

NEWS, VIEWS AND COMMENTS

‘Biracial’-Looking Twins: A New Twin Type?/Twin Research: Twins with Cystic Teratomas; Sleep Quality and Body Mass Index; Previabie Membrane Rupture/Print and Online Reports: Twins Born to a Sister Surrogate; NASA Twin Study; African-Cosmopolitan Twin Fashion Inspirations; Triplet Hockey Stars

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Dizygotic (DZ) co-twins born to mothers and fathers from different racial or ethnic backgrounds often resemble one parent much more than the other. As such, these pairs comprise a unique subset of twins for investigating how others' responses to their different looks may affect their personalities and self-esteem. This article describes some of these twin pairs and some challenges of raising them, and suggests ways they may be used in research. Next, recent twin research on cystic teratomas, relations between sleep quality and body mass index, and previable membrane rupture is described. The final section concerns twins, twin studies, and related events in the media, namely: twins born to a sister surrogate, the NASA twin investigation, inspiring African-Cosmopolitan twins in fashion, and triplet Hockey Stars.

‘Biracial’-Looking Twins: A New Twin Type?

Twins who hardly seem genetically related because they appear biracial are occurring more often now than in the past. That is probably because of the increased frequency with which interracial individuals are becoming couples. In 2010, 15% of new marriages in the United States were between individuals from different races or ethnicities, which is double the rate 6.7% found in 1980 (Wang, 2012). This article reviews some new twin cases, the behavioral consequences for the twins and their families, and offers suggestions for using these unusual twin pairs in research.

Note: I prefer the term ‘biracial-looking’ twins to ‘biracial’ because the members of these dizygotic (DZ) twin pairs are conceived by ordinary means by the same parents. It is true that both twins are of mixed ethnicities and can

look quite different in this sense, something that is unexpected among full siblings. However, it is important to bear in mind that most DZ twins look and act differently along many physical and behavioral dimensions. These twins are not really a ‘new twin type’ — the question posed in the title to this article — but they are a unique variation of DZ twinning that has been overlooked in research.

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**FIGURE 1.**

(Colour online) Fraternal twin boys born to a Caucasian mother and African–American father. Photo courtesy: The twins' family.

A relatively recent 'biracial'-looking pair was born to 25-year-old Whitney Meyer, who is Caucasian, and her partner, 23-year-old Tomas Dean, who is African–American (Minutaglio, 2017). The couple, who reside in Quincy, Illinois, are the parents of 9-month-old fraternal female twins Kalani and Jarani. Kalani is fair-complexioned with blue eyes like her mother, while Jarani is dark-skinned like her father. Interestingly, Jarani was born with Mongolian spots (simple pigment variations, usually blue to slate gray), a feature that is more common among infants of color. In fact, Mongolian spots are present among 90% of native Americans and children of African descent, over 80% of Asians, and over 70% of Hispanics. These spots typically disappear by the time children reach the age of 2 (What to Expect Foundation, n.d.).

The twins' mother, Whitney, also has a 7-year-old son, Talan. Two years ago, she lost a child in a tragic drowning accident. The birth of the twins and the support she has received via social media have helped her to cope with this personal tragedy. Whitney also asserted that her twins show the world why racism should not exist. Their older son who is Caucasian does not see the physical differences between his younger sisters. Hopefully, the world will respond to such twins as their family members do, but unfortunately, that is not always the case, especially as the twins grow up and mingle with their peers and the rest of society.

Daniel and James Kelly of Great Britain were born to a Caucasian mother and a Jamaican father. Daniel is blonde and light-skinned, while James is dark-haired and dark-skinned. It is likely that their father carries genes coding for both dark and light skin colors as is characteristic of the mixed populations of the Caribbean. Apparently, the twins' inheritance of different genetic factors from their father explains their contrasting appearance. Interestingly, the lighter-skinned Daniel was subjected to more race-based discrimination than James because his fellow students saw him as black, despite the fact that he saw himself as white (Moorhead, 2011).

One of my former psychology students, Dawn Perez and her DZ co-twin Robin, are the DZ twins of a Hispanic father and Caucasian mother. I was immediately struck by the twins' different skin colors and facial features when I met them. Dawn, who resembles her father, admitted that, according to stereotype people often think of her as less capable than her twin sister, who takes after her Caucasian mother.

A most intriguing case was recently brought to my attention by the twins' parents (Personal communication, February 21, 2017). The two boys are clearly fraternal twins, based on their size and skin tone — the elder twin is very light-skinned, whereas his younger twin brother is much darker. The novel twist to this story is that *both rearing parents are Caucasian*. The twins' biological mother who is

raising them is Caucasian, but her former partner was African-American. Their mother had been dating her present partner for about three weeks when she discovered that she was seven weeks pregnant. Her current partner is now the twins' adoptive father. These twins are pictured in [Figure 1](#).

The twins' parents have not had an easy time raising their children. According to their mother, 'No one believes that they are twins. No one on my side of the family has blue eyes. It makes me feel like a terrible person when we get funny looks and I have to tell the same story to try to make it look not so bad. [My partner and I] understand and are the only ones who should really have to know, but people give the dirtiest looks when they see two white people with twins who have different complexions.' It is hard to know the source of onlookers' reactions, which may include wondering how such a situation arises, or feeling that

parent and child ethnicities should match, even in cases of adoption.

No one has conducted a formal study or case analysis of the behavioral consequences for DZ co-twins who seem to come from different ethnic backgrounds. As I indicated above, twins like these appear to be more common (at least anecdotally) because of rising rates of intermarriage between people from different countries and cultures. The unique value of these studies is that the family backgrounds of the twins are matched, more clearly revealing others' responses to the twins' different looks and how they may affect the twins' personalities and self-esteem. Helpful information for families raising such twins would also be likely to emerge from such research.

More about this issue and many others is available in my newest book, *Twin Mythconceptions: False Beliefs, Fables, and Facts About Twins* (2017, San Diego, CA: Elsevier).

Twin Research

Twins With Cystic Teratomas

There have been only two reported cases of monozygotic (MZ) twins with mature cystic teratomas (CTs), the most common form of ovarian neoplasms (abnormal tissue growth). Such teratomas occur in approximately 30–40% of such cases and usually occur during the reproductive years. A new case involves twins from Japan, who were studied at Wakayama Medical University, in Wakayama (Mabuchi et al., 2017).

In Japan, the first twin was diagnosed with CTs at the age of 32 years, when a tumor was detected on her right ovary. Two years later, her MZ co-twin received a similar diagnosis, also in the right ovary. In both instances the tumors were mature, but benign. The preferred treatment, which both twins had, was laparoscopic resection to reduce the invasiveness of the tumor; this procedure has a good chance of preserving the ovary in relatively young women. Circumstances were similar in the two previous cases: A 24-year-old MZ twin had a benign twisted CT in both her right and left ovaries, as did her co-twin. In a second case the tumors appeared only in both twins' right ovaries. A case of 'probable' MZ triplets who were also concordant for the condition has been reported.

There is no evidence that these tumors are part of a genetically influenced disorder. Thus, the authors and other researchers have speculated about the cause of the teratomas in these twins and triplets. One possibility is that the tumor originates from a single germ cell after the first meiotic division. Another proposed explanation is that genes associated with the formation of the second polar body during meiosis disrupt this process, predisposing females to

ovarian teratomas. The authors did not come to firm conclusions on this point; however, they noted that the frequency of CTs and the rarity of MZ twins with CTs suggest that the frequency of affected MZ female twins is probably higher than the few case reports would suggest.

Unfortunately, Mabuchi et al. (2017) failed to describe the procedure used to establish the zygosity of the twins in question, an oversight that weakened the otherwise interesting and informative findings from the report.

Sleep Quality and Body Mass Index

The relationships between sleep quality and many aspects of health predisposing individuals to early death (e.g., heart disease, diabetes, high blood pressure, and obesity) are well documented (Park, 2017). In an effort to more closely consider factors associated with sleep, Madrid-Valero et al. (2017) conducted a twin study of sleep quality and body mass index (BMI). The 2,150 individual twins, born between 1939 and 1966, were drawn from the Murcia Twin Registry, a population-based registry of twins in Murcia, located in south-eastern Spain.

The zygosity of the twins was established by either DNA analysis (338 twin pairs, or 32% of the sample) or a physical resemblance questionnaire that shows 96% agreement with DNA studies. Sleep quality was assessed by a self-report questionnaire, and height and weight for calculating BMI were obtained by self-report for all the male twins and 40% of the female twins. Examiners recorded these measures for the remaining participants and determined that there was excellent agreement between these two data sources.

Overall, poor sleep quality was associated with relatively high BMI. When BMI was used as the outcome measure, this relationship was maintained for the whole sample and for both BMI-discordant MZ and DZ twin pairs. However, when sleep quality was used as the outcome measure, this relationship was not detected. The data, therefore, suggested that sleep quality affects BMI, rather than the other way around.

Previaible Membrane Rupture

PROM is the acronym for Previaible Prelabor Rupture of Membranes, an event affecting 3–4/1,000 pregnancies. It typically occurs before the 23rd week of gestation. A study aimed at identifying maternal morbidities (infectious and non-infectious), as well as risk factors for these morbidities was conducted by Dotters-Katz et al. (2017). Participants in this case-control study included women pregnant with

twins and singletons, who had experienced PROM between 14 and 29 weeks' gestation.

Women in the case group were significantly more likely to be aged 35 years or older, although the groups did not differ in other background characteristics, such as ethnicity, tobacco use, pregestational diabetes, and recreational drug use. However, women with multiple pregnancies showed more severe maternal morbidity. The authors noted that twin pregnancies are known to be at high risk with respect to pre-labor PROM and pregnancy complications. However, this study also found an increased risk of previaible PROM among mothers carrying twins. In fact, women with morbidity were six times more likely to be pregnant with twins than women without morbidity. Given the limited data concerning this condition, coupled with its relative rarity, the establishment of a multi-center prospective registry for previaible PROM was proposed.

Print and Online Reports

Twins Born to a Sister Surrogate

Maggie Paxton of Whittier, California was diagnosed with aggressive breast cancer at the age of 30 years, about the time she was trying to conceive a child (Perkes, 2017a). Following treatment, she was warned that her cancer might return if she became pregnant. Two years later, her older sister, Morgan Williams, the mother of a 9-year-old daughter, offered to serve as a surrogate. Prior to starting chemotherapy, eggs were retrieved from Maggie, fertilized with her husband's sperm and implanted into her sister's womb. Morgan went on to conceive twins. The fraternal twin girls, Emery Layne and Deanna Nicole, were delivered 4 minutes apart on February 6, 2017 (Perkes, 2017b).

In my book *Indivisible by Two*, I describe a case in which an identical female twin, Marcy, conceived two daughters (on separate occasions) for her twin sister, Tracy. Tracy was unable to start a family due fertility problems caused by Valley fever (Segal, 2005). In order to help her twin sister become a parent, Marcy underwent artificial insemination using her brother-in-law's sperm — this procedure produced infants, who were biologically related to their mother as well as to their aunt because the aunt and the future mother are identical twins.

NASA Twin Study

Data have now been collected for a unique co-twin control study that involved identical twin astronauts, Scott and Mark Kelly (CBS News, 2017). Scott voluntarily spent 340 days at the International Space Station between (March 27,

2015 and March 1, 2016), while his twin brother remained on earth. Both twins have, however, completed shorter space missions in the past. This experiment will enable scientists to assess the effects of space travel on human physical and behavioral performance using a perfect genetic control.

Preliminary data showed that when Scott returned to earth his telomeres (protective caps at the ends of the chromosomes) were longer than Mark's — shorter telomeres have been associated with aging (American Federation for Aging Research, 2011). As such, this finding (confirmed independently by two laboratories) was unexpected (Witze, 2017). DNA methylation, a process that affects gene expression, decreased in Scott, but increased in Mark. Changes in sleep habits and diet can be implicated in such changes. Both men's levels have since returned to what they showed prior to the mission, although what this particular finding indicates is unknown at present. Given the enormous volume of data that was gathered on these twins, it will be some time before all the results will be made available to the scientific community and to the interested public.

African-Cosmopolitan Twin Fashion Inspirations

The fashion world has been introduced to seven sets of African identical twins, three male and four female, who are bringing new styles of fashion to the fore, largely via their blogs (Chiénin, 2015). The twins' contributions have been enthusiastically embraced by some of the more established clothing designers, such as Diesel, Adidas and Other

Stories. Their cultural heritage is proudly displayed in their clothing and hair styles.

Cirpiana and Takenya Quann are considered the most 'in-vogue twins in the blogosphere'. Cirpiana is the co-founder of Urban Bush Babies, which celebrates natural hair. Justice and Innocent Mukheli reside in Johannesburg, South Africa. They support fashion made in Africa, and due to their popularity, their work has been showcased in Tokyo. Sasha and Sable Boykin, who live in New York, work as models and actresses. Jalan and Jibril Durimel, originally from Guadelupe, live in Los Angeles. These twins promote their preference for vintage pieces and bright colors.

Coriana (Coco) and Briana (Breezy) Dotson from New York have created eyeglasses named 'Coco and Breezy'. They regard their unique 'spectacles', some of which include three lenses (one worn against the forehead), as the main part of any outfit. Chris and Clayton Giggs are the co-founders of the clothing brand Lfant. Their style stresses pride in one's origins while celebrating other world cultures. Suzane and Suzana Massena were born in Salvador de Bahia in Brazil, where they currently live and work as models. Danielle and Chantelle Dwomoh-Piper founded the Dpipertwins brand. They live in New York, but spent some of their childhood in Ghana. Their clothing line emphasizes their culture by including kente (a silk and cotton fabric) and waxprint fabrics (colorful cotton with batik printing).

The matched faces and bodies of these twins no doubt contribute to the success of these artistically talented pairs. Their hair and clothing styles are intriguing and have been popular among the younger generations for whom they are intended.

Triplet Hockey Stars

Twenty-three-year-old triplets, Gerry, Leo, and Myles Fitzgerald, are famous for being childhood actors and star ice hockey players (Borzi, 2017). Their film credits include the 1999 movie *Baby Geniuses* and a sequel that appeared in 2004. Now the three Canadian brothers play ice hockey for Bemidji State University, in Bemidji, Minnesota. Their heights are not more than one to two inches apart: Gerry, five feet, eight inches, Leo, five feet, nine inches, and Myles, five feet, seven inches. Based on their coaches' abilities to tell them apart, the three appear to be comprised of an identical pair (Leo and Myles) with a fraternal co-triplet (Gerry). However, judging from their photographs, it is difficult to tell for certain; in fact, the three brothers look very much alike. A DNA test has apparently not been done, but would be welcome in this case. The tallest of the three triplets, Leo, is left-handed, not atypical for multiple birth individuals.

The teams' captain described the triplets as 'three fireballs on the ice at once, kind of like three Tasmanian devils'.

Initially, they were on the same line with Myles at left wing, Leo at center and Gerry on right wing, but Myles was later moved off line.

Research by Bemidji State University identified only one other set of hockey-playing triplets on the same college team. They are Brian, Craig and Glenn Seabury, who played for the University of Massachusetts, Lowell in 1989–1990 (Hockey, 2011).

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