledge entails. Nathan knows how it looks but has not enacted the haptic grammar needed to induce greater movement. But there is no indication that he knows how to enact such motion or how it feels. Swimmers use their haptic grammar to communicate from the sidelines with others across the pool after mock races, for instance, highlighting how their peers' bodily grammar should look in efforts to transmit how such haptic grammar should feel. Athletes 'know well how a movement feels and how to do it without knowing how it looks' (Downey, 2005: 43). Recognizing the difficulty of transmitting embodied knowledge, coaches set up formal spaces where athletes demonstrate and communicate some of their own knowledge to their peers.

As soon as Yvette hits the water off her dive, we all turn our bodies in unison and walk down the length of the pool watching her swim a length of butterfly. Coming to the surface nearly 10 metres from the start blocks, Yvette lifts her head from a streamlined position and 'looks' at where she is in the water column to time her breakout pull. After Yvette has finished the length and begins to climb out, Ida comments on her form, saying she was 'looking for the surface' [Ida visibly over-exaggerates the position of her head, jutting her chin out with eyes looking forward] which 'slowed you down' during the breakout.

Ida uses 'looking' as a movement of the whole head, neck, and eyes to demonstrate Yvette's incorrect actions and 'remind' her of the principles of drag. Ida and Yvette are both aware of this principle of 'drag' but do not articulate it as such. They have the conceptual knowledge of the necessary grammar but are not embodying its motion. At the same time, more accomplished swimmers occasionally correct peers' technique through the use of their

shared haptic grammar, conveying some of the finer aspects of specific grammatical points of their peers' haptic knowledge:

Cecilia poked Sarah to get Sarah's attention during a training set focused on increasing distance moved per arm stroke. Without either swimmer removing her face from the water, fifteen-year-old Cecilia mimed the finish of a stroke, accelerating the hand and arm and pushing swiftly 'out the back' of the pull, repeating this slowly to show thirteen-year-old Sarah how she should be moving her arms and hands.

The instructions given by their coach was to focus on stroke length, particularly the 'finish', during the above set Cecilia and Sarah were swimming. Having observed Sarah's stroke while swimming with her in the same lane, Cecilia demonstrates this 'finishing' motion at speed. Then she slows down her movements for Sarah to observe, drawing on a shared haptic grammar Cecilia breaks down the hand and arm motions that will accomplish forward acceleration with the least amount of drag. Swimmers themselves learn, know, and transmit correct haptic grammar through the relation of the motion and positioning of body parts in relation to other parts of one's body and environs.

Training the body to move in dedicated, refined ways in order to engender fluid motion (Heath, 2021) is essential to grasping the nuances of becoming a swimmer. This training involves sequences of motions that must be tested, reinterpreted, and incorporated or rejected from one's haptic grammar. The feedback required for this process is primarily embodied while augmented with verbal feedback even though such verbal feedback is regularly ineffectual without haptic grammar of physical motion.

## **Embodying Haptic Grammar**

At the start of this article, Arthur demonstrates a sequence of ‘swimming’ motions in the air, which have great potential to serve as descriptors of ‘correct’ skills. Ida recognizes her own ‘incorrect’ cross-over hand entry, but more importantly, she is able to incorporate Arthur’s gestures into her own bodily motions in the water because she has learned the haptic grammar of swimming. Those mimetic motions are not just imitations of what those movements look like from the outside but also what they feel like from the inside. Mimesis thus entails the phenomenological ‘intersubjective interaction’ (Thompson, 2007: 243) of kinaesthesia and proprioception between Arthur, Ida, and their environs.

Learning swimming’s haptic grammar in order to become a fluent swimmer necessitates a development of one’s own bodily awareness of how one moves, how one should move, and an ability to discern the difference between the two. Throughout this article, we consider how swimmers come to know and use their bodies through their development of their own haptic grammar. Grounded in processes of enskilment, swimmers incorporate, refine, and improve on techniques used to move them through the water. Swimming strokes are not developed as whole units of movement but as compositions of discrete bodily parts’ motions brought together in specific ways in order to accomplish movement through water. These motions are formed from a haptic grammar.

Developing a mutual understanding of the meanings of bodily motions requires people to share a conceptual framework of the senses with which to perceive these motions and the environment where these motions occur. This is simply due to the fact that the ways we culturally perceive the world through the senses varies from society to society. Our environments shape the ways we become skilful beings-in-the-world. This is particularly so in swimming where being immersed in water requires a different set of skilled motions to be

able to move effectively. For example, the motion of sculling is an essential building block in learning to generate traction and find purchase in the water so that one can then know how traction tacitly feels in the different positions where the catch is initiated in a stroke sequence. Every environment affords different ways of interaction between people and between people and their environments. Being immersed in the water underscores the relational existence of body and environment. To truly develop the embodied knowledge of a swimmer, the haptic grammar for swimming, which entails a ‘specific mode of being, doing and understanding’ (McNarry et al., 2021a: 9), must be not only learned but refined in the proper environment. Knowing what motions to make is not enough, for the haptic grammar of swimming is not contained within a body; rather, a haptic grammar is learned by a body moving in an environment. Haptic grammars are relational knowledge of being-in-the-world.

Haptic grammar provides a template for a diverse range of scholars to create typologies of embodied techniques. This Maussian-inspired, phenomenologically-derived template is applicable to a range of empirical contexts. To that end, further attention should be given to the haptic grammars of other specialized techniques from basic to increasingly complex skilled movements, such as stroke patients re-learning to walk, children throwing objects, handicraft (i.e., woodworking, pottery), surgical techniques, elite dance forms, among many others that we haven't stated. A focus on the learning processes for developing haptic grammars provides insights into how bodily knowledge is learned and passed on. Noting how mimicry, modification, and reinvention of enskilled movements is undertaken will further our knowledge of how the sensory entanglements between humans, our activities, and our environments are formed. The delving into how specific haptic grammars are developed will refine our knowledge of how people come to be in-the-world, helping us learn more about what it means to be human in the worlds we create.

## Notes

Each author made an equal contribution to the article.

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1. All names of coaches and swimmers are pseudonyms.
2. Regarding ‘haptic,’ we use it as both relating to a sense of touch and the predilection for the sense of touch. The latter aspect of haptic draws attention to the ways senses of touch are dominant in swimming contexts (Heath 2022) while the former offers a way of understanding our movement through/in an environment (Carter 2018).
3. The four competitive swimming strokes (butterfly, backstroke, breaststroke, and front crawl) can be broken down into a basic sequence: Entry, catch, anchor, pull, finish, recovery. The entry is the point where the arm enters the water. The catch is the point where the flat palm of the hand and forearm ‘press’ against the water, applying force and gaining traction (see Dekerle 2021). The anchor is the beginning of the pull-phase where maximum force is applied through increasing pressure and acceleration through the water during the pull. The finish is the fastest part of the stroke accelerating the arms out of the water and into the recovery. The recovery is the phase where arms are brought around over the water to the entry position using different muscle groups than the pull and as little effort as possible. Sculling is a motion which underpins haptic perception of traction in water. It essentially involves moving the flat hand, palm, and forearm in a sweeping motion, back and forth in the water in an attempt to feel the pressure point where traction is gained and sustained through the



sweep of the hand/forearm. Through sculling alone, a swimmer can move themselves in any direction in the water. Artistic swimming is an excellent example of this.

4. For an early critique of a singular consideration of the body as merely mechanical and physical, sociological or psychological, see Mauss (1973).
5. For an in-depth discussion of translation choices between versions of *Phenomenology of Perception* see the *Translator's Introduction* (Merleau-Ponty, 2012: xxx-li).
6. Categories for competition are 'Men's' and 'Women's' as laid out by the World Aquatics (2023) Regulations.
7. We have intentionally used Canada and England because of swimming's respective national governing bodies' regulatory structures (Swimming Canada and Swim England).

## References

Adorno, Theodor (1997) *Aesthetic Theory* (tran. Hullot-Kentor, Robert). London: Bloomsbury.

Anderson, Sally (2008) *Civil Sociality: Children, Sport, and Cultural Policy in Denmark*. Charlotte, N.C: IAP-Information Age Publishing.

Bateson, Gregory (2000) *Steps to an Ecology of Mind*. Chicago: University of Chicago Press.

Benjamin, Walter (1986) On the Mimetic Faculty. In: *Reflections: Essays, Aphorisms, Autobiographical Writing*. New York: Schocken Books, pp. 333–336.

Bhabha, Homi (1984) Of Mimicry and Man: The Ambivalence of Colonial Discourse. *Discipleship: A Special Issue of Psychoanalysis* 28: 125–133.

- Bourdieu, Pierre (1977) *Outline of a Theory of Practice*. Cambridge: Cambridge University Press.
- British Swimming (2018) Optimal Athlete Development Framework launched. Available at: <https://www.britishswimming.org/news/latest-swimming-news/optimal-athlete-development-framework-launched/> (accessed 18 September 2020).
- Carr, Karen Eva (2022) *Shifting Currents: A World History of Swimming*. London: Reaktion Books.
- Carter, Thomas F. (2018) *On Running and Becoming Human: An Anthropological Perspective*. Brighton: Palgrave Macmillan.
- Carter, Thomas F., Heath, Sean, Jacobs, Sarah, and Rana, Jasmijn (2022) Sensory Ecologies: The Refinement of Movement and the Senses in Sport. *The Senses and Society* 17(3): 241–51.
- Chambliss, Daniel F. (1989) The Mundanity of Excellence: An Ethnographic Report on Stratification and Olympic Swimmers. *Sociological Theory* 7(1): 70–86.
- Corwin, Anna I., and Erickson-Davis, Cordelia (2020) Experiencing presence: An interactive model of perception. *HAU: Journal of Ethnographic Theory* 10(1): 166–182.
- Crossley, Nick (1995) Merleau-Ponty, the Elusive Body and Carnal Sociology. *Body & Society* 1(1): 43–63.
- Crossley, Nick (2001) The Phenomenological Habitus and Its Construction. *Theory and Society* 30(1): 81–120.

- Crossley, Nick (2004) The Circuit Trainer's Habitus: Reflexive Body Techniques and the Sociality of the Workout. *Body & Society* 10(1): 37–69.
- Crossley, Nick (2005) Mapping Reflexive Body Techniques: On Body Modification and Maintenance. *Body & Society* 11(1): 1–35.
- Crossley, Nick (2007) Researching Embodiment by way of 'Body Techniques'. *The Sociological Review* 55(1): 80–94.
- Csordas, Thomas J. (1993) Somatic Modes of Attention. *Cultural Anthropology* 8(2): 135–156.
- Dawson, Kevin (2018) *Undercurrents of Power: Aquatic Culture in the African Diaspora*. Philadelphia, PA: University of Pennsylvania Press.
- Dekerle, Jeanne (ed.) (2021) *High Performance Youth Swimming*. London: Routledge.
- DeWalt, Kathleen Musante, and DeWalt, Billie R. (2011) *Participant Observation: A Guide for Fieldworkers*. 2nd edition. Plymouth: AltaMira Press.
- Downey, Greg (2005) *Learning Capoeira: Lessons in Cunning from an Afro-Brazilian Art*. Oxford: Oxford University Press.
- Downey, Greg (2007) Seeing with a 'Sideways Glance': Visuomotor 'Knowing' and the Plasticity of Perception. In: Harris, Mark (ed.) *Ways of Knowing: New Approaches in the Anthropology of Knowledge and Learning*. New York: Berghahn Books, pp. 222–241.
- Downey, Greg (2010) 'Practice Without Theory': A Neuroanthropological Perspective on Embodied Learning. *The Journal of the Royal Anthropological Institute* 6: S22–S40.

- Downey, Greg (2011) Learning the 'Banana-Tree': Self-Modification Through Movement. In: Ingold, Tim (ed.) *Redrawing Anthropology: Material, Movements, Lines*. Abingdon: Ashgate, pp. 77–90.
- Downey, Greg (2012) Balancing across Cultures: Sensory Plasticity. In: Lende, David, and Downey, Greg (eds.) *The Encultured Brain: Introduction to Neuroanthropology*. Cambridge, MA: MIT Press, pp. 169–194.
- Downey, Greg (2014) 'Habitus in Extremis': From Embodied Culture to Bio-Cultural Development. *Body & Society* 20(2): 113–117.
- Dutkiewicz, Jan (2015) Pretzel Logic: An Embodied Ethnography of a Rock Climb. *Space and Culture* 18(1): 25–38.
- Dyck, Noel (2012) *Fields of Play: An Ethnography of Children's Sports*. Toronto: University of Toronto Press.
- Dyck, Noel (2015) Sport, Anthropology of. In: Wright, James D. (ed.) *International Encyclopedia of the Social and Behavioral Sciences*. 2nd edition. Oxford: Elsevier, pp. 299–306.
- Dyck, Noel, and Hognestad, Hans K. (2015) Anthropological Perspectives and the Sociology of Sport. In: Giulianotti, Richard (ed.) *Routledge Handbook of the Sociology of Sport*. London: Routledge, pp. 123–132.
- Emerson, Robert M., Fretz, Rachel I., and Shaw, Linda L. (2011) *Writing Ethnographic Fieldnotes*. 2nd edition. Chicago: University of Chicago Press.

- Fabian, Johannes, and Rooij, Vincent de (2008) Ethnography. In: Bennett, Tony, and Frow, John (eds.) *The Sage Handbook of Cultural Analysis*. Thousand Oaks, CA: Sage Publications, pp. 613–631.
- Geurts, Kathryn Linn (2002) *Culture and the Senses: Bodily Ways of Knowing in an African Community*. Berkeley: University of California Press.
- Gibson, James J. (2014) *The Ecological Approach to Visual Perception: Classic Edition*. London: Routledge.
- Goksör, Emma, Rosengren, L., and Wennergren, Göran (2002) Bradycardic Response during Submersion in Infant Swimming. *Acta Paediatr* 91: 307–312.
- Grahn, Karin (2016) Gendered Body Ideals in Swedish Competitive Youth Swimming: Negotiating and Shifting Symbolic Boundaries. *Sport in Society* 19(5): 680–694.
- Hadley, Kathryn Gold (2007) Will the Least-Adult Please Stand Up?: Life as “Older Sister Katy” in a Taiwanese Elementary School. In: Best, Amy (ed.) *Representing Youth: Methodological Issues in Critical Youth Studies*. New York: New York University Press, pp. 157–181.
- Heath, Sean (2020) Disjuncture as Well-Being in Youth Swimming: The Effects of the COVID-19 Pandemic on Everyday Associations and Routines. *NEOS* 12(2): 15–18.
- Heath, Sean (2021) Burnout and Training Maladaptation Affect Well-Being: Strategies for Wellness Amongst Young Swimmers. In: Dekerle, Jeanne (ed.) *High Performance Youth Swimming*. New York and London: Routledge, pp. 228-244.
- Heath, Sean (2022) The Quality of Water: Perception and Senses of Fluid Movement. *The Senses and Society* 17(3): 263–76.

Heidegger, Martin (1962) *Being and Time* (trans. Macquarrie, John, and Robinson, Edward).  
Oxford: Blackwell.

Howes, David, and Classen, Constance (2014) *Ways of Sensing: Understanding the Senses in Society*. New York: Routledge.

Hussein, Basel Al-Sheikh (2012) The Sapir-Whorf Hypothesis Today. *Theory and Practice in Language Studies* 2(3): 642–646.

Ingold, Tim (2000) *The Perception of the Environment: Essays in Livelihood, Dwelling and Skill*. London: Routledge.

Ingold, Tim (2011) *Being Alive: Essays on Movement, Knowledge, and Description*. London: Routledge.

Kohn, Eduardo (2013) *How Forests Think: Toward an Anthropology Beyond the Human*. Berkeley: University of California Press.

Le Breton, David (2017) *Sensing the World: An Anthropology of the Senses* (tran. Ruschensky, Carmen). London: Routledge.

LeCompte, Margaret Diane, and Schensul, Jean J. (2013) *Analysis and Interpretation of Ethnographic Data: A Mixed Methods Approach*. 2nd edition. Lanham, Md: AltaMira Press.

Lewis, Neil (2000) The Climbing Body, Nature and the Experience of Modernity. *Body & Society* 6(3): 58–80.

- Marchand, Trevor H. J. (2010) Making knowledge: explorations of the indissoluble relation between minds, bodies, and environment. *Journal of the Royal Anthropological Institute* 16: S1–S21.
- Mauss, Marcel (1973) Techniques of the Body. *Economy and Society* 2(1): 70–88.
- McMahon, Jenny, and Barker-Ruchti, Natalie (2017) Assimilating to a Body’s Shape for the Sake of Performance: Three Female Athletes’ Body Experiences in a Sporting Culture. *Sport, Education and Society* 22(2): 157–174.
- McNarry, Gareth, Allen-Collinson, Jacquelyn, and Evans, Adam B (2019) Reflexivity and bracketing in sociological phenomenological research: researching the competitive swimming lifeworld. *Qualitative Research in Sport, Exercise and Health* 11(1): 138–151.
- McNarry, Gareth, Allen-Collinson, Jacquelyn, and Evans, Adam B. (2020) “You Always Wanna Be Sore, Because Then You Are Seeing Results”: Exploring Positive Pain in Competitive Swimming. *Sociology of Sport Journal* 37(4): 301–309.
- McNarry, Gareth, Allen-Collinson, Jacquelyn, and Evans, Adam B. (2021a) ‘Doing’ competitive swimming: Exploring the skilled practices of the competitive swimming lifeworld. *International Review for the Sociology of Sport* 56(1): 3–19.
- McNarry, Gareth, Allen-Collinson, Jacquelyn, and Evans, Adam B. (2021b) Sensory sociological phenomenology, somatic learning and ‘lived’ temperature in competitive pool swimming. *The Sociological Review* 69(1): 206–222.
- McWhorter, John H. (2016) *The Language Hoax: Why the World Looks the Same in Any Language*. Oxford: Oxford University Press.

- Merleau-Ponty, Maurice (2012) *Phenomenology of Perception* (tran. Landes, Donald A.).  
London: Routledge.
- Musto, Michela (2014) Athletes in the Pool, Girls and Boys on Deck: The Contextual  
Construction of Gender in Coed Youth Swimming. *Gender & Society* 28(3): 359–380.
- Nansen, Bjorn, and Wilken, Rowan (2019) Techniques of the tactile body: A cultural  
phenomenology of toddlers and mobile touchscreens. *Convergence* 25(1): 60–76.
- Ness, Sally Ann (2011) Bouldering in Yosemite: Emergent Signs of Place and Landscape.  
*American Anthropologist* 113(1): 71–87.
- Noë, Alva (2006) *Action in Perception*. Cambridge, MA: MIT Press.
- Scott, Susie (2010) How to Look Good (Nearly) Naked: The Performative Regulation of the  
Swimmer's Body. *Body & Society* 16(2): 143–168.
- Sheets-Johnstone, Maxine (2015) *The Phenomenology of Dance*. Philadelphia: Temple  
University Press.
- Skinner, Johnathan (2013) *The Interview: An Ethnographic Approach*. New York:  
Bloomsbury.
- Spencer, Dale C. (2009) Habit(us), Body Techniques and Body Callusing: An Ethnography  
of Mixed Martial Arts. *Body & Society* 15(4): 119–143.
- Swimming Canada (2020) Introduction to Appropriate Athlete Development 2020.  
Swimming Canada. Available at:  
<https://www.swimming.ca/en/resources/coaching/appropriate-athlete-development/>.



Taussig, Michael (1993) *Mimesis and Alterity: A Particular History of the Senses*. London: Routledge.

Thompson, Evan (2007) *Mind in Life: Biology, Phenomenology, and the Sciences of Mind*. Cambridge, MA: Harvard University Press.

Throsby, Karen (2016) *Immersion: Marathon Swimming, Embodiment and Identity*. Manchester: Manchester University Press.

Wacquant, Loïc (2004) *Body and Soul: Notebooks of an Apprentice Boxer*. Oxford: Oxford University Press.

West, Harry G. (2008) *Ethnographic Sorcery*. Chicago: University of Chicago Press.

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