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Modern Cavemen? Stereotypes and Reality of the Ancestral Health Movement


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Modern Cavemen? Stereotypes and Reality of the Ancestral Health Movement

Abstract

Both academic and popular interest in the ancestral health movement, or “paleo” lifestyle, has grown rapidly in recent years. More people than ever are joining the movement, and more books and articles are being published on the topic. Media coverage and certain societal preconceptions of the movement have also increased. More often than not, followers of a paleo lifestyle are thought to be “modern cavemen”: athletic, single, meat-eating, young, white, and male. To test whether or not these stereotypes are true, the authors of the present study created the first large, academic survey (N = 3,967) of the ancestral health community. Specifically, the online survey sought to accomplish two main goals: (1) describe the current composition and demographic makeup of the ancestral health movement and (2) identify common practices, the major obstacles, and the most important motivating factors for adopting a paleo lifestyle. Despite the common stereotypes, survey evidence suggests that the majority of participants are: white, female, middle aged (mean 38 years old), in a committed relationship, highly educated, relatively affluent, and motivated by weight loss and health concerns. Thus, while some of the common preconceptions may hold up, many others probably do not.

Keywords

Evolution, Paleo Diet, Paleolithic Diet, Ancestral Health, Survey

INTRODUCTION

The ancestral health movement has grown dramatically over the past decade, and especially over the past three years. Google searches for the term “paleo diet” skyrocketed between 2010 and 2013.[1] *The Paleo Solution* by Robb Wolf and *Practical Paleo* by Diane Sanfilippo hit the *New York Times* Best-Seller Lists in 2011 and 2012 respectively.[2][3] There is now *Living Paleo for Dummies* and *The Complete Idiot’s Guide to the Eating Paleo*. [4][5] Hundreds of paleo and “primal” websites and podcasts cover every aspect of the ancestral health movement, from paleo for kids to cooking grain-, legume-, and dairy-free holiday dinners. The Paleo Physicians Network, an online resource for identifying medical professionals, lists hundreds of practitioners who embrace evolutionary medicine in the United States and abroad.[6] Advocates for living an ancestral lifestyle have even appeared in mainstream media outlets, including on *The Dr. Oz Show*. [7]

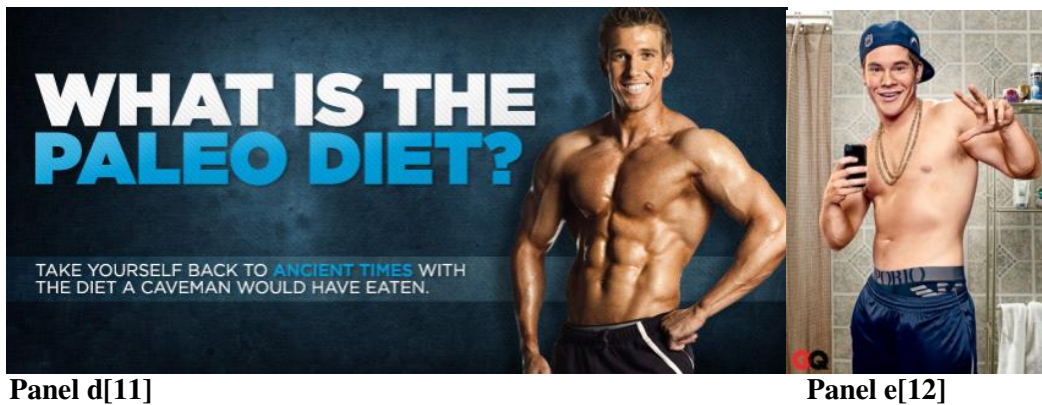
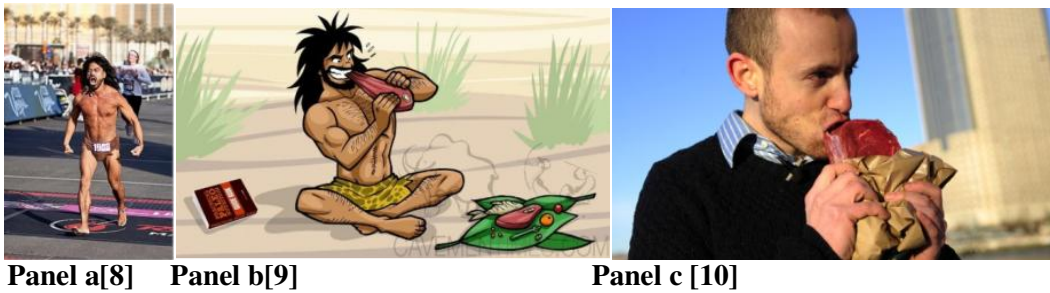


Figure 1

At the same time, certain preconceived notions about the movement have also developed. In the media’s imagination, the terms “paleo” or “paleo diet” are often associated with the idea of a “caveman.” That is, someone who is backwards, uncivilized, and a bit dense. Perhaps the pre-historic figures in the

GEICO television commercials come to mind.[13] Media representations of the typical paleo participant also follow a distinct pattern. More often than not, ancestral health participants are portrayed as athletic, single, meat-eating, white, young men (See Figure 1).

A recent article in *GQ Magazine* typifies the popular portrayal of paleo adherents. The article, entitled “The GQ Guide to Online Dating,” labels the typical paleo devotee as “The Dude Who’s Allergic to Shirts.” The adjacent image shows a shirtless young man taking a photo of himself in the bathroom mirror (see Figure 1e). The caption goes on to describe him as, “Just a normal guy who sleeps naked and believes the Paleo Diet is ‘the greatest invention ever since myself [sic].’”[12] Overall, the reader is left with the impression that this young man is rather vain, mainly interested in himself and the way his body looks. But are these images and preconceptions truly representative of individuals who adopt a paleo lifestyle?

To answer this question, and to test whether or not the stereotypes are true, we conducted the first academic survey of the ancestral health community. The purpose of the survey was to accomplish two main goals: (1) describe the current composition and demographic makeup of the ancestral health movement and (2) identify common practices, the major obstacles to maintaining a paleo lifestyle, and the most important motivating factors for adopting a paleo lifestyle. Thus, in addition to the standard demographic questions, the survey includes sections about food choices, exercise, and sleep. It also asks about attitudes toward the Theory of Evolution and, finally, about “outcomes,” whether or not transitioning to a paleo lifestyle improved a participant’s subjective health and well being. The methodological approach is described in the following section, followed by a detailed explanation of the survey results. The final section of the paper concludes with a discussion of the findings.

DATA AND METHODOLOGY

Rather than solicit a panel of participants, the present study utilized a self-selected web survey to explore the demographic composition and habits of paleo adherents.[14] Any individual (with the exception of those under the age of 18) who came upon the Qualtrics survey link could complete the questionnaire. As such, participants were not necessarily self-identified adherents to the paleo lifestyle, but rather those with some connection to the online networks of the paleo community. However, given the goals of this paper, we discuss only those who reported adherence to a paleo lifestyle, leaving out a subset of individuals who selected “I am not paleo” in an initial screening question.

The survey was open for ten days, beginning on February 22 and ending on March 4, 2013. To aid in accessibility, several resources were employed for

primary survey dissemination, including popular evolutionary health blogs and the email list and social media component of at least one evolutionary health organization. Secondary dissemination of the survey link took the form of social media broadcasts from individuals. This approach to survey recruitment produced 4,691 total responses, and yielded a final sample size of 3,967 participants. In the case of our non-probability sampling method, a large sample minimizes the chance of systematic exclusion.[15] While this approach does not allow for any statistical inference related to the size of the paleo community, it does offer a compositional sketch of an amorphous movement. The Discussion section below also attempts to offer a rough estimate of the current size of the movement.

Given that online surveys are especially prone to participant attrition, we constructed a succinct questionnaire with limited text entry.[14][16][17] Multiple-choice questions covered a range of evolutionary health topics, such as supplementation (“Which of the following supplements do you regularly take?”), exercise habits (“How many times per week do you typically do aerobic training?”), and diet (“Do you regularly consume grains, legumes, and dairy?”). After discarding outlying cases, the trimmed mean completion time was 11 minutes, with a relatively high participant response rate of approximately 91 percent. Given that we utilized a non-probability survey, we cannot address issues of nonresponse error.

Further, because there is some ambiguity surrounding the term “paleo,” the questionnaire in the present study provided a general definition of a lifestyle based upon the principles of evolutionary health. Participants were asked to understand paleo as “the effort to optimize human health today by examining our evolutionary or ancestral past. (Paleo, Primal, Darwinian, Stone Age, Cave Man, etc.)” Rather than alienate individuals across the diverse spectrum of paleo adherents, we hoped to provide a broad baseline on top of which individuals could detail their particular approach to ancestral health. Using this approach, we constructed a dataset of those who self-identify as paleo but practice a range of different habits. As such, the forthcoming descriptive analysis captures the nuances of a movement that does not offer a one-size-fits-all program.

RESULTS

Demographics (Gender, Age, Race, Family Structure, Education, Household Income, and Geographical Location)

Despite male-dominated media images and the prominent idea of “modern cavemen,” more women (56%) than men (44%) completed the survey. Followers of a paleo lifestyle are also usually assumed to be young and active, perhaps in

their 20s. However, the mean age of survey participants was 38 with a standard deviation of 11.7 years. The ages of participants ranged from 18 to 85 years old (participants needed to be at least 18 years old in order to begin the survey). The mean age of women was slightly older than men, at 39 and 37 years old respectively.

Unlike the apparently false assumptions about gender and age, popular depictions of paleo adherents might reflect reality with regard to race, as 92% of survey participants were white. African American, Asian, Hispanic, and Native American each represented 2% or less of respondents. With regard to family structure, the majority of respondents were *not* single, as is often assumed. Rather, 68% were married or with a life partner. In addition, 43% of respondents reported having children (see Figure 2).

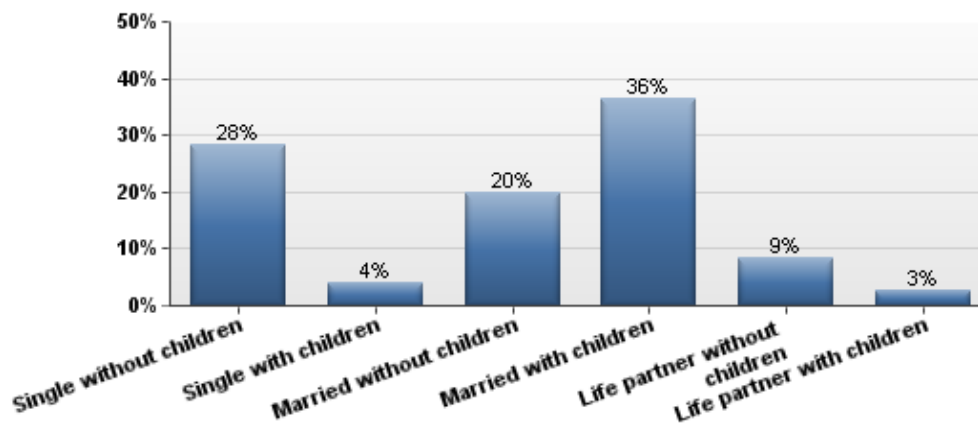


Figure 2: “Please indicate your current family structure.”

Respondents to the survey also reported relatively high levels of education and household income. With regard to education, 74% of respondents hold a four-year degree or higher. This is close to two and half times the national average of 30.4% (see Figure 3).[18] The story is similar in terms of household income. More than 40% of respondents (41%) reported earning \$100,000 per year or more, while the national average is 15.9% (see Figure 4).[19] Based on these results, participants are quite well educated and affluent compared to the population as a whole. Overall, they appear to be much closer to the image of settled, middle-aged men and women, rather than to foot-loose 20-somethings.

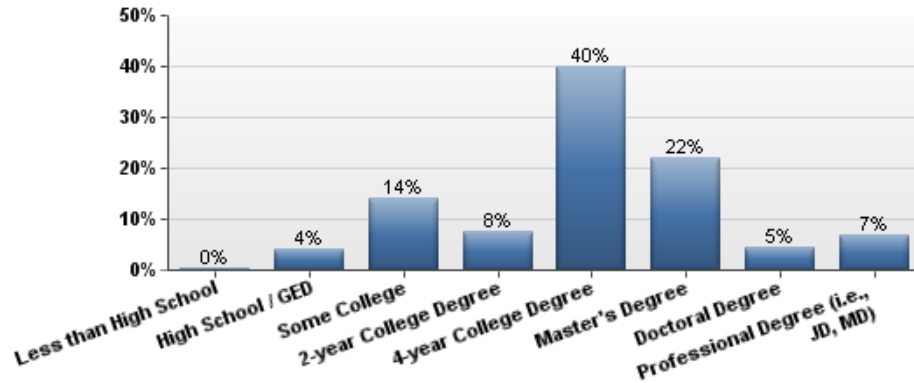


Figure 3: “What is the highest level of education you have completed?”

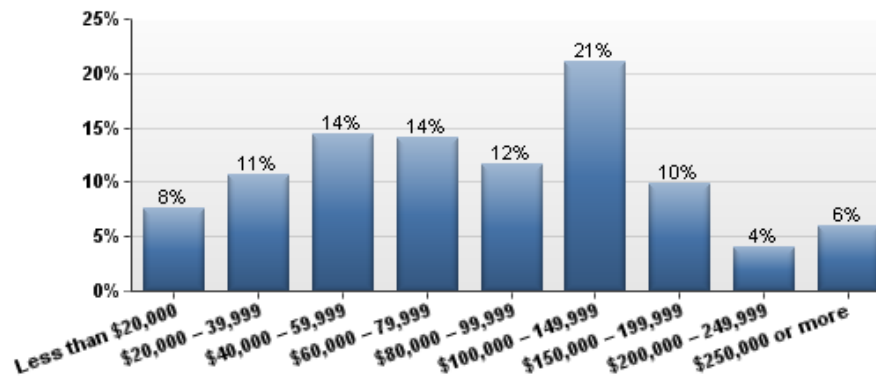


Figure 4: “What is your combined annual household income?”

Geographically, by far the largest percentage of respondents (15%) came from the most populous state in the nation: California. New York, Texas, and Washington came next with less than half as many respondents, ranging from 6% to 7%. Colorado, Oregon, Florida, Illinois, Massachusetts, and Virginia rounded out the top ten, each with 4% or less of respondents (see Figure 5). Although the survey was advertised and promoted through English-language blogs, organizations, and social media located in the United States, 30% of the respondents were international. In total, there were responses from 60 different countries. The top three countries after the United States included Canada and Australia, each with 7% of the respondents, and the United Kingdom with 4%. The other countries had 2% or less of the respondents.

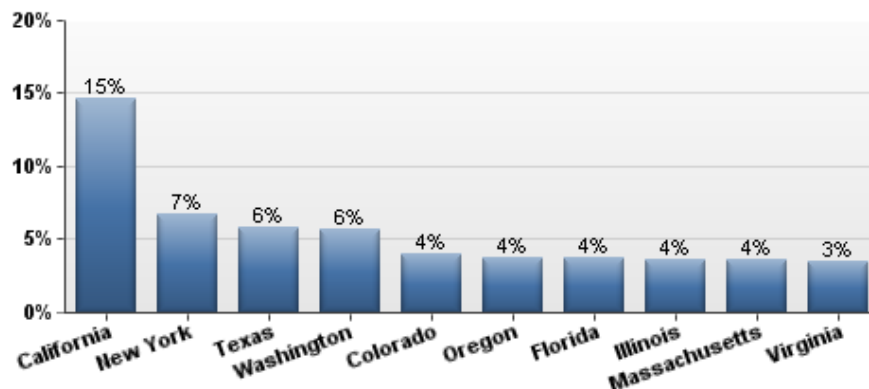


Figure 5: “In which state do you currently reside?”

Motivations, Obstacles, and Duration

Adherent motivation is central to any process of lifestyle change. In the present study, no single motivating factor dominated among participants. Instead, three main motivators appear important. The number one motivator was weight loss, with 31% of respondents claiming this was the primary reason for adopting a paleo lifestyle. Recovery from illness (21%) and a desire to live more naturally (17%) were the second and third most common motivating factors, respectively (see Figure 6). In addition, 17% of respondents also selected the option “Other,” and were given the opportunity to provide their own motivating factor. Many of these responses actually identified specific illnesses and were thus coded as such, bringing the recovery of illness category to 25% (instead of the 21% cited above and in Figure 6). The rest of the “Other” reasons varied greatly, ranging from supporting a paleo family member to lowering risk factors for future disease. However, one additional response stands out due to its frequency. Approximately 8% of participants responded with something akin to “overall health,” making that category the fifth most common response after improvement of athletic performance at 9%. The remaining category options – weight gain, improvement of mental performance, environmental sustainability, and improved fertility – were far less common among our sample.

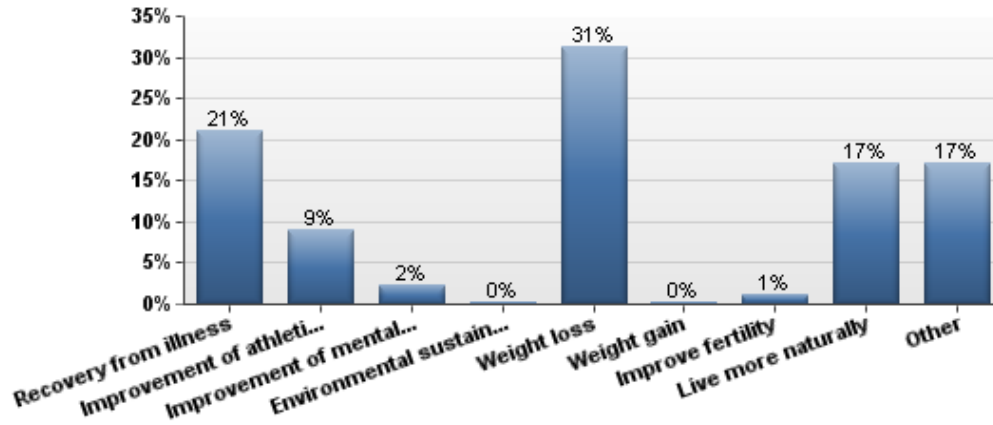


Figure 6: “What was your primary reason for going paleo?”

Along with motivation, obstacles are another key aspect of assuming any new lifestyle. Here, again, no single obstacle dominated. In fact, “Other” represents the single most selected category at 26% of the responses (see Figure 7). Under the category of “Other,” respondents described a wide variety of obstacles, including general inconvenience arising from the lifestyle, lack of cooking skills, and family conflicts. But 6% of respondents also claimed they face no obstacles, making it the single most common “Other” response. After the “Other” category, social pressure (23%) and giving up favorite non-paleo foods (21%) were seen as the most significant obstacles to living a paleo lifestyle. Expense and limited food choices were seen to be less important, receiving 13% and 11% of responses respectively. Yet, despite these various obstacles, when asked how difficult it was to maintain a paleo lifestyle, only 20% of respondents said it is difficult or somewhat difficult, while two thirds said it was easy, somewhat easy, or very easy (see Figure 8). An additional 14% of respondents reported that it was neither easy nor difficult to maintain a paleo lifestyle.

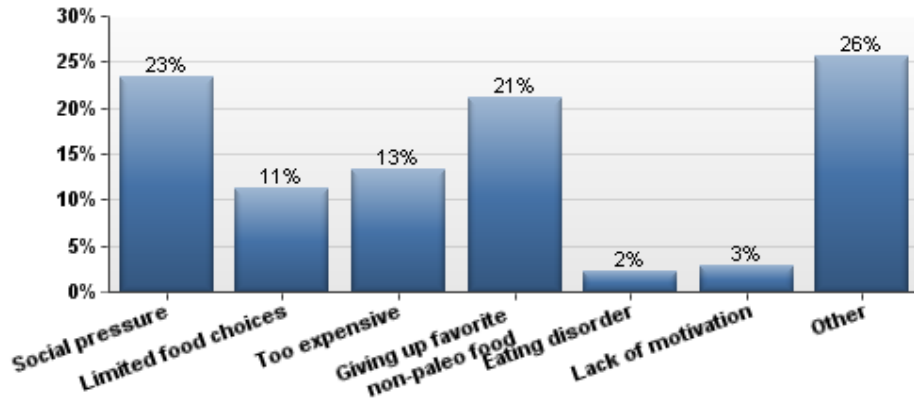


Figure 7: “For you personally, what is the primary obstacle for living a paleo lifestyle?”

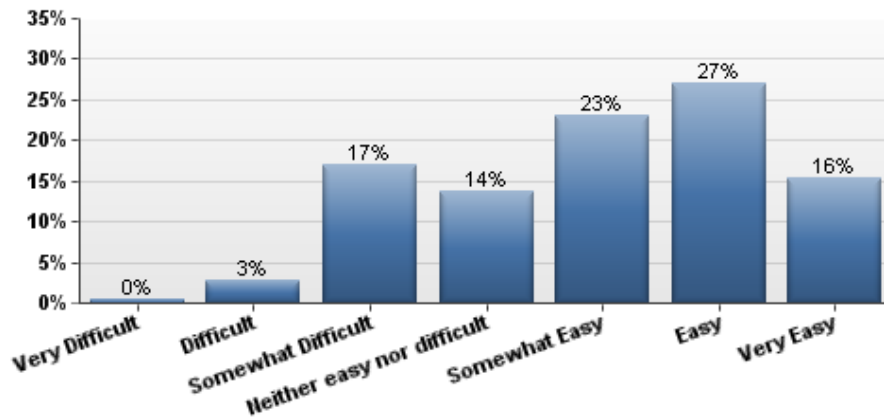


Figure 8: “For you personally, how hard is it to maintain a paleo lifestyle?”

In terms of duration, respondents to the survey have not been living a paleo lifestyle for very long. A remarkable 85% of respondents have joined the movement within the last three years, and more than two thirds (67%) have joined within the past two years (see Figure 9). These very high recent numbers suggest both the rapid growth of the movement since 2010 and the relatively short time of adherence of most respondents. When these results are broken down by gender, some important differences emerge. Most notably, men in our sample joined the movement at higher rates in the past, but women have caught up and now surpass the men. Figure 10 shows that more men joined two or more years ago, then very

close to an equal percentage of male (31%) and female (32%) participants joined the movement between one and two years ago. Within the last year, however, a far greater percentage of women (41%) than men (30%) adopted a paleo lifestyle. Thus it appears as though the percentage of men joining the movement has stabilized, while an increasing percentage of women are now joining the movement.

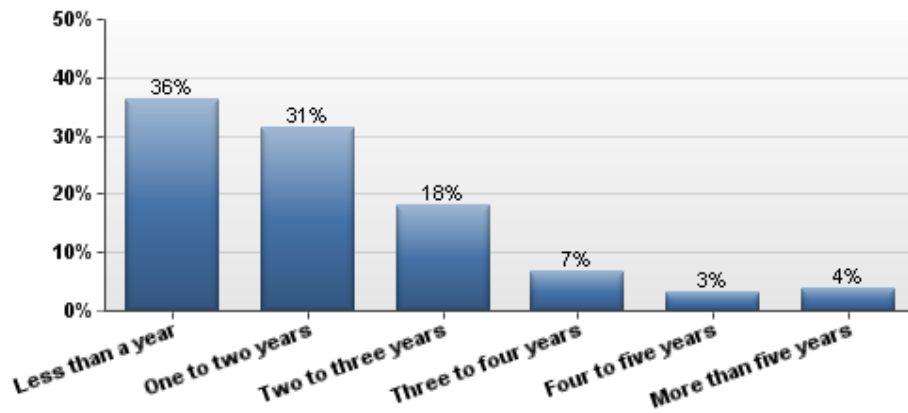


Figure 9: “How long have you been living a paleo lifestyle?”

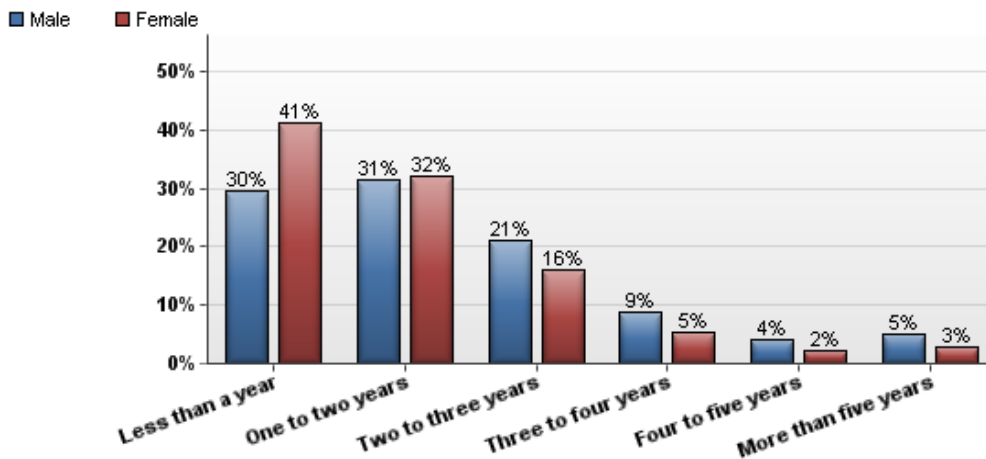


Figure 10: “How long have you been living a paleo lifestyle?”

Lifestyle Choices: Food, Exercise, and Sleep

Food is often seen as one of the most important components of a paleo lifestyle. Although the media often portray young men eating a lot of red meat, the survey

did not directly ask about meat consumption. Instead, it focused on grains, legumes, dairy, and alcohol, which are evolutionary novel, as they were first consumed during the Neolithic Revolution approximately 10,000 years ago. Many within the movement believe that humans may not be well adapted to eating these Neolithic foods, so they are often avoided today. In the survey, we found a very high avoidance of grains and legumes, but not of dairy: 98% and 88% of participants regularly avoid grains and legumes respectively, but only 39% regularly avoid dairy (see Figure 11). In addition, 43% of participants avoid alcohol on a regular basis as well.

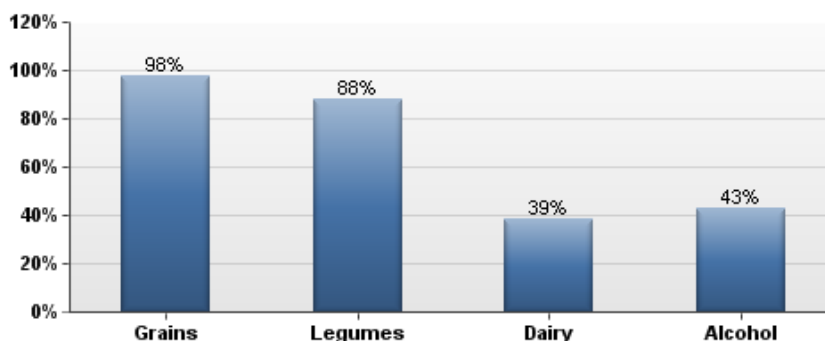


Figure 11: “Which of the following do you regularly avoid?”

With regard to adherence, participants claimed that 87% of their typical weekly food consumption was paleo (with a standard deviation of 9.98). In other words, 87% of the time respondents reported sticking to a paleo diet. One area of controversy related to diet within the ancestral health community is the regular inclusion of “safe starches.” These include white rice, potatoes, sweet potatoes, and other starchy foods thought to contain a minimal number of unhealthy “anti-nutrients,” including saponins, lectins, and phytates. In the survey, 60% of respondents reported regularly consuming such “safe starches.”

Another contentious topic is supplementation. Some within the movement believe supplementing with extra vitamins and minerals is necessary due to the diminishing level of nutrients within our modern food supply. Others believe additional doses are unnatural and unnecessary, and possibly even harmful. In the survey, the majority of participants reported regularly taking one or more nutritional supplements. The top three supplements were vitamin D (69%), fish oil (65%), and magnesium (49%), with probiotics, multivitamin, and whey protein coming in between 34% and 21% (see Figure 12).

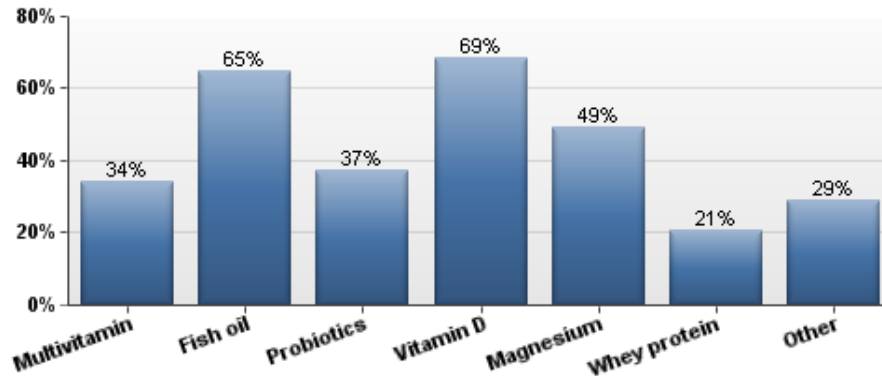


Figure 12: “Which of the following supplements do you regularly take?”

When it comes to exercise, however, there is little disagreement. It is widely believed that our human ancestors were active on a daily basis, hunting, gathering, building shelters, and avoiding threats. As such, regular physical activity is strongly advocated within the ancestral health community today. In the survey, 82% of respondents reported doing strength training at least once a week (see Figure 13). And, 73% of respondents reported doing aerobic training at least once a week (see Figure 14). These figures appear to be well above the national average, as the U.S. Centers for Disease Control and Prevention report that only 21% of American adults meet the *2008 Physical Activity Guidelines for Americans*, and the majority gets no planned exercise at all.[20] The *Guidelines* outline healthy aerobic and strength training habits, including some combination of moderate- to high-intensity activity on at least two days or an equivalent of 2 hours and thirty minutes a week.[21] In addition, in the survey, 16% of respondents reported participating in the often physically intense fitness modality of CrossFit at least once per week.

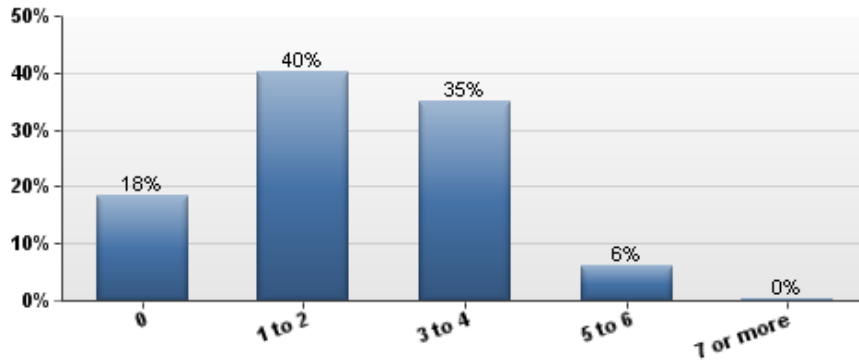


Figure 13: “How many times per week do you typically do strength training?”

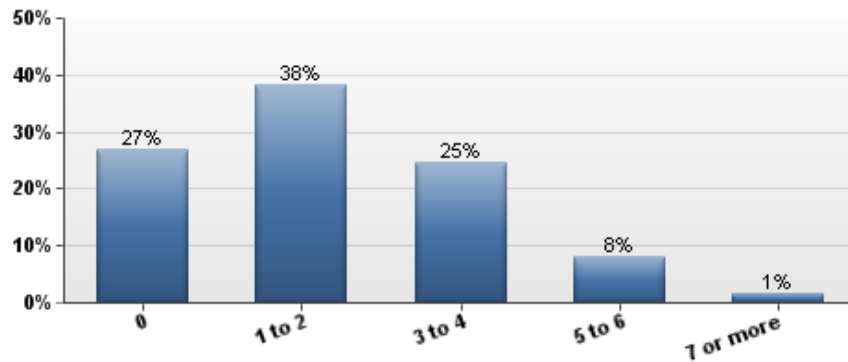


Figure 14: “How many times per week do you typically do aerobic training?”

Along with exercise, getting adequate rest and recovery is understood to be another important aspect of an ancestral approach to health and wellbeing. Respondents reported getting 7.6 hours of sleep on a typical night with a standard deviation of 0.89 hours, while the national averages are 6.7 hours of sleep on weekdays and 7.6 hours of sleep on weekends.[22] Despite consensus on the importance of sleep within the ancestral health community, those individuals that we surveyed do not deviate much from the sleep patterns of their non-paleo counterparts, yet most sleep more than the weekday national average.

Attitudes toward Evolution

As a paleo or ancestral approach to health is fundamentally based on a broad evolutionary understanding of human development, the survey asked respondents a question about their beliefs in Darwin's Theory of Evolution. In order to compare the results with national averages, the survey used the standard Gallup Poll question, which has the added benefit of not actually using the contentious word, "evolution" (see the exact wording of the question in Figure 15). In this case, our results diverge dramatically from the national averages. Just under two thirds (65%) of survey respondents reported believing in Evolution by natural selection without any influence by God, which is five times above the national average of 15%.^[23]

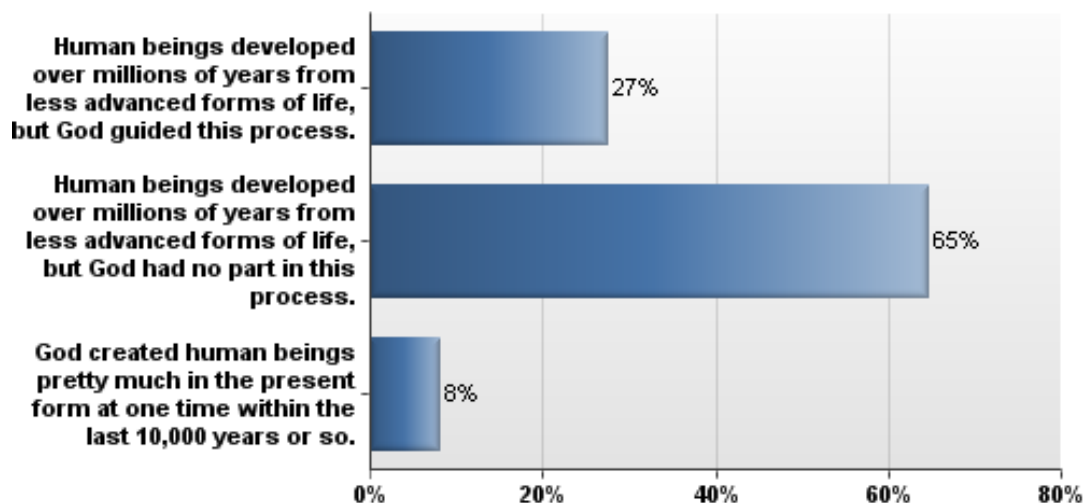


Figure 15: “Which of the following statements comes closest to your views on the origin and development of human beings?”

Perceived Health Outcomes

Across the board, respondents perceived themselves to be better off physically and mentally. In four of the seven health categories, they reported clear improvement (see Figure 16). First, 85% of respondents reported improved body composition, with 12% saying it stayed about the same. Second, 70% of respondents reported improved athletic performance, with 19% staying about the same. Third, and very similar to the previous response, 74% of respondents

reported improved mental performance, with again 19% staying about the same. Fourth, 92% of respondents reported better overall health, while 5% said it stayed about the same.

Two other categories are somewhat less clear to interpret. With regards to blood chemistry, 48% of participants said it has improved, while 44% said they are not sure one way or the other. In term of need for medication, 50% of respondents said it has improved, while 49% said it has stayed about the same (30%) or they were not sure (19%). In the final category of fertility, the vast majority of respondents (73%) said they were not sure if it improved or worsened. While 14% reported their fertility stayed about the same, 12% said it improved and only 1% said it worsened. In fact, in none of the other six categories did the outcomes worsen by more than 1%. Of course, all of the responses here are self-reported, and many are completely subjective; nevertheless, respondents reported marked overall improvement in a broad range of health outcomes due to their transition to a paleo lifestyle.

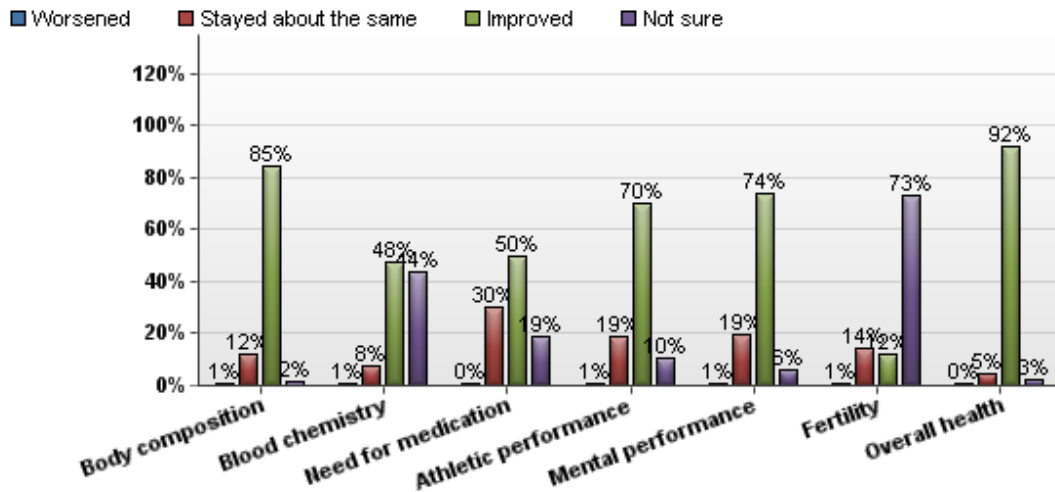


Figure 16: “In your estimation, how has your transition to a paleo lifestyle affected the categories below?”

DISCUSSION

Both academic and popular interest in the ancestral health movement has increased over the past several years. More people than ever are joining the ancestral health movement, and more is being written about it. At the same time, media coverage and societal preconceptions have also grown, with “modern cavemen” being an increasingly common meme associated with the movement. More often than not, followers of a paleo lifestyle are assumed to be athletic,

single, meat-eating, white, young men. The present study represents the first academic attempt to test these assumptions through a descriptive analysis of the ancestral health movement. Despite the preconceptions in the media, and perhaps in society more broadly, the results of the online survey suggest that the majority of participants are white, female, middle aged, in a committed relationship, highly educated, relatively affluent, and motivated by weight loss and health concerns. Only a few of the common paleo stereotypes are reflected in the data we collected.

Based on the survey data, the ancestral health movement does appear to be overwhelmingly white. This might be explained in part by socio-economic status (SES), as respondents were relatively well-educated and affluent compared to national averages. The high levels of education and income may also be related to the mean age of 38 years old. Rather than representing young Millennials (born approximately from 1982 to 2002), the majority of survey participants represent middle-aged Generation Xers (born approximately from 1962 to 1982).[24] As many respondents are older, they are also more likely to be settled into professional careers. It is possible that the high rates of education and household income are artifacts of unrepresentative internet use, and, by extension, participation in our online survey. However, given that many key ancestral health resources are concentrated online, it is likely that the paleo movement (rather than the sample used in the present study) reflects this inequality more broadly.

The mean age of participants may also be partially explained by older individuals being sicker, and thus in need of alternative health and wellness paradigms. In other words, younger members of society have yet to feel the full effects of the “Diseases of Civilization” (diabetes, heart disease, and cancer, among others), which often accompany the process of aging. Young people may have simply experienced less frustration with ill health and our current health care system, and, as a result, are less motivated to seek out and experiment with alternative ways of caring for their bodies.

Geographic location also may play a role in both SES and the decision to follow a paleo lifestyle, as many participants are located in “blue” and “purple” states: California, New York, Washington, Colorado, Oregon, Florida, Illinois, Massachusetts, and Virginia (with Texas being the one obvious exception). These ten states likely dominate the survey due to their large cosmopolitan cities, including San Francisco, New York, Seattle, Denver/Boulder, Chicago, Boston, Washington D.C. (located adjacent to Virginia), and Austin. Individuals from these areas are more likely to be progressive, well-educated, computer savvy, and high income earners.

In terms of lifestyle habits, the survey shows high avoidance of some Neolithic foods, namely legumes and grains, but not of dairy and alcohol. This difference may be explained by the “primal” approach to the paleo diet, made

popular by the author and blogger, Mark Sisson, who advocates moderate consumption of alcohol (especially red wine) and the inclusion of dairy if it is well tolerated by the individual. In addition, despite some controversy within the ancestral health community over the consumption of “safe starches” and the use of supplements, both are quite popular in our survey. A majority of respondents reported regularly eating some kind of “safe starch” (white rice, potatoes, sweet potatoes, etc.) and taking at least one nutritional supplement. Participants are also extremely active, with most respondents doing strength training and aerobic training at least once a week. As discussed above, these numbers are far above the national averages. However, respondents to the survey reported sleep times that are only marginally longer than the national averages. The busy lifestyles that come with professional careers and children may make additional sleep difficult for many paleo adherents.

Turning to the issue of motivation, respondents cited a number of important factors for transitioning to a paleo lifestyle. However, some reasons are clearly more important than others, with weight loss being the number one motivation reported by respondents. Perhaps this could be understood as a desire to look better, or even representative of a certain level of vanity, recalling “The Dude Who is Allergic to Shirts” example from the Introduction above. However, there is another way to understand this category. If obesity and unwanted weight gain are understood as a kind of illness, which standard medical approaches often fail to treat, then the total percentage of respondents who are motivated by a desire to recover from illness (originally the second most popular response) jumps to over half (56%), making it by far the most important reason for choosing a paleo lifestyle. From this perspective, a majority of participants transition to a paleo lifestyle in order to address some kind of unresolved health concern.

As for obstacles to maintaining a paleo lifestyle, again, the responses varied. In fact, “Other” represented the single most selected response. In this case, the lack of an exhaustive list of option choices probably led to an atypical number of highly varied “Other” responses, with “none” (6%) being the most commonly cited by participants. Survey design could be improved in this regard. After “Other,” social pressure and giving up favorite non-paleo foods were seen as the most significant obstacles to living a paleo lifestyle. Despite the various obstacles cited, two thirds of respondents said it was easy, somewhat easy, or very easy. Based on these data, adherence is not perceived as particularly difficult for those following an ancestral health lifestyle.

With regard to adoption and duration, the vast majority reported joining the movement within the last three years, and more than two thirds reported joining within the past two years. These very high recent adoption numbers reflect the movement’s growing popularity. Yet, at the same time, it also reflects the true novelty of the movement. The data suggest that most participants have

only been living this way for a relatively short amount of time: less than two years. This last point leads to an important question: Will the large number recent converts continue to follow a paleo lifestyle into the future? The answer to this question cannot be addressed by the current survey and remains unclear. Further work is needed to track the development of the ancestral health movement and to address additional research questions suggested by this primary analysis.

Future research could build upon this initial effort in several ways. First, the investigation of the ancestral health movement would be served by an estimate of the total number of paleo adherents. In our case, methodological limitations prevented this type of statistical inference, but a more accurate study of the composition of the movement is possible with a representative national survey. In the absence of such a national survey, the authors of the present study tried to estimate the current size of the movement by collecting empirical data, such as book sales, webpage views, and podcast downloads. Several paleo “experts” were consulted as well, including Dr. Loren Cordain, Dallas Hartwig, Dr. Paul Jaminet, Chris Kresser, Mark Sisson, and Robb Wolf. Based on the limited data available, we estimate the current size of the ancestral health movement within the United States to be between one and three million people. While this is a relatively large number, it represents less than one percent of the total national population (310 million). As this is clearly an extremely rough estimate, much more work needs to be done on this issue.

Second, the study of paleo adoption and adherence would be improved by the collection of longitudinal data. Our cross-sectional approach allowed for a static estimate of perceived motivations and obstacles. While valuable, these data merely capture one slice of the story, telling us little about the patterns of paleo adherents over time. A panel study would help identify dynamic factors underlying paleo adherence, such as obstacles and motivations that likely shift given changes in lifestyle. Understanding such factors could better support adherence to habits derived from an ancestral health approach. Additionally, future studies could include items from the CDC’s Behavioral Risk Factor Surveillance System on health conditions and health behaviors (exercise, nutrition, etc.). This inclusion would enable better comparisons with the general population.

Finally, as academic research on the current ancestral health movement is in a nascent stage, a variety of other questions need to be addressed as well: How much consensus is there among paleo advocates – especially those with large internet followings – on which practices to follow? How closely do these recommendations match conditions described by those who study actual Paleolithic humans and contemporary foragers? Is the paleo lifestyle and demographic composition reflected in this data typical of paleo adherents in the

general population? The present study is a first attempt within a potentially fruitful area of research on the ancestral health movement.

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