

The question of “is animal testing ethical?” might be better rephrased as “what are the ethical parameters that define animal testing?”. To save human lives, we unfortunately need to test new drugs on animals, which poses an ethical dilemma. This paper will examine Jewish sources on the concept of *tzaar baalei chayim*—the imperative not to harm animals—and how these sources could inform modern animal testing for biomedical research.

## Biblical and Talmudic Framework

Shabbat 128b asserts that *tzaar baalei chayim* originates in the Torah, *i.e.* constitutes a Biblical prohibition. The *gemara* states:

Rav Yehuda said that Rav said: With regard to an animal that fell into an aqueduct, one brings cushions and blankets, and throws them into the water ditch, and places them beneath the animal in the aqueduct [on Shabbat]... Does he not, by placing the cushions and blankets, negate a vessel's preparedness? The cushions and blankets are no longer fit for their designated use on Shabbat, and this negation of their designated use is similar to the prohibited labor of dismantling. The [g]emara answers: Rav holds that negating a vessel's preparedness is prohibited by rabbinic law. Causing a living creature to suffer is a Torah prohibition. And a matter prohibited by Torah law comes and overrides a matter prohibited by rabbinic law [1].

Rashi there comments that the prohibition against causing pain to animals derives from a verse in Exodus. The full verse reads: כִּי־תִרְאֶה חֲמֹר שֹׁנֵאֵךְ רֹבֵץ תַּחַת מְשָׁאוֹ וְהִדַּלְתָּ מֵעֲנֹב לּוֹ :עֲנֹב תַּעֲזֹב עִמּוֹ- when you see the donkey of your enemy falling under its burden and you would not want to lift it, you still need to lift it [2]. Rashi references an additional gemara that also states that the prohibition against harming animals is Biblical. In Bava Metzia 32b, Rava says: “From the statements of both of these *tanna'im* it can be learned that the requirement to prevent suffering to animals is by Torah law” [3]. Other commentators suggest other verses as possible indicators of the Biblical nature of *tzaar baalei chayim* [4].

Another commandment, that of *shiluach hakan*—the injunction to send away the mother bird if you would like to take the eggs from the nest—speaks to the theme of avoiding cruelty toward animals. Brachot 33b presents two opinions regarding this commandment, one of which seems to connote that G-d in establishing this injunction had mercy on the birds. The *mishnah* states that we should quiet one who, while leading prayer, says “עַל קֹן צִיפור” “יִגְיעוּ רַחֲמֶיךָ”, that G-d has mercy on the bird's nest. The *gemara* offers two opinions as to why we should object to this prayer: One opinion, that of Rabbi Yosi bar Avin, states that this prayer invites jealousy amongst the other animals, for whom no similar injunction exists, and another opinion, that of Rabbi Yosi bar Zevida, states that this prayer attributes mercy to G-d, when really we do not understand the reason for the commandments. According to the first

opinion, the commandment of *shiluach hakan* promotes mercy to animals; Rambam considers this first opinion as the correct of the two [5].

As an additional imperative to treat animals kindly, the Rabbis learn from a *pasuk* that one should feed one's animals before eating one's own food. The verse in question in Deuteronomy states: "I will also provide grass in the fields for your cattle—and thus you shall eat your fill" [6], in which the order of the verse places feeding your animal first. Brachot 40a states: "As Rav Yehuda said that (Deuteronomy 11:15) [7]. Gittin 62a uses even stronger language: "Geneiva said to them: So says Rav Yehuda that Rav says: It is prohibited for a person to taste anything until he gives food to his animal, as it is stated in the verse: 'And I will give grass in the field for your animals' (Deuteronomy 11:15), and only afterward is it written in that verse: 'And you shall eat and be satisfied'" [8]. Whereas the discussion in Brachot mentions eating, the discussion in Gittin stresses not even to taste anything, to strengthen the point [9].

On a more philosophical note, traditional Jewish sources discuss learning from the animals, a concept that originates in Mishlei: לְדֹאֵל־נִמְלָה עֵצֶל רְאֵה דְרָכֶיהָ וּתְחַכְּמוּ: אֲשֶׁר אֵין־לָהּ קֶצֶין שִׁטֵּר וּמֵשֶׁל: תִּכְוִין בְּקוֹץ לְחִמָּה אֲגִרָה בְּקֶצֶיר מְאֻכְלָה: "Lazybones, go to the ant; Study its ways and learn. Without leaders, officers, or rulers, It lays up its stores during the summer, Gathers in its food at the harvest" [10]. The Malbim on this verse comments that just as an ant diligently gathers material, so too humankind should work to gather knowledge [11]. Eruvin 100b discusses that

were we not to have received the Torah, we still would have learned from the ant not to steal; Rashi adds, as the ant does not take food from other ants [12]. Likewise, Pirkei Avot teaches a similar theme: "יְהוּדָה בֶּן תִּימָא, אָמַר, הָיִי עַז כְּנִמְר, וְקַל כְּנֹשֶׁר, וְרַץ כְּצִבִי. וְגִבּוֹר כְּאַרִי, יְהוּדָה בֶּן תִּימָא אָמַר, הָיִי עַז כְּנִמְר, וְקַל כְּנֹשֶׁר, וְרַץ כְּצִבִי. וְגִבּוֹר כְּאַרִי, לְעֲשׂוֹת רְצוֹן אָבִיךָ שְׂבִשְׂמִים." "Judah ben Tema said: Be strong as a leopard, and swift as an eagle, and fleet as a gazelle, and brave as a lion, to do the will of your Father who is in heaven" [13]. Rav Ovadiah MiBartenura likewise applies this comparison to the pursuit of knowledge, in that one should have boldness like a leopard in asking questions of one's teachers to learn better and the endurance of an eagle to pursue one's studies [14].

#### Later Rabbinic Sources

The Terumat Hadeshen discusses the use of animals for human purposes. He addresses the question of whether one can pull feathers from a live chicken since perhaps this action merely resembles shearing sheep, and whether one can clip the ears/tail of a dog. On the one hand, he comments that animals were created to serve people. However, he adds, one can only cause them pain if doing so serves something essential for humans; one cannot aimlessly mistreat animals. "There is no prohibition of *tzaar baalei chayim* if one does so for one's needs and usage, because all of the animals were only created to serve humankind." However, even though certain actions are allowed, humankind has taken it upon themselves not to treat animals cruelly by these actions. He adds at the end of his answer that "rather, that the world is careful and desists, and possibly the reason is that the world does not

want to act with cruel character traits against the creatures, because they are afraid that they will receive a punishment” [15]. The punishment in question alluded to by the Terumat Hadeshen refers to an incident that occurred to Rabbi Yehuda Hanassi, discussed in Bava Metzia (85a): Rabbi Yehuda Hanassi saw a calf on its way to slaughter, the calf wept and put its head in the corner of Rabbi Yehuda Hanassi’s clothing, and Rabbi Yehuda Hanassi responded with, “you were created for this purpose”; for this, Rabbi Yehuda Hanassi received a punishment of thirteen years of kidney stones and another affliction [16]. Perhaps of significance, the calf actually wept directly at Rabbi Yehuda Hanassi and specifically was a calf rather than a grown cow.

The Ramah describes the same case as does the Terumat Hadeshen but shifts the focus away from the fear of punishment and more toward actual alleviation of suffering:

Any [action] needed for healing or other reasons, there is no prohibition of "causing pain to animals" (Issur V'Heter Extended 59). And therefore it is permitted to pluck the feathers of wild geese, and there is no potential problem of "causing pain to animals"(Mahar"i105). Nevertheless, the world withholds from it because of its cruelty [17].

This shift of focus from fear of punishment as described by the Terumat Hadeshen to lack of cruelty as described by the Ramah adds a new dimension to the discussion on animal treatment. Once it has become voluntary but encouraged to avoid even

permitted activities, how should we proceed?

### History and Practice

The use of animal testing dates back to the beginning of medicine: “Humans have been using other vertebrate animal species (referred to henceforth as animals) as models of their anatomy and physiology since the dawn of medicine. Because of the taboos regarding the dissection of humans, physicians in ancient Greece dissected animals for anatomical studies.”

Subsequently, changes in the approach to medicine caused a shift away from animal testing: “Beginning with the decline of the Roman Empire and continuing throughout the Middle Ages, physiological experiments—along with scientific activity in general—would fall almost entirely into disuse and medical knowledge would become dogmatic.” This practice reverted during the Renaissance, through the seventeenth century: “The use of animal experiments to satisfy scientific inquiry would only re-emerge in the Renaissance...Physiological experiments on animals carried on throughout the seventeenth century, in the period favorable to scientific progress now known as the Age of Enlightenment.” The Enlightenment philosopher Immanuel Kant argued that while vivisectionists acted cruelly, their doing so for a beneficial end justified their actions, whereas doing so for sport did not [18], an argument that somewhat echoes that of the Terumat Hadeshen and the Ramah.

The nineteenth century saw a turning point for animal rights:

In 1875, the first animal protection society with the specific aim of abolishing animal experiments was founded and led by Irish feminist, suffragist, and animal advocate Frances Power Cobbe (1822–1904). Vivisection became a matter of public debate, only matched in Great Britain that century by the controversy around the 1859 publication of Charles Darwin's (1809–1882) *On the Origin of Species*...[18]

As the antivivisectionist argument that animal research did not increase medical knowledge “began to lose strength,” emphasis instead began to form around preventing animal harm [18]. Again, this paradigm fits with the later Rabbinic sources that suggest that animals can serve human exigencies, including healing, but that people should minimize animal pain to the extent possible.

In the twentieth century, regulations became more established for drug marketing, including the stipulation for animal testing. An impetus for these regulations occurred in 1937, when toxic levels of antifreeze in the antibiotic sulfanilamide resulted in loss of life and illness; in response, in 1938 the United States passed the Food, Drug, and Cosmetics Act, which mandated FDA oversight for drugs. “Although the Act did not include requirements for animal research or testing, or for human clinical trials, the FDA began requesting animal as well as human safety and efficacy data for new drug applications” [19]. As animal research became a more important part of drug

marketing, concurrent with a better understanding of animal behavior, the United States began to pass federal regulations regarding animal welfare:

Ethical considerations and new scientifically validated animal behavior insights led to the passage of the 1966 Animal Welfare Act (AWA). The 1985 AWA Amendment instituted federal requirements for enriching the lives of research monkeys and established the federal Animal Welfare Information Center (AWIC). Along with the 1985 Public Health Service Act for federally funded research, it also required the establishment of an Institutional Animal Care and Use Committee (IACUC) at every institution that conducts animal research and testing in the USA to ensure the humane and responsible use of animals [19].

This progression continued in the 1980s with more emphasis on the three R's that originated in 1959 by Russel and Burch—"reduction, refinement, and replacement"—followed by additional initiatives over the years to minimize animal suffering [20, 21]. In particular, discussions began to focus on using fewer animals, not duplicating studies, and using other models instead, though the latter has its limitations [20]. A 2022 retreat [22] brought together researchers to discuss ways to further an ethical approach to animal research; findings included moving toward reporting negative results, which would decrease duplication (reduction), using animal-free substances, such as an animal-free-synovium-on-a-chip

for arthritis research (replacement), and using big data/AI to assess where animal research would most help (harm-benefit analysis (HBA)) [22,23]. These later practices align with the Ramah's imperative that "[n]evertheless, the world withholds from it, because of its cruelty" [17].

Some researchers and ethicists argue that scientists can take more steps away from harming animals and move toward a better animal ethic. For example, Robinson *et al.*, while acknowledging that "many modern advancements simply would not have been made possible without a high fidelity, highly reproducible model, with the added benefit of preventing potential human harm," call for more attention and commitment to animal welfare in research. The authors point to methodological problems, such as lack of similarity or relevance to the human condition; they also find flaws in allowing pain in animals if considered necessary to the experiment, as not always does this process get properly justified. The authors also emphasize the importance of the three R's, with the need for still more improvement [20]. Zarrintan and Shahnaee respond to Robinson *et al.* by pointing out the necessity of animal models in particular in testing new surgical procedures, though they strongly highlight the importance of maintaining a high ethical standard in doing so [23]. The imperative to continue to strive for improved animal treatment harmonizes with the original concept of *tzaar baalei chayim*.

### Can We Assess Animal Pain?

Determining in the laboratory to what extent animals feel pain has proven difficult. A

variety of possible methods—in the form of either behavioral or physiological assessments—exist to assess rodent pain but all have their limitations. For example, from the behavioral side, ethograms, which monitor for "loss of normal behaviors" and "presence of new-pain specific behaviors" face the limitation that some prey animals suppress their pain behavior in the presence of humans; using video could resolve this issue. Lack of burrowing behavior, which could indicate pain, also could stem from a number of other non-pain factors. Likewise, physiologically, body weight and hypothalamic-pituitary-adrenal gland axis (HPA) changes could indicate pain but could also manifest from other causes, while face grimace scale assessment works better with specialized training for observers. Ultimately, a better understanding of animal pain assessment methods can lead to better animal welfare [24].

Miller argues for the difficulty of determining whether animals feel pain, in spite of the fact that they demonstrate pain behavior. He points out that studies have shown that when one draws one's hand away from a hot surface, one does so even before processing pain, which could indicate that one can display pain behavior without necessarily feeling pain. However, he questions the relevance of feeling pain to inflicting pain, as it might still prove morally wrong to inflict pain even in the absence of feeling pain [25].

A similar logic motivates the Ramban when he offers as an explanation for the prohibition against slaughtering an animal

and its young on the same day: “[T]hat we should not have a cruel heart and be discompassionate” [26]. Regardless of the effect on the animal, we ourselves should not carry out cruel actions, because in doing so we would become cruel. He disagrees with Rambam, who, in keeping with his opinion on *shiluach hakan*, attributes the commandments of not slaughtering an animal and its young on the same day (and ritual slaughter) to the actual pain that the animal might feel [27, 28].

### Conclusion

Policy advocates Taylor and Alvarez estimate that 192.1 million animals were used in research worldwide in 2015, a 36.9 percent increase from their 2005 estimate [29]. Over time, the discussion has become more and more involved regarding best practices that should inform how to treat animals ethically. Traditional Jewish sources have outlined in broad strokes principles and guidelines on how to treat animals, which can help us to navigate uncharted territories in the field of animal research.

### Acknowledgments

This author would like to dedicate this article in memory of her parents, Sylvia and Zev Krautwirth. She would like to thank her family and friends for their support. Thank you as well to Dr. Babich for suggesting the idea to write the article.

---

### References

[1] Shabbat 128b. Sefaria.org

[2] Exodus 23:5

[3] Bava Metzia 32b. Sefaria.org

[4] For other opinions that suggest different sources for the prohibition against causing pain to animals, see <https://www.torahmusings.com/2023/06/animal-cruelty/>

[5] Moreh Nevuchim 3:48:12. Sefaria.org

[6] Deuteronomy 11:15. Sefaria.org

[7] Brachot 40a. Sefaria.org

[8] Gittin 62a. Sefaria.org

[9] The Petach Einayim cross references the two *gemarot* (Petach Einayim. Brachot 40a. Sefaria.org). The text of the Rif matches the *gemara* in Gittin (Rif. Brachot 40a. Sefaria.org).

[10] Mishlei 6:6. Sefaria.org

[11] Malbim ad loc.

[12] Rashi Eruvin 100b

[13] Avot 5:20. Sefaria.org

[14] Rav Ovadiah MiBartenura ad loc.

[15] Terumat Hadeshen 2:105. Translation my own.

[16] Bava Metzia 85a. Sefaria.org

[17] Rabbi Moshe Isserles, Shulchan Aruch, Even Ha'Ezer 5:14. Sefaria.org

[18] Franco NH. (2013). Animal Experiments in Biomedical Research: A Historical Perspective. *Animals (Basel)*. 3: 238-73. doi: 10.3390/ani3010238.

- [19] Maciejewski, E. C., Basso, M. A., Miller, C. T., & Bailey, M. R. (2023). The ethics of animal research and testing: A US perspective. *Drug Discovery Today*, 28: 1-3.
- [20] Robinson, N. B., Krieger, K., Khan, F. M., Huffman, W., Chang, M., Naik, A., Yongle, R., Hameed, I., Krieger, K., Girardi, L. N., & Gaudino, M. (2019). The current state of animal models in research: A review. *International Journal of Surgery*, 72: 9–13.
- [21] Retreat title: Animal Research Ethics as Interaction of Research Ethics, Animal Ethics and (Animal Protection) Law: International Perspectives on Theoretical and Cultural Differences
- [22] Selter, F., Hetzel, T., Kahrass, H., & Mertz, M. (2023). Animal Research Ethics as Interaction of Research Ethics, Animal Ethics, and (Animal Protection) Law. *ALTEX: Alternatives to Animal Experimentation*, 40: 541-544.
- [23] Zarrintan, S, Shahnaee, A. (2019). A Commentary on “The Current State of Animal Models in Research: A Review.” *International Journal of Surgery*, 72: 154–55.
- [24] Turner, P. V., Pang, D. S., & Lofgren, J. L. (2019). A Review of Pain Assessment Methods in Laboratory Rodents. *Comparative Medicine*, 69: 451–467.
- [25] Miller, C. (2021). Do Animals Feel Pain in a Morally Relevant Sense? *Philosophia: Philosophical Quarterly of Israel*, 49: 373–392.
- [26] Nahmanides. Deuteronomy 22:6. Sefaria.org
- [27] Maimonides. Guide for the Perplexed 3:48. Sefaria.org
- [28] “It is also prohibited to kill an animal with its young on the same day (Lev. 22:28), in order that people should be restrained and prevented from killing the two together in such a manner that the young is slain in the sight of the mother; for the pain of the animals under such circumstances is very great. There is no difference in this case between the pain of man and the pain of other living beings, since the love and tenderness of the mother for her young ones is not produced by reasoning, but by imagination, and this faculty exists not only in man but in most living beings” (*Guide*, 3:48. Sefaria.org)
- [29] Taylor K, Alvarez LR. (2019). An Estimate of the Number of Animals Used for Scientific Purposes Worldwide in 2015. *Alternatives to Laboratory Animals*. 47:196-213.