

The Effects of Mosaic Law Observance on Human Health

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### **Abstract**

For the people of ancient Israel, life was guided and regulated by adherence to the law of Moses. Dietary restrictions, purification rituals, circumcision, and Sabbath observance were each critical components of this code and were meticulously detailed in the Old Testament, specifically in the Torah. Still today, dietary laws are observed and select rituals practiced by many Jews and Seventh Day Adventists. Although health protection was never the primary purpose of the law, noticeable effects on human health have been connected to its observance. Evaluation of the effects of the Levitical law on human health can be achieved by a literature review on the topic.

### **The Effects of Mosaic Law Observance on Human Health**

The Mosaic law was given to the people of Israel thousands of years ago, recorded in the Torah, and enshrined in their cultural practices. From the beginning, the laws of the Torah served as a “tutor,” (*New King James Version*, 1982, Galatians 3:24) intended to reveal the sin of mankind in contrast with God’s perfect holiness. The primary purpose of the law was not public health promotion. However, Torah observance impacts biological, mental, relational, and spiritual health. When the Old Testament speaks on this topic, a holistic view of human health is in mind, which encompasses total, overall wellbeing. Elements of the Torah’s many dietary, purification, circumcision, and Sabbath laws have unique connections to overall human health, which in many cases can be studied by contemporary communities of Orthodox Jews, Seventh Day Adventists, and certain Christian groups.

#### **Background of the Mosaic Law**

Over the thousands of years since the law was given to Moses at Mt. Sinai, the commands of the Torah have been interpreted and applied in countless ways. For the purposes of this paper, the Mosaic law will be examined in the context of the 613 commandments of the Torah (Cohen, 2020; Friedberg, 2013). As a general overview, the commands can be divided into instructions of actions to perform (248 commands) vs. actions to avoid (365 commands), instructions focused on relationship with God vs. relationship with others, general vs. specific commands, and obligatory vs. voluntary instructions (Cohen, 2020). Another word used in the literature and throughout Jewish history to refer to the commandments is the term, *mitzvot*. This term is the Hebrew word for commandments (the plural of command, *mitzvah*) and is used to describe these 613 commandments of the Torah (Jewish Virtual Library, n.d.).

*Halacha* is a Hebrew term used to describe the overall system of Jewish law (Regenstein et al., 2003). It is a term that literally translates “the way” and informs all aspects of Jewish life (Shafran & Wolowelsky, 2013, p. 76). This encompasses both the regulations of the Torah, which are the first five books of the Old Testament, and the Talmud, which provides additional details (Berkowitz, 2008). According to Jewish tradition, the Talmud is a written record of the oral law given to Moses (Regenstein et al., 2003). Jews believe that the Talmud was given to Moses on Mt. Sinai along with the Ten Commandments (Regenstein et al., 2003). Today, the *halacha* is revered and observed by Orthodox Jews, with Reform and Conservative Jews adhering more leniently (Berkowitz, 2008). The interpretation and application of Jewish law is facilitated by rabbis, whose words and decisions guide the Jewish people (Regenstein et al., 2003). Overall, the Mosaic law is a comprehensive system of living, which communicates the requirement of holiness and need of cleansing. As explained by Croteau and Yates, “The express purpose of the Mosaic food laws was to remind Israel of their special status as the Lord’s chosen people and also to remind the people of their need to maintain ceremonial purity as they lived constantly in the Lord’s presence (Lev. 11:43-45)” (Croteau & Yates, 2019, p. 57). The law served to expose the impurity of man in light of God’s perfection and holiness, while restraining evil and pointing to mankind’s need for salvation.

### ***Old Testament Vision of Health***

To examine the effects of Mosaic law observance on human health, there must be an understanding of what is meant by the term health. Various definitions exist within the fields of both medicine and biblical studies. In the realm of medicine, health can be used to communicate “the absence of any disease or impairment,” (Sartorius, 2006, p. 662), “a state that allows the individual to adequately cope with all demands of daily life,” (Sartorius, 2006, p. 662), or “a

state of balance” (Sartorius, 2006, p. 662). In the Old Testament, the connotations of health were much broader than they are today, communicating a holistic sense of wellbeing (Hasel, 1983; Moskala, 2011). Instead of having one specific word for health, words like well-being, peace, wholeness, and clean characterize the Old Testament concept (Moskala, 2011). In fact, Jacob’s instructions to Joseph, recorded in Genesis 37:14, are to note the “state of health” of his brothers (Hasel, 1983, p. 192). While holiness and health may seem like unrelated concepts in contemporary culture, the two ideas were tightly connected for the old covenant people of God (Hasel, 1983). For the purposes of this thesis, the emphasis will be primarily on the biological effects of Mosaic law observance, but will also include their impact on the mental, spiritual, and relational wellbeing, aligning with the holistic picture of health provided in the Old Testament.

### *Purpose of the Law*

In approaching this discussion of Old Testament law and its relation to human health, the primary purpose of the law must be clearly understood. Some interpretive traditions and scientific studies have sought to validate the Mosaic law by presenting the Jewish community and Moses as microbiologists with public health knowledge beyond their time (Hart, 1995). This approach interprets the Torah as a sanitary code, replete with superior methods of social hygiene. In studying this topic, it is essential not to overemphasize the biological effects of the law or mistake preservation of health as God’s purpose in giving the law to His people. Each of the regulations that can be understood to convey certain health benefits were first and foremost concerned with worship and holiness (Croteau & Yates, 2019). The fact that Jesus does away with such dietary and purification requirements demonstrates this reality (Sprinkle, 2000).

Several examples demonstrate the illogical nature of interpreting the law as a sanitary code. As Croteau and Yates (2019) write, the concern of the Old Testament law was weightier

and more significant than simply hygiene. For example, Jewish law prohibited the consumption of camels, yet they were considered a delicacy in Arab culture and do not appear to pose any risk to human health (Sprinkle, 2000). Furthermore, health concerns potentially associated with pork can be avoided by proper methods of cooking. When the prohibition on animal fat consumption is mentioned, the Torah clearly explains the rationale: “All fat is the Lord’s” (*English Standard Version Bible*, 2001, Leviticus 3:16-17). A clear reading of this text reveals the motivation to be not hygiene, but worship (Croteau & Yates, 2019). Similarly, restrictions related to blood, skin rashes, and touching dead things are more closely associated with respect and spiritual cleansing than any form of sanitation.

The law was not designed to highlight the health of humanity, but instead the deep-rooted impurity of humanity and mankind’s need for spiritual healing. However, the fact that public health was not the primary purpose of the law does not deny the potential health benefits of certain regulations. While the possibility of Moses himself possessing a deep well of microbiological knowledge seems unlikely, the discovery that obedience to many elements of God’s law conveyed health benefits should not prove overly surprising. Moses lacked a vast well of microbiological knowledge and scientists today are still making novel discoveries in this field, yet all knowledge and wisdom ultimately belong to God. Examining the health effects of Torah observance is both intriguing and helpful in understanding the rhythms of life under the old covenant, seeing the Old Testament’s relation to the New Testament, and drawing applications for life today.

### **Historic Research Regarding Mosaic Law and Public Health**

Study of Jewish law and its relation to public health has been conducted for many years, yet in the grand scheme of human history, interest in the topic has only gained momentum in

relatively recent years (Regenstein, 2003). The political and cultural climate of the last few centuries has been especially influential in guiding research related to the discussion at hand. In the 1990s, a search began to study more broadly the correlation between religion and health (Tan, 2013). From 2000-2010, 21,000 studies were published on the topic (Tan, 2013). Given the considerable interest regarding this link, it is recommended that further research be conducted to discover the specific ways in which religion influences health (Tan, 2013).

In 1894, a Jewish individual by the name of Alfred Nossig published a history of social hygiene with a special emphasis on Jewish laws and customs (Hart, 1995). Given the political and cultural climate of the day, Nossig's focus on the superiority of Jewish hygiene law is understandable (Hart, 2007). The culture was such that Jews were regularly referred to in derogatory terms, a storm of antisemitic literature was published, and the Jewish people were even accused of murdering children throughout their history (Hart, 1995; Hart, 2007). In these antisemitic discussions, accusations were primarily leveled against adherence to the Talmud (Hart, 2007). Consequently, the response of Nossig and others included a defense of the wisdom and public health benefit of the laws contained therein. Nossig essentially argued for an interpretation of the Mosaic law as a sanitary code, which demonstrated the highly advanced microbiological wisdom of ancient Israel. While data beyond Nossig's research on the topic certainly exists, the historical circumstances which prompted such research cannot be ignored.

### **Dietary Laws of the Torah**

#### **Background of Dietary Laws**

Several religious groups promote dietary codes for their adherents, with some motivated by the health benefits and others given without further explanation (Regenstein et al., 2003). For example, while some halal laws in Islam are similar to the kosher laws of Judaism, halal laws

emphasize health, while kosher laws are more directly tied to tradition and worship (Regenstein et al., 2003).

Some have claimed that the author of the Torah composed the dietary code of the Old Testament based on his own detailed research of the topic (Subhathka et al., 2006). This perspective fits well with Nossig's conception of Moses as a microbiologist, possessing medical knowledge beyond his time (Hart, 1995). The positive contribution of certain commandments of the Torah to human health may indicate divine wisdom behind the dietary law, yet advanced microbiological wisdom of the Torah's authors does not seem to be a plausible explanation. Regardless of religion, spirituality in general has been demonstrated to positively impact health (Tan, 2013). The health effects of Judaism in particular can be examined by exploring specific commands of the Torah and noting the effect of Mosaic dietary law observance on the human body.

### **Health Effects of Dietary Law Observance**

#### ***Kosher Diet***

The diet outlined in the Mosaic law is referred to as a *kosher* diet, or *kashrut* (Hart, 2007). Kosher carries the connotation of being "fit or proper" (Regenstein et al., 2003, p. 111) and implies that food is able to be consumed (Eliasi & Dwyer, 2002). Regulations in the Torah, especially Leviticus 11 and Deuteronomy 14, outline which animals and slaughtering methods render food kosher. Unless otherwise mentioned, ruminants with split-hooves were considered clean and allowed for consumption (Eliasi & Dwyer, 2002). Likewise, domestic birds as well as aquatic animals with fins and scales were considered clean (Regenstein et al., 2003).

By contrast, consumption of several other species was prohibited. In the laws of the Torah, "Pigs, wild birds, sharks, dogfish, catfish, monkfish, and similar species are prohibited, as

are all crustacean and molluscan shellfish” (Regenstein et al., 2003, p. 113). The regulation against mixing milk and meat is derived from the restriction, “You shall not boil a young goat in its mother's milk,” (*English Standard Version Bible*, 2001) which is repeated in Exodus 23:19, Exodus 34:26, and Deuteronomy 14:21 (Subhathka et al., 2006). This is one example of how the laws recorded in the Torah have been further interpreted in the Talmud and by rabbis throughout history. Today, some individuals who observe a kosher diet will wait three hours after consuming any dairy before ingesting meat and five hours after eating meat before consuming dairy.

### ***Seventh Day Adventists and Mosaic Law Observance***

In addition to looking at the lifestyle of Orthodox Jews, another method of studying the health effects of Mosaic dietary law observance is through research related to the diet of the Seventh Day Adventist Church. Members of the Seventh Day Adventist Church adhere to the food laws recorded in the Old Testament (Moskala, 2011). Along with abstaining from unclean meat, the Seventh Day Adventist Church promotes a plant-based diet, with many ascribing to a vegetarian diet (Sàbaté et al., 2016). A portion of the Adventist baptism liturgy includes a vow to abstain from foods which are unclean. While certainly concerned with health, the special diet of Seventh Day Adventists is designed to function similarly to the Levitical law, setting them apart as a distinct group. Thus, looking at the Seventh Day Adventist Church can be a modern method of evaluating the health effects of Mosaic law observance.

### ***Healthy Lifestyle Promotion***

Many religious adherents place a strong emphasis on diet and healthy living, viewing it as a form of worship. Healthy living can serve as a form of preventative medicine and is often built into the practices of a religious group. This approach to lifestyle and health promotes the

idea that diet and rhythms of life can serve as important preventative and therapeutic measures for both chronic and infectious disease (Morton et al., 2016).

In discussing lifestyle medicine, Morton (2016) and his associates reference the Mosaic laws, which include a comprehensive approach to life. Some key ideas in the Torah include handwashing and avoiding fat consumption, blood contact, and mold infection. Many groups including Mormons, Seventh-Day Adventists, Muslims, and Jews observe dietary laws through which they almost involuntarily participate in a form of preventative medicine.

### ***Microbial Diversity and Inflammation***

Morton and his associates highlight the ways in which a holistic, healthy approach to life can influence microbial diversity and inflammation. Although his team did not draw a direct correlation between the Levitical law and health benefits, they specifically referenced the Levitical law as a religious framework detailing a holistic approach to life (Morton et al., 2016). Evidence has indicated that a diet consisting of whole foods contributes to healthy gut microbiota and high gut microbial diversity is key in warding off infection and contributing to the immune response.

### ***Prevention of Mycotoxicosis***

As stated in Leviticus 11:7, the Mosaic law restricts the ingestion of pigs, which are classified as unclean (*English Standard Version Bible*, 2001). Much debate has centered around whether this restriction offers any health benefit. While some have argued that avoiding pork would not have provided any protection to the Jewish people (Regenstein et al., 2003), other evidence suggests that prohibiting the consumption of pigs in the ancient Middle East may have played a role in the prevention of mycotoxicosis (Schoental, 1980). In the context of ancient Israel, both the high humidity and temperature would have encouraged rapid growth of toxins

and fungi. While it is true that parasites can be found even in ceremonially clean animals, research has indicated a particular risk of parasitic trichinae and aflatoxins being found in pig tissue and transmitted to humans via consumption (Schoental, 1980).

Nonetheless, it is important to note that the nations surrounding Israel consumed pork and that the risk of contracting parasites through trichinae-infected pork can be mitigated by proper cooking (Croteau & Yates, 2009). The distinction between clean/unclean animals cannot be reasonably equated with safe/unsafe animals. This is not to deny the potential health benefits of certain aspects of the Mosaic law. However, it is essential to recognize that preservation of public health was not the primary goal of the Jewish Scriptures. Consumption of pork and its potential connections to aflatoxins and trichinae is just one example of the double-edged nature of this argument.

Other practices (i.e., salting and soaking meat, eating greens, and preparing unleavened bread with dry grain and clean water) may have inhibited mycotoxicosis (Schoental, 1980). These practices were an established part of the Jewish tradition and were intertwined with religious feast and festival celebrations. This preparation of meat may have played a role in halting the formation of potentially carcinogenic gastric nitrosamines.

Finally, Leviticus 3:17 records the prohibition against consumption of animal fat, scientifically known as adipose tissue (*English Standard Version Bible*, 2001; Schoental, 1980). It has been demonstrated that lipophilic xenobiotics may build up in adipose tissue and lead to toxicity in a way that would not occur in muscle tissue (European Food Safety Authority, 2009; Schoental, 1980). Given that fat products could not be refined in ancient Israel, it may be valid to see this restriction as preventing mycotoxicosis (Schoental, 1980).

### ***Reduced Bone Mineral Density***

Up to this point, the positive nature of Mosaic law observance has been discussed. However, research has indicated that such a lifestyle may negatively impact bone density (Taha et al., 2001). A study conducted in 2001 found a bone mineral density significantly lower than average in the ultra-Orthodox Jewish demographic (Taha et al., 2001). While the authors attempted to connect bone mineral density with the community's diet and activity levels, they were not able to draw any concrete correlations. The team concluded that various factors related to lifestyle could be the cause of such low bone mineral density results. Although conclusive evidence is not available, the potential correlation between an ultra-Orthodox Jewish diet/lifestyle and reduced bone mineral density should not be omitted from this discussion.

### **Summary of Dietary Laws**

The dietary laws of ancient Israel were not first and foremost concerned with human health. Given the continued debate and mixed results regarding whether the laws demonstrate verifiable health benefits, it seems evident that the dietary restrictions of the Levitical law were designed primarily to set apart the old covenant people of God. As also seen in the dietary regulations of the Seventh-Day Adventist church, the aim and function of the Mosaic law was for the Jewish people to live as those consecrated to the Lord. Evidence continues to mount for the link between religion/spirituality and increased health in general. However, it is recommended that further research be conducted for individual Levitical dietary regulations. From the current evidence, it appears that prevention of mycotoxicosis, promotion of microbial diversity, and decreased bone mineral density may be associated with adherence to the Mosaic law.

## **Purification Laws of the Torah**

### **Background of Purification Laws**

Beyond the dietary regulations included in the Torah, the Mosaic law also details specific purification practices for the covenant people of God. Many such practices may appear arbitrary yet demonstrate divine wisdom. The holistic understanding of health evident in the Old Testament makes it unsurprising that laws first and foremost concerned with the holiness and purity of the Jewish people would also convey biologically proven health benefits. Regulations related to purification likely served to prevent transmission of infectious disease as well as inhibit the growth and proliferation of pathogenic bacteria.

### **Health Effects of Purification Law Observance**

The health effects of observing the purification laws of the Torah range from prevention of disease via contact with unclean carcasses to avoidance of proteolytic bacteria harbored in porous vessels. Risk of specific diseases including tularemia and tuberculosis may have been mitigated by observance to the Mosaic law's purification regulations.

#### ***Reduction of Disease Risk from Unclean Carcasses***

After prohibiting contact with unclean carcasses (*English Standard Version Bible*, 2001, Leviticus 11:8), the author of the Torah further specifies the cleansing requirements if such contact were to occur (Leviticus 11:24-25). He explains that those who touch a carcass would be deemed unclean and required to cleanse any of the garments affected. Scientific research in recent years has demonstrated the wisdom of this prohibition in potentially preventing at least two specific diseases: tularemia and Swine Influenza (H1NI) (Ademiluka, 2009).

Tularemia, effected by the causative agent *Bacterium tularensis*, is a highly infectious disease carried by rabbits and squirrels, among other animals (Hirschmann, 2018). Given the

classifications of Leviticus, these animals are considered unclean. Research has demonstrated the transmissible nature of this disease from rabbits to humans both via contact and consumption (Ademiluka, 2009; Hirschmann, 2018). While the diseases prevalent in ancient Israel may have varied from the infections common today, the disease carrying potential of these unclean carcasses is noteworthy.

### ***Public Health Risk Mitigated Via Tsara'at Regulations***

*Tsara'at* is a condition described in the Hebrew text of the Torah and connected to several regulations, which are integral to the Mosaic purification laws. The word *tsara'at* is found over twenty times in the Hebrew Old Testament, especially in the laws of the Torah (Heller et al., 2003). Leviticus 13-14 deal with this topic in depth, using the term *tsara'at* repeatedly to describe a condition occurring on the skin as well as garments and houses.

While English translations of this term vary and debate as to its definition continues in scholarly circles, the word is most often translated as “leprosy” or “skin disease” (Ademiluka, 2009, p. 529; Heller et al., 2003, p. 589). In scholarly circles, considerable debate occurs as to the precise meaning of the term (Ademiluka, 2009; Heller et al., 2003). When the Hebrew Scriptures were translated into Greek, the Septuagint translators selected the Greek word *lepras* for *tsara'at*, resulting in English translations of the word as “leprosy” (Heller et al., 2003, p. 589). While to some extent mystery remains, a convincing case can be made for a translation as “mold”, specifically *Stachybotrys* (Heller et al, 2003, p. 590). This argument is based upon the associated symptoms of *tsara'at* and its ability to infect humans, buildings, and other objects (Heller et al., 2003).

The author of Leviticus explains that anyone infected with *tsara'at* on their skin is to present themselves to the priest for inspection and potential isolation (*English Standard Version*

*Bible*, 2001, Leviticus 13-14). Pronouncements of clean or unclean would be made depending on the situation. Additionally, a similar procedure would be conducted for *tsara'at* identified on fabric, woven/knitted material, and leather (Leviticus 13), as well as buildings (Leviticus 14).

For buildings, a complex procedure would have to be undertaken:

Once the stones of the structure had been removed, the lime plaster that had been put on the walls had to be scraped off and taken to an unclean place outside the city. When the deteriorated material had been taken out of the fabric of the dwelling, it was replaced with other stones and plaster, after which the house was considered fit for reoccupation. (Ademiluka, 2019, p. 530)

The regulations associated with *tsara'at* identification and the Mosaic law's procedure to mitigate it demonstrate principles observed today across the world (Ademiluka, 2009). For example, the quarantine process that was employed in ancient Israel following the identification of *tsara'at* on an individual is all too familiar today due to the emergence of SARS-CoV-2. Quarantine as a general principle to inhibit the spread of infectious disease has been practiced since ancient times. Furthermore, waste removal today is an essential aspect of protecting public health and contemporary methods are comparable to the regulations employed in response to *tsara'at* found in a building.

### ***Prevention of Disease Via Sputum-Related Regulations***

Leviticus 15 details several guidelines for discharges which cause uncleanness; the author specifically mentions the uncleanness associated with someone who is spit on by another with a condition of discharge (*English Standard Version Bible*, 2001, Leviticus 15:8). This passage records that the person who is spit upon would remain unclean until evening and need to wash their clothes and body with water (Leviticus 15:8). While at the time, it was likely not recognized by the common people as a method of infection, this restriction is fascinating given modern

knowledge that infectious diseases like tuberculosis can be transmitted via sputum (Ademiluka, 2009).

Based on both archeology and the Hebrew text, there is good reason to believe that tuberculosis was indeed a concern for the people of ancient Israel. Archeological finds from both Egyptian art and mummies suggest that tuberculosis would have existed in Egypt up to 5500 years ago (Daniel et al., 1999). Since the Israelites dwelt in Egypt from approximately 3700 to 3300 years ago, it is entirely plausible for tuberculosis to have impacted them as a nation (Daniel et al., 1999). From an archeological perspective, tuberculosis seems to have been a concern for the people of ancient Egypt as well as the Israelites, making the regulation concerning sputum all the more relevant.

Looking at the Hebrew text, there is good reason to believe that at least two passages reference tuberculosis. Leviticus 26:16 and Deuteronomy 28:22 both use the Hebrew word *schachepeth* (Daniel et al., 1999). Although *schachepeth* is translated “consumption” in many English versions of the Old Testament, it is the word (with slight modification to *schachefet*) used today for “tuberculosis” in the Hebrew language (Daniel et al., 1999, p. 1557). Given the prevalence of tuberculosis at that time in history, it is most probable that the Hebrew text refers to tuberculosis in both Leviticus 26 and Deuteronomy 28 (Daniel et al., 1999). Both the archeological and textual evidence for tuberculosis in ancient times indicates the relevance of the regulation concerning sputum in Leviticus 15:8.

### ***Microbial Growth Potential and Water in Ancient Israel***

The importance of water for ancient Israel cannot be understated. While water was a necessity, sterile water was, understandably, not accessible (Hüttermann, 1998). Briefly examining the principles of bacterial growth in water demonstrate the remarkable insight of the

Torah's purification laws in this arena. Although bacterial replication may vary depending on species, nutrition, and competition, a typical first day of growth after inoculation can result in  $10^{10}$  cells/mL on what began as sterile media. Given the conditions of ancient Israel, research has estimated that the water there likely hosted a bacterial population of approximately  $10^6$  cells/mL, which could appear clear, yet become dangerous after sitting one night.

Leviticus 15:13 specifies the necessity of using running water in the purification process mentioned (*English Standard Version Bible*, 2001). Additionally, the amount of bacterial growth in water also depends on the storage vessel's size, with a lower surface area to water ratio resulting in faster growth (Hüttermann, 1998). The variety of conditions that could influence the potability of water in ancient Israel point to the wise, rather than arbitrary, nature of these Mosaic law regulations.

#### ***Avoidance of Proteolytic Bacteria Via Porous Vessel Regulations***

Quadruped carcasses could spread infection not only via direct contact but also through contaminated vessels and water. Given the location and conditions of the Israelites' dwelling, contact with quadrupeds (mole rats, mice, lizards, geckos, chameleons, etc.) was inevitable (Hüttermann, 1998). Proverbs 30:28 even makes reference to a lizard in the king's palace (*English Standard Version Bible*, 2001).

As recorded in Leviticus 11:24-25, the procedure for dealing with a quadruped carcass in one's kitchen or living room depended upon the material which it touched (*English Standard Version Bible*, 2001). If wood, garment, or sackcloth were touched by the carcass, the material remained unclean until evening and ought to be washed. Conversely, earthenware vessels were (and the food or drink contained therein) were to be broken and destroyed.

This reasoning may have seemed arbitrary at the time, yet modern knowledge demonstrates its wisdom. There is a great health risk associated with consumption of the proteolytic bacteria spread by carcasses especially given the impossibility of cleansing such a porous medium as an earthenware vessel (Hüttermann, 1998). As such, the Torah's instructions provide the most rational balance of preserving public health yet avoiding unnecessary destruction of objects. This law instructed Israelites to absorb the cost of the object by destroying the vessel, which may have seemed cruel and unfair, but resulted in the mitigation of a serious health risk.

### *Seeds, Water, Pathogens, and Quadruped Carcasses*

Leviticus 11:37-38 draws a distinction between the procedures for dealing with either dry or wet seeds contaminated by a quadruped carcass (*English Standard Version Bible*, 2001). These verses explain that if a quadruped carcass were to touch a dry seed, no consequences would follow. However, if a quadruped carcass were to touch a wet seed, the seed would be considered unclean. Hüttermann (1998) notes that these verses demonstrate, "a great insight in microbiological matters" (p. 29).

This differentiation speaks primarily to the significance of available nutrients for each seed in its respective condition (dry or wet). Since dry conditions would not be favorable for bacterial proliferation, the seed would be deemed safe for sowing (Hüttermann, 1998). However, if the seeds were already soaked in a process designed to accelerate germination, conditions would be highly favorable to bacterial growth, leading to "a major hygienic hazard" (Hüttermann, 1998, p. 30). This small distinction between dry and wet seeds makes an enormous difference to human health risk and the best course of action in dealing with an unexpected quadruped carcass.

## **Summary of Purification Laws**

The purification laws of the Mosaic law span a wide range of topics, from seeds and quadrupeds to *tsara'at* and buildings. Compared to the dietary laws of the Torah, these purification regulations appear to have a more direct correlation to human hygiene and health. While human wellness remains at best a secondary aim of the Mosaic law, hints of divine wisdom may be observed in the details of these purification standards.

## **Circumcision**

### **Background of Circumcision**

Circumcision is a distinctive aspect of the Mosaic law, introduced to the people of Israel from the very beginning of their nation's history with the patriarch Abraham (*English Standard Version*, 2001, Genesis 17). As such, the biblical basis and present controversy surrounding circumcision play key roles in understanding the topic's background, significance, and contemporary relevance. After examining the background of circumcision, the health effects associated with this integral aspect of the Mosaic law will also be evaluated.

Today, approximately 37-39% of men worldwide are estimated to have undergone circumcision (Morris et al., 2016), a practice which has existed for over 5000 years (Moses et al., 1998). In many cases, this practice is intertwined with religious meaning; it has been carried out historically and presently by both Jews and Muslims (Morris, et al., 2016). Circumcision is a regulation outlined in the Torah and has been observed since the time of Abraham. Even with the historical roots of this practice, some opponents have questioned the ethics and validity of circumcision (Morris et al., 2019)

### ***Biblical Basis***

Even before the law was given to Moses, the commandment was given for all of Abraham's offspring (those eight days and older) to "be circumcised in the flesh of your foreskins" (*English Standard Version Bible*, 2001, Genesis 17:11-12). This was to be carried out for all the sons of Israel and was to be the sign of God's covenant with Abraham (*English Standard Version*, 2001, Genesis 17:13-14). Later, when the law was revealed more fully to the people of Israel, it included a command for each newborn male to be circumcised on the eighth day (*English Standard Version Bible*, 2001, Leviticus 12:3).

### ***Present Controversy***

Although circumcision is one of the most common procedures worldwide (Blank et al., 2012), concerns over ethical and medical risks have been raised (Friedman et al., 2016; Christian & Koate, 2017). Some see an ethical dilemma and argue that circumcision should be delayed so that children may decide for themselves whether to undergo the procedure (Christian & Koate, 2017; Blank et al., 2012). However, research suggests that circumcision early on presents the least medical risk, cost, and time to heal (Blank et al., 2012). Given that certain risks are inherent to any medical procedure and that a plethora of research has been conducted on the topic, it does not appear that the concerns regarding circumcision outweigh its benefits.

### **Health Effects of Circumcision Observance**

Certain health benefits of circumcision have been widely reported in the literature, yet others have been little more than alluded to. The role of hemostasis and the significance of day eight circumcision has been mentioned, but not explored in depth. Meanwhile, prevention of HIV, STI, UTI, and cancer have been reported around the globe.

### ***Hemostasis and the Significance of Day Eight***

The Levitical law specifies for circumcision to be performed on the eighth day of a baby's life (*English Standard Version Bible*, 2001, Leviticus 12:3). Beyond any theological meaning, there may also be medical rationale for this stipulation. Prevention of hemorrhage is a key concern for this procedure, especially given that it is “the most common complication” (Christian & Koate, 2017, p. 92) to arise from the procedure. Because of how hemostatic regulation develops in the human body, minimal bleeding is experienced by healthy newborns undergoing this procedure. This contributes to a relatively quick healing process for newborns that are circumcised.

Both vitamin K and thrombocin contribute significantly to blood coagulation and prevention of hemorrhage in the human body (Christian & Koate, 2017). In fact, it has become standard in the medical field to administer a shot of vitamin K to newborns (Blank et al., 2012). Vitamin K assists in the synthesis of coagulation factors II (prothrombin), VII, IX, and X in a process known as gamma glutamyl carboxylation (Christian & Koate, 2017). Thrombocin functions in the body's blood clotting mechanism. Incidentally, both of these important compounds reach peak levels when the newborn is eight days old. The literature related to this topic is very limited but could be a fruitful area for further study.

### ***HIV Prevention***

Mitigation of human immunodeficiency virus (HIV) transmission is a well-recognized health benefit of circumcision (Christian & Koate, 2017; Grund et al., 2017; Morris et al., 2016), especially when performed prior to becoming sexually active (Blank et al., 2012). This procedure has been used in programs aimed at HIV prevention across the globe (Morris et al., 2016) and has proven highly effective in areas where HIV is prevalent (Friedman et al., 2016). The

evidence indicates that circumcision prevents HIV transmission among heterosexual men, but also suggests that the practice may indirectly protect women from HIV. The direct impact on women remains to be studied.

### ***STI Prevention***

In addition to prevention of HIV acquisition, reduced risk of sexually transmitted infections (STI) has also been documented. In those who are uncircumcised, pathogenic bacteria under the prepuce are a contributing factor to STI (Blank et al., 2012), increasing risk by creating a “reservoir for bacteria” (Blank et al., 2012, p. e763). In a study of circumcision in Africa, evidence indicated a correlation between the procedure and decreased acquisition of human papilloma virus (HPV), mycoplasma, and genital ulcer disease (GUD) in heterosexual men (Friedman et al., 2016). Among heterosexual men, evidence also indicated a possible link between circumcision and decreased acquisition of syphilis and herpes simplex virus (HSV), but did not show any impact on the prevalence of gonorrhea or chlamydia among heterosexual men.

In Africa, a male partner’s circumcision has been connected to lower rates of HPV acquisition and potentially lower rates of GUD, bacterial vaginosis, and chlamydia for the female (Friedman et al., 2016). However, this same study reported that male circumcision likely does not affect HSV and genital mycoplasma acquisition among their female partners. Other research has indicated that circumcision does protect women by preventing acquisition of “chlamydia, HSV-2, and syphilis” (Grund et al., 2017, p. e1118).

### ***UTI Prevention***

Urinary tract infections (UTI) are another health outcome that can be mitigated by means of circumcision. As with STIs, pathogenic bacteria under the prepuce contribute to UTI risk (Blank et al., 2012). Those who are uncircumcised demonstrate higher levels of pathogenic

bacteria near the opening of the urethra than those who have already undergone circumcision in newborn boys under six months old. Based on the current evidence, the Task Force on Circumcision of the American Academy of Pediatrics has reported that 1-2 out of 1000 circumcised boys under one year of age will experience a UTI compared to 7-14 out of 1000 uncircumcised boys of the same age (Blank et al., 2012).

### ***Cancer Prevention***

Finally, circumcision has been demonstrated to reduce risk of cancer in both males and females. Research has strongly suggested a link between uncircumcision, HPV, and penile carcinoma (Moses et al., 1998). Circumcision has even been employed as a treatment option in response to penile carcinoma (Morris et al., 2016). For females whose partners are circumcised, evidence has indicated a decreased risk of cervical cancer as well as dysplasia (Grund et al., 2017). For both males and females, circumcision results in decreased cancer risk.

### **Summary of Circumcision**

The practice of circumcision is deeply ingrained in Jewish faith and practice. While some controversy regarding the topic exists as present, such arguments do little to deny the documented health benefits of male circumcision that have been established in the literature. Prevention of HIV, UTI, STI, and cancer acquisition have all been reported, while further research is needed to understand the significance of circumcision on the eighth day. Circumcision, a practice integral to the Jewish faith and included in the Mosaic law has been demonstrated to substantially impact human health.

## **Sabbath**

### **Background of Sabbath**

Much has been written regarding the concept of Sabbath observance, especially in recent years (Diddams et al., 2004). Also called *Shabbat* (original Hebrew) or *Shabbos* (pronunciation by Ashkenazi Jews), Sabbath is a practice firmly rooted in Jewish sacred writings and tradition (Dein & Loewenthal, 2013). The creation account alludes to this idea in describing God's rest on the seventh day (*English Standard Version Bible*, 2001, Genesis 2:1-3) and the Ten Commandments contain an explicit command for the people of Israel to honor the Sabbath, the seventh day by keeping it holy (*English Standard Version Bible*, 2001, Exodus 20:8-11). For the purposes of this paper, Sabbath observance will be narrowly interpreted to mean a weekly day of rest set aside for holiness, free from work, and reserved for worship. Where the research refers to something more broad or flexible than this traditional conception of Sabbath (Diddams et al., 2004), it will be noted accordingly.

### ***Sabbath, a Form of Ritual***

In the literature, the practice of observing the Sabbath day is identified as a ritual (Dein & Loewenthal, 2013; Hough et al., 2018). As such, research related to the psychology of rituals and how they affect the human body may prove useful in elucidating the benefits and drawbacks of Sabbath observance (Dein & Loewenthal, 2013). Minimal study has been conducted related to ritual and health, meaning that significant gaps remain. In general, rituals prove beneficial by fostering community and providing opportunity for "emotional expression" (Dein & Loewenthal, p. 1383). In general, a sense of stability, steadiness, and clarity may accompany the practice of rituals overall.

### *Opportunities for Study*

While direct observation of ancient Israel cannot be undertaken today, research can and has been conducted among contemporary religious groups who practice the ritual of Sabbath. With regulations and practices based on the biblical text, Seventh Day Adventists are one group that exhibits strong commitment to Sabbath observance (Superville et al., 2014). As is the case with dietary regulations, studies related to the health of Seventh Day Adventists may prove useful in evaluating the biological and mental impact of Sabbath observance. Since contemporary Orthodox Jews also observe the Sabbath, research related to this demographic can further shed light on the health effects of Sabbath practice (Rosenberg et al., 2016). Finally, Christian clergy can also serve as a source of information regarding the impact of Sabbath observance (Hough et al., 2018). Both benefits and drawbacks across these three groups have been documented in the literature.

Unfortunately, while Seventh Day Adventists, Jews, and Christians provide populations to study and although Sabbath observance has piqued the curiosity of many in recent years, significant gaps remain in the literature (Dein & Loewenthal, 2013). Research on the topic has been conducted, yet it remains largely restricted to interview-based approaches (Dein & Loewenthal, 2013; Speedling, 2019). This certainly provides a base from which to draw case studies and specific examples but highlights the need for longitudinal studies and empirical research (Dein & Loewenthal, 2013; Speedling, 2019). Evidence suggests several health outcomes associated with Sabbath observance, yet the topic remains one of largely untapped potential.

### **Health Effects of Sabbath Observance**

The ritual of Sabbath observance commanded in the Torah and practiced throughout history is tied to many aspects of human health. To summarize the many benefits of Sabbath observance, Speedling (2019) recommended:

There are many effective holistic health practices, yet many are not covered by insurance or require specialized training or tools. Sabbath-keeping requires no special knowledge or equipment or out-of-pocket costs. I recommend that healthcare professionals prescribe a weekly Sabbath or day of rest for their patients and clients as appropriate. (pp. 1395-1396)

While the specific mechanisms by which it impacts human metabolism, biology, and pathology remain largely undiscovered, several correlations to physical, mental, spiritual, and relational health have been noted.

#### ***Centrality of Motivation***

Internal motivation for Sabbath observance appears to be intertwined with associated health benefits (Speedling, 2019). If Sabbath is simply thought of as a segment of the week in which certain rules are followed, there is a strong temptation to detach or to feel burdened by a foreboding sense of obligation (Diddams et al., 2004). While assessing personal internal motivations is understandably challenging and research is primarily restricted to the action of Sabbath observance, the role of motivation should not be underestimated. When Sabbath is practiced to simply fulfill obligation, ease guilt, or please people, mental and physical health detriments have been reported (Speedling, 2019).

#### ***Physical Health***

Real and perceived physical health effects have been correlated with Sabbath observance over recent years. Based on her review of the literature, Speedling found that positivity regarding Sabbath observance led to physical benefits while a negative attitude stemming from guilt or

obligation resulted in physical detriment (Speedling, 2019; Superville et al., 2014). This underscores the importance of motivation in Sabbath observance and its consequent health effects. Of the ten women interviewed by Speedling, all ten expressed their concern for spirituality and reported improved self-care and increased physical health (Speedling, 2019). This indicates at the very least a perceived physical benefit to Sabbath observance.

On the other hand, Sabbath observance has also been linked to increased food consumption among Orthodox Jews in the United States (Rosenberg et al., 2016). The prevalence of obesity in contemporary America and specifically, within Orthodox Jewish communities, has prompted researchers to explore the subject of food consumption and Sabbath observance. The rich foods prepared and consumed for three meals combined with a nap and minimal physical movement make for a day that may greatly contribute to the obesity observed among contemporary American Orthodox Jews. Although drawn from a limited sample size (twelve women), the results from Rosenberg and her team seem to indicate that increased energy consumption and decreased energy output on the Sabbath is a major contributor to obesity among Orthodox Jews.

### ***Mental Health***

Beyond the physical effects of Sabbath observance, mental health effects have also been investigated, observed, and reported. Each of the ten women interviewed by Speedling (2019) reported improved self-awareness as a result of practicing the Sabbath and many shared that the ritual impacted their entire week. In studying Sabbath and mental health among the Seventh Day Adventist community, a significant link was found between Sabbath observation and increased mental health (Superville et al., 2014). However, based on the available research and methods,

further investigation is necessary to determine that it is not good mental health that attracts someone to Sabbath observance and the Seventh Day Adventist Church in the first place.

The evidence related to mental health impact of Sabbath is anecdotal, but at this point suggests that overall mental well-being is positively associated with the practice (Dein & Loewenthal, 2013; Superville et al., 2014). Decreased anxiety, deeper sense of meaning and identity, and “a structure for emotional expression” are all associated with religious rituals in general (Dein & Loewenthal, 2013, p. 1389).

### ***Spiritual Health***

Since Sabbath is a religious ritual, it is assumed that the primary purpose of its observance is not mental, physical, or relational, but spiritual. The literature suggests a positive correlation between spiritual health and Sabbath observance (Hough et al., 2018; Speedling, 2019). Given the high degree to which chronic diseases impact clergy today, a recent study focused on Sabbath observance and the health of clergy (Hough et al., 2018). Interestingly, the team found no significant correlation between Sabbath observance and predicted mental and physical health benefits; however, they did report that “higher spiritual well-being and quality of life” (Hough et al., 2018, p. 183) were associated with clergy who observed the Sabbath. In addition, both time for reflection and gratitude were reported by those who regularly observe the Sabbath, which serve as outlets for spiritual health (Speedling, 2019).

### ***Relational Health***

Finally, it has been suggested that Sabbath observance also contributes to relational health. Depending on the motivation and strategy for the practice, Sabbath has been noted to strengthen marriage relationships (Speedling, 2019). The practice results in special time spent with family and may contribute to increased healthfulness of familial relations. Other benefits

may include greater inclination to forgive as well as an increased tendency to be kind and a willingness to serve even strangers.

### **Summary of Sabbath**

Given the strength of anecdotal evidence and interest in the field, it is recommended that future research address gaps in the literature by conducting empirical studies focused on Sabbath observance among Orthodox Jews, Christians, and Seventh Day Adventists. This may serve to strengthen or dismiss the correlation between Sabbath observance and physical, mental, spiritual, and relational health levels. Based upon this brief review of the literature, the ritual of Sabbath observance and its associated health effects appears to be a topic ripe for investigation and analysis.

### **Conclusion**

The regulations and customs of the Mosaic law have been ingrained in Jewish life and practice for thousands of years. Currently, certain aspects of this lifestyle can be studied among Orthodox Jew, Seventh Day Adventist, and some Christian populations to observe the human health effects of adherence to the Mosaic law. From the perspective of Old Testament authors and culture, human health was viewed holistically as extending to all aspects of a person's being. Thus, the biological and physical health effects of Levitical law observance cannot be completely divorced from the mental, emotional, relational, and spiritual health effects. The dietary, purification, circumcision, and Sabbath regulations of the Old Testament all touch the lives of those who adhere to the Mosaic law, with some contributing significantly and other minimally to human health.

While all laws of the Torah were designed to encourage the people of Israel to understand their need of cleansing, wholeness, and restoration, some conveyed greater health benefits than

others. The purification laws, for example, appear to reflect modern principles of quarantine and waste removal while also preventing transmission of infectious diseases like tuberculosis. The dietary laws, in contrast, may promote healthy living and to some extent prevent mycotoxicosis, but not necessarily offer tremendous health benefits compared to a Muslim halal diet or Seventh Day Adventist vegetarian diet. Some research indicates that observance to Jewish dietary law may even reduce bone mineral density. Both the circumcision and Sabbath laws have been positively correlated with human health benefits but require further research.

Many health effects of Mosaic law observance have been experienced for thousands of years yet remain to be researched. A few areas that would benefit from further investigation are the correlation between levels of vitamin K and thrombocin with circumcision on the eighth day. Additionally, quantitative data related to Sabbath observance would be beneficial given that much of the current data is qualitative and anecdotal. Overall, the correlations between Torah observance and human health demonstrate the divine wisdom behind the commandments and prompt further research regarding their impact on the human body.

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