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Key Ethical Issues in Embryonic Stem Cell Research

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Key Ethical Issues in Embryonic Stem Cell Research

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12 November 2002

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Introduction

The discovery, isolation, and culturing of human embryonic stem cells has been described as one of the most significant breakthroughs in biomedicine of the century.¹ This description would be warranted by virtue of the biological uniqueness of these cells alone—their ability to self-renew infinitely while retaining a remarkable capacity to differentiate into any form of cell tissue. But as well as this, the culturing of embryonic stem cells holds tremendous potential for the development of new forms of regenerative medicine to treat debilitating or fatal conditions that would not otherwise be curable.²

It is somewhat of an irony that the discovery of cells with such a tremendous potential for improving and prolonging our own lives, should bring with it some of the most trenchant and intractable questions about the value of life itself. The harvesting of embryonic stem cells results in the destruction of the embryos from which they are harvested. It results, in other words, in the expiration of the very beginnings of a possible human life. Issues about the value of life emerge here in perhaps their most stark and poignant form in the question of whether life for those already existing should be improved at the seeming expense of a possible human life that has just come into being.

Needless to say, what the most ethically justified response is to this sort of question is far from obvious. It is not immediately apparent, either, just what should count as the appropriate criteria for assessing possible responses to it. Indeed, it is even contentious as to what the right concepts and terminology are for framing the central questions. What is clear, though, is that it would be remiss to fail to engage with these questions in a manner that is commensurate with their depth, complexity and importance.

With due regard to that, the following discussion provides a brief overview of some of the core ethical issues arising from the Research Involving Embryos Bill 2002 and to some extent the Prohibition of Human Cloning Bill 2002.³ The public debate has focused mostly on ethical problems associated with the destruction of embryos (in the case of the first Bill), and with the creation of cloned human embryos (in the case of the second Bill). The current paper will confine its primary focus to the first set of problems, since many of the salient ethical issues about cloning will arise, as it turns out, in connection with embryonic stem cell research.⁴

The paper takes most of the major ethical concerns in the debate to be encompassed by the following core questions:

- What, in principle, is ethically at issue with destructive embryo research?
- What is important when it comes to judging the value of the potential consequences of destructive embryo research?
- In what does the value of the human embryo consist?
- Does the means by which an embryo expires—whether it is destroyed or merely succumbs—make a moral difference?
- Is there anything morally worse about using embryos created for research purposes compared to using existing excess or surplus ART (assisted reproductive treatment) embryos?

The purpose of the following discussion is to clarify some relevant moral and conceptual distinctions connected with these core questions, and to clarify the basic structure of the major views and argument themes that have been developed by philosophers, bioethicists and theologians in response to these questions. Of course, in their more fully expanded form these distinctions and arguments will involve subtleties and complexities that are beyond the limited scope of this paper to address. Nonetheless, the discussion here will hopefully give an impression of where some of those further complexities and subtleties might lie.

The Basic Ethical Problem

The possibility of destructive embryo research, particularly embryonic stem cell research, presents us with a moral problem because it appears to bring into tension two fundamental moral principles that we esteem very highly: one principle enjoins the prevention or alleviation of suffering, and the other enjoins us to respect the value of human life. As noted, the harvesting and culturing of embryonic stem cells has considerable potential to bring about remarkable potential benefits in the way of alleviating debilitating medical conditions. So, it satisfies the first principle to a very great degree.

On the other hand, there is a case to be made that the harvesting of human embryonic stem cells violates the second principle in that it results in the destruction of human life with value (i.e. human embryos). Accordingly, both principles apparently cannot simultaneously be respected in the case of embryonic stem cell research. The question then is which principle ought to be given precedence in this conflict situation. Should we give more weight to the first, and permit destructive embryonic stem cell research because of its remarkable potential benefits? Or should we give more weight to the second, and prohibit destructive embryonic research because it violates respect for the value of the

embryo as the very beginnings of a possible human life? This, at bottom, is the ethical problem generated by destructive embryo research.

Crude as it may sound, responding to this problem calls for a moral calculation—a decision about how the positive value of destructive embryo research is to be weighted, from a moral point of view, in comparison to the negative value (or disvalue) of destroying embryos. Whatever way that calculation is done, it is important to get a clear idea of what moral weight each side of the equation has. This will involve:

- (i) developing a sound and accurate picture of what the real value is of the benefits of embryonic research, and
- (ii) clarifying what the value of embryos might consist in, and what, if anything, may be wrong with destroying them.

The rest of this paper outlines some of the ethical arguments and philosophical considerations that have been considered relevant to these two matters.

Evaluating the Benefits of Embryonic Stem Cell Research

Evaluating the beneficial consequences of embryonic stem cell research is not straightforward. There are complexities associated with assessing how realistic the potential of the benefits is, how alternatives with different combinations of benefits and drawbacks are to be compared, and factoring in all of the sometimes overlooked possible consequences of embryonic research.

Judging the Benefits

Most attention has centred on the medical potential of embryonic stem cell research and cultivation, particularly somatic gene therapy for genetic disorders⁵, and the generation of replacement tissues and organs for transplant.⁶ There is no doubt that these outcomes, once realised, would be highly valuable. It is important to keep in mind, however, that currently these benefits are *potential* ones. A sound evaluation of stem cell research needs to take account of the likelihood of achieving its beneficial outcomes. In matters of science, and particularly, in areas that are newly developing and comparatively uncharted (such as embryonic stem cell research), it is sometimes difficult to settle on those probabilities with complete confidence. It is the nature of scientific discoveries and progress, that they are not easily predicted. Both advances and impediments to advancement can arise unexpectedly. This uncertainty about how real the potential benefits are, needs to be kept in mind when weighing and evaluating the consequences of embryonic stem cell research.

Comparing the Benefits and Harms of Alternatives to Embryonic Stem Cell Research

Adult Stem Cell Research

Whether destructive embryonic stem cell research is the right thing to do or not, will partly depend on what the alternatives are, and how their particular benefits and drawbacks balance out. There is another research program involving adult stem cells that are present in and drawn from bone marrow, brain and gut, and other tissues. Some of these stem cells have a capacity to differentiate into a limited number of different cell types, such as blood cells, muscles and neurones (i.e., they are *multipotent*), but they have not been shown to be *pluripotent* (able to differentiate into any cell-type) in the way that embryonic stem cells are.⁷ This limitation means that adult stem cells offer more limited potential benefits in regenerative medicine and gene therapy, at least from the standpoint of our current understanding and available biotechnology. (But with that said, it is worth keeping in mind the points made above about the limited predictability of scientific advances, including the possibility of inducing adult stem cells to differentiate into a greater range of tissue types.)

The harvesting and use of adult stem cells for biomedical purposes, however, avoids some of the ethically and biomedically problematic features of using embryonic stem cells. For a start, harvesting adult stem cells does not involve the destruction of embryos. The extent to which that is an advantage will depend on the extent to which that destruction turns out to be a bad thing, (and this will be taken up shortly). Tissues grown from adult stem cells will be immunologically compatible with the person from whom the stem cells are harvested. This means that those tissues can be transplanted into that person without fear of the body rejecting them. Tissues produced from embryonic stem cells for the purpose of regenerative therapy, however, are unlikely to be immunocompatible with the person for whom they are intended. The immunological properties of the tissue are set by the characteristics of whatever embryo the stem cells are derived from.

Apart from the ongoing use of immunosuppressant drugs (with its possible serious side effects), two other potential solutions to this immunological limitation have been suggested. The first proposes a 'tissue bank' with a sufficiently large number of different embryonic stem cell types to generate tissue that can be immunologically matched with different recipients. Hall points out, however, that 'this would require a huge number of human embryonic stem cell lines (the number being a matter of debate). Such an embryonic stem cell bank would be technically difficult and expensive to generate. The number of embryos that would be required to produce the cell bank would probably test public support ...'⁸ The second possible way of overcoming the problem of immunological incompatibility is through what has been called 'therapeutic cloning'. In this process, the nucleus of a human oocyte or egg is removed and replaced with the nucleus of a cell taken from the body of the intended tissue recipient. The new egg is induced to develop into an embryo, from which immunocompatible stem cells are harvested. The embryo will be a human embryonic clone of the recipient, with all his/her

exact genetic characteristics. To date, there have only been one or two reported attempts at human cloning that have met with some success.

A number of ethical objections have been expressed to therapeutic cloning, all revolving around the creating of an embryo, and moreover, the creating of an embryo for a use that will destroy it. These objections and arguments usually rely centrally on certain views about the value or moral status of the embryo, and these views will be outlined later in the paper.

Whatever benefit the pluripotency of embryonic stem cells has in generating immunocompatible tissue, this benefit is likely to be possible only at the cost of having to engage in either the morally contentious practice of human (therapeutic) cloning, or the morally contentious practice of using (and destroying) a large number of embryos to create a sufficient range of embryonic stem cell lines for organ banks. It is especially important to note also, that if the Prohibition of Human Cloning Bill 2002 is passed in its current form, and any kind of human cloning, including therapeutic cloning, is prohibited, there will be less opportunity to maximise the potential benefits of embryonic stem cell research, and embryonic stem cells will effectively have less of the advantage they would otherwise have over adult stem cells.

The Inevitable Succumbing of Surplus IVF Embryos

The Research Involving Embryos Bill 2002 only permits excess ART embryos existing before 5 April 2002 to be used for research purposes in accordance with a licensing regime. It is a fact about those embryos that they would likely expire or succumb anyway. They would still be destroyed, in other words, but through exposure to natural processes. On the face of it, this looks as if the harm or negative value involved in embryos expiring (whatever it might be) will be the same whether embryo research is allowed or not. In each case the embryo will expire.

But this impression can be a little oversimplified. Some philosophers argue that there is a moral difference between acts and omissions, between actively killing something, and passively failing to intervene to stop its death from other causes (when one could have). Even though the outcome is the same in each case, it can be argued that there is something worse, or more morally culpable, about actively bringing about the death oneself. There are different views on what the moral difference between killing and letting die amounts to, and there are those who argue that there is no significant difference. Whichever way one comes out on this, it is not clear that the act-omission distinction maps neatly onto the particular embryo research scenario under discussion. Destroying surplus embryos through research is certainly an act. But so too, some would argue, is removing surplus embryos from the cold storage that keeps them from expiring. They would hold that this looks less like failing to intervene in independently occurring causal processes (that will lead to expiry), than an act that sets those processes in motion. If this is true, then the first impression above will stand. The harm or negative value involved in embryos expiring (whatever it might be) will be the same whether embryo research is allowed or not.

Some would argue that there is an important logical upshot from this. If the only two alternatives in the circumstances (destroying embryos in research vs making them succumb) involve the same level of harm or disvalue or moral wrongness, but embryo research involves much greater benefits than the other alternative, then it could be argued, it makes sense to opt for the more beneficial embryo research. And indeed, some might construe that as a sufficient case for the moral preferability of that option. (This would change, of course, if the relevant alternatives change—if say, embryos were purpose created for research, which were not pre-existing and destined to be expired).⁹

Taking into Account all of the Relevant Benefits and Harms

The embryonic stem cell debate has been pre-occupied with the biological and medical benefits or drawbacks of that research. Central as these certainly are, there are nonetheless other, often-overlooked non-medical impacts that may be important to factor in. Some of the major among these are possible social impacts including:

De-sensitisation to the Destruction of Human Life

It is argued by some¹⁰ that allowing the destruction of embryos to become an entrenched practice would serve to desensitise the scientific establishment, regulating bodies, and society in general, to the destruction of life in general. An increased social toleration of loss of life, it would be argued, may make it easier for society to accede to (currently) more controversial practices involving the ending of life such as, late term elective abortion, or withdrawal of treatment for severely disabled infants, for example. This 'slippery slope' argument about potential consequences is based on empirical assumptions about the causes and effects of certain social attitudes, and needs to be assessed in the light of their plausibility.

Contributions to Social Oppression

One strong but minority strand of argument emphasises the impact that biotechnology has on broader social relationships. It has been argued that 'research should be evaluated not only in terms of its effects on the subjects of the experiment but also in terms of its connection with existing patterns of oppression and domination in society'.¹¹ There is a considerable body of writing that explores the impacts of new reproductive technologies (such as IVF) on the interests of women, particularly how those technologies might contribute to oppression.¹² In the case of embryonic research, it is sometimes argued that women who donate ova or embryos are at risk of exploitation to the extent that male-dominated medical practice appropriates their reproductive labour for research and commercial benefits. Women are at risk, therefore, of being alienated from their reproductive labour. Moreover, it is argued that women's body parts are at risk of being commodified, and their acts of altruistic donation demeaned, if downstream users can develop commercial applications for stem cells developed from their ova and embryos.¹³

The Value of the Embryo

What weight does the other side of the moral equation have? What is wrong, if anything, with destroying embryos? If there is something wrong with that, is it sufficiently wrong to outweigh or override the benefits of embryo research, and therefore, render that research morally impermissible? Most of the leading arguments about the rightness or wrongness of destroying embryos are based on some view or other about the moral status of the embryo—how the embryo ought to be regarded or treated from the moral point of view, in virtue of it arguably possessing certain morally important intrinsic characteristics.

It is relatively uncontroversial to describe embryos as human life (at its very beginnings). It is another thing, however, to describe embryos as persons, or human beings, or potential persons, etc. These descriptions are morally laden in that they carry with them potential implications about what can and cannot be done to embryos from a moral point of view. What those potential implications are, and indeed, whether they are sound ones, will depend on the nature and plausibility of the particular arguments that accompany each view on the moral status of the embryo. There are different views about this moral status. The leading views speculate that embryos have the status of:

- persons, or
- potential persons, or
- divine creations, or
- subjects of moral 'harm', or
- the beginnings of human life, with intrinsic value, or
- organic material with no more moral standing than other body parts.

Each of these will be outlined in turn, with particular attention to (i) what the intrinsic moral characteristics are the each particular view attributes to embryos, and (ii) what these alleged characteristics or moral status are held to imply for our moral treatment of embryos—particularly whether they can ever or never be destroyed.

Embryos have Status as Human Beings or Persons

Some argue that, despite obvious physical differences between developed humans and embryos, the latter ought still be regarded as human beings or persons. One of the more plausible arguments to this effect relies on pointing out that there is no non-arbitrary point in the physical growth continuum between embryo and developed human that counts as a morally significant dividing line.¹⁴ Consequently, if individuals at their fully developed stage are human beings or persons, there is no non-arbitrary ground to think that they should not count as the same at their embryonic stage. Those who hold otherwise,

according to this argument, need to indicate the developmental point at which personhood, or status as a human being, is acquired.

The argument continues that it is a very deeply and commonly held view in modern liberal democracies that individual persons are deserving of especially strong moral respect in certain ways. All individuals, by virtue of being persons, have fundamental rights not to have their basic human interests interfered with in certain ways, and most importantly, their interest in the maintenance of their life and bodily integrity. If embryos have the status of persons, then they too will have rights not to be harmed or killed. Or, put in another way, we will be under a very strong moral obligation not to harm or kill embryos.

Most prominent ethicists, philosophers and commentators would agree that persons have a status deserving of strong and special moral respect, protection and dignity. Many, however, would dispute that embryos should be considered persons or human beings in any serious sense. Even if one cannot point to an exact black and white dividing line in human development, it is still reasonable (they hold) to point to the fact that wherever the transition occurs, embryos do not have the psychological, physiological, emotional, intellectual properties that we tend to centrally associate with personhood. Embryos, particularly the very early pre-implantation blastocysts involved in stem cell research,¹⁵ do not, for instance, have consciousness, individuality, the ability to reason, or the ability to form courses of action in life and to choose between them.¹⁶

Embryos have Status as Potential Persons

Some ethicists have a response to the foregoing objection to viewing embryos as persons. It is to concede that embryos do not *currently* exhibit these properties of personhood, but they *will*, if allowed to develop and fulfil their potential. To the extent that embryos are potential persons, it is argued, they ought to still be accorded the moral respect and dignity that personhood warrants.

This potential person argument gains some of its impetus from the observation that we still treat humans as persons (with the attendant moral respect) when they are temporarily unconscious or asleep. While in these incapacitated conditions, individuals are not conscious, can not reason, and can not form and choose courses of action—the characteristics we associate with personhood. But we still see it as morally wrong to harm them or violate their basic rights. It is argued that we see it this way because we know that even though they are not able to exercise the properties of personhood in their present state, these people *will* be able to when they become conscious again. This same reasoning it is argued, and the fact they will exercise these capacities when they eventually become fully developed humans, should inform our attitude to embryos.

Three types of concern have been expressed about this argument:

- the probability of IVF embryos developing into full-term successful births is low. There is a high rate of foetal loss in early embryos—up to 73 per cent in pre-implantation embryos.¹⁷ If probability is a reflection of potential, then there is relatively little potential for any one pre-embryo to become a person.
- Potential is very context-dependent, and it may not make sense to talk simply about *the* potential of something. The probability of an IVF embryo becoming a successful birth depends heavily on human action and intervention (e.g., transferral to the uterus), as well as other biological conditions (e.g., whether the embryo implants, grows to term, is born properly, etc., etc.). A great deal has to come from the outside for a successful birth, in the case of both natural and assisted pregnancy. So much so, it might be argued that it is not entirely clear what could be meant when speaking of the *inherent* potential of an embryo to become a person.¹⁸ From what contextual base line could that inherent potential be measured? (Some might also wish to point out that, in the case where surplus IVF embryos are used for stem cell harvest, these would naturally succumb anyway, and consequently would not have the potential to become persons.)
- Some would argue, that it is not clear why something that could become a person should be morally regarded as if it actually were a person. They would hold that the observation made above about people who are temporarily unconscious does not necessarily make the required case. Arguably, we treat the temporarily unconscious with the full moral respect of personhood because we knew that before lapsing into unconsciousness they had all the properties of personhood, and we know they will have them again after they come out of it. This scepticism is not presented as suggesting that the potential personhood of embryos counts for nothing in the way they are regarded morally. Only that it might not count for the full complement of rights and respect that actual persons warrant.

Before leaving these views about the moral status of embryos as persons or potential persons, there is an important qualification to be noted. Even if embryos were shown to have this status, and the accompanying moral respect, dignity and protections due to persons, it can be argued that this still might not necessarily mean that embryos should never be intentionally destroyed. A lot depends on one's philosophical understanding of the moral rights and obligations associated with personhood. Some would argue that the human right not to be killed, and the moral obligation not to kill persons, are absolute and inviolable, and must be observed with no exception, regardless of what the consequences are. Others might argue that the obligation not to kill persons, although a very very strong obligation, is not an absolute and infeasible one that can never be overridden. There may be some circumstances where very great harms can be averted by actively ending someone's life. For example, assassinating Hitler and saving 6 million Jews, or even pulling the plug on life-support in order to spare someone's intense suffering. Someone very attuned to the importance of consequences, therefore, might want to hold that even if embryos do have the full complement of human rights, it is still not an absolute and infeasible obligation not to destroy embryos regardless of the consequences. The fact

that many people would accept abortion in cases where the pregnant woman is at significant physical risk, is testimony to the prevalence of this consequentialist turn in people's ordinary moral thinking.

Embryos have Status as Divine Creations

It is sometimes implicit in some points of view, particularly theistic ones, that embryos warrant special moral importance because they are divine creations in being the beginnings of human life. In other words, embryos are not ours to destroy (nor create).

A number of concerns might be expressed about this view. For those who do not subscribe to a theistic worldview, the most obvious would relate to questions about the reality of a divine creator or creative agency. It is not clear what publicly available procedure could resolve that question. Some might also observe that this argument, at least in its simple form, could be too strong, since it argues against the destructive use of e.g., plants. On top of this, some might add, our limited knowledge of the nature of the divine tends to also limit our understanding of what divine status exactly implies re our moral obligations.

Embryos are Harmed by their Destruction (Whatever their Moral Status)

It is generally held that one of the traditional reasons for protecting life, is that loss of life causes various sorts of harm—to the killer, those close to the deceased, society in general, and most importantly the deceased. Some have argued that loss of embryonic life is a harm, inflicted on the embryo, by destroying it. Philip Devine, for instance, argues that:

... loss of life ... is a harm that can be inflicted on any organism; plants and non-human animals. Human organisms of every stage of development including the embryonic can all suffer loss of life.¹⁹

Others, however, have argued that embryos cannot be harmed in the sense we usually understand that idea. The eminent American social and legal philosopher, Joel Feinberg, for instance, analyses the concept of harm in terms of the 'thwarting, setting back, or defeating of an interest'.²⁰ For a being to have an 'interest', for Feinberg, is a matter of it having beliefs, desires, expectations, aims and purposes. These, he holds, are what are thwarted, in the thwarting of an interest. According to his views trees or the environment are not themselves morally harmed by their destruction. Feinberg allows that future or potential interests might be attributed to a developing embryo, but that these only take effect if and when the potential interest becomes actual. Another theorist makes this same point by example:

Imagine that, just as Dr Frankenstein reached for the lever that would bring life to the assemblage of body parts on his laboratory table, someone appalled at the experiment smashed the apparatus. That act, whatever we think of it, would not have been harmful or unfair to the assemblage, or against its interests.²¹

The nub of this view is that because embryos are not the 'subject' of interests, they cannot be the subject of basic rights that protect interests.

Embryos have Status as Human Life with Intrinsic Value

Even if the foregoing views of Feinberg were accepted, some have argued that there is still something bad about the loss of life that is involved in the destruction of an embryo. In an attempt to get at the heart of this persistent residual conviction, the prominent Anglo-American legal and political philosopher Ronald Dworkin has proposed that we need to look at the value of a life in a particular way. Dworkin observes that we can conceive of the value of a life from two (compatible) points of view or directions. We very often think of the value of lives from the inside, as it were, in terms of the value they have *to the livers* of those lives. Through rights and liberties, we protect a person's life and interests, not because these are valuable from the point of view of the universe, but because they are important to the person concerned. But as well as recognising that a life has value to the liver, we also recognise that a life can have value from a more objective and impersonal point of view. In much the same way that a unique and magnificent work of art has intrinsic value, a value which makes it deserving of respect and protection, Dworkin observes that a single human life commands respect. Dworkin eloquently encapsulates the intrinsic value of human life in the following.

(a single human life has value) ... no matter in what form or shape, because of the complex creative investment it represents and because of our wonder at the divine or evolutionary processes that produce new lives from old ones, at the processes of nation and community and language through which a human being will come to absorb and continue hundreds of generations of cultures and forms of life and value, and, finally, when mental life has begun and flourishes, at the process of internal personal creation and judgement by which a person will make and remake himself, a mysterious, inescapable process in which we each participate, and which is therefore the most powerful and inevitable source of empathy and communion we have with every other creature who faces the same frightening challenge.²²

Thinking of the value of a life in this more external or impersonal way, argues Dworkin, provides another way of understanding what of moral importance is lost in the loss of a human life. Because this understanding is not based on any supposed moral harms to the liver of the life, as the subject of human interests, it is an understanding that can be applied in the case of human life at its very beginnings, i.e., embryos.

There is however one crucial qualification in Dworkin's view. There are degrees of intrinsic value of a life depending on the stage at which the life is being lived, and correspondingly, there are degrees of respect that ought to be shown it at those stages. Dworkin observes that we tend to make different judgements of how great a loss the ending of a life is at different stages in that life. For example, many would argue that a life ended at the peak of its achievements and promise is a greater loss than a life lost at its sunset, after its achievements and promise have been realised. Some also would argue that

a human life that ends at its very beginnings is a less serious loss than a life that ends some time after it has begun to actively engage in the process of human and social involvement that Dworkin speaks of in the passage above. We do, for instance, see sudden infant death as a more serious loss than early miscarriage, or failure of an embryo to implant. These different judgements of the degree of loss involved in the ending of a life, reflect the degree of intrinsic value we attach to human life at those stages. Or so Dworkin argues.

The important implication of Dworkin's arguments, is that even though embryos, as human life, deserve respect and protection, the degree of respect and protection they warrant may not be as great as that accorded to later stage human life. Consequently, some would argue that there may be circumstances where the limited loss of value involved in an embryo being destroyed is outweighed from a moral point of view, by the possible benefits in allowing that to happen.

Embryos have the Status of Mere Body Parts

Some might hold that embryos are merely parts of other people's bodies until they reach a certain autonomous or independent developmental stage (and there will be differing views on when that might be). Accordingly, embryos have no independent moral status at all, and are merely the property of the people from whose body they came. The only respect due to embryos is the respect that should be accorded other people's property. This no-status view is argued for on grounds that none of the other arguments in favour of an independent moral status are compelling.

Embryos Created for Research Purposes?

Is it somehow worse to use embryos created specifically for research, than it is to use embryos that are surplus to the reproductive treatments for which they were created? In other words, is there anything independently wrong with creating embryos for research purposes above and beyond whatever (if anything) might be wrong with destroying them as part of the research process?

Some argue that creating embryos for research is to create them merely as a means to others' ends (no matter how laudable those ends might be).²³ If embryos do have a significant person-like moral status (as, e.g., persons, potential persons, divine creations), then this amounts to treating them with deep moral disrespect. They are being commodified. However, when embryos are created for reproductive purposes, each has the same initial chance of being transferred to the uterus, even if it will probably turn out that not all of them are needed in the end. They are still being created 'respectfully'—for a use that fits with their intrinsic or natural ends or purpose, not others'.

Some would reply, however, that this argument is based on a view about the moral status of embryos that needs to be fully established. Moreover, if using embryos for others' ends is wrong, then that may well count against the *donating* of embryos for research purposes.

Another argument has been expressed which does not rely on attributing person-like moral status to embryos, but something more like the status outlined in Dworkin's views noted above. Embryos, even if they are not the holders of rights, nonetheless have considerable value to the extent that they are the beginnings of a possible human life. Embryos can, therefore, function as powerful symbols and provide the opportunity for a community to demonstrate or express commitment to human life generally by, for example, condemning creation of embryos for research purposes. As the philosopher John A. Robertson says, 'In taking such a stance, persons define or constitute themselves as highly protective of human life.'²⁴ Robertson notes, however, that this same symbolic respect for life can be expressed through allowing embryos to be created so that others' lives can be prolonged, or deaths averted.

Endnotes

1. The American Academy for the Advancement of Science, and the National Institutes of Health. Cited in Thomas B. Okarma, 'Human Embryonic Stem cells: A Primer on the Technology and Its Medical Applications', in *The Human Embryonic Stem Cell Debate*, S. Holland, H. Lebacqz, and Laurie Zoloth, eds, MIT Press, Cambridge, 2001.
2. Every day people die because there are insufficient tissues available for transplantation. J. Savulescu, 'The Ethics of Cloning and Creating Embryonic Stem Cells as a Source of Tissue for Transplantation', *Australian and New Zealand Journal of Medicine*, vol. 30, 2000, pp. 492–98.
3. Although this paper, and the recent debate, are concerned mostly with embryonic stem cell research, it should be kept in mind that the relevant Bill encompasses research involving embryos in general.
4. For an outline of some of the key ethical issues associated with cloning please refer to pages 4–7 of *Bills Digest* No. 17 2002–03, 'Research Involving Embryos and Prohibition of Cloning Bill', <http://www.aph.gov.au/library/pubs/bd/2002-03/03bd017.htm>
5. Where the genetic constitution of embryonic stem cells is changed to correct for biological disorders such as cystic fibrosis, and tissues grown from these stem cells is introduced into the relevant parts of patient's body.
6. There are other benefits of embryonic stem cell research such as cultivation of tissue to expedite drug testing, and also the light these cells can throw on our understanding of the process of cell differentiation and regeneration.
7. Though one recent study has suggested that adult stem cells may have similar pluripotency to embryonic ones. See Y. Jiang et al., 'Pluripotency of mesenchymal stem cells derived from adult marrow'. *Nature AOP*, published online 20 June 2002; doi:10.1038/nature00870.
8. Wayne Hall, 'Democracy and Embryonic Stem cell research: resolving Contentious Ethical Issues in a Pluralistic democracy', unpublished paper Office of Public Policy and ethics, Institute for Molecular Bioscience, University of Queensland., 2002, p. 3.

9. Some, of course, would argue that the succumbing of embryos should not be permitted as an alternative in the first place.
10. Arguments to this effect are presented, for example, in Deena Davis, 'Embryos Created for Research Purposes', *Kennedy Institute of Ethics Journal* Vol. 5, No. 4, 1995, pp. 343–354; and Eric Juengst, 'The Ethics of Embryonic Stem Cells—Now and Forever, Cells Without End', *Journal of the American Medical Association*, vol. 284, no. 24, December 27, 2000, pp. 3180–84.
11. S. Sherwin, *No Longer Patient: Feminist ethics and health Care*, Temple University Press, Philadelphia, 1992, pp. 174–75.
12. See, for example, the survey of views presented by Mary Anne Warren in 'IVF and Women's Interests: An Analysis of Feminist Concerns', *Bioethics*, 1988, no. 2, pp. 37–57
13. See, for example, Donna Dickenson, 'Property and Women's Alienation from Their Own Reproductive Labour', *Bioethics*, vol. 15, no. 3, 2001. Also, Suzzanne Holland, 'Beyond the Embryo: A Feminist Appraisal of the Embryonic Stem cell Debate' in Holland, et al., eds, *The Human Embryonic Stem Cell Debate*, op. cit.
14. See for example, Richard Doerflinger 'The Ethics of Funding Embryonic Stem Cell Research', *Kennedy Institute of Ethics Journal*, vol. 9, no. 2, 1999, pp. 137–150; and P. Singer, *Practical Ethics*, CUP, Cambridge, 1979, Ch. 6.
15. Day 6 or 7.
16. It has also been argued that a fertilised egg should be considered a unique human being because the genome of the fertilised egg is unique from fertilisation onward, and the development of a unique individual is the consequence of the workings of that genome. (See, for example, Congregation for the Doctrine of the Faith, 1988 'Instruction on respect for human life in its origin and on the dignity of procreation (Donum vitae)', *Acta Apostolica Sedis*, 80, 65–105. As J. Hansen notes, however, the notion that uniqueness is simply a function of genetic make-up is questionable. See 'Embryonic Stem Cell Production Through Therapeutic Cloning has Fewer Ethical Problems than Stem Cell harvest from Surplus IVF Embryos', *Journal of Medical Ethics*, vol. 28, no. 2, 2002, pp. 86–88.
17. Hall, 2002, op. cit.
18. For further discussion of the subtleties of the logic of potentiality see Peter Singer and Karen Dawson, 'IVF Technology and the Argument from Potential', *Philosophy and Public Affairs* vol. 17, 1988, pp. 87–104; and Francoise E. Baylis, 'The Ethics of *Ex Utero* Research on Spare "Non-viable" IVF Human Embryos', *Bioethics*, vol. 4, no. 2, pp. 311–329.
19. P. Devine, *The Ethics of Homicide*, Cornell University Press, Ithaca, 1978, p. 18.
20. Joel Feinberg, *Harm to Others: The Moral Limits of the Criminal Law*, OUP, Oxford, 1984, p. 33.
21. Ronald Dworkin, *Life's Dominion: An Argument About Abortion, Euthanasia, and Individual Freedom*, Alfred Knopf, New York, 1993, p. 16.
22. *ibid.*, p. 84.

23. See, for example, G. Annas, A. Caplan, and S. Elias, 'The Politics of Human Embryo Research—Avoiding Ethical Gridlock', *New England Journal of Medicine*, vol. 334, 1996, pp. 1329–32.
24. John A. Robertson, 'Ethics and Policy in Embryonic Stem Cell Research', *Kennedy Institute of Ethics Journal*, vol. 9, no. 2, 1999, p. 126.