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Types of Female Body Shapes: A Comparative Analysis of Styling Strategies and Their Effectiveness in Visual Proportion Correction

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ABSTRACT

Classification systems used to describe female body shapes (FFIT, Sheldon's somatotyping, the Kibbe system) have developed largely in isolation from the styling tools practitioners rely on when correcting visual proportions. Styling recommendations, as a consequence, tend to be intuitive and methodologically ungrounded. This study develops a comparative model of styling strategies for five body types (hourglass, triangle, inverted triangle, rectangle, oval), drawing on documented visual illusion mechanisms and Gestalt perception principles. Methodologically, the work rests on comparative and morphological analysis of 25 academic sources together with the author's consulting records accumulated over ten years and 200 individual clients. Among the results is a matrix that pairs each figure type with a specific illusory mechanism, whether Helmholtz illusion, Müller-Lyer effect, or Gestalt grouping. A five-stage algorithm for proportion correction is also proposed; it introduces authenticity preservation as an evaluation criterion that existing models have not addressed. Styling strategies, the analysis suggests, yield perceptual outcomes that appear to differ according to both the body's anatomical configuration and the visual mechanism in play. Practical relevance extends to consulting practice, stylist training curricula, and e-commerce recommendation engines built around body shape data. The proposed framework also clarifies how styling choices can be systematized without erasing individual identity, making the model suitable for both professional consultations and stylist education.

KEYWORDS

female body shape classification, styling strategies, visual proportion correction, Helmholtz illusion, Gestalt perception in fashion, body image, personal styling algorithm.

Introduction

Clothing selection operates at an intersection of anatomy, visual perception, and psychology, yet the disciplines that study each of these domains rarely converge in a single methodological framework. Anthropometric research produces increasingly precise data on female body morphology through 3D scanning and clustering algorithms (Simmons et al., 2004; Jin & Gu, 2024; Minetto et al., 2022), while perceptual psychology has established robust evidence for how line orientation, colour contrast, and spatial grouping alter perceived body proportions (Thompson & Mikellidou, 2011; Koutsoumpis et al., 2021; Wertheimer, 1923). Simultaneously, a growing body of literature in clothing psychology demonstrates that garment choice affects cognitive function, self-evaluation, and social confidence (Adam & Galinsky, 2012; Horton et al., 2025; Stolovy, 2021). Despite this accumulation of knowledge, the practice of personal styling continues to rely predominantly on heuristic rules passed through industry tradition, with limited engagement with the scientific literature that could inform it.

One source of this disconnect is the structure of existing body shape classification systems. Sheldon's somatotype theory, introduced in the 1950s, categorises physiques by the relative dominance of endodermal, mesodermal, and ectodermal tissue, providing a biological framework for understanding fat and muscle distribution (Sheldon, 1954). While useful in clinical and sports science contexts, somatotyping does not describe silhouette proportions in the way that a stylist would assess them. A more directly applicable system is the Female Figure Identification Technique (FFIT), which assigns bodies to five categories (hourglass, triangle, inverted triangle, rectangle, and apple) based on ratios of shoulder, waist, and hip circumferences (Simmons et al., 2004). FFIT has become a de facto standard in apparel research, informing studies on fit satisfaction (Pisut & Connell, 2007), size grading (Vuruskan & Bulgun, 2011), and automated garment recommendation (Hidayati et al., 2018). Yet its reliability remains contested: Parker et al. (2021) demonstrated that slight differences in measurement placement protocols caused the same body to be classified into a different shape category in up to 40% of cases. A third approach, the Kibbe system (Kibbe, 1987), integrates personality traits with bone structure, but has not been subjected to quantitative validation and remains largely subjective.

None of these classification systems include prescriptive guidance on how to dress the body types they define. Recommendations of this kind exist in practitioner literature and fashion media (Woodall & Constantine, 2007), but they tend to be categorical ("wear this, avoid that") and are seldom linked to the perceptual mechanisms that explain why a particular garment configuration produces its visual effect. Research in perceptual psychology offers precisely these explanations. According to the Helmholtz illusion, a square filled with horizontal lines appears taller and narrower than an identical square with vertical lines (Thompson & Mikellidou, 2011). When applied to clothing on human figures and three-dimensional mannequins, this effect persists and has measurable parameters: Thompson and Mikellidou (2011) found that vertically striped garments required a 7.1% increase in height to match the perceived height of horizontally striped ones. Koutsoumpis et al. (2021) further showed that horizontal stripes and darker fabric luminance each contribute independently to a perceived narrowing of the body, with the combined effect being larger than either alone. Ashida et al. (2013) added a critical nuance: the Helmholtz effect is significantly stronger on slender figures and may weaken or reverse on larger body sizes, meaning that the same garment pattern can produce opposite perceptual outcomes depending on the wearer's body shape.

Beyond line-based illusions, Gestalt principles of visual organisation explain how the brain groups and separates elements within an outfit. Prägnanz, or the law of simplicity, drives the viewer to perceive a clothing silhouette as a single unified form rather than a collection of separate garments (Wertheimer, 1923). Similarity-based grouping means that monochromatic ensembles create a continuous visual column, elongating the perceived figure, while a contrasting belt or accessory activates the figure-ground principle and draws the viewer's attention to a specific body zone (Bai, 2022). Bai applied these principles to contemporary fashion design and found that deliberate use of dot, line, and surface composition increases perceived spatial depth and hierarchy in garment perception. Collectively, these perceptual mechanisms offer a scientific vocabulary for what stylists have long practised intuitively.

A further dimension concerns the psychological impact of well-matched clothing on the wearer. Adam and Galinsky (2012) coined the term enclothed cognition after observing that a garment's symbolic meaning altered the wearer's attentional focus and task performance in measurable ways. Horton et al. (Horton et al., 2025) later subjected these findings to both z-curve analysis and meta-analytic aggregation; the effect held up across paradigms, though its size fluctuated with the strength of the symbolic cue. In a study of Israeli women, Stolovy (2021) reported that those more satisfied with their personal clothing style scored higher on body cathexis measures, even after objective body dimensions were controlled for. Styling behaviour and body image, her data suggest, reinforce each other in a loop rather than running in one direction. Merino et al. (2024) corroborated these findings through a narrative review linking positive body perception to lower anxiety levels, while Hollett et al. (2024) showed that even passive exposure to retail clothing imagery measurably shifts implicit self-esteem. What these studies collectively point to is that a styling strategy producing visual balance is likely to carry psychological weight as well, giving garment selection a functional role beyond surface-level aesthetics.

Despite the availability of these three knowledge streams (anthropometric classification, perceptual psychology, and clothing psychology), no published study has attempted to integrate them into a single operational model for personal styling practice. Computational approaches to fashion recommendation (Hidayati et al., 2018; Jin & Gu, 2024) match body measurements to garment databases using machine learning, but they optimise for fit rather than for visual proportion correction, and they do not account for the wearer's sense of identity or psychological comfort. Practitioner guides (Woodall & Constantine, 2007) provide practical advice but lack scientific grounding. Academic studies on visual illusions in clothing (Thompson & Mikellidou, 2011; Koutsoumpis et al., 2021; Ashida et al., 2013) demonstrate perceptual effects in controlled settings but stop short of translating their findings into repeatable styling protocols.

Literature Review

Anatomical and morphological foundations of female body shape classification

Human body shape is determined by the interplay of skeletal frame geometry, subcutaneous fat distribution, and musculature volume, all of which vary under the influence of genetics, hormonal profile, ethnicity, and age (Sheldon, 1954; Minetto et al., 2022). Waist-to-hip ratio (WHR) has served as the primary quantitative index for distinguishing between body configurations since Singh's early work linking WHR to perceived attractiveness and health indicators (Mir et al., 2022). According to the World Health Organization, WHR values above 0.85 in females indicate central adiposity (Minetto et al., 2022), but for styling purposes the ratio functions differently: it signals whether volume is concentrated in the upper torso, the midsection, or the hip region, each of which calls for a distinct approach to garment silhouette selection.

Simmons, Istook, and Devarajan (Simmons et al., 2004) operationalised this anatomical variation into the FFIT system by defining mathematical thresholds across bust, waist, and hip measurements. Under FFIT, a body qualifies as "hourglass" when the bust-to-hip difference falls within one inch and the waist is at least nine inches smaller than either. A "triangle" or pear shape is assigned when hip circumference exceeds bust by 3.6 inches or more. Inversion of these proportions yields the "inverted triangle" category, while minimal differentiation between all three measurements places a body in the "rectangle" group (Simmons et al., 2004). Population-level data from the SizeUSA survey revealed that the rectangle category accounts for the largest share of the female population (approximately 46%), followed by the triangle at roughly 20%, with the hourglass constituting only about 8% (Vuruskan & Bulgun, 2011). Standard clothing sizing, however, continues to assume hourglass proportions as its baseline, creating a systematic mismatch between available garments and the bodies of most consumers (Pisut & Connell, 2007).

Vuruskan and Bulgun (2021) extended FFIT by computing additional angular and ratio-based parameters from a sample of Turkish women, demonstrating that body shape categories shift meaningfully across ethnic populations. Similarly, Jin and Gu (2024) applied k-means clustering to 3D body scan data of 207 Chinese female subjects and derived four shape classes designated "Y", "V", "I", and "X" based on angular measurements of the torso. Their automated classification reduced dependence on manual measurement placement, addressing the reliability problem identified by Parker et al. (2021), who had shown that even trained anthropometrists produce inconsistent FFIT classifications when following slightly different landmarking protocols. Mir et al. (2022) contributed further precision by using photogrammetric anthropometry to establish waistline reference points based on the golden ratio, providing a quantitative benchmark for where the visual waist “should” sit relative to the xiphoid process and the pubic symphysis.

A separate strand of classification has developed around the concept of body cathexis, which refers to the degree of satisfaction an individual feels toward various parts of their body. Pisut and Connell (2007) found that fit preferences among American women correlate with body cathexis scores rather than with objective body measurements, meaning that two women of the same shape category may seek entirely different garment characteristics depending on which body parts they feel positively or negatively about. Shin and Damhorst (2018) confirmed this finding among younger consumers, noting that perceptions of fit are structured around individual body parts rather than around the body as a whole. For styling practice, this implies that body shape classification alone is insufficient; the subjective dimension of which body zones a client wishes to foreground or de-emphasise must be incorporated into the decision-making process.

Visual illusions as mechanisms of proportion alteration in clothing

Perceptual science has documented several illusions that reliably alter the apparent dimensions of objects, and a subset of these has been tested specifically on clothed human figures. Among the most extensively studied is the Helmholtz illusion, first described by Hermann von Helmholtz in 1867 as an instance of the broader Oppel-Kundt effect, in which a spatial interval filled with regularly spaced marks appears larger than an unfilled interval of equal length (Thompson & Mikellidou, 2011). Applied to squares composed of parallel lines, the illusion causes a horizontally striped square to appear taller and narrower than a vertically striped square of identical dimensions.

Thompson and Mikellidou (2011) tested this effect across four experiments of increasing ecological validity. In their second experiment, they transferred the pattern onto line drawings of a female figure and found that the illusion persisted: the vertically striped figure appeared broader at the hips. In their fourth experiment, they moved to stereoscopic images of a half-body mannequin, confirming the effect under three-dimensional viewing conditions. Across all conditions, a vertically striped stimulus required approximately 7.1% additional height to match the perceived height of a horizontally striped one, and a horizontally striped stimulus required approximately 4.5% additional width to match the perceived width of a vertically striped one.

Koutsoumpis, Economou, and van der Burg (2021) introduced a methodological refinement by comparing horizontal stripes against a plain (non-striped) control rather than against vertical stripes alone. Using photographs of a real female model and controlling for average luminance, they isolated two independent variables: stripe orientation and fabric brightness. Horizontal stripes produced a small-to-moderate thinning effect relative to the non-striped condition, and lower luminance (darker fabric) independently produced a similar effect. When the two were combined, the magnitude increased. An additional experiment showed that darkening the general background further amplified the thinning effect of dark clothing, suggesting that figure-ground luminance contrast plays a role alongside stripe orientation.

Ashida, Kuraguchi, and Miyoshi (2013) introduced body size as a moderating variable. Using paired comparisons of thin and overweight digitally generated figures dressed in horizontal or vertical stripes, they found a strong Helmholtz-consistent thinning effect for the thin figure (horizontal stripes made it appear even thinner) but a weakened or reversed effect for the overweight figure. Additionally, large individual differences among participants indicated that the direction of the illusion may depend on which features a given observer attends to. Order effects compounded the picture: whether participants judged the thin or the overweight figure first shifted their subsequent ratings, hinting that the body sizes we encounter in everyday life may recalibrate the illusion on the fly. In practical terms, a stripe pattern that visually slims one client could do the opposite for another, so body shape cannot be treated as an afterthought when choosing print orientation.

Beyond stripe-based effects, the golden ratio has been investigated as a perceptual benchmark for garment proportions. Zia et al. (2024) conducted a structured questionnaire study among male participants aged 25 to 50, measuring the perceived attractiveness of various torso-to-leg ratios when shirts were tucked into waist belts. Ratios closest to 1.618 received the highest "very good" ratings, while deviations in either direction produced progressively lower ratings. Islam interpreted this as evidence that the golden ratio represents a perceptual optimum at which the brain processes dress proportions without detecting an illusion, and proposed that deliberate deviation from this ratio can be used to create a desired illusory correction.

Kumanayake and Vithanage (2020) explored an applied route by combining optical illusion patterns with silicone printing on fabric as a non-compressive alternative to shapewear. Drawing on the Bezold colour-spreading effect and the Müller-Lyer illusion, they developed printed artworks that, when applied to garments, visually narrowed the waist and elongated the torso without any physical compression of the body. Participant evaluations confirmed that the garments produced the intended visual effect, demonstrating that illusions can be embedded directly into textile design rather than relying solely on garment cut and silhouette.

Table 1 consolidates the key empirical findings reviewed above, comparing each study by the illusion investigated, the type of stimulus used, the principal result, and the limitations that constrain its applicability to styling practice.

Table 1. Summary of empirical studies on visual illusions applied to clothing and body perception

Study	Illusion type	Stimulus	Principal finding	Limitations
Thompson & Mikellidou (2011)	Helmholtz (Oppel-Kundt)	Line drawings, 3D cylinders, stereoscopic mannequins	Vertical stripes require 7.1% more height to match perceived height of horizontal; horizontal stripes produce relative thinning	Static stimuli; no variation in body size or garment fit
Koutsoumpis et al. (2021)	Helmholtz + luminance	Photographs of real female model	Horizontal stripes and darker luminance each independently thin perceived figure; combined effect is larger	Single model body type; no cross-shape comparison
Ashida et al. (2013)	Helmholtz (body-size-dependent)	Digitally generated thin/overweight figures	Thinning effect strong for slender figures, weakened or reversed for fuller; large observer differences	Digital figures lack garment texture and drape; order effects
Islam (2024)	Golden ratio	Front-view photos, tucked shirts	Torso-to-leg ratios closest to 1.618 rated most favourably	Male-only sample aged 25-50; one garment config
Wickramasinghe & Jayawardana (2020)	Bezold + Müller-Lyer	Silicone-printed garments on mannequins	Printed illusion patterns narrowed waist and elongated torso without compression	Small sample; mannequin-based assessment only

Source: Compiled by the author based on (Thompson & Mikellidou, 2011; Koutsoumpis et al., 2021; Ashida et al., 2013; Zia et al., 2024; Kumanayake & Vithanage, 2020)

Several patterns emerge from this comparison. All five studies confirm that visual illusions produce measurable changes in perceived body proportions when applied to clothing, but each study tests only one or two variables in isolation. No study varies both the illusion type and the body shape of the wearer simultaneously, which means that the interaction between a given perceptual mechanism and a specific figure type remains empirically uncharted. Ashida et al. (2013) come closest to addressing this gap by introducing body size as a variable, yet their two-category distinction (thin vs. overweight) is too coarse to map onto the five-category FFIT system used in styling practice. Zia's et al. (2024) golden ratio study examines proportion rather than pattern, offering a complementary rather than competing mechanism, but its all-male sample limits generalisability to the female styling context. Kumanayake and Vithanage (2020) demonstrate that illusions can be engineered into fabric itself, opening a design-level intervention pathway, though their work remains at a prototype stage. Collectively, these gaps point toward the need for a model that maps specific illusions to specific body types, which is the objective pursued in the results section of the present study.

Gestalt principles and their application to garment perception

Wertheimer, Koffka, and Köhler laid the groundwork for Gestalt psychology in the early twentieth century (Wertheimer, 1923), building a theory of how the visual system pulls complex stimuli into unified percepts. Several of its organising laws speak directly to the way an observer reads a clothed figure.

Continuity means the eye, once it locks onto a visual path, tends to keep following it. In garment terms, an unbroken vertical seam, a continuous colour column from neckline to hemline, or a long pendant necklace creates a line that the viewer's eye follows downward, producing an elongating effect on the perceived figure. Interruptions to this line (a horizontal waistband, a contrasting belt, a colour-blocked midsection) break continuity and create a perceived segmentation of the torso into upper and lower zones. Whether this segmentation is desirable depends on the body shape being styled: for a rectangle figure, introducing a visual break at the natural waist can create the appearance of curves, whereas for an oval figure the same break may draw unwanted attention to the widest point of the torso.

Proximity groups elements that sit close together. A cluster of details near the neckline (statement collar, shoulder embellishment, scarf) reads as one visual unit and pulls the gaze upward, useful for offsetting wider hips in a triangle figure. Details anchored near the hem (a ruffled skirt border, ankle-strap shoes, a shoe colour that contrasts with the trouser) do the reverse, drawing attention down and helping to balance a heavy upper zone in an inverted triangle figure.

Closure is the brain's habit of finishing incomplete shapes. A waistline that is suggested rather than spelled out (a slightly nipped blazer instead of a cinched belt) can look nearly as defined as one marked explicitly, because the viewer's perception fills in the missing contour. Perceptually, the brain "completes" the curve and registers a waist that the garment only implies. Rectangle figures, which lack strong anatomical waist definition, benefit from this approach: closure-based hints produce the impression of curves without the stiffness of tight-fitting garments.

Bai (2022) synthesised these principles in the context of modern fashion design, arguing that garment designers who consciously manipulate dot, line, and surface elements according to Gestalt laws produce pieces with stronger visual hierarchy and spatial depth. When a viewer encounters a well-composed outfit, the Gestalt organisation directs attention in a predictable sequence: silhouette first (Prägnanz), then dominant contrast areas (figure-ground), then grouped details (proximity and similarity), and finally secondary textures and patterns. A stylist who grasps this sequence can decide which body zone the observer notices first and, by extension, steer how the outfit is read as a whole.

Psychological dimensions: clothing, body image, and self-perception

Research on the psychological effects of clothing has expanded considerably since Adam and Galinsky's (2012) original enclothed cognition experiments. Their foundational finding was that wearing a white lab coat described as a "doctor's coat" increased sustained attention on cognitive tasks compared to wearing the same coat described as a "painter's coat", establishing that clothing effects depend on both physical wear and symbolic attribution. Horton, Adam, and Galinsky (2025) returned to this paradigm with a meta-analysis and z-curve analysis, concluding that the enclothed cognition effect is replicable and has a meaningful average effect size, though its magnitude varies with the strength of the symbolic association.

Hester and Hehman (2023) broadened the scope by arguing that dress constitutes a fundamental component of person perception, on par with facial features and body posture. Their review showed that clothing cues influence trait attributions (competence, warmth, status) within milliseconds of visual exposure, often before conscious evaluation begins. For styling practice, this means that garment choice determines first impressions at a pre-reflective level, making the selection of silhouette, colour, and proportion an act with measurable social consequences.

Stolovy (2021) investigated the relationship between personal clothing style and body image among Israeli women, using the Big Five personality model as a mediating framework. Women scoring higher on openness and extraversion reported more experimental and expressive styling practices, and these practices in turn predicted higher body satisfaction scores. After controlling for objective body measurements, the correlation held after controlling for objective body measurements, indicating that the styling behaviour itself (selecting, combining, and wearing garments with intention) contributes to body image independently of the body's actual dimensions.

Kwon's earlier work (cited in Stolovy, 2021) had suggested that individuals' clothing choices reflect how they feel about themselves, and Stolovy's data support this as a bidirectional process: clothing choice expresses existing self-perception, and the experience of wearing well-chosen clothing feeds back to reinforce or improve it. Merino et al. (2024) arrived at a complementary conclusion through a narrative review of body perception literature, finding that interventions promoting positive body awareness (including mindful clothing selection) correlate with reduced anxiety and improved subjective well-being across diverse populations.

Hollett et al. (2024) added empirical specificity by exposing participants to activewear retail imagery and measuring shifts in both explicit and implicit self-esteem using the Implicit Association Test. Exposure to images featuring idealised bodies in form-fitting activewear reduced implicit self-esteem, even when participants reported no change in their conscious self-evaluation. This dissociation between explicit and implicit responses confirms that visual stimuli related to clothing and body shape operate at levels below deliberate cognition, reinforcing the importance of selecting garments that generate positive rather than comparative visual feedback for the wearer.

Looking across these four bodies of literature, a pattern emerges: each field handles its own slice of the problem (anatomy, perception, composition, psychology) without crossing into the neighbouring territory. No published model stitches them together into a workflow that a stylist could follow from client measurement to finished outfit.

Problem Statement

The purpose of the present study is to develop a comparative model of styling strategies for the five principal female body types, linking each strategy to a specific perceptual mechanism and evaluating effectiveness against four criteria: visual balance approximation, authenticity preservation, practical wearability, and reported client confidence. Three specific tasks follow from this aim: (a) to systematise the anatomical characteristics of each body type using data from anthropometric and classification studies; (b) to map styling strategies onto documented illusory mechanisms, producing a body-type-to-strategy matrix; and (c) to propose a proportion correction algorithm, structured in five stages, that other practitioners can apply and test independently. Methodologically, the study draws on comparative analysis of 25 academic sources, morphological analysis of body shape parameters, and a generalisation of the author's ten-year professional practice spanning over 200 individual consultations conducted in Ukraine (2016-2022) and New York (2023-2025).

Scientific novelty of the study lies in the integration of body-shape typology with perceptual correction principles into a single operational framework. While anthropometric classification, visual illusion research, and clothing psychology have each advanced independently, no prior work has linked specific perceptual mechanisms (Helmholtz illusion, Müller-Lyer effect, Gestalt grouping) to specific FFIT body categories within a structured decision-making algorithm. Additionally, the inclusion of authenticity preservation as an evaluation criterion alongside visual balance represents a conceptual departure from existing models, which optimise toward a single idealised silhouette without accounting for the wearer's identity.

Methods and Materials

Three analytical approaches, used in combination, underpin the study. Comparative analysis covered styling recommendations drawn from 25 sources: peer-reviewed journals, professional styling manuals, and fashion industry publications. For each source the body type it addressed, the styling technique it recommended, and whether that recommendation cited a perceptual mechanism or simply stated a rule were all recorded. Empirical sources (those reporting experimental measurements, survey data, or clinical observations) received greater weight than sources limited to prescriptive advice.

Morphological analysis was applied to the anatomical parameters of each body type. Shoulder, bust, waist, and hip circumference data from the SizeUSA national survey (Simmons et al., 2004; Vuruskan & Bulgun, 2011) and from 3D body scan studies (Jin & Gu, 2024) were used to define quantitative boundaries between the five FFIT categories. Fat and muscle distribution patterns, which affect how fabric drapes and where volume accumulates visually, were mapped from anthropometric literature (Sheldon, 1954; Minetto et al., 2022; Mir et al., 2022) and cross-referenced with the author's observational records from client consultations.

Modelling was used to construct the body-type-to-strategy matrix and the five-stage correction algorithm presented in the results section. Matrix cells were populated by pairing each body type with the perceptual mechanisms most likely to produce the desired visual shift, as identified in the comparative analysis. Sequential structure of the algorithm was derived inductively from the author's documented workflow across consultations conducted in Kyiv (2016 to 2022) and New York (2023 to 2025), encompassing over 200 individual clients representing all five FFIT categories and a range of ages from 22 to 67.

Case analysis of consulting records followed a structured protocol. Each consultation record was coded along four dimensions: the client's FFIT body type as determined at intake, the perceptual mechanism applied during outfit construction, the styling category addressed (silhouette, colour, texture, or accessories), and the client's reported outcome. Records were then grouped by body type to allow cross-case comparison. Within each group, strategies were compared on two axes: how frequently a given perceptual mechanism was selected for that body type, and how consistently the client's post-session feedback indicated a positive outcome across the four evaluation criteria. Strategies applied in fewer than five cases per body type were excluded from the matrix to avoid drawing conclusions from insufficient data. Where two mechanisms achieved comparable reported outcomes for the same body type, preference was given to the one with stronger support in the reviewed experimental literature. Disagreements between the literature-derived expectation and the consulting outcome were flagged and discussed explicitly in the results section rather than resolved in favour of either source.

Effectiveness of styling strategies was assessed against four criteria. Visual balance approximation was evaluated by the degree to which a completed outfit shifted the perceived shoulder-to-hip ratio toward symmetry when viewed in full-length photographs. Authenticity preservation was assessed through post-session client feedback on whether the outfit reflected their personal identity. Practical wearability was judged by whether the client reported comfort and ease of movement. Reported confidence was captured through a structured verbal question asked at the end of each consultation. No numerical scoring scale was applied; assessments were recorded as qualitative observations in the author's case notes and are reported in aggregate form in the results section.

Results and Discussion

Body-type-to-strategy matrix

Comparative analysis of the 25 reviewed sources, cross-referenced with the author's case records, yielded a set of styling strategies for each of the five FFIT body types. Table 2 presents the resulting matrix. Each cell specifies the recommended approach for a given body type within a particular styling category and identifies the perceptual mechanism responsible for the visual effect. Where the author's consulting experience diverged from published recommendations, the matrix reflects the author's observed outcome, with the discrepancy noted.

Two observations emerge from the matrix that were not anticipated by the existing literature. First, the rectangle body type appeared most responsive to closure-based strategies across all four styling categories, whereas the literature review had suggested that line-based illusions (Helmholtz) would be the primary tool for all non-hourglass figures. In the author's practice, rectangle clients tended to respond more positively to garments that hinted at curvature through partial visual cues (a slightly nipped blazer, an asymmetric hemline) than to garments employing strong vertical or horizontal lines, which tended to reinforce rather than counteract the straight silhouette.

Second, the oval body type required careful calibration of the Helmholtz mechanism. Ashida et al. (2013) had demonstrated that the thinning effect of horizontal stripes weakens on fuller figures. Consistent with this, the author found that horizontal stripes placed across the widest zone of the torso in oval-type clients produced either no perceptual change or a slight widening effect. Vertical stripe orientation and monochromatic dressing, combined with Gestalt continuity via unbroken colour columns, appeared more reliable across the range of oval-type clients encountered in practice.

Table 2. Comparative Matrix of Styling Strategies by Body Type with Perceptual Mechanisms

Styling category	Hourglass	Triangle (pear)	Inverted triangle	Rectangle	Oval (apple)
Silhouette and cut	Fitted wrap and bodycon silhouettes tracing the natural waistline. Perceptual basis: Gestalt continuity reinforces existing upper-lower symmetry.	A-line skirts paired with structured shoulder tops. Effect: horizontal broadening of upper zone via Helmholtz illusion reduces perceived hip dominance.	Flared/A-line lower garments with soft shoulder construction. Visual effect: volume redistribution shifts perceived width downward.	Peplum tops, belted jackets, asymmetric hemlines. Perceptual basis: Gestalt closure prompts viewers to perceive waist curvature from partial cues.	Column dresses, vertical panel seaming, elongated V-necklines. Effect: Helmholtz-consistent vertical emphasis creates narrowing and lengthening perception.
Colour and print	Matched tonal palette across top and bottom; prints proportional to frame. Operates via: similarity-based Gestalt grouping maintains perceived unity.	Lighter/brighter colours on upper body, darker tones below waist. Operates via: luminance contrast (Koutsoumpis et al., 2021) recedes lower zone while foregrounding upper.	Darker/neutral upper body, lighter or patterned lower garments. Visual logic: reversed luminance strategy draws eye downward.	Colour-blocked segments at waist level; contrasting belt. Perceptual basis: figure-ground separation creates perceived break, suggesting narrower midsection.	Monochromatic dressing neck to hem; tonal vertical stripes. Operates via: similarity grouping produces unbroken visual column; Helmholtz thinning via stripe orientation.
Texture and volume	Medium-weight fabrics following the body without adding bulk. Effect: fabric drape preserves existing proportional balance.	Structured/textured upper garments (tweed, padded shoulders) with fluid lower fabrics. Visual logic: added volume at shoulders increases perceived width via proximity grouping.	Soft draped upper fabrics (silk, jersey) with stiffer/fuller lower garments. Effect: visual weight migrates toward heavier textile.	Textural contrast at waist zone (smooth belt over textured top). Operates via: figure-ground activation at texture change creates perceived contour.	Fluid single-layer fabrics that skim rather than cling. Perceptual basis: absence of texture interruption supports continuity-based elongation.
Accessories and focal points	Waist-level accessories (belts, tucked tops) reinforcing natural narrowing points. Visual logic: proximity grouping at waist amplifies existing curvature.	Statement necklaces, earrings, structured bags at shoulder height. Effect: proximity clustering at upper body redirects initial gaze point.	Wide-leg trousers, ankle boots, hem-level jewellery. Operates via: proximity clustering at lower body anchors attention away from shoulder zone.	Single bold waist accent (wide belt, sash, knotted top). Perceptual basis: closure-driven waist perception benefits from one strong cue.	Long pendants, vertical scarves, pointed-toe shoes. Visual logic: continuity-based vertical line extension from necklace through body to shoe tip.

Source: Author's original model based on comparative analysis of (Simmons et al., 2004; Adam & Galinsky, 2012; Thompson & Mikellidou, 2011; Koutsoumpis et al., 2021; Koutsoumpis et al., 2021; Ashida et al., 2013; Zia et al., 2024; Kumanayake & Vithanage, 2020; Bai, 2022; Wertheimer, 1923; Horton et al., 2025; Stolovy, 2021; Woodall & Constantine, 2007; Hester & Hehman, 2023; Pisut & Connell, 2007; Vuruskan & Bulgun, 2011; Shin & Damhorst, 2018; Minetto et al., 2022; Mir et al., 2022 and consulting records (2016–2025)

Five-stage algorithm for visual proportion correction

Building on the matrix, a sequential algorithm was developed to formalise the decision-making process a stylist follows when constructing an outfit for a specific client. Figure 1 presents the algorithm as a flowchart.

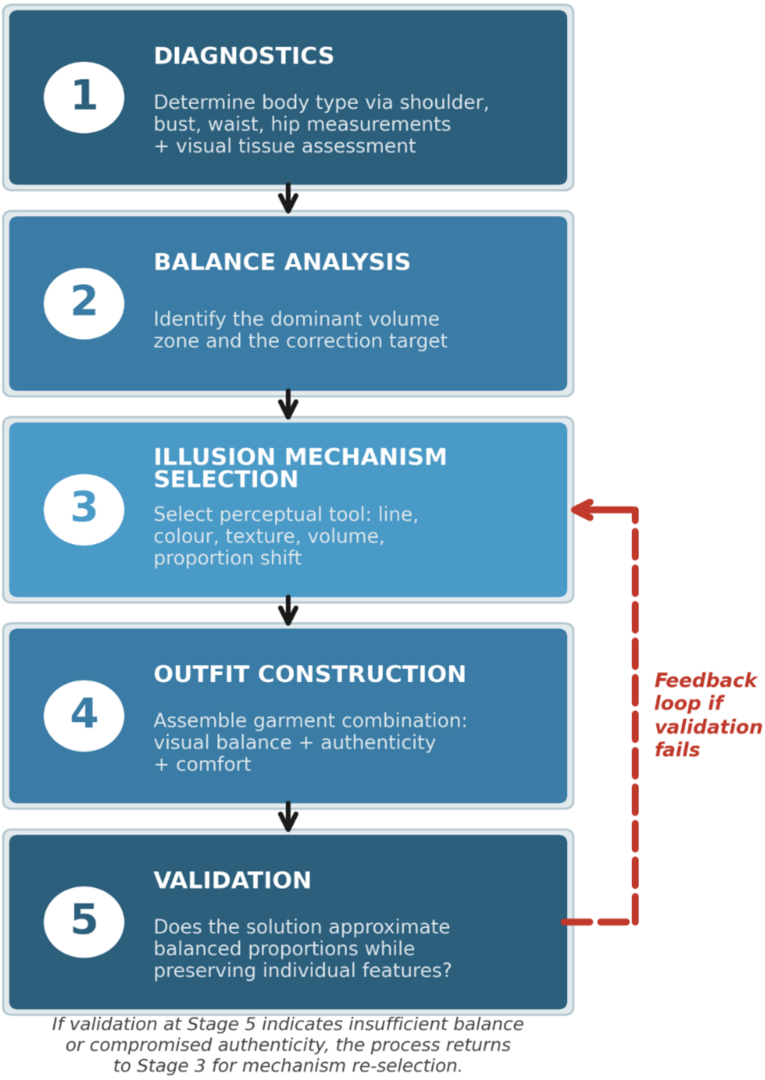

Figure 1. Five-stage algorithm for visual proportion correction

Stage 1, Diagnostics, establishes the client's body type through four circumference measurements (shoulder, bust, waist, hip) and a visual assessment of how subcutaneous tissue is distributed across the torso and limbs. Measurement-based classification follows the FFIT thresholds described in Section 2.1, but the visual component captures information that measurements alone miss: posture asymmetries, limb length relative to torso, and the location of the natural waistline relative to the navel. In the author's experience, approximately 15% of clients present characteristics of two adjacent FFIT categories, requiring the stylist to treat the dominant pattern as the primary classification while addressing secondary features through accessory-level adjustments.

Stage 2, Balance Analysis, identifies which body zone carries the dominant visual weight and which zone would benefit from increased or decreased visual presence. For a triangle figure, the dominant zone is the hip region and the correction target is the upper body. For an inverted triangle, these are reversed. Rectangle and oval figures present a different diagnostic challenge: in the rectangle, no zone dominates, meaning the correction target is to introduce perceived variation; in the oval, the central zone dominates, and the correction aim is to redistribute visual weight toward the vertical axis.

Stage 3, Illusion Mechanism Selection, draws directly on the matrix in Table 2. Once the body type and the correction direction are established, the stylist selects from the available perceptual tools: line orientation (vertical, horizontal, diagonal), colour and luminance manipulation (monochrome, tonal gradation, colour blocking), volume and texture placement (structured vs. fluid, heavy vs. light), and focal-point positioning (proximity-based clustering at a target body zone). For borderline cases identified at Stage 1, a blended mechanism may be employed, combining, for example, closure-based waist suggestion with vertical continuity.

Stage 4, Outfit Construction, assembles specific garments and accessories into a complete look. At this stage, three criteria operate simultaneously. Visual balance guides the selection of silhouette and proportion. Authenticity ensures that the garment choices align with the client's existing style identity, cultural context, and personal comfort with visibility. Practical wearability accounts for the client's daily activities, climate, and movement requirements. In the author's practice, conflicts between these criteria arise most frequently when a perceptually optimal garment (one that produces the strongest visual correction) is also one the client perceives as incongruent with their identity. Resolving this tension requires returning to Stage 3 and selecting a subtler mechanism that achieves a partial correction without compromising the client's sense of self.

Stage 5, Validation, evaluates the completed outfit against the question: does this solution approximate balanced proportions while preserving the client's individual features? Assessment occurs through full-length mirror review and, where possible, photographic comparison against the client's uncorrected silhouette. If the outcome falls short on either the balance or the authenticity criterion, the process loops back to Stage 3 for mechanism re-selection, as indicated by the dashed feedback arrow in Figure 1. In the author's records, approximately one in four consultations required at least one return to Stage 3 before reaching a validated outcome.

Observed patterns across the author's practice

Over 200 consultations, a pattern surfaced that held across body types. Clients who came in knowing which parts of their body they wanted to highlight (even when those parts were ones conventional advice would downplay) left more satisfied when the styling respected that preference. One triangle-figure client, for example, valued her hip curvature and had no interest in minimising it. Strategies that framed the hips as an intentional focal point through colour contrast and proximity-based detailing, while keeping the upper body visually coherent through Gestalt continuity, produced a strong positive response.

This pattern is what led to the formal inclusion of authenticity preservation alongside visual balance as an evaluation criterion. Most styling guides optimize toward one target, usually the hourglass silhouette. By contrast, the algorithm treats the client's stated identity as a constraint that carries the same weight as proportional correction. What this means in practice is that no single "best" strategy exists for a given body type; the right strategy shifts with the client's self-perception and goals, and the algorithm adapts accordingly.

Results presented in Section 4 sit between two existing approaches that have stayed separate in the literature. Computational recommendation systems like Hidayati et al.'s (2018) use machine learning to match measurements with garment databases, optimising for statistical fit across populations. Practitioner guides like Palmer and Alto's Body Shape Bible (Woodall & Constantine, 2007) offer categorical rules distilled from industry experience. What the proposed model adds is a middle layer: an explicit perceptual mechanism between the body-shape input and the garment output, which makes the reasoning behind each recommendation visible and, when needed, swappable.

This matters in practice more than it might appear. If a matrix recommendation leaves a client dissatisfied, the stylist can identify which perceptual lever failed and try a different one without scrapping the whole strategy. A machine-learning system would need retraining; a categorical guide would simply have nothing else to offer. Stage 5's feedback loop back to Stage 3 formalises exactly this corrective capacity, converting a straight-line recommendation process into an iterative one.

Rectangle figures' apparently stronger response to closure-based strategies than to line-based illusions warrants further investigation. One reading of this is that Helmholtz-type illusions work best where there is already a noticeable size difference between body zones for the illusion to amplify or shrink. Rectangle figures, with shoulder, waist, and hip measurements sitting close together, offer little differential for stripe orientation to act on. Closure operates differently: it generates a new perceptual element (a suggested waist curve) rather than tweaking an existing one, and this may be why it performs more reliably on bodies with less built-in contour variation.

Authenticity as a criterion raises questions that extend beyond styling into the broader psychology of appearance management. Hester and Hehman (2023) established that clothing shapes social perception within milliseconds, and Adam and Galinsky (2012) showed that it shapes the wearer's cognition. Yet neither framework accounts for what happens when a garment that is perceptually effective conflicts with the wearer's identity. Consulting records from this study suggest that such conflicts reduce the psychological benefit even when the visual correction succeeds, pointing to a ceiling effect: visual balance alone does not translate into client satisfaction unless it is accompanied by a sense of recognition in the mirror. A future study could pin down this ceiling by comparing objective visual improvement scores (external observer ratings) against subjective satisfaction (the wearer's own report) at varying degrees of style congruence.

Several limitations constrain the generalisability of these findings. Although the client sample spans a decade and two countries, it consisted predominantly of women of European descent aged 22 to 67. Body shape distribution, fat deposition patterns, and cultural attitudes toward specific body proportions vary across ethnic groups and geographic regions, meaning that both the matrix and the algorithm may require adaptation for populations not represented in the sample. Effectiveness criteria were assessed qualitatively rather than through standardised instruments, which limits comparability with future studies that may use numerical scales. Finally, the study did not control for fabric properties (weight, stretch, opacity) as independent variables, although the texture and volume category in Table 2 addresses them descriptively.

In addition, the 200-client sample was drawn from a non-randomised convenience pool of individuals who sought professional styling consultation, which may introduce self-selection bias: clients who voluntarily engage a stylist are likely to differ in body-image awareness, motivation, and openness to visual experimentation from the broader female population, limiting the extent to which the observed patterns can be generalised beyond this demographic.

Potential applications extend in three directions. In stylistic education, the matrix and algorithm can serve as a structured curriculum for training programmes, replacing the memorisation of disconnected rules with a reasoning framework that students can apply to novel situations. In e-commerce, the perceptual mechanism layer could be integrated into virtual try-on systems, moving beyond fit prediction to visual proportion simulation. In clinical and therapeutic contexts, where body image interventions increasingly incorporate clothing-based strategies (Merino et al., 2024; Hollett et al., 2024), the model provides a vocabulary for discussing garment effects in terms that connect the therapist's psychological vocabulary and the client's visual experience.

Conclusion

This study set out to construct a comparative model connecting female body shape categories to styling strategies through identified perceptual mechanisms, and to formalise this connection in a replicable algorithm. Both objectives have been addressed within the scope and limitations described.

As a working tool, the matrix indicates that a styling recommendation can become more useful when it is tied to a named perceptual mechanism instead of resting on tradition or intuition alone. A practitioner who understands why a garment configuration produces its visual effect can adapt more quickly when the standard recommendation does not land for a particular client.

In structure, the algorithm runs sequentially but not in a straight line. Its built-in loop from validation back to mechanism selection mirrors what actually happens in consulting work, a reality that prescriptive guides usually gloss over: first attempts often miss the mark, and the quality of the outcome hinges on diagnosing why and choosing a different perceptual route.

Treating authenticity preservation as an evaluation criterion on par with visual balance marks a departure from the prevailing logic in both academic and practitioner literature, where correcting proportions toward an idealised silhouette is the only stated goal. Ten years of consulting records suggest that this single-goal framing sells client satisfaction short and can, in some cases, deliver results that look right on camera but feel wrong in the mirror.

Practical implications follow in two directions. For consulting practice, the matrix and the algorithm provide a structured decision pathway that reduces dependence on accumulated intuition. A stylist entering the profession can use the matrix as a reference tool rather than memorising disconnected rules, and the five-stage algorithm offers a repeatable workflow that makes each decision point visible to both the practitioner and the client. When a recommendation fails, the algorithm's structure helps locate the failure at a specific stage (diagnostics, balance analysis, mechanism selection, outfit construction, or validation) rather than leaving the stylist to start from scratch. For stylist education, the framework offers a curriculum architecture that current training programmes lack. Most programmes teach body shape categories and garment recommendations as paired lists; the matrix replaces this with a reasoning layer that connects each recommendation to a named perceptual mechanism. Students trained on this model can adapt to novel body configurations and unfamiliar garment types because they understand the perceptual logic behind the recommendation, not only its surface-level content. Incorporating the algorithm into practical coursework, where students apply it to live or simulated client cases and compare outcomes, could accelerate the development of diagnostic judgment that currently takes years of apprenticeship to build.

What comes next should include controlled experiments comparing satisfaction scores under algorithm-guided styling against intuition-based styling. Replication with ethnically diverse samples across different cultural settings would test whether the matrix assignments and their underlying mechanisms hold up outside the European-descent population that dominates the current sample. Connecting the model to 3D body scanning and virtual garment simulation could eventually move it from a manual consulting tool into something scalable for retail and online shopping environments.

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