**An Examination of the Health Benefits of Fasting**

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Caloric restriction, intermittent fasting, health improvements

*Purpose of Review* **For many around the world, losing weight seems to be a consistent desire. As the number of individuals who are overweight increases, studies on caloric restriction (CR) and intermittent fasting (IF) become even more relevant. In recent years, studies have discovered the beneficial effects of CR and IF in overweight adults. Not only has IF been proven to aid in weight loss, but it has been shown improving the function of various parts of the human body. This manuscript will review a research publication discussing this topic. While it was discovered that CR has positive effects on the human person, a larger number of participants in the study would help increase validity of this conclusion. This study states to have limited both the caloric intake and carbohydrate consumption of the participants. While this is a helpful discovery, a current pressing question around the world is whether other types of biomolecules should be limited in order to lose weight in the most effective manner.**

**Introduction**

Fasting has appeared in both religious and medical practices for countless years, but an even broader number of people restrict their calorie intake to drop some pounds. In the journal article: “Safety, health improvement and well-being during a four to twenty-one-day fasting period in an observational study including 1422 subjects,” by Francoise et al., the effects of CR and IF are studied from a medical standpoint. In this first ever long term study on fasting, participants were given food limits. Each individual was allowed to consume 200-250 kcal and only 25-35 grams of carbohydrates a day. They were also encouraged to take part in light or moderate exercise with the trainers. For anywhere from four to twenty-one days, numerous dependent variables were measured and recorded from those who were fasting (1).

**Recent Progress**

The study being reviewed in this article is the most recent covering the topic of weight loss achieved through CR and IF. In a similar study conducted by Anton et al., only weight, percent body fat, blood pressure, glucose levels, and lipoprotein cholesterol were measured as dependent variables affected by fasting (2). However, Francoise et al., made progress in the study by recording the measurement of weight, abdominal circumference, blood pressure, pulse, well-being, ketone bodies, glucose levels, blood count, liver function, renal function, and electrolytes. When research on IF and CR becomes more extensive thus expanding the knowledge of how the two limits affect the human body, further progress will be made in not only weight reduction but also overall body health. It would be beneficial for scientists to conduct even more exploration on the topic to continue to increase advancements in this field. Among the various dependent variables that Francoise et al. measured, not one was affected negatively by IF. In agreement with other studies, decrease in blood pressure, in weight, and in abdominal circumference resulted from this fasting period. However, in these other studies, the period of fasting or calorie restriction never exceeded seven days, inspiring the question: Would a longer time frame end up hurting the positive results? Francoise et al. answered the question of whether or not positive outcomes would ensue from periods longer than a few days. Something else this group achieved that past studies did not is the eradication of persistent hunger. Improvements in overall well-being proceeded once hunger was not a constant feeling experienced by the participants. This study has made the most progress on the topic and is the most recent up to date (1).

**Discussion**

From the data obtained in this study, it can be concluded that CR and IF have many positive effects on the human body. The results obtained from this study are consistent among past studies on this topic. Because Francoise et al. conducted the longest term study on fasting and calorie restriction, their results are extremely valuable by answering the question as to whether the positive outcomes would or would not be consistent after a period longer than a few days. This group proved the effects of CR and IF used together did not diminish or reverse weight loss and overall health improvement with extended periods of use beyond seven days. Not only were beneficial physical effects discovered, but so also were many mental improvements including overall well-being of the participants. This study helped uncover that after three weeks of fasting, beneficial outcomes continue to result (1).

It is evident from the plethora of data and graphs/tables included in the journal article and the consistency among the results that this study was indeed valid. A pneumonic device to explain reputable science that was taught in a physiology class at Oklahoma State University is CONPTT. The ‘C’ is for consistent, ‘O’ for observable, ‘N’ for natural, ‘P’ for predictive, and the two ‘T’s’ standing for testable and tentative. The study conducted by Francoise et al. meets each of those six requirements. While the results are consistent with past studies and predictive, they are also tentative, meaning they are subject to change upon further study. Due to the detailed recount of the methods and the obtainable re-creation of them, this study gains reputability. Every section of the journal is very detailed which makes the study easily repeatable. The large number of participants, in comparison to past studies, increases the study’s significance and validity. Another credibility enhancer is the measurement of numerous dependent variables after fasting. Francoise et al. measured more variables than any study on the topic has before. With more evidence of positive results comes more validity (1).

While it is helpful that there is a separate category for every type of result (dependent variable), having multiple charts and tables for each section can become overwhelming. The manuscript Francoise et al. created contains around twenty-three charts and tables. In order to help the reader understand the figures and what they suggest, the number of these charts should be decreased. It is true that data tables are an asset to scientific journals, but too many may confuse and distract the reader, sometimes causing them to lose interest. The use of laxatives to clean out the participants system before beginning the trial is stated in the methods of this manuscript. Not everyone has access or the medical standing to ingest laxatives. In order to present results that are more pertinent to the general public, Francoise et al. should have considered having a form of ‘control group’ that did not take the laxative at the beginning to show if that would change the results. This study used over 1400 subjects which is a drastic improvement compared to prior studies. However, the study could be done again using even more participants which would increase the percentages with regard to the population of overweight people around the world. Two questions that remain unanswered are whether other types of biomolecules should be restricted in order to achieve maximum benefits from fasting and if the positive results will continue to be obtained after a time period over three weeks (1).

**Conclusion**

In conclusion, this study provided the most recent and significant results in existence today. Francoise et al. found abundant positive effects of CR and IF on the health of the individual, thus verifying that the use of this combination is, in fact, not a negative practice. According to the data, CR and IF when used together do result in weight loss and health improvement. This was shown by the measurement and recording of many variables within the human body. Decreased blood pressure, weight, and abdominal circumference are just a few of the many positive results. To date, this was the longest study conducted on fasting. While Francoise et al. found the results of CR and IF for twenty-one days to be positive, it is possible that after fasting for an even longer period of time, negative health effects would begin to arise. To answer this question, this study could be conducted over a period of time longer than three weeks. Another possible variation of the study would be to restrict the intake of a biomolecule other than carbohydrates. This would answer the question on whether or not limitation of other types of foods would provide the most rapid and efficient weight loss (1).

**References**

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