

# A Brief Summary of the Ways in Which our Genes Influence our Perceptions of Attraction and Love

Raul Isea\*

Fundación IDEA, Hoyo de la Puerta, Baruta. Venezuela.

## \*Corresponding Author

Raul Isea, Fundación IDEA, Hoyo de la Puerta, Baruta. Venezuela.

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## Abstract

*The connection between genetics and love has been a topic of interest for decades. Romantic love involves closeness, passion, and commitment, with distinct emotional, behavioral, hormonal, and neuropsychological characteristics. Neurobiological changes, immune system involvement, and genetic polymorphisms can help therapists and counselors provide personalized guidance and develop targeted interventions. Finally, it concludes that love is a combination of processes influenced by genes, environment, and commitment.*

**Keywords:** Love, Romantic Love, Genetic, Eros, Relationships, Genes.

## 1. Introduction

Humans have been fascinated by the amazing phenomenon of genetic love and attraction for decades. A new love connection brings with it both psychological and physiological changes. As the study progresses, scientific investigations have shed light on the intricate link between DNA and love, offering a valuable understanding of the factors that shape our romantic partnerships. The relevance of these findings, the role of genetic variables in relationship satisfaction, and the impact of immune system gene regulation on love have all been examined in this research. Romantic love was originally described as "passionate love" a condition of profound desire for union with another, by Walster and Walster [1]. Appraisals, subjective emotions, expressions, bodily functions, inclinations toward action, and instrumental actions are all included in this intricate idea. Unrequited love is linked to emptiness, worry, or despair, but reciprocated love is linked to satisfaction and joy. Several revisions have been made to the definition [2]. Later, Hendrick and Hendrick presented the idea of "eros" in romantic love, which is characterized by intense physical attraction, intense emotional attachment, a preference for one's physical attractiveness, and a sense that the relationship is inevitable [3]. This idea has changed throughout time; the most current iteration claims that eros might "strike" out of nowhere in a mental and emotional revolution [2]. Parallel to this, romantic love is described by Sternberg as an intimate connection characterized by closeness, passion, and commitment [4]. It is defined by a liking component along with the accompanying physical attraction. Sternberg describes romantic lovers as being emotionally

connected to one another in addition to being physically drawn to one another. Emotional connection requires this kind of affection [2].

Murray et al. bring us back to a revised definition proposed by Fletcher et al. that was grounded on evolutionary theory [5]. They enumerate five crucial qualities: (1) distinct emotional, behavioral, hormonal, and neuropsychological characteristics; (2) compatibility and correlation with pair-bonding across cultural boundaries; (3) automatic repression of effort for substitute partners; (4) distinct emotional, behavioral, and neuropsychological attributes; and (5) positive correlation between successful pair-bonding and improved health and survival for adults and children across cultural boundaries. Romantic love, which involves passion, closeness, and compassion, is a potent commitment tool. Is it true that romantic love has been connected to a number of neurological changes? Yes, is the response. Numerous neurobiological changes, including elevated levels of cortisol, oxytocin, nerve growth factor (NGF), gene-environment correlation (rGE), and testosterone in both men and women, have been linked to new romantic love, according to scientific research. Moreover, lower densities of particular serotonin transporter binding sites are linked to new romantic love; these densities are comparable to those observed in people with obsessive-compulsive disorder [1,4-9].

According to recent research, the immune system is crucial for both long-term compatibility and mate choice [5]. Women's infatuation is associated with at least 61 genes, which may indicate that

these genes control romantic love traits [5]. In newlyweds, eros is linked to ventral tegmental area activity, which is regulated by genes affecting vasopressin, oxytocin, dopamine 4 receptors, and dopamine transmission [2]. It has been found by researchers that people are frequently drawn to partners whose immune systems differ from their own [11]. This inclination could be explained by the evolutionary benefit of producing children with stronger immune systems. The Major Histocompatibility Complex (MHC), a group of genes involved in the immune response, has been the subject of research in this area [11]. It has been noted that people are more drawn to partners who have different MHC genes than themselves. This phenomenon, called MHC disassortative mating, boosts the immune system of the progeny and adds to genetic diversity [12]. While genetic compatibility may play a role in initial attraction, it is not the sole determinant of relationship satisfaction. Various genetic, transcriptomic, and proteomic factors intertwine with environmental influences to shape the dynamics of romantic relationships [5,13,14].

In fact, Acebedo et al. demonstrated that the maintenance of romantic love was linked to the activation of the dopamine-rich substantia nigra in response to images of the partner's face [13]. They also verified the connections between dopamine, oxytocin, and vasopressin genes and pair-bonding. They imply that the maintenance of romantic love is a component of a larger mammalian strategy for long-term attachment and reproduction, which is impacted by complex cognitive functions, basic reward circuitry, and genetic factors. Genetic polymorphisms have been identified as linked to pair-bonding in monogamous voles: AVPR1a rs3, a key polymorphism, has been associated with higher levels of partner bonding, commitment, and relationship quality in men [13]. It plays a role in complex social behaviors such as altruism, cognitive empathy, and emotional responsiveness to faces. OXTR rs53576, a single-nucleotide polymorphism, is associated with G-alleles, which are associated with sociality, empathy, and altruism towards a partner. The hormone OT is involved in pair-bonding behaviors such as partner hugs, parenting, orgasm, and partner attractiveness ratings.

The dopamine receptor DRD4-7R gene variant is associated with novelty-seeking, sexual behaviors, promiscuous behavior, and infidelity. This gene variant results in reduced binding for dopamine, suggesting individuals with this variant generally feel less stimulated and crave novelty. COMT rs4680, an allelic variant of COMT, affects dopamine transmission in the brain. COMT rs4680 A-alleles have decreased COMT activity, resulting in higher dopamine levels. This leads to greater reward-seeking behavior, reward responsiveness, and higher subjective ratings of pleasure in response to positive events. COMT rs4680 A-alleles are also associated with obsessive-compulsive disorder in males, which is correlated with dopaminergic activation [13]. For all of this, an intricate network of gene control affects the emotional attachment that occurs between couples. Certain genetic variants have been linked by research to emotional connection and relationship happiness. For example, previous remarks have connected variants

in the oxytocin receptor gene to variances in relationship trust and empathy.

## 2. Conclusions

The connection between genetics and love has been a topic of interest for decades. Romantic love involves closeness, passion, and commitment, with distinct emotional, behavioral, hormonal, and neuropsychological characteristics. Neurobiological changes, immune system involvement, and genetic polymorphisms can help therapists and counselors provide personalized guidance and develop targeted interventions. Love is a combination of processes influenced by genes, environment, and commitment, with relationships based solely on physical attractiveness and desire often ending faster. Finally, come to the conclusion that romantic relationships arise from a cellular-level explosion of pleasure and fulfillment shared by lovers. The network reactions of genes, environment, and commitment all play a role in the complex processes that make up love. When physical attractiveness and desire are the only factors in a relationship, it usually ends sooner.

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