

AN INSIGHT INTO THE TWIN DYNAMIC OF JACOB AND ESAU

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The interplay between human genetics and the environment is so dynamic that it is possible for two people to produce offspring whose phenotypes vary dramatically from one another. The Torah offers an example of this phenomenon in the differences between Esau and Jacob, the twin sons of Rebecca and Isaac. Rebecca was barren for the first twenty years of her marriage, but G-d blessed Isaac and her with twin boys. As mentioned in Genesis 25:24-25, "... there were twins in her womb. And the first came forth, ruddy, all over like a hairy mantle; and they called his name Esau. And after came forth his brother, and his hand had hold on Esau's heel and this name was called Jacob."

Esau and Jacob are described as having profoundly differing phenotypes, suggesting they were dizygotic, or fraternal, twins. Yet, there remains a possibility that they were monozygotic, or identical, twins who may have shared the same amniotic sac [1]. Monozygotic twins develop when a single fertilized egg, or zygote, splits into two totipotent units. The chorion, the outermost extraembryonic membrane, surrounds the amnion and forms the fetal part of the placenta. The amnion is a membrane that surrounds and protects the embryo which functions in building the amniotic sac [2]. Roughly one percent of monozygotic twins share the same chorion and amnion, in this case, the separation occurred after the ninth day of fertilization, at which time the amnion and chorion have already formed [3]. Both the amnion and the chorion are part of the extraembryonic membranes that function in the embryo's overall development.

Dr. Azila Talit Rosenberger suggests that Esau and Jacob were indeed monozygotic twins, and their differing phenotypes can be attributed to twin-twin transfusion syndrome. This rare condition occurs in monozygotic twins who share the same chorion and a single placenta. Such twins have an interconnected blood circulation. Even though each fetus has its own portion of the placenta, their placental blood vessels are connected, allowing blood to pass from one twin to the other. Blood may be transferred disproportionately from one twin to the other, creating a system where there is a "donor twin" and a "recipient twin." When born, the donor twin has a decreased blood volume

and will be anemic and dehydrated; the recipient twin, conversely, will have an abundance of red blood cells [4]. The recipient twin weighs more and appears redder at birth, which would fit Esau's biblical description as being ruddy in appearance. Furthermore, the recipient twin may exhibit an aggressive character. This points to Esau's temperament, as described later in Genesis. Esau was known to be deceitful hunter who was unable to impede his gratification for food, as seen during the episode in which Esau sold his birthright to his brother Jacob for a pot of lentils.

For the commentators who believe that Esau and Jacob were monozygotic twins, the twins' difference in personalities may be categorized as an environmental difference as opposed to a difference in genetics.

The nineteenth century German rabbi and philosopher Rabbi Samson Raphael Hirsch, in his commentary on the story of Jacob and Esau, stated, "The surprising thing was that they were really identical twins." Rabbi Hirsch continued to explain that Jacob "looked almost exactly like Esau," and that they only differed in their constitution in that Esau was much more developed and stronger than Jacob. Esau was red-cheeked and ruddy, which was an indication of radiant health. The name Esau is derived from the word *asab*, indicative that at birth, Esau was a "made man." Esau was born with a body covered with hair, like that of a developed man. Hirsch further explained that the real difference between Esau and Jacob laid "deep below the surface" as they chose different paths in life.

The behavioral differences between Esau and Jacob were clearly noted in the Torah: "And the boys grew; and Esau was a cunning hunter, a man of the field; and Jacob was a quiet man dwelling in tents" [5]. It is known that Esau grew up to become a man of the fields. Rashi notes that he was a "cunning hunter" skilled in the art of deception and manipulation. On the contrary,

Jacob had a subdued demeanor, as he stayed indoors, focusing his time studying at the Academy of Shem and Aver [6]. For the commentators who believe that Esau and Jacob were monozygotic twins, the twins' difference in personalities may be categorized as an environmental difference as opposed to a difference in genetics [2].

Although Rav Hirsch and Dr. Reisenberger maintained that Esau and Jacob were identical twins, other scholars proclaimed that Esau and Jacob were fraternal twins. Fraternal twins occur when two separate fertilized eggs (each fertilized by a different sperm) are implanted in the uterus and each develops its own amniotic sac. Each twin will also have its own placenta and chorion and can be of different sexes. Dizygotic twins may be as similar or as dissimilar as any two siblings [2]. The twelfth century biblical commentator, mathematician, and astronomer Rabbi Abraham Ibn Ezra, explained that Jacob took hold of Esau's heel because during the birth of the twins, Esau and Jacob's amniotic sacs ruptured. However, Ibn Ezra noted that this was "a most unusual occurrence."

The nineteenth century German scholar and physician Dr. Julius Preuss stipulated in his work, *Biblical and Talmudic Medicine*, it is unlikely that Esau and Jacob were identical twins because Esau was depicted as looking markedly different than Jacob. Preuss interpreted "and his (Jacob's) hand had hold on Esau's heel" as being figurative and that it should not be read literally. One may explain the verse metaphorically as describing Jacob and Esau's future relationship when Jacob pursued Esau [7].

Preuss believed that Esau being described as hairy indicated

that he exhibited hypertrichosis [8]. Hypertrichosis, or Ambras syndrome, is an abnormal growth of hair on the body. The rare disease may be congenital or it may be acquired later on in life. Only fifty cases of hypertrichosis have been recorded since the Middle Ages. There are two distinct types of hypertrichosis: generalized and localized hypertrichosis. In generalized hypertrichosis, hair covers the entire body, while in localized hypertrichosis, hair is restricted to a certain area. [9]. In Genesis 27:11 there is another reference to Esau's hairiness, as Jacob misleads his father, Isaac, into believing that he is Esau by covering his arms and neck with goatskins.

Esau and Jacob's differences began in the womb as noted in Genesis 25:22, "the children struggled within her." Rebecca inquired from G-d about the quarrel taking place within her womb; she was informed through prophecy that "two nations are in thy womb, and two peoples shall be separated from thy bowels." As Esau and Jacob matured, they chose different lifestyles, as each had his own aspiration in life. There was tension between the twins, as noted with the birthright which Esau sold to Jacob. After years of separation we find that Esau and Jacob meet in a heartfelt reunion, where Jacob presented gifts to Esau. "And Esau ran to meet him and embraced him and fell on his neck and kissed him and they wept....And Jacob said, Nay, I pray thee, if now I have found grace in thy sight, then receive my present at my hand for therefore I have seen thy face, as though I had seen the face of G-d and thou was pleased with me" [10]. As Jacob and Esau grew older and build families of their own, they matured past their differences as conveyed through their profound encounter. ■

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