

Preimplantation Genetic Diagnosis for Enhancement:
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Josh and Devora were anxious when they went to the genetic counselor's office. As a couple with fertility problems, they had decided to try in vitro fertilization to improve their chances of having a child. Their doctor told them about a procedure that would be done as part of the in vitro process. After fertilizing a few of Devora's eggs with some of Josh's sperm in the lab, the resulting embryos would be DNA tested. After the tests, Josh and Devora could choose which embryo to implant. Today they were getting the results of the embryo DNA tests.

The genetic counselor handed the couple a chart with a long list of diseases and conditions. "We've screened out the ones that tested positive for any of the conditions on that list. After that first screen, there are three embryos left. Each of them has a high likelihood of developing into a normal, healthy child. You've indicated that you don't want to know the gender of the child at this stage, so I won't tell you the sex of the three embryos. I will tell you, though, that based on some new research, that one of the embryos has genetic markers for higher IQ, and another one has markers for above average height. Of course, there's no guarantee that those traits will be expressed. As you know, after the embryos have passed the basic health screening, it is the policy of this fertility clinic to let the parents decide which embryos are implanted."

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This essay wrestles with the question that the genetic counselor posed to Josh and Devora. Perhaps, before getting too far along, it makes sense to pose the question to the reader. If *you* were in Josh or Devora's shoes, sitting in the office of the genetic counselor that day, trying to have your first child, how would you respond to the question, "Which embryo would you like to implant?" Would you cringe at the idea of choosing? Would you hesitate to choose based on height, or intelligence? (If so, are there any other traits that you wouldn't mind selecting for?) Would you ask the counselor to withhold all other genetic information on the three embryos, and choose one "at random"? Would you ask the counselor if she could give you any more details about the

one with the higher IQ? (“Did you say how much higher?” Is there a downside to choosing that one?”)

The scene in the genetic counselor’s office is a real scenario that has occurred thousands of times with couples from around the world, with one key exception: there is no published research on the genetic markers for higher IQ or above average height, yet.¹ But the time will come when we, like Josh and Devora, will be confronted with making genetic choices for our unborn children that go beyond protecting them from disease, and reach into the realm of enhancement.

Preimplantation Genetic Diagnosis and Ethical Issues

The procedure described in the introduction is called preimplantation genetic diagnosis, or simply PGD. PGD is the genetic testing of embryos produced through in vitro fertilization (IVF). A physician first creates embryos by taking eggs from the mother and fertilizing them with sperm from the father. Using PGD, the physician then analyzes the embryos to identify genetic abnormalities or genetic material that is linked to disease. The parents-to-be can choose from among the screened embryos, which are then implanted in the mother using IVF procedures. Because the success rate of IVF is not high, multiple embryos (up to five or six) are often implanted, with the hope that one will adhere to the uterus and grow into a fetus. The procedure can result in multiple pregnancies (e.g. twins or triplets), and in extreme cases, if too many fetuses develop, the abortion of one or more fetuses may be necessary to protect the health of the mother and the other fetus.²

Since 1989, PGD techniques have been used to help couples at risk of having children with serious genetic disorders. Over 1000 babies have been born worldwide using PGD screening, and more than a million have been born using IVF techniques. PGD has been used primarily for detecting chromosome abnormalities and single gene disorders. In addition, and not without controversy within the medical community, testing and selection has also been done for late onset disorders, such as Alzheimer disease, and genetic susceptibility to diseases like breast cancer. The tests that are used to analyze the genetic material of the embryos are not perfect, and occasionally lead to misdiagnosis. For that reason, follow-up prenatal genetic testing of the fetus is often

recommended. PGD pregnancy rates are estimated to be about 20 percent, about the same likelihood that an average sexually active couple (without contraception) will achieve fertilization in a given month.

The ethical concerns regarding preimplantation genetic diagnosis revolve around the following five issues: (1) health risks to the mother or child from the hormones used to stimulate ovulation, ectopic (outside the uterus) pregnancy, or complications from multiple pregnancies; and unknown risks from cell biopsy; (2) creation of extra embryos, and their storage and disposal; (3) transfer of ownership of extra embryos (if someone else wishes to use those embryos to have a baby); (4) removal of a fetus if too many embryos ‘take’ in the womb (selective abortion); and (5) selecting embryos for implantation based on genetic characteristics.

Of these five issues, the first four have been dealt with in various ways by the medical, bioethics, and halakhic communities.³ But the fifth issue, the selection of embryos for implantation based on genetic characteristics, is an expansive, difficult, and messy issue, the proverbial ‘can of worms’ or ‘Pandora’s box.’

Certain cases that fall under the category of selecting embryos based on genetic characteristics have already been tackled by halakhists and Jewish ethicists. The traditional PGD case of selecting out embryos with genetic diseases is generally permitted for infertile couples or for couples who are likely to have a child with a genetic disease.⁴ Even the case of using PGD to create a child that could save the life of a sibling (in cases where an specific genetic match is required) has also been discussed and approved by at least one member of the Bet Din of America.⁵

Untackled however are the broader implications of allowing parents to identify and select the genetic characteristics of their children for non-medical purposes, and for good reason: it’s a very difficult issue. All of a sudden, a technique that was supposed to protect children from developing life-threatening diseases can be used by parents to make children who are a tall, good looking, musically talented, or just plain smart. Orthodox Rabbi Michael Broyde put it this way: “Pre-implantation genetics diagnosis as a form of enhancement of one’s ability is much more complicated as a matter of Jewish law than as a treatment for an illness or a disease or to save the life of one’s sibling in need of a blood or bone marrow transplant.”⁶

It is with this foreknowledge of the complex nature of using PGD for enhancement purposes that we proceed. This paper contains three sections. The first is a review of the halakhic positions on PGD. The second focuses on Jewish views of enhancement. The third discusses parental responsibilities in the Jewish tradition.

The Halakhah of Preimplantation Genetic Diagnosis

While the halakhah regarding in vitro fertilization is well-developed, halakhic responses to preimplantation genetic diagnosis are still lacking, especially with regard to enhancement.⁷ In some cases, halakhic discussion on related topics, such as cloning, is relevant.⁸ The general halakhic consensus among Orthodox, Conservative, Reconstructionist and Reform halakhists regarding in vitro fertilization, using embryos created from the mother and father,⁹ can be summarized as follows. While conception through marital intercourse remains the Jewish ideal, couples who are either infertile or wish to avoid conceiving a child with a severe genetic disease are permitted, but not required, to use IVF and PGD procedures. The use of IVF and PGD for the purpose of sex selection is discouraged, except when there is risk of a sex-linked genetic disease. It is permitted to destroy extra embryos that were created but were not used in the procedure. To avoid additional health risks, a limit is established on the number of embryos that may be implanted at any one time (often three), which reduces both the risks related to multiple pregnancies and the chances that selective abortion will be required. This halakhic endorsement of certain uses of IVF with PGD is not surprising in light of the fact that these procedures are conceptually similar to, and medically preferable to, the practice of prenatal diagnosis and abortion of a fetus affected with a severe genetic disease, which has been accepted by the Conservative movement and by some in Orthodoxy.¹⁰

Generally, halakhic permission to use IVF with PGD has been limited to couples that are infertile or that are likely to produce children with severe genetic defects or diseases. More recently, Orthodox Rabbi Broyde has endorsed the use of PGD in the additional cases of late onset disorders¹¹ (e.g., Huntington's disease) and when parents seek to have a child as a genetic match to treat someone else (e.g. a family member who

requires a bone marrow transplant). He has also suggested that in certain cases, the use of IVF and PGD is not only permitted but also mandatory.¹²

When it comes to the topic of the use of PGD for enhancement, however, the halakhic scholarship is much more limited. Many have pointed out the problems, but few have tackled them. Dr. Avraham Steinberg, Director of the Center for Medical Ethics at Hebrew University, points out the risks: “Changes that have no therapeutic purpose, or changes that affect the germ line and hence future generations, pose weighty problems...Some observers compare the dangers of genetic intervention to those posed by the atom bomb.”¹³ Dr. Fred Rosner avoids the topic of enhancement: “Genetic screening, gene therapy and other applications of genetic engineering are permissible in Judaism when used for the treatment, cure or prevention of disease.”¹⁴ Rabbi Brody seems to be of two minds.¹⁵ Rabbi Elliot Dorff, while not yet putting it in writing, has said that he would not allow the use of genetic screening to select for traits of enhancement such as height or hair color.¹⁶

It is not surprising that the halakhah in the area of genetic screening for enhancement is unformed, since we do not yet have the technical capabilities to select for traits like height or intelligence. In addition, as some have pointed out above, the issues that such choices raise are “complicated” and “weighty.” At this stage, finding Jewish ethical responses to the problem will require looking beyond the halakhah, and searching broadly and creatively across the Jewish tradition. We must also consider the larger impacts of screening for enhancements. The words of Louis Newman are helpful in this regard:

When we look at questions like pharmaceutical enhancements or genetic enhancements we want to not only ask questions about whether it is permissible or forbidden. We need to look at much broader questions: What will it do us as a society? What will it do us as individuals? What sort of moral creatures will we be if we make use of these powers that are now available to us through medical technology?¹⁷

The following two sections on enhancement and parental responsibility in the Jewish tradition will explore some of these areas.

The Questions of Enhancement

One of the issues that makes the use of preimplantation genetic diagnosis for enhancement so complicated is this fact: the person who is directly affected by the enhancement (the child) is not the same person who is making the decision about the enhancement (the parent). The issue can be seen as a messy combination of two simpler cases, and when these cases are combined, the calculus changes dramatically. If Josh and Devora were making *medical* choices for their unborn children (e.g., protecting them from genetic disease, or vaccines for infants), we do not hesitate. If they were making enhancement choices for *themselves* (e.g. plastic surgery or laser eye surgery) we would know where to start. But when parents make *enhancement* choices for their *unborn children*, it is much less clear how to proceed.

Some questions do remain the same as before, such as “How do I weigh the perceived benefit (physical, emotional, psychological) against the health risks?” But this question is overwhelmed by new questions that have not been fully explored. Of those new questions, the following will be addressed: (1) What does Jewish tradition say about taking proactive steps to enhance our children? Are we as Jews commanded to enhance our children in particular ways? (2) How is genetic enhancement different from other types of enhancement that we provide for our children, such as a good education? (3) How sure can we be that choices we make today will actually be an enhancement for our children when they grow up? (4) Does genetic enhancement deprive us of the meaning or benefit derived from our life’s struggles?

(1) What does Jewish tradition say about taking proactive steps to enhance our children? Are we as Jews commanded to enhance our children in particular ways?

A variety of aggadic texts show evidence of a belief in ancient Israelite and Rabbinic times that the physical traits of children could be affected by looking at something particular before or during sexual intercourse. The classic biblical text in this regard is the Genesis account of Jacob setting up patterned rods in front of sheep and goats as they mated.¹⁸ In the Midrash and the Talmud the belief appears a few times: as an explanation for how a white child could be born to two black parents (the couple must have seen a

picture of a white child during intercourse),¹⁹ as a Roman technique for having beautiful children (placing an amulet ring on the bed to look at),²⁰ and as a technique for conceiving a red heifer (passing a red cup in front of a heifer while mating).²¹ For our purposes, the most relevant report of this practice is the story of Rabbi Yohanan at the bathhouse. Rabbi Yohanan, who was renowned for his physical beauty, used to go and sit at the gates of the bathing place. He claimed that as the daughters of Israel would come up from the bathing place, they would look at him, and have children who were either as handsome as he was (according to the version of the story in B. Berakhot 20a) or as learned in Torah as he was (B. Bava Metzia 84a).

None of these aggadic passages are accompanied by moral, ethical or religious concerns. Nor are these ‘visual stimulation’ techniques seen as witchcraft in the Rabbinic sense. The message of these stories seems to be that proactive enhancement of unborn children is permitted (even of other people’s children!). However, even though it would be difficult to find a text more directly relevant to genetic enhancement than the story of Rabbi Yohanan, a respected Rabbi who had the power to enhance the looks and intelligence of unborn children, there is good reason not to use these texts as *carte blanche* justification for enhancing our children using PGD techniques today. Presumably behind these texts is a popular belief that such practices *might* work and an assumption that such practices are permitted. We can equate this ancient practice to a contemporary one: playing music for fetuses. Many believe, without scientific studies to support the claim, that playing music for babies in utero will boost a child’s intelligence. It might work, and it can’t hurt, so why not try it?

But there is a categorical difference between ancient visual stimulation practices and modern preimplantation genetic diagnosis: PGD *actually* works, and we can explain the causal path behind it. Aggadic texts that mention folkways are not the same as halakhic texts that evaluate proven medical techniques. A handful of aggadic material is a shallow foundation upon which to build a Jewish ethic toward enhancement. Yet these texts do hint at a larger theme in the Jewish tradition: the role of humans as co-creators with God. This theme has been written about eloquently by many in the bioethics community.²² Most have argued that God did not create the world a perfect, finished product. On the contrary, we humans are commanded to participate with God as co-

creators in the continuing, evolving process of Creation, within limits. As an example, Jews practice circumcision, thus acknowledging that we were not created perfectly. A philosopher once asked R. Hosaiah, “If circumcision is so beloved by God, why isn’t man born circumcised?” R. Hoshaiiah replied: “Everything that was created during the six days of creation needs finishing...even man needs finishing.”²³ But is genetic enhancement of our children an example of acting as God’s partner in creation, or is it playing God?²⁴ This is the Jewish bioethicist’s challenge – to define the line between responsibly co-creating and irresponsibly playing God. Based on the visual stimulation texts mentioned earlier, we must infer that the idea of trying to genetically enhance our children is not so abhorrent to the Jewish tradition that we should ban it immediately and run the other way. Deciding whether and when it should be permitted requires further investigation.

Another way to pose the question of what the Jewish tradition teaches about genetic enhancement is, “Which types of enhancement would be forbidden, which permitted, and which encouraged?” One way to start to answer this question is to focus on how the dilemma is presented to the parents. If we return once again to the genetic counselor’s office where Josh and Devora are sitting, and we view the decision they are about to make as an *intervention* rather than a *choice*, we can start to tackle the problem from a Jewish perspective. Jeff Burack, a Jewish bioethicist, writes, “From a secular perspective we ask: is this treatment, or mere enhancement? From a Jewish perspective, we ask instead: what is the goal of this intervention?”²⁵ If we tell Josh and Devora they have a choice – “You can choose embryo A, B or C, the smart one, tall one, or regular one” – we have already biased their response in at least three ways: (1) we have implied that in some way, however small or large, that one of those embryos will be the best choice; (2) we have unnecessarily encouraged them to believe that they have more control over their children’s destiny than they actually have (this will be discussed further in the third section); and most importantly (3) we have made it harder for them to see the other option: not choosing at all, that is, choosing a healthy embryo without knowing anything about their genes, letting God decide, or choosing ‘at random.’

If we use the language of *intervention* rather than choice, we can ask about the purpose behind the intervention. If the purpose isn’t noble enough, then the better option

is to do nothing. Burack offers evaluative questions to determine if the intervention is worthwhile: Does it seek holiness? Does it serve us in our roles as caretakers and stewards of our bodies and the world? We might even ask, does it help us in our quest to do justice, love kindness, and walk humbly with out God?

If the answer to those questions is “no” or “I don’t know,” then the intervention fails the noble purpose test. Our human role as co-creators with God is not to fiddle around without purpose. Rather, our role in Creation alongside God is to choose life and reduce suffering. A Jewish response to Josh and Devora’s dilemma would be, unless there are compelling reasons to intervene, to let nature or God decide, which in their case might be to choose a healthy embryo at random.

It strikes me that while the questions above are the right questions to ask, they are also impossible to answer, at least today. The reason we can’t answer these questions is that we can’t know for sure whether making our children taller or more intelligent will help us become more holy or do justice or walk humbly with God. Even if, for instance, we miraculously found the trait for kindness, the decision wouldn’t be clear. I turn to Wolpe to explain the predicament:

What values will we make incarnate in our children, and how can we be sure that they are the right ones? Shall we, for example, try to weed out aggression and contentiousness in our offspring, or listen to the traditional admonition that without the *yetzer harah* no house would be built? Perhaps the flexibility God designed into the human organism is there for a reason, and the unguided hand of genetic development hides a wisdom of its own, with which we trifle at our own peril.²⁶

Wolpe calls into question the idea that the world would be a better place if everyone were nice, kind and humble. Would we be able to more fully serve in our roles as co-creators with God if we used PGD enhancement to select out the embryos with the ‘big ego’ gene? *We just don’t know*. In fact, there are too many things we don’t know about when it comes to the genetic influences on human nature and our ability to make choices that will stand the test of time. At this point, two answers to the question of what the Jewish tradition says about taking proactive steps to genetically enhance our children have emerged: (1) proactively enhancing our unborn children may be permitted if such steps

fit within humanity's 'co-creator' partnership with God; and (2) as an intervention, proactive steps for enhancement must pass the noble purpose test; steps that do not pass such a test would be forbidden and steps that do pass would be permitted. The question of whether we as Jews are commanded to enhance our children in any way will be discussed below in the section on Parent's Responsibilities to the Children.

(2) How is genetic enhancement different from other types of enhancement that we provide for our children, such as a good education?

For many parents, one of the most important things they can give to their children is a good education. In many places parents can send their child to almost any school, although that can mean moving to a new neighborhood, or paying more. In some places, parents are even allowed to home school their children. Few would question the impact that a good education can have on a child's life. Are the choices that parents make with regard to their child's education so different from the choices they might make with regard to their child's genetic makeup?

There are at least three important differences. The first difference is that decisions parents make about their child's genetic makeup will affect not only that child, but also that child's children in perpetuity. Whichever genetic traits are selected for will become part of that child's DNA, or germline, that is passed along to future generations. Put simply, the stakes are much higher. The second difference has to do with feedback. When you educate a child, you have an immediate feedback loop to know whether a particular educational approach is effective for that child. You can see the impact of your decision in real time. You also can change your mind and switch educational approaches if you need to. When making genetic choices for our unborn children, we can't ask them what they would want, and once we have made the decision, it's too late to change anything. The third difference is that the decision is irreversible. If you make a mistake with your child's education, you can acknowledge the mistake and try to correct it. But if you choose the genetic traits for your child, you cannot reverse them.

The issue of irreversibility is especially problematic when it is paired with the issue of unintended consequences. All medical choices (interventions) – especially ones

that affect genetic material – have unintended consequences. In the case of using PGD for enhancement, such unintended consequences are irreversible. Given current levels of knowledge about the impacts that genes have on human development, it would be unethical to put a child at risk of permanent unintended consequences when the original goal of the intervention was for enhancement and not to protect against disability of disease. In other words, until our knowledge and experience with human genomic meddling improves dramatically, the benefits of enhancement do not outweigh the risks of intervention.

For all these reasons, any ethic regarding genetic enhancement must take into account these major differences from other enhancement-like choices that parents make for their children: the impact on future generations, the missing feedback loop, and irreversibility.

(3) How sure can we be that choices we make today will actually be an enhancement for our children when they grow up?

Without a doubt, any decision we make today about what would be best for our children will be biased by the culture we are living in. Our ability to predict what would be best for our children in their generation, let alone in our grandchildren's grandchildren's generation, is immediately suspect. Wolpe writes, "Imagine what would have happened had genetic engineering techniques been available in the 1850s, 1900s, or for that matter, in the 1950s. Imagine for a moment the traits that those societies would have chosen to splice in and weed out of their offspring, thus molding future generations."²⁷

As an example, consider left-handedness, a trait that we do have some genetic information about and that parents could potentially select for or against. Today, a left-handed person might be considered more intelligent or more creative. But if you were left-handed and lived in an earlier century, you might reasonably expect to be slapped on the hand by your teacher with a ruler every time you wrote, to have your hand boiled in water and buried in mud, or to be considered a sorcerer. For another example, consider

homosexuality.²⁸ What choices would parents have made a generation ago, ten generations ago? Would they have been the ‘right’ choices?

In his review of Carl Elliott’s book *Better Than Well: American Medicine Meets the American Dream*, David Wasserman points out that every time we think we’re making choices based on biology or physiology, we’re actually making choices that are biased by our culture. “Elliott’s stories illustrate just how modest a role normal anatomy and physiology may play in conferring opportunity, status, and quality of life...[as an example,] how little merely ‘species-typical’ speech affects the prospects of contemporary Americans; what matters is ‘culture-typical’ speech.”²⁹ As parents, we may be quite confident in our understanding of which traits brought us success in life, but that should not be confused with knowledge about which traits will bring success to our children or our grandchildren’s grandchildren. For better or for worse, social attitudes change. There is no way to know that a choice we make for our unborn child today will actually benefit her, or her progeny.

On this topic, the subject of intelligence deserves special mention. In my experience, many members of Jewish communities celebrate intelligence as an unassailably desirable trait. In discussions with both theologians and with lay people, intelligence seems to be the one trait that is too desirable to turn down. As a parent, if you had the option to choose an embryo with marks for higher intelligence over one with ‘normal’ intelligence, would you really not take that opportunity? Comments like, “Intelligence is different because it would help us solve the world’s problems,” are common. Others suggest that a Jewish cultural bias towards education and intelligence is what has helped to preserve the Jewish people throughout history.³⁰ Without presenting a historical review of such claims, I suggest that even the attitude that ‘higher’ intelligence constitutes enhancement is culturally biased. We cannot know whether ‘extra’ intelligence actually confers a real benefit upon someone and certainly we cannot know whether it will do so in the distance future. If indeed some Jewish communities now celebrate intelligence over other traits like beauty or piety, such an emphasis would not seem to be rooted in Torah and certainly is not universally emphasized among the Jewish people in the modern period (consider, for example, the human traits that the early Zionists celebrated: physical stamina, bravery, and love of the land). The point is that

‘success’ and ‘advantage’ are inherently defined within a particular culture, and cultural practices will change over time. We should not sculpt our family’s future germ-line in our own image of the perfect human or perfect Jew.

(4) Does genetic enhancement deprive us of the meaning or benefit derived from our life’s struggles?

The case has been made that there is an inherent positive value in the struggle for self-improvement, and that the use of genetic enhancement will, at best, short-circuit that process, or at worst, turn humans into mechanized products.³¹ Anyone who has struggled hard for something, whether achieving it or not, knows something of the meaning and value that struggle brings to our lives. Think of something you have struggled with or struggled for during most of your life – a certain personality trait, a physical ailment or skill, an intellectual achievement – and ask yourself, if my parents could have offered me that trait, skill or capacity through genetic enhancement, would I have wanted them to do it? Would you be excited about the extra freedom you would have to work on something else, or would you be saddened to think of who you might be if you hadn’t gone through that particular struggle?

Now imagine that you could offer the same thing to your child and all their offspring: the chance to *not* have to go through that particular struggle. However meaningful that struggle is to you, would you wish it on your children? If your struggle was from some form of disability, perhaps you wouldn’t wish it on them.³² But if your struggle was to be a better musician, and you could offer musical talent to your child from birth, how would you decide?

Burack offers one Jewish idea to apply to the role of struggle in our lives. He points out that with regard to Jewish learning, we are commanded not to achieve a certain level of knowledge, but to engage in the process of study. The goal is to learn, not to know; the process (and the struggle) is what is important.³³ Following this line of reasoning, there is no inherent value in starting from some enhanced level. Another Jewish response is available from the first Creation story. As co-creators with God, we strive to improve ourselves and the world around us. But we don’t strive for perfection.

Ki tov was God's refrain as God was creating the world. Even though the day humans were created was called *tov meod*, it was still good, not perfect. If 'good' was good enough for God, certainly it should be good enough for us. These two teachings reinforce the notion that when it comes to human nature and capacity, the process and struggle is more important than the destination (and is what brings meaning to our lives); starting from an enhanced position is not inherently better. The divine command to study no matter how much we already know, and the divine example of creating things well – and not perfectly – should be 'first principles' as we consider decisions regarding genetic enhancement.

Parental Responsibilities and the Jewish Tradition

Jewish tradition has much more to say about the responsibilities that children have toward their parents than about the responsibilities parents have toward their children. The Talmud lists only six parental responsibilities, which traditionally were applied only to boys: circumcision, redeem the first born, teach him Torah, marry him off, teach him a profession, and (some say) teach him how to swim.³⁴ What about feeding the child? Clothing the child? Loving the child? Presumably the author of the Baraita knew that parents love their children so much that the responsibility to care for their basic needs did not require special mention. As the Talmud also says, "Is there any father who hates his son?"³⁵ From this text, we can answer the question posed earlier, "Are parents commanded to enhance their unborn children?" No, they are not. The religious obligations on parents are circumscribed and do not even hint at anything connected to genetic enhancement.

So we are left to consider whether and when parents are permitted to enhance their children. The Jewish tradition does have an answer, but first consider the psychological and social aspects of the problem. As Dr. Gregory Stock, a public health expert, put it, "The key to figuring out the consequences of giving parents the power to pick their children's genes lies in deciphering not how such choices will affect the children, but how parents will perceive and evaluate such choices."³⁶ Consider yet again what Josh and Devora might be thinking and feeling. They love the child they haven't even had yet, and they have dreams for that child. They may or may not know the

paradox of parenting, that the child is simultaneously the living flesh of the two parents and a distinct human being who, upon reaching adulthood, will make her own decisions. They may want to see much of themselves in the child. They know that life is not easy, and they want to offer their child every advantage they can. They know some of their friends have the same options that they have, and they're worried that their child might not be able to compete if they make the wrong decision. What can the Jewish tradition offer to Josh and Devora in this moment?

This is what the Jewish tradition can say to Josh and Devora. "Parents want the very best for their children. Parents will see parts of themselves in their children. And parents must realize that there are limits to their responsibility for their children." We can tell them, "The struggle to parent feels like a perilous and wonderful dance as we balance the need to transmit and inculcate values and culture with the need to give children an open future."³⁷ We can remind them that we should teach our children, but we cannot control everything that they do. Even when we do our best with them, they don't always turn out how we would like them to. A midrash teaches:

"And when the boys grew up" (Gen 25:27) R. Levi said: [At first], they were like a myrtle and a wild rose growing side by side. But when they grew up, the former yielded its characteristic fragrance and the latter its thorns. For the first thirteen years, both went together to school and together came home from school. But at the end of the thirteen years, one went to houses of study and the other to shrines of idolatry. R. Elazar said: A father must hold himself responsible for his son until the age of thirteen. After that, he should say, "Blessed be He who has freed me of liability for this boy" (Gen R 63:10).

This text reminds parents that even when they do everything right, when children grow into adults, they make choices that their parents may not agree with. Parenting is a battle between loving and letting go. A story in the Talmud about Hezekiah teaches that the ultimate responsibility for how children turn out rests not with the parents, but with God.

In those days Hezekiah was sick unto death. And Isaiah the prophet, son of Amoz, came to him and said unto him, Thus saith the Lord, Set thy house in order, for thou shalt die and not live [2 Kings 20:1]. What is the meaning of 'thou shalt die and not live'? Thou shalt die in this world and not live in the world to come. When Hezekiah asked him: "Why punishment so severe?" Isaiah

replied, “Because you did not try to have children.” Hezekiah: “The reason was because I saw by the holy spirit that the children issuing from me would not be worthy.” Isaiah: “What have you to do with the secrets of the All-Merciful? You should have done what you were commanded, and let the Holy One, blessed be He, do that which pleases Him.” Hezekiah said, “Then give me now your daughter; perhaps through your merit and mine combined virtuous children will issue from me.” (B. Berakhot 10a)

This text places the responsibility for having children squarely on the parent, and the responsibility for how those children turn out onto God. The obligation is to engage in sexual relations in an effort to procreate, not fret about making perfect children.

Hezekiah’s punishment for not having children – because he thought they wouldn’t turn out well – is death! This passage reinforces the Jewish idea of being a co-creator with God by making clear each party’s responsibilities. The text teaches that the responsibility for how a child turns out does not rest with the parent – it rests with God.

We can teach these stories about the two boys who grew up together and about Hezekiah to parents like Josh and Devora to remind them that no matter how much they love their children, they will not be able to control their children’s destinies. We can counsel them to be wary of making decisions for their children that may be influenced by their own desires for how their children will be or what their children will become. We can remind them that raising children is truly a partnership between the parents and God.³⁸ Finally, we can remind them that the Jewish tradition teaches that *how* a child is raised is more important than what genes they have: “He who brings up a child is called ‘Father,’ not he who merely begot him.”³⁹

These teachings from the Jewish tradition offer a strong warning against using preimplantation genetic diagnosis for the purpose of enhancement of our children. If parents use these techniques to create children in their own image, giving their children traits that they think would be best, the balance of powers between the parents and God will appear (in the parent’s mind) to be tipped heavily toward the parent. Newly empowered parents will be more likely to try to control their child’s destiny and the unsuspecting child will bear the burden of their parents’ aggrandized expectations.

Conclusion

From these discussions a Jewish ethic regarding the use of preimplantation genetic diagnosis for enhancement emerges. Actions intended to genetically enhance an unborn child seem to be permitted, although these actions should be limited so as to preserve the co-creator partnership between humans and God. In this partnership, it is the responsibility of the parents to try to conceive and raise children to the best of their ability, and it is the responsibility of God to worry about – or perhaps determine – how those children turn out. Making choices about enhancing an unborn child’s genetic material is radically different than providing an already-born child with the best opportunities: the genetic choices will affect all future generations; there is no feedback mechanism for the parents to understand how such choices will affect the child; and the choices (and their unintended consequences) are irreversible. In addition, there is compelling evidence that any choices we make today are sufficiently biased by our cultural perspective that there is no reason to believe that a choice regarding enhancement that we make for our children today will actually turn out to be an enhancement tomorrow. This is all the more true if we look at how such choices might play out for our grandchildren’s grandchildren.

Barring a broad consensus by the medical, religious, and political communities that a particular enhancement is warranted, parents should avoid selecting among normal embryos based on enhancement-oriented genetic markers.

Abstract

The halakhah regarding the use of preimplantation genetic diagnosis for enhancement is unformed. To start the process of developing an ethic for genetic enhancement, we must broadly search the Jewish tradition for guidance. We should view the use of procedures like PGD for enhancement not as choices to be made, but as interventions to be justified. Decisions about genetically enhancing unborn children are categorically different from other decisions about enhancing born children, such as giving them a good education. When we genetically enhance children, we are making a decision that will affect not only the child but all of the child’s progeny; we have no way of knowing what the child would want (no feedback loop); and the decisions are irreversible. Decisions we make about what traits would be best for our children and their progeny will always be biased by the culture and time in which we live. There is no way to know what genetic traits will actually be best in the future. The Biblical story of Creation teaches that the creation of humans was ‘good,’ not perfect, and that the process and struggles of living are more important than the starting or ending point of any particular life. Jewish tradition teaches that raising a child is a partnership between the parents and God. As the Hezekiah story explains, the responsibility of the parents is to try to have and raise children; how they ultimately turn out is God’s responsibility. It is this author’s opinion that, barring a broad consensus by the medical, religious, and political communities that a particular genetic enhancement is warranted, parents should avoid selecting among normal embryos based on enhancement-oriented genetic markers.

NOTES (Sources cited in brief form below are listed in the bibliography.)

¹ Traits like height and intelligence are likely to have complex genetic triggers, and in the United States, federal research grants are not given out for genetic research into so-called areas of “enhancement.” But while American research labs continue to investigate the genetic causes of thousands of diseases and negative conditions, research outside the US federal funding system in places like China, Singapore and Iceland could theoretically be searching for enhancement-oriented genetic triggers that could have substantial “market potential.”

² These facts and the basic PGD procedures described below were taken from a 2004 report by the Genetics and Public Policy Center at the Phoebe R. Berman Bioethics Institute, Johns Hopkins University entitled “PGD and Its Future Implications for Society.” The report is available at the Center’s website dnapolicy.org.

³ See below for basic summary of the responsa to date regarding the halakhic issues around PGD, and see bibliography for additional materials.

⁴ See the review of the halakhah below.

⁵ Broyde 64 (also discussed below).

⁶ Broyde 75, in footnote 45.

⁷ **Examples that discuss PGD:** Broyde’s “Pre-Implantation Genetic Diagnosis, Stem Cells and Jewish Law” (2004) which mentions enhancement but does not treat the topic; and Mackler’s responsa approved by the Rabbinical Assembly Committee on Jewish Law and Standards (Dec 1995), published as Ch. 4 in Mackler’s (ed) *Life and Death Responsibilities*, contains a brief discussion of PGD for therapeutic reasons but not for enhancement; **Examples that do not discuss PGD:** Dorff’s discussion of IVF in his *Matters of Life and Death* (1998, pp.53-58); J. David Bleich’s chapter on IVF in *Judaism and Healing* (2002); the two CCAR Responsa “In Vitro Fertilization and the Status of the Embryo” 5757.2 and “In Vitro Fertilization and the *Mitzvah* of Childbearing” 5758.3 (both not yet published)

⁸ See, for example, Avram Steinberg’s “Cloning of Humans: Scientific, Ethical and Jewish Aspects” in Sinclair’s *Jewish Biomedical Law*; also see the group of articles on Cloning in the Sept 2000 issue of *Torah u-Maddah Journal*.

⁹ When embryos created from egg and sperm other than the parents’ are used, many additional halakhic issues are raised, which will not be discussed in this paper.

¹⁰ Abelson’s “Prenatal Testing and Abortion” in Mackler, ed. *Life and Death Responsibilities* (Ch. 13).

¹¹ ‘Late onset disorders’ are different from ‘severe genetic diseases’ in that they often appear much later in life (often after an extended, healthy/normal life) and are generally not as debilitating.

¹² Broyde 66. For additional cases, see 66-67. In the case of making a ‘genetic-match’ child, Broyde writes, “one who has a child because this child will save the life of another is doing nothing other than two good deeds – have a child and saving the life of another.” Broyde is not clear on which cases might require the use of IVF/PGD – see p64.

¹³ “Human Cloning” 204.

¹⁴ Rosner 214.

¹⁵ Broyde 2004. He makes an endorsement on page 65: “Using PGD to create a child without a specific illness would seem to be permitted according to Jewish law at the discretion of the

child's parents. The same can be said for PGD that is designed to enhance any given characteristic in a child that increases the child's ability or functionality, in the discretion of the parents." And then he shows serious hesitation on page 75 (note 45): "...pre-implantation genetics diagnosis as a form of enhancement of one's ability is much more complicated as a matter of Jewish law than as a treatment for an illness or a disease or to save the life of one's sibling in need of a blood or bone marrow transplant."

¹⁶ Verbal comments at a workshop entitled "The Theology of Technology: Bio-Ethics in the Age of Terri Schiavo" at the URJ Biennial in Houston, Nov 17, 2005.

¹⁷ Remarks on a panel (chaired by Paul Wolpe) at the 2002 "Jewish Ways of Knowing" Bioethics Conference at JTS, Conference Proceedings p32.

¹⁸ Gen 30:37-43 and 31:10-13.

¹⁹ Bereshit Rabbah 73:10 and Bamidbar Rabbah 9:34.

²⁰ B. Gittin 58a.

²¹ B. Avodah Zarah 24a.

²² Generally, opinions across movements hold that humans are commanded to participate in the act of Creation with God, within limits (e.g., God can create *ex nihilo*, or *yesh-mi-ayin*, while humans create *yesh-mi-yesh*.) For examples of such discussions as well as dissenting opinions, see Bleich 136-138; Steinberg (2000) 199-200; and Cohen 7-9. Because these arguments have been well developed by others, I have not repeated them here.

²³ Genesis Rabbah 11:6.

²⁴ Graetz (44) poses the question this way: "The Jewish approach encourages humans to perfect what God has given as an expression of partnership with God...yet the question remains: just how does one decide when the partner has gone too far in 'improving,' so as to constitute a violation of the partnership?" Dorff similarly asks, "To put it theologically, when do we cease to be God's partners in the ongoing act of healing, and when do we instead play God?" (Response to Pollack's "Some Genetics for Some Jews" in *Conservative Judaism* 54,3 (2002): 13.)

²⁵ Burack (page in published version unknown).

²⁶ Wolpe, "Bioethics" 24.

²⁷ Wolpe, "If I am only my genes" 227.

²⁸ Assuming there are substantial genetic causes for homosexual behavior, which is still somewhat under debate in the medical community.

²⁹ Wasserman 46.

³⁰ Given the arc of Jewish history, one wonders if this is an argument for or against such an emphasis.

³¹ See, for example, Wolpe's remarks at the 2002 "Jewish Ways of Knowing" Bioethics Conference at JTS, Conference Proceedings p34-35.

³² Although, as a counter-example, consider the desire of some deaf couples to select for a deaf child (in such cases, deafness is not considered a handicap or impairment).

³³ Burack (page in published version unknown).

³⁴ Kiddushin 29a. Swimming is a *yesh omrim*.

³⁵ B. Sanhedrin 105b.

³⁶ Stock 111.

³⁷ McGee 16.

³⁸ Two texts remind us of this: “It is impossible for a person [to be born] without a woman, and it is impossible for a woman [to become pregnant] without a man, and both are impossible without the Divine Presence (J. Berakhot 9:1, 12d) and “Our sages taught: there are three partners in man – the Holy One, blessed be He, his father and his mother. His father sows the white matter, from which comes bones, sinews, nails, the brain in his head and the white of the eye. His mother sows the red matter, from which comes the skin, flesh, blood, hair and the black of the eye. The Holy One, blessed be He, puts into him breath, spirit, facial appearance, sight, hearing, speech, mobility, knowledge, wisdom, and understanding.” (Niddah 31a).

³⁹ Exod Rabbah 46:5. The relative influence of genetics vs. environment (“nature vs. nurture”) has been discussed extensively in the literature. For an excellent discussion of how modern culture over-emphasizes the role of genetics, see Wolpe’s two articles, “Bioethics, the Genome, and the Jewish Body” and “If I am only my genes, what am I?”

BIBLIOGRAPHY

- Balin, Carole and Aaron Panken. “Shall we Counsel Germ Cell Gene Therapy?” *Reform Jewish Ethics and Halakhah*, 1988: 131-157.
- Bleich, J. David. *Judaism and Healing: Halakhic Perspectives*. Jersey City, NJ: KTAV Publishing House, 2002.
- Broyde, Michael J. “Pre-implantation Genetic Diagnosis, Stem Cells, and Jewish Law.” *Tradition* 38:1 (2004) 54-75.
- Burack, Jeff. “Jewish Reflections on Genetic Enhancement.” *Journal of the Society of Christian Ethics* 26 (2006).
- Cohen, Jonathan. “In God’s Garden: Creation and Cloning in Jewish Thought,” *Hastings Center Report* 29,4 (1999): 7-12.
- Dorff, Elliott. *Matters of Life and Death: A Jewish Approach to Modern Medical Ethics*. JPS: Philadelphia, 1998.
- Fiorino, Eitan. “The Case Against Cloning.” *The Torah u-Maddah Journal*. 9 (2000), 220-224.
- Golonkin, David. “Respona: Does Jewish law permit genetic engineering on humans?” *Moment* August 1994, 28-29, 67.
- Graetz, Michael. “The Human Genome and Ethical Issues.” *Conservative Judaism* 54,3 (2002): 42-49.
- Kaplan, Feige. “Human and Molecular Cloning: Ethical Dilemmas in a Brave New World.” *The Torah u-Maddah Journal*. 9 (2000), 225-235.
- Kass, Leon. “The Moral Meaning of Genetic Technology,” *Commentary*, Sept 1999: 32-38.
- Lauritzen, Paul. “Stem Cells, Biotechnology, and Human Rights: Implications for a Posthuman Future,” *Hastings Center Report* 35,2 (2005): 25-33.

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- Mackler, Aaron. *Life and Death Responsibilities in Jewish Biomedical Ethics*. JTS: New York, 2000.
- McGee, Glenn. "Parenting in an Era of Genetics," *Hastings Center Report* 27,2 (1997): 16-22.
- Midgley, Mary. "Biotechnology and monstrosity: Why we should pay attention to the 'yuk' factor," *The Hastings Center Report* 30,5 (2000): 7-15.
- Parens, Erik. "Authenticity and Ambivalence: Toward Understanding the Enhancement Debate," *Hastings Center Report* 35,3 (2005): 34-41.
- Pollack, Robert. "Some Genetics for Some Jews: A Jewish Look at the Human Genome." *Conservative Judaism* 54,3 (2002): 3-12.
- Rosner, Fred. "The Case of Genetic Engineering." *The Torah u-Maddah Journal*. 9 (2000), 211-215.
- Steinberg, Abraham. "Cloning of Humans: Scientific, Ethical and Jewish Aspects" in Sinclair, Daniel (ed) *Jewish Biomedical Law: Jewish Law Association Studies XV* Binghamton University, 2005, 119-140.
- _____. "Human Cloning – Scientific, Moral and Jewish Perspectives." *The Torah u-Maddah Journal*. 9 (2000), 199-206.
- Stock, Gregory. *Redesigning Humans: Choosing our Genes, Changing our Future*. Houghton Mifflin (2003).
- Troster, Lawrence. "Cross-Generational Retribution and Genetic Engineering: Reflections on Chance and Free Will." *Conservative Judaism* 54,3 (2002): 33-41.
- Wasserman, David. "Enhancement as an American Dilemma (Book Review)," *Hastings Center Report* 34 (May/June 2004): 46-47.
- Wolpe, Paul Root. "Bioethics, the Genome, and the Jewish Body." *Conservative Judaism* 54,3 (2002): 14-25.
- _____. "If I am only my genes, what am I? Genetic Essentialism and Jewish Response." *Kennedy Institute of Ethics Journal* 7.3 (1997), 213-230.
- _____, with Ron Green, Aaron Mackler, and Louis Newman. "Roundtable Discussion: Is There a Jewish Perspective on Genetic or Pharmaceutical Enhancement?" *Jewish Ways of Knowing: Anticipating the Ethical Dilemmas of Biotechnology (Conference Proceedings)* at the Jewish Theological Seminary, NY, March 17-18, 2002: 23-42.