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The Synergy of Sweat: Meritocracy and Digital Self-Tracking in Chilean Middle-Class Fitness Cultures

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Abstract

This article examines how digital self-tracking manifests in collective, affective environments within middle-class fitness cultures in Santiago, Chile. Moving beyond digital-only network analyses, this study addresses the in-person, synchronised dimensions of self-tracking, conceptualising the ‘cardio-subject’ and the ‘synergy of sweat’ as novel sociological frameworks. Drawing on an 11-year qualitative archive and a six-month enactive ethnography of spinning studio participants, the study shows how this distinct subjectivity, the cardio-subject, is co-produced through the interplay of group ritual and biometric discipline. It identifies the "synergy of sweat" as a key mechanism through which the emotional intensity of collective exercise makes intensive self-quantification feel desirable and socially meaningful. To theorise this process, the article advances the concept of "affective surveillance," presenting how algorithmic monitoring is normalised through horizontal forms of emotional catharsis and peer-driven validation. The analysis further reveals how this datafied environment provides a framework through which the recreational use of performance-enhancing drugs (PEDs) for aerobic endurance is rationalised by users. The article theorises digital self-tracking as a socio-technical infrastructure through which individuals negotiate agency and discipline within spaces marked by economic precarity.

1. Introduction

In neoliberal urban environments, the physically fit body has frequently evolved from a mere indicator of biological health into a project of self-management and performance. The rise of the Quantified Self (QS) movement and the proliferation of wearable technologies have transformed physical activity into a continuous exercise in biometric data collection (Lupton 2016). However, while sociological literature has examined self-tracking as both an intimate practice of self-surveillance (Sharon 2017) and a socially networked phenomenon (Couture 2021; Kent 2018), its manifestation within synchronised, in-person affective environments remains underexplored. This article addresses this gap by investigating how flesh-and-blood collective rituals and physical co-presence shape the lived experience of biometric quantification across several middle-class gyms in Santiago de Chile. The data presented integrate findings gathered over eleven years through enactive ethnographies, capturing the evolution and entrenchment of these somatic practices. Situated within middle-class fitness spaces in a deeply stratified metropolis. This study approaches the gym as one central site for the production of somatic resilience.

Within this landscape, the physically fit body acts as an ideological symbol of neoliberal meritocracy. It is a key ideological mechanism of masking structural inequalities by framing success and failure as the result of individual effort (Littler 2018). In fitness culture, this paradigm translates into "healthism" (Crawford 1980; 2006), an ideology in which health is perceived as entirely a personal responsibility. Consequently, for many dedicated practitioners, the body becomes a visible metric of moral worth, reflecting a "meritocratic hubris" (Sandel, 2020) that naturalises the inequalities of contemporary capitalism through the language of somatic achievements (Mijs 2016).

In Chile’s highly segregated and institutionally fragile landscape, rapid neoliberal modernisation drives citizens to act as 'hyper-actors', managing economic risk without robust collective guarantees (Castillo 2011; Araujo & Martuccelli 2012). Meritocratic hubris could function as a vital psychological coping mechanism and a moral lens through which the middle class actively legitimises systemic inequalities.

Neoliberalism is conceptualised here not only as a set of macroeconomic policies, but as a pervasive governing rationality that extends market logics, such as competition, continuous self-investment, and quantifiable performance, into all spheres of social, corporeal, and subjective life (Dardot and Laval 2013).

For instance, in the realm of contested market-based allocations, such as the privatised pension system, structural outcomes are reframed as the direct result of individual effort. This capitalisation logic effectively dampens class-based redistributive demands, even as working-class trajectories consistently yield insufficient retirement income (Castillo et al., 2026). Within this commodified environment, where macroeconomic security is unattainable and institutional architecture frames failure as a lack of personal responsibility, the physical body emerges as one of the few remaining domains in which the individual can seek a high degree of perceived agency and visible mastery.

Furthermore, extending sociological conceptualisations of self-optimisation into this region requires acknowledging the broader socio-technical dynamics of the Global South. As Nehring et al. (2024) observe in their analysis of developing economies, self-optimisation functions as a pursuit and as a necessary socio-technical infrastructure enabling individuals to navigate and survive spaces marked by systemic precarity. Digital technologies mediate this phenomenon. Just as the integration of smartwatches into Ghana's fitness communities represents a calculated strategy to embrace localised health tracking amid inadequate public infrastructure (Antwi & Finn 2025), so too does the digital self-tracking of the Chilean middle class operate as a compensatory mechanism. The smartwatch provides a privatised, quantified illusion of stability and progress, buffering the 'cardio-subject' against the unpredictable volatility of the external economic environment.

These technologies reinvent the individualistic ethos by contributing to a paradigm in which algorithmic numbers are frequently elevated to a primary, seemingly objective source of truth about personal well-being and moral fortitude, thereby shaping the nature of internal somatic introspection (De La Fabián et al., 2025). The gym could thus function as a microcosm of broader Chilean society, serving as an arena where the macro-level crisis of social inequality is translated into and managed through the micro-level optimisation of biometric data.

This "laboratory" is not just a metaphor but a historical trajectory; as Harvey (2005) notes, Chile served as the primary site for the experimental imposition of neoliberalism, where the market was positioned as the sole arbiter of social value. Within this framework, the individual is reimagined as an "enterprise of the self" (Dardot & Laval 2013), a subject whose primary duty is the continuous enhancement of their own human and somatic capital.

This study argues that some middle-class gyms construct specific subjectivities, primarily what I term the 'cardio-subject'. This concept denotes a specific somatic identity defined by the relentless pursuit of cardiovascular endurance, extreme leanness, and adherence to biometric metrics as proxies for moral and economic worth. This somatic identity is not imposed purely from above but appears to be forged at the intersection of tracking device demands and the collective "synergy of sweat." To capture this dynamic, I reconceptualise ‘affective surveillance’, defined here as a horizontal, peer-driven disciplinary process where the emotional intensity, sensory overload, and catharsis of collective exercise function to normalise and mask the biometric extraction of physiological data. This affective surveillance transformed extreme biometric monitoring into a desirable game, enabling the accumulation and display of somatic capital (Wacquant 2004).

To develop this argument, the article examines the co-creation of affective atmospheres within the gyms. It analyses the gamification of exhaustion and details the horizontal biometric surveillance network. It explores the moral economy of the spinning room, where leanness and endurance operate as class markers that stigmatise unconditioned bodies. Finally, it documents how these demands normalise disruptive practices, such as the use of performance-enhancing drugs (PEDs). These qualitative data do not aim to generalise these dynamics across the Global South; instead, they examine how neoliberal logics and quantification imperatives are concretely embodied and collectively reified within specific middle-class contexts.

2. Theoretical framework

The following theoretical framework synthesises the sociology of affect, critical studies on the QS, and neoliberal biopolitics to conceptualise the emergence of the "cardio-subject." Building upon foundational insights of the QS movement, particularly the epistemic reliance on data, this framework situates biometric quantification within synchronised, affective, and moralised physical gym environments. Rather than viewing the communal setting as a departure from self-surveillance, this approach examines how the studio's intense physical co-presence actively amplifies the individual's commitment to their own data double.

2.1. Neoliberal biopedagogies and the moral economy of somatic capital

In the neoliberal era, the body has shifted from a biological given to a project of self-optimisation and entrepreneurial management (Han 2015). Central to this transformation is the concept of biopower, the mechanisms by which modern states and institutions regulate life and populations (Foucault 1978). In the context of the gym, these macro-level biopolitics are localised through biopedagogies, normative instructional practices that teach individuals to understand their bodies in alignment with dominant health imperatives. Rather than operating through coercion, these biopedagogies encourage the acquisition of Reflexive Body Techniques, which require a continuous, knowledge-forming process where the individual attends to sensuous information and perceived physical limits (Crossley 2004).

Consequently, the body is a form of capital that must be continuously managed and refined (Wacquant 2004). In this study, cardiovascular endurance and leanness are visible markers of an individual's capacity for self-discipline and their adherence to some expression of the "wellness syndrome", the moral imperative to maximise one's physical and mental capacities (Cederström & Spicer 2015). This syndrome manifests by transforming health from a state of being into a performance, where failure to optimise signifies a moral deficit rather than merely a lack of physical conditioning.

The "cardio-subject" is thus embedded within a moral economy in which cardiovascular efficiency serves as a visible marker of personal virtue. Within the deep socioeconomic stratifications of the contemporary metropolis, the disciplined, fit body functions as a potent ideological signifier of neoliberal meritocracy (Author XXXX). Meritocracy serves to obscure structural inequities by reconfiguring success and failure as the exclusive products of individual agency and effort (Littler 2018). While segments of the Chilean middle class may adopt meritocratic hubris as an ontological buffer against increasing precarity, recent longitudinal evidence demonstrates that escalating economic inequality tends to erode and polarise faith in meritocracy (Ehmes & Gangl 2026). Within the Chilean context, the "cardio-subject" may feel compelled to perform "grit" through corporeal discipline precisely because broader societal structures render the promise of mobility increasingly tenuous.

In the realm of fitness culture, "healthism" is a private responsibility and a primary metric of moral character (Crawford 1980; 2006). Accordingly, fatness is frequently pathologised not as a biological or systemic outcome, but as a "psychic" failure of self-regulation and a visual proxy for indolence. Drawing on Bourdieu (1984), the pursuit of a lean, aestheticised physique allows some members of the middle class to distinguish their habitus from that of lower socioeconomic groups.

2.2. Digital self-tracking: data doubling and the tensions of embodiment

The digital self-tracking movement represents a "pedagogy of data," in which the body becomes legible primarily through its conversion into digital metrics (Lupton 2016). Wearable technologies have introduced a layer of data surveillance to the fitness experience, translating subjective physical effort into objective, manageable data points. This process creates the "data double", a numerical and visualised representation of the self that exists in a continuous feedback loop with the physical body, setting new baselines for performance and self-rectification (Ruckenstein 2014).

However, literature highlights the epistemological tensions this creates between raw embodied feelings and datafied representations of health (Smith & Vonthethoff 2017). As users increasingly rely on algorithmic feedback, they engage in 'biometric body projects,' where digital metrics subtly subject users to neoliberal logics of biopower and surveillance (Sanders 2017). Furthermore, the habits formed by digital self-tracking do not simply 'stop' when the device is abandoned; rather than acting purely as disciplinary imperatives, these habits linger as dynamic, embodied inclinations and new sensory capacities (Clark, Southerton, and Driller 2024).

Despite this algorithmic authority, these technologies also function as 'technologies of the self' (Foucault 1988). Participants are not passive subjects of algorithmic control, but actively utilise biometric feedback to foster self-expertise, self-care, and identity reinforcement. In studies of the technologically mediated self, contemporary self-optimisation encompasses a multifaceted balancing act between self-care and self-control, discipline and letting go, and goal-tracking and self-affirmation (Krzeminska 2024).

This self-optimisation cannot be understood purely as an individualistic pursuit. A growing body of literature on "social tracking" demonstrates how these technologies fundamentally shape relations with others (Gabriels & Coeckelbergh 2019). Digital self-tracking operates within socially networked environments where metrics are shared and compared, facilitating "friendly surveillance" (Fletcher 2022). Whether through platform-based kudos (Couture 2021) or the broader gamification of physiological data (Whitson 2013), biometric tracking is inherently relational. Yet, while these asynchronous digital communities are well documented, this study extends these insights by examining how these entrenched tracking habits and tensions of embodiment operate within the synchronised, flesh-and-blood presence of the spinning studio. The agentic dialectic between external biopolitical control and personal autonomy is thus actively negotiated through physical co-presence.

2.3. Affective surveillance and the "synergy of sweat"

The theoretical contribution of this study is the conceptual operationalisation of affective surveillance within physical fitness subcultures. In contemporary surveillance studies, the term "affective surveillance" has gained significant traction to describe the top-down algorithmic extraction and interpretation of emotional data. Scholars utilise the term to analyse the bio-political governance of visitors through postdigital biometric museum exhibits (Elyamany & El Shamy 2025), the institutionalisation of emotional norms via digital platforms in educational settings (Leaton Gray & Perryman 2026), and the mutual digital tracking embedded within intimate relationships (Öğüç 2025).

This paper adapts and spatially reorients the concept to describe a *horizontal*, group-driven, and flesh-based phenomenon. While critical scholarship often frames digital self-tracking as an isolating pursuit or a mechanism of top-down algorithmic control, this analysis posits that the disciplinary power of the digital watch is magnified and made palatable by the somatic, affective atmosphere of the group ritual. Drawing on Ahmed’s (2004) theory of affective economies, I argue that the spinning studio generates a "synergy of sweat."

In the spinning studio, the disciplinary power of the digital watch is magnified not by state or corporate coercion but by the 'synergy of sweat', a process in which emotions circulate between bodies, 'sticking' to participants and creating shared moral boundaries. This horizontal manifestation facilitates the emergence of a new 'algorithmic subjectivity'. As users rely on real-time biometric insights to guide their exertion, a blurring occurs between raw bodily sensation and data, encouraging subjects to subordinate internal somatic intuition to the objective, numeric authority of the screen.

Far from obscuring the top-down extraction of biological data, this horizontal affective surveillance highlights the 'synergy of sweat' as the psychological mechanism rendering corporate extraction socially palatable. Following Zuboff's (2019) conceptualisation of surveillance capitalism, transforming subjective physical exhaustion into objective, quantifiable metrics generates valuable 'behavioural surplus.' In the spinning studio, the operations of surveillance capitalism remain invisible because the coercive mechanisms of data extraction are masked by the visceral thrill of group validation and the shared pursuit of somatic capital. The smartwatch transcends its immediate role as a biometric monitor; it simultaneously functions as an instrument of peer-driven social integration and an active node in global algorithmic extraction. By voluntarily submitting to horizontal affective surveillance, some participants funnel their intimate biological rhythms into corporate datasets, effectively doing the invisible labour of surveillance capitalism while perceiving the act as an exercise in personal empowerment and communal belonging.

In these environments, emotions and motivations are not internal states but circulate between participants, creating shared moral boundaries. Affective surveillance is therefore a horizontal, group-driven process in which the intensity of collective affect, the synchronised movement, the thunderous music, and the physical heat transform biometric monitoring into a desirable, communal game. This resonance ensures compliance with neoliberal health goals not through fear, but through the somatic pleasure of "flow" and social validation found within the group.

3. Methodology

3.1. Research design

By shifting the methodological posture from traditional participant observation to "observant participation," the research design treats the researcher's moving body as an indispensable heuristic tool. This approach aligns with carnal sociology, which posits that the researcher must explore emotional and embodied knowledge by deliberately subjecting themselves to the same physical forces, physiological profits, and somatic perils as the agents under study (Wacquant & Vandebroeck 2024).

This methodology facilitates the analysis of "reflexive body techniques" from the inside out, intentionally exposing the corporeal dimensions and physical vulnerabilities inherent in the data collection process. By recognising that this physical vulnerability is theoretically generative, the methodology enables a direct analytical link between macro-level neoliberal imperatives and the micro-level lived experience of bodily enculturation. To mitigate the risk of losing analytical distance through somatic immersion, the design relied on continuous reflexive documentation of the researcher's adaptations.

3.2. Research Context and Participant Selection

The data for this study rely on a qualitative archive built from multiple, distinct ethnographic projects conducted sequentially over an 11-year period (2014–2025) across various middle-class fitness centres in Santiago, Chile. Rather than a single continuous study, this archive represents a sustained research

trajectory investigating somatic practices. Across all these distinct ethnographies, the inclusion criteria for core participants were consistent: individuals were required to train frequently (at least four times per week) and maintain this rigorous routine for at least one uninterrupted year. Within this broader decade-long scope, interactions and data from 51 individuals were compiled to establish a foundational context for understanding the evolution of fitness cultures.

This longitudinal archive allowed me to track how the extreme valuation of cardiovascular leanness and the stigmatisation of fatness progressively solidified as non-negotiable markers of somatic success within these middle-class spaces over the past decade.

To provide a localised, intensive analysis of the "cardio-subject," primary data were generated through a focused, six-month ethnography at a mid-level commercial gym (pseudonymed 'ELF') located in a socioeconomically diverse area of Santiago. The spinning studio at ELF served as a unique convergence space where professionals from middle-class backgrounds navigated shared neoliberal performance pressures through cardiovascular endurance. A purposive sampling strategy was used to recruit a core cohort of 15 highly committed spinning attendees (nine women and six men). Because this study targets the intense enculturation of the "cardio-subject," the inclusion criteria required participants to train frequently, thereby deliberately excluding casual gym-goers to capture entrenched somatic practices.

To ensure methodological transparency, the study employs a dual-track research design that bridges long-term social shifts with immediate, embodied practices. Situating the six-month ethnography within a decade-long qualitative archive allows the analysis to trace the long-term entrenchment of neoliberal somatic discipline. Table 1 provides a comparative overview of these two data layers, highlighting how the "reflexive body techniques" observed in the primary cohort are symptomatic of broader transformations in the Chilean middle-class habitus.

To address my positionality, I situate my somatic trajectory within this space. As a Chilean academic and a long-time practitioner of traditional weight training, I entered the spinning studio with established somatic capital but as a novice to the cardiovascular imperatives of this specific subculture. My pre-existing physical conditioning granted me partial insider status, allowing me to endure the gruelling sessions and gain the trust of the core cohort.

Table 1
Methodological overview and ethnographic corpus configuration

Feature	Focused Spinning Cohort (primary study)	Longitudinal observations	Analytical integration
Duration	6-month intensive enactive ethnography	An 11-year cumulative archive based on various ethnographic studies of gym users (2014–2025)	Mapping the evolution of somatic capital
Methodology	Observant participation & interviews (Carnal sociology)	Participant observation & interviews	Internalisation of reflexive techniques vs external observation
Participants	n = 15 (9F, 6M)	n = 51; diverse middle-class backgrounds	Capturing the trajectory of "hyper-actors"
Site(s)	'ELF' Mid-level commercial gym	Various middle-class gyms in Santiago	Situating the "neoliberal laboratory" across urban nodes
Data Types	Sensory notes, biometric logs, interviews	Legacy transcripts, archival field notes	Triangulation of "data doubles" with lived experience

Source: Prepared by the author.

3.3. Data Generation Procedures

Data generation utilised a triangulated framework comprising immersive somatic participation, extensive ethnographic field notes, and in-depth interviews. The epistemological tenets of sensory ethnography guided consistent participation in spinning sessions. This approach recognises that the somatic dimensions of the spinning studio, such as the physical heat, acoustic vibration, and the pervasive presence of sweat, function as primary conduits for transmitting group cohesion and moral frameworks.

Following ethnographic protocols, data were captured through two distinct mechanisms to ensure methodological transparency, particularly regarding the use of quotations. First, the direct, verbatim quotes presented in this article are drawn exclusively from audio-recorded ethnographic interviews conducted with the core participants. Second, during the immersive observant participation, spontaneous and sporadic conversations occurred with other individuals on the gym floor, in the spinning studio, or in the locker rooms. These informal interactions were not audio-recorded; instead, brief post-class jottings were made immediately after the sessions and systematically expanded into comprehensive field diary notes. When insights or dialogues from these spontaneous encounters are referenced in the findings, they are presented as field-note reconstructions and paraphrases rather than verbatim quotes, accurately reflecting how they were captured. This dual approach, combined with a

deliberate phenomenological bracketing (epoché), was crucial for intimately apprehending how physiological sensations are culturally decoded and assigned moral value within the space.

To deepen the analytical link between the "data double" and the lived experience, the interviews incorporated a specific elicitation technique focused on "biometric narratives." Rather than relying solely on retrospective accounts, participants were invited to voluntarily share and discuss their digital "Weekly Summaries" and historical biometric logs from their devices during the interview sessions. This shared viewing of digital data served as a phenomenological prompt, allowing the researcher to observe the screen's "numeric authority" in real time as participants interpreted their own physiological effort. By triangulating these objective logs with subjective interview transcripts, the study captured the nuanced epistemological friction between bodily sensation and algorithmic feedback, revealing how participants negotiate their sense of "grit" and "success" through the mediation of their data doubles.

3.4. Analytical Strategy

The analytical procedure was anchored in reflexive thematic analysis, a method well aligned with enactive ethnography for its recognition of the researcher's active role in knowledge production. Because the secondary dataset incorporated legacy materials accumulated over a decade of prior fieldwork, a data consolidation procedure was executed. Materials originally bound by past, specific historical projects were aggregated and imported into MAXQDA to construct a singular, unified textual archive.

This consolidated corpus was subsequently subjected to a *de novo* analysis. The process commenced with prolonged familiarisation with both current fieldnotes and legacy interview transcripts, followed by systematic line-by-line initial coding. To ensure methodological integrity during the consolidation of the decade-long archive, a data-mapping procedure was implemented. This corpus was subsequently subjected to a reflexive thematic analysis, an iterative process of meaning-making that acknowledges the researcher's active role in knowledge production. By temporarily suspending prior analytical frameworks, the archive was re-evaluated through the theoretical lens of the "cardio-subject" and "affective surveillance", allowing meanings to emerge that had not been analysed in the previous isolated studies. Rather than seeking a rigid consensus, this analytical strategy prioritised elucidating complex, often contradictory nuances, particularly the inherent tensions between somatic pleasure and neoliberal discipline.

Traditional carnal sociology, bodily practice, and sensory immersion introduce a paradox into this somatic methodology. The raw, carnal apprehension of muscle fatigue and respiratory distress is instantly intercepted, translated, and re-encoded by the screen's algorithmic feedback. Consequently, the observant participation required the researcher to continuously document the onto-epistemological friction of this process, noting not only the physical sensation of exhaustion but the distinct, conditioned psychological urge to verify that exhaustion against the digital authority of the data double. This reflexivity ensured that the methodology did not treat the device as a neutral recording tool, but captured the blurring between flesh and data that constitutes the contemporary algorithmic habitus.

3.5 Ethical considerations

All participants were fully informed of the research aims and provided consent before participating in both ethnographic observations and formal interviews. To guarantee confidentiality and anonymity, all collaborators and research sites were assigned pseudonyms. Due to the sensitive nature of the topics discussed, particularly surrounding body image, physical exhaustion, and potential exercise obsession, interviews were navigated with phenomenological care to avoid distress, allowing participants to guide the depth of these reflections. Furthermore, no financial incentives were provided to any participants. All research from which data for this study were obtained was approved by the respective ethics committees with which the author was affiliated at the time of data collection.

4. Findings

This section delineates the emergence and consolidation of the "cardio-subject". Moving beyond the individualistic paradigms sometimes found in QS literature, the data reveal that digital self-tracking in these spaces is embedded within collective, moralised affective environments.

4.1. Cultivating the "Cardio-Subject"

For participants in this study, joining the committed spinning community generally required a visceral reorientation of what constitutes a "fit" body. Over a decade of participant observation consistently highlighted a deliberate spatial and ideological segregation from traditional weightlifting zones. Unlike the hyper-muscularity prized on the main gym floor, the somatic ideal within the studio is lean and cardiovascularly optimised. This shift necessitates acquiring specialised reflexive body techniques. Ethnographic field notes frequently captured this reorientation. For instance, my field diary records a conversation with a male participant who explained that in the studio there are no mirrors or kilos to lift, only kilometres to cover. He emphasised that one must learn one's body's capacity, noting that the core objective shifts from sheer force to willpower and an intimate, regulated somatic awareness.

In deploying these narratives, members engage in what sociological literature terms 'pedagogies of affect', mechanisms through which mood and resilience are mobilised as proxies for structural coherence. By orchestrating sessions as immersive sensory spectacles, instructors serve as emotional managers, guiding participants through the catharsis of extreme fatigue. These pedagogies do not teach movement alone; they engage students in embodied practices that reveal how societal discourses of 'grit' are lived and felt in the body.

By framing physical exhaustion as an analogue for economic precarity, these biopedagogies encourage the 'cardio-subject' to interpret systemic hardships through the lens of individualised challenges. My collaborators often appeared to internalise the notion that structural pressures could be managed, if not overcome, through sustained physiological effort.

"*First, you check your smartwatch, but in the end, you stop seeing the numbers on the screen and start feeling the flow of your own blood. It’s a strange privacy in a room full of people; I’m monitoring my*

endurance, my posture, the way my lungs burn. The bike is no longer an external machine; it's a mirror of my capacity to endure before my mind decides to give up." (Ricardo, a 67-year-old man).

Ricardo's reflection illustrates a shift from external competition to hyper-focused interoception; the subject no longer trains the body only, but actively and continuously 'reads' it. Ricardo describes a state of biophysical immersion in which the social self is temporarily suspended, a phenomenon of somatic "erasure" similar to that reported in other high-concentration practices, in which the individual asserts: "*nothing goes through my head in that hour"*.

In this context, the "cardio-subject" does not seek brute force, but rather a bodily reflexivity where physical exhaustion acts as a mechanism for mental ordering. This narrative suggests that for certain participants, "intimate somatic awareness" functions not only as a byproduct of exercise but as a deliberate goal: reaching a state in which physiological monitoring serves as a refuge and a perceived validation of individual resilience in the face of contemporary performance demands.

This cultivation of cardio-subjectivity is engineered through the studio's affective atmosphere. Sessions are orchestrated as immersive sensory spectacles, defined by darkened rooms, chromatic lighting, and thunderous acoustic vibrations, that generate what this study terms the "synergy of sweat". My own enactive immersion revealed how physiological byproducts are culturally decoded: conspicuous exhaustion and sweat-soaked clothing operate as biological responses and as immediate cultural currency securing communal belonging and moral validation.

Instructors serve as vital biopedagogues in this environment. They deploy narratives that link physiological suffering on the stationary bike to the macro-structural demands of contemporary capitalism. Exhortations such as "*The pain from today, tomorrow will turn into strength*" and "*problems pass, the muscle remains*" effectively frame somatic endurance as a rehearsal for broader socio-economic resilience.

This biopedagogy is internalised by the participants. As recorded in my fieldnotes following a spontaneous post-class conversation, one participant explicitly connected his physical effort to an individualistic survival ethos. He reflected that, just like in life, no one in the studio gives you anything for free; if he does not pedal, the bike simply does not move. He reasoned that this total self-reliance, the feeling that, in life, you are ultimately on your own, is exactly why the instructor's exhortations motivate him so deeply, as they reflect the truth of his daily reality.

Furthermore, the studio's spatial arrangement, set up in a darkened room with the studio facing forward, functions as a gender-sanitised shelter that suspends the normative, objectifying gaze of the broader gym. This discipline allows female participants, such as Clara (23 years old), to bypass the "dirty looks" in the free-weight area and fully embody an aggressive, concentrated physical agency. She once said, "*We always come here, the same people, at the same times, we use the same bikes, we're a clan. We struggle together*". In another occasion said: "On the machines, everyone is together but training in

isolation; here, we're all together, listening to the same instructions and music, and we're all pushing ourselves at the same pace."

In deploying these narratives and pedagogies of affect, this targets the affective domain, cultivating emotional attributes such as determination, self-esteem, and resilience through physical exertion. The instructors serve not only as fitness coaches but also as emotional guides who lead participants through the catharsis of extreme fatigue. By framing physical exhaustion as an analogue for economic precarity, these pedagogies of affect train the "cardio-subject" to view systemic adversities as individualised challenges that can be overcome through grit and sustained physiological effort. In a society characterised by long working hours and intense market competition, demonstrating the discipline required by the spinning studio signals both socio-economic status and an internalised sense of moral superiority.

4.2. Affective Surveillance

While the studio's affective atmosphere sustains the collective ritual, wearable technologies enforce its biometric discipline. The contemporary pursuit of cardiovascular excellence is bound to the biometric surveillance at the heart of the QS movement. Participants actively utilise smartwatches to translate the subjective, collective "synergy of sweat" into objective, mathematically decodable data points.

The depth of this algorithmic dependency was captured in a post-spinning session interaction. I approached a visibly exhausted participant, his clothes drenched in the 'synergy of sweat' that signals communal validation. When I remarked on the intensity of his workout, my fieldnotes record that he responded with palpable frustration rather than pride. He lamented that the session felt worthless because his smartwatch battery had died halfway through, rendering his effort seemingly invisible without digital validation. In this moment, the carnal evidence of his labour, the heavy breathing and the perspiration, was rendered null by the absence of its digital representation. For this 'cardio-subject,' the physical sensation of exhaustion was not sufficient proof of existence; without the 'data double' to archive and validate the effort, the somatic experience was perceived as a total loss.

This biometric translation alters the phenomenological experience of exercise. The visceral thrill of the group workout requires digital validation. Following a gruelling session, one participant's reaction captured this necessity: *Look, today I totally killed it! I've never burned so many calories before!* Here, subjective exertion is absorbed into a rigorous somatic accounting system. Clara summarised this imperative succinctly: "*In the end, everything is a numbers game... That's why the use of watches that give you that precise data that's otherwise more difficult to obtain*".

Dan explained more details about this to me: "*As technology advances, you end up buying more things and accumulating more data. I don't just have a smartwatch; I also have a smart scale that measures things like body water percentage, visceral fat, muscle mass in kilograms, and a bunch of other metrics. So, I have a wealth of data on my smartphone regarding my body and my workouts, data that you can study while constantly striving for improvement*".

One possible interpretation is that this transformation of exercise into digital labour suggests that the cardio-subject is not only working out their body but also producing valuable biometric data that reifies their standing within the neoliberal meritocracy. In the spinning studio, this extraction is made palatable through the somatic pleasure of 'flow' and the anticipation of communal validation. Practitioners share their metrics, compete, and evaluate their data. Consequently, the smartwatch (and also chest straps, smart rings and even foot pods) transcends its role as a mere monitor; it becomes a mechanism of 'surveillant care' that reinforces the individualistic ethos of healthism while simultaneously capturing the subject's most intimate physiological rhythms for algorithmic processing.

My interpretation of a "capitalist meritocracy" emerged because some members, typically those most committed, would highlight their own technological acquisitions, as well as improvements in their physical condition or performance, by comparing themselves to an "other", an "other" who was lazy, poor, or fat. While this view was not shared by everyone, it was nonetheless a prominent theme. In one of my field notes, I recorded a comment of this nature: a man remarked that a poor person is poor because they choose to be; a fat person is fat because they choose to be. With effort and discipline, anything in this life can be achieved.

Through this mindset plus the digital mediation, some participants were trained to interact with their "data double" (Ruckenstein 2014), a visualised, numerical representation of the self that actively sets new baselines for future performance and self-rectification. This study argues that the disciplinary power of the digital watch is sustained because the group ritual's affective resonance amplifies it. The result is affective surveillance: a horizontal, communal process where the intensity of collective affect transforms isolated biometric monitoring into a desirable, hyper-competitive game. Participants willingly submit to biometric management not through coercion but through the somatic pleasure of collective "flow" and the anticipation of digital validation. By meticulously logging wattage, heart rates, and caloric expenditure, the cardio-subject generates empirical proof of their adherence to virtue, transforming physiological effort into quantifiable somatic capital.

While none of the spinning studios observed utilised digital collective leaderboards, the communal surveillance was palpable in the affective atmosphere and the continuous, evaluative gaze among peers. Besides, some of them shared their data with other members online. In classes, participants actively monitored each other through side glances, assessing pedalling intensity and visible sweat accumulation. The shared heat, heavy breathing, and synchronised exhaustion, coupled with these pervasive looks, created a horizontal pressure where failing to optimise and track one's data felt like a betrayal of the group's collective endurance. The cardio-subject here is not only working out their body but is producing (and comparing) valuable biometric data that reifies their standing within meritocracy.

Portraying these participants as passive dupes of surveillance capitalism or blind adherents to healthism would strip them of their agency. Ethnographic immersion revealed a complexity: participants displayed a highly reflexive, conscious engagement with their quantification. The submission to biometric tracking was often described not as a burden, but as a pleasurable, self-affirming practice. By willingly turning

themselves into 'cardio-subjects', they carve out an intimate sphere of predictability and mastery within a broader socio-economic landscape characterised by uncertainty. Their engagement with the 'data double' is therefore contradictory: it is a capitulation to the market logics of continuous self-optimisation and a fiercely defended, therapeutic exercise of somatic autonomy.

This biometric mediation alters the user's relationship with their own physiology, facilitating the emergence of a new "algorithmic subjectivity" (Antwi & Finn 2025). As participants increasingly rely on algorithmic insights to guide their exertion, the digital interface projects an illusion of objectivity, encouraging subjects to recalibrate their internal somatic intuition in dialogue with the screen's objective, numeric authority.

Throughout my field notes, I encountered instructors framing their sessions as spaces for 'winners', people who learn to overcome life's difficulties, personal problems, and body fat through discipline and effort. This discourse of distinction also surfaced among participants themselves. In one field note, a woman reflected that regular attendance required a degree of discretionary time that not everyone possessed, while access to wearable technologies such as smartwatches also depended on economic resources. She suggested that these forms of participation and consumption marked the gym as a space in which members recognised themselves as different from 'just anyone'.

For some middle-class practitioners in Santiago, where public health infrastructure and recreational spaces are often segregated or inadequate, the smartwatch, along with a gym membership and time to visit it frequently, functions as a status symbol and a compensatory, individualised socio-technical infrastructure. The space and he device provide a privatised mechanism for promoting and sustaining health-oriented behaviours against the backdrop of a broader sedentary culture, tying their social identity to quantitative outputs and algorithmic adherence.

4.3. Meritocratic hubris and the moral economy of flesh

The ultimate aim of this quantified, affective discipline is the extirpation of adipose tissue, an objective underscored by a pervasive, deeply internalised "fat panic". This extreme valuation of leanness is not a recent phenomenon isolated to the focused six-month cohort; rather, it is a consistent, entrenched pattern I have documented over eleven years of ethnographic observation across multiple gyms. Across this decade, among many participants, fatness tended to be divorced from its socio-economic determinants and was framed as a moral failure, a visual indicator of laziness and a deficit of neoliberal self-governance.

This moralised differentiation was articulated by a male participant during the anticipatory moments before a session began. While we sat on our stationary bikes waiting for the studio to fill up, he turned to me and said that, by sheer will, he never falls behind. He drew a sharp distinction between "the lazy ones" and "us", those who, despite everything, always show up to train. This statement establishes a rigid binary between the 'disciplined' self and the 'lazy' other, framing spinning as physical exercise and as a persistent moral victory. Here, 'showing up' is presented as a manifestation of individual willpower, a

necessary performance of grit that justifies one's social and moral standing against those perceived as lacking the same fortitude.

The data reveal a rejection of both perceived indolence and adipose tissue among these participants. Participants articulated this as an aesthetic preference and as an impediment to physiological efficiency and social vitality. In Manuel's words: "*The problem with fat is that it doesn't help you at all... It makes you slower, tired. Who needs that?*". This physiological disdain seamlessly transitions into a socioeconomic imperative, in which eradicating fat is viewed as both an ethical duty and a prerequisite for professional mobility. As another collaborator bluntly noted, "*social success and even work success come through physical appearance*".

This physiological disdain reveals that healthism is functioning here as a moral yardstick, sorting people into 'disciplined' versus 'lazy' or 'responsible' versus 'reckless'. When health is perceived as a personal responsibility, fatness is framed not as a biological reality but as a moral failure of self-control.

Among my collaborators, this moralization of fitness actively binds an individual's professional and social legitimacy to their physical appearance. For my respondents, the lean body becomes a property of the self that can be traded for status, while the marginalised body is stigmatised as being in a state of 'undisciplined' lack, effectively masking the systemic inequalities, such as lack of access to healthy food or safe recreational spaces, that shape these outcomes.

Francisca said, "*Your body is your calling card; how are you going to succeed in life if your body shows that you don't look good?"* This statement links physical aesthetics to the neoliberal imperative of self-branding. This perspective reveals an internalised meritocratic hubris: it assumes that "looking good" is an objective proxy for an individual's discipline, reliability, and right to social mobility. Accordingly, her rhetorical question transforms the "fat panic" into a rationalised survival strategy; in her view, the marginalised or "undisciplined" body is a health concern and a semiotic failure that renders the subject "unreadable" and therefore "unsuccessful" within the rigid hierarchies of Santiago's social landscape.

In a stratified metropolis like Santiago, this moralization of fitness serves an insidious ideological function. The "fit" body serves as a bearer of class markers, visually communicating an individual's capacity for productivity and self-discipline. Drawing on Bourdieu (1984), the pursuit of a rigorously quantified, lean physique represents a deliberate "distance from necessity," allowing my collaborators to distinguish themselves from lower socioeconomic groups whose bodies are unjustly coded as undisciplined. Consequently, the affective surveillance of some dedicated spinning members may contribute to the legitimisation of existing structural inequalities by framing them through the lens of an objective, health-driven meritocracy.

This distinction is central to what Skeggs (2004) identifies as the "exchange value" of the self; for my collaborators, the lean body becomes a property of the person that can be traded for social and professional legitimacy. Conversely, the "fat panic" observed reflects a broader "moral panic" over the perceived lack of self-governance in marginalised bodies (Saguy 2013).

4.4. The limits of optimisation

The moral economy of cardiovascular optimisation produces an unexpected and disruptive empirical phenomenon: the integration of PEDs by some recreational gym-goers in pursuit of the cardio-subject ideal. Traditional sociological literature on pharmacological enhancement has largely relegated anabolic steroid use to hyper-masculine bodybuilding subcultures seeking extreme muscular hypertrophy. However, eleven years of ethnographic immersion revealed a distinct subset of spinning attendees, including men and women, who utilise these substances specifically to enhance aerobic stamina and accelerate lipolysis.

It is worth highlighting that over the extended period analysed, I observed that the initiation of the use of these substances was not linked to spinning itself. Rather, it occurred as users began to change their training environments, shifting from strength-focused workouts toward improving cardiovascular capacity, and in doing so, they carried this practice of steroid use with them.

These individuals rationalised the severe cardiovascular risks in favour of the perceived gains in systemic energy and aesthetic leanness. Participants asserted that, in minimising medical risks, the visible, quantifiable benefits of their tracking metrics justified the pharmacological intervention. This finding frames PED use in these settings as a radical instrument for optimisation.

This phenomenon reflects the 'pharmaceuticalisation' of everyday life, where the use of PEDs is becoming normalised outside of elite athletic spheres. Within my collaborators, the most prevalent substances were not anabolic steroids aimed at muscle hypertrophy, but rather thermogenic, lipolytic, and bronchodilator agents and occasionally ephedrine-based compounds.

In Chile, these substances occupy a complex legal and grey area. While their formal sale requires valid medical and/or veterinary prescriptions, their possession for personal consumption is not strictly criminalised under anti-drug trafficking laws. Consequently, a thriving and frictionless informal market operates within gym networks and via social media platforms. For these middle-class consumers, acquiring these substances does not always feel like engaging in illicit drug trading; rather, it is culturally framed as "an extra help" purchased through trusted, albeit informal, suppliers.

This socio-technical mediation is critical for sanitising the illicit nature of the practice. The digital interface transforms abstract, severe cardiovascular risks into seemingly manageable, daily numerical targets. By wrapping pharmacological intervention in the legitimate, objective language of data science and algorithmic efficiency, the digital environment bridges the gap between the consumer's desire for enhancement and the need for perceived health monitoring. This digital accommodation allows recreational users to rationalise their consumption not as dangerous deviance, but as a calculated and managed strategy for optimisation (Cox and Piatkowski 2026), neutralising the moral and physical anxieties historically associated with drug use.

Peter, a 37-year-old man, told me, "*I'm a strong believer that in this gym everyone takes something, but no one admits it. For me, it's about the engine, not just to look good. When I use something, I'm looking for that extra ten per cent in my aerobic threshold that my body cannot reach on its own. It doesn't feel like I'm taking 'drugs' in the traditional sense; it feels like I'm using chemistry to calibrate my body for maximum efficiency*".

This testimony exemplifies the "cardio-subject", where the traditional subcultural stigma associated with PEDs is neutralised through a logic of technical optimisation. By reframing pharmacological intervention as "chemistry to calibrate" rather than "drugs," Peter enacts a "risk sanitisation" that aligns with the pharmaceuticalisation of everyday life. This shift, moving from the pursuit of aesthetic hypertrophy to the optimisation of the "engine" and aerobic thresholds, illustrates how the body is reimagined as an "enterprise of the self" that must exceed its inherent biological limits to secure somatic capital.

The informant's assertion that "*everyone takes something*" reveals a normalised, albeit hidden, moral economy in which the quest for an "extra ten per cent" of efficiency serves as a semiotic marker of grit and discipline, effectively masking severe cardiovascular risk under the guise of calculated self-management. Besides, as other studies have shown, some recreational steroid users view themselves as "knowledgeable agents" (Piatkowski et al., 2025).

The "data double" acts as a privatised, pseudo-medical monitoring system, allowing participants to rationalise their drug use as safe. By quantifying immediate performance benefits, the digital data sanitises the illicit practice. It transforms severe, abstract cardiovascular risks into a manageable, daily metric, firmly embedding chemical enhancement within the project of self-optimisation.

This technological mediation is particularly crucial given the specific pharmacological profile of drugs like Clenbuterol, which inherently elevate the resting heart rate and pose severe cardiac risks such as palpitations and arrhythmias. Participants actively use their smartwatches to monitor these precise side effects. By continuously tracking their heart rate zones and setting maximum-threshold alerts on their devices, users believe they can safely surf the line between maximum aerobic gains and cardiac distress. The smartwatch thus acts as a perceived harm-reduction tool; it domesticates the physiological chaos induced by the drug, translating severe cardiovascular stress into manageable, gamified biometric data.

Dan, a 25-year-old man, said, "*I don't smoke; I don't drink. I have a very healthy life. Besides, the watch doesn't lie; my heart rate stays in the perfect zone longer, my recovery score is better, and I'm burning more calories per session. If something was wrong, it would show up there. I'm not abusing anything; I'm just optimising what the data already proves is working*".

This quote shows the rationalisation strategy underpinning the integration of PED use within recreational cardio cultures. First, it demonstrates a displacement of medical authority onto the digital interface: the smartwatch becomes the primary arbiter of bodily truth, superseding clinical risk assessments with real-time metrics. The phrase "the watch doesn't lie" signals a deep epistemic trust in quantified data,

reinforcing the notion of the “data double” as a credible, quasi-medical proxy. Second, the user reframes drug use from deviance into rational optimisation, drawing on the language of efficiency ("perfect zone," "better recovery," "burning more calories") to align pharmacological intervention with ideals of productivity and self-management. Finally, the dismissal of risk, "if something was really wrong, it would show up there”, reveals how long-term, non-immediate harms are rendered invisible within metric-driven frameworks that privilege short-term, quantifiable gains. In this way, the quote illustrates how digital self-tracking not only enables but also legitimises risky enhancement practices by translating them into the seemingly objective, controllable domain of data.

This practice demands a nuanced understanding of participant agency. The integration of chemical enhancement alongside biometric tracking is not a passive submission to biopolitical control; rather, it is a calculated, often pleasurable exercise of somatic agency. In their relentless pursuit of the quantified ideal, these cardio-subjects willingly navigate the friction between genuine health imperatives and the moral demands of the neoliberal aesthetic. Ultimately, they find empowerment and identity reinforcement in their ability to manipulate, master, and push the physiological metrics of their own data doubles to the limit.

The "cardio-subject" adopts new tools and reconfigures the moral and epistemic meanings of fitness practices. A significant shift occurs through "digital risk sanitisation," in which the smartwatch could act as a technical buffer, transforming illicit pharmacological intervention into a rationalised strategy for capital optimisation. This reconfiguration demonstrates how the digital interface allows participants to navigate the friction between health imperatives and the demands of the neoliberal aesthetic.

5. Discussion

These ethnographic findings show the emergence of the "cardio-subject" and the "synergy of sweat", in which health is a hallmark of biopolitics and not achieved solely through isolated self-discipline. Rather, it requires the intense, collective affective resonance of the spinning studio to render the punitive demands of biometric quantification desirable. This horizontal, flesh-based manifestation of affective surveillance provides a pivotal counterpoint to surveillance studies, which predominantly focus on the top-down, algorithmic extraction of emotional data by state or corporate actors (Elyamany & El Shamy 2025). In some middle-class gyms, surveillance is solicited and communally enforced, driven by the shared pursuit of somatic capital.

Situating this research within the Chilean context reveals the extent to which digital self-tracking technologies function as socio-technical infrastructures for class distinction. In a highly stratified, post-neoliberal society where traditional markers of meritocracy are increasingly contested (Castillo et al., 2026), the physically optimised body remains one of the few undisputed symbols of individual virtue and moral fortitude.

Engaging with critical Fat Studies literature elucidates the ideological function of this biometric discipline. As scholars in this field have established, contemporary public health discourses frequently

weaponise 'fat panic' to frame larger bodies as inherently diseased and morally deficient (Saguy 2013). Within my collaborators, this pathologisation is co-opted by neoliberal logics. The 'fat' body is interpreted as a visible failure of the 'enterprise of the self', a lack of the very grit and self-governance that a precarious market demands. By quantifying their cardiovascular exertion, the cardio-subjects actively distance themselves from this stigmatised corporeality, using their 'lean' data doubles as objective shields to secure their moral and socio-economic legitimacy.

This paradigm's inherent contradictions become evident in the normalisation of PEDs for aerobic stamina. This pharmaceuticalisation of everyday fitness (Cox & Piatkowski 2026) could be facilitated by the very health-tracking devices designed to monitor well-being. The smartwatch provides an illusion of biological mastery, transforming severe health risks into manageable data points and exposing the lengths to which some middle-class spinning members will go to secure their somatic capital in a class-based society

The emergence of the 'cardio-subject' represents a shift in how some bodies are experienced and governed within Santiago. To clarify this transition, Table 2 synthesises the theoretical reconfigurations advanced in this article, contrasting traditional physical subcultures with the digitally mediated environments of my collaborators. The table breaks this shift down across five key dimensions. First, it illustrates how *surveillance* transitions from top-down coaching to horizontal, affective peer monitoring. Second, *epistemologically*, the reliance on internal bodily sensation is displaced by the objective, numerical authority of the 'data double'. Third, the *moral economy* shifts from discipline for athletic performance to 'healthism' as a defence against socioeconomic fragility. Fourth, *enhancement* practices (like PED use) shift from subcultural deviance to sanitised, pseudo-scientific optimisation. Finally, the overarching *socio-technical* function moves from elite achievement to providing a compensatory infrastructure for everyday resilience. Together, this framework highlights how affective surveillance and biometric tracking transform the carnal experience of sweat into a form of social capital.

Table 2
Theoretical Reconfiguration of the Somatic Subject

Dimension	Traditional Somatic Subject	The "Cardio-Subject" (Digitally Mediated)	Core Theoretical Mechanism
Surveillance	Top-down institutional/coaching	**Horizontal, peer-driven** visibility	**Affective Surveillance**: Group ritual masks data extraction
Epistemology	Internal somatic introspection	**Algorithmic objectivity**	**The Data Double**: Numerical authority displaces flesh
Moral Economy	Discipline for sport performance	**Healthism** as a proxy for merit	**Neoliberal Capitalisation**: Body as defence vs fragility
Enhancement	Underground subcultural deviance	**"Scientifically managed"** optimisation	**Risk Sanitisation**: Biometrics validate dangerous agents
Socio-Technical	Elite athletic enhancement	**Compensatory social class infrastructure**	**Optimisation**: Buffer against precarity

Source: prepared by the author.

6. Conclusion

Digital self-tracking within some of Santiago's middle-class spinning cultures operates not merely as an individualised health-management technique but as a synchronised, emotionally charged practice that actively forges a distinct somatic subjectivity: the 'cardio-subject'. In these settings, the "synergy of sweat" makes biometric discipline feel pleasurable, socially rewarding, and morally meaningful, while also normalising a form of horizontal "affective surveillance" in which participants willingly submit to real-time monitoring and visual comparison. The gym extends beyond mere physical conditioning, establishing itself as a critical arena where affective dynamics, biometric technologies, and moral frameworks converge.

The findings also suggest that this datafied fitness culture reproduces broader class logics. Cardiovascular efficiency, leanness, and visible exhaustion become markers of virtue, discipline, and social legitimacy, while fatness is cast as a sign of personal failure rather than as an outcome shaped by systemic inequality. The fit body functions as a powerful symbol of meritocracy, allowing middle-class subjects to visually distance themselves from marginalised bodies and to convert continuous bodily self-management into social value.

The study also exposed the limits and contradictions of optimisation. The same biometric cultures that promise control and wellness can also facilitate risky practices, including the recreational use of performance-enhancing drugs for aerobic endurance and fat loss. A community engaging in the same practice, plus digital tracking, does not simply regulate behaviour; it can also make dangerous

enhancement appear rational, measurable, and manageable. The paper argues that some of my informants' practices should be understood as a socio-technical structure through which people navigate precarity, seek resilience, and negotiate status under neoliberal conditions. Future research should examine how these dynamics vary across class, gender, and institutional settings, and how similar forms of affective surveillance operate beyond spinning cultures in other fitness and wellness spaces.

Declarations

Author Contribution

CRediT Author StatementAlexis Sossa: Conceptualisation, Methodology, Formal analysis, Investigation, Data curation, Writing (original draft and review & editing). AI-assisted tools were used solely to support language editing and improve the clarity and readability of some sections of the manuscript.

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