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DNA: Nature's Secret Code – A RECIPE FOR SUCCESS.

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Introduction

Your own DNA is nature's secret code to a happier and healthier life. DNA testing and research has expanded the awareness of how genetic information contributes to nutrition, metabolism, and diet plans. Many traditional diet plans follow a cookie cutter, or one mould fits all approaches but are often unsuccessful in the long term. However, newer advancements in DNA analysis have introduced scientific testing kits that identify how individuals respond to food differently based on the unique genetic makeup of each individual person. The DNA results are used to develop personalised diet plans, identify health problems and conditions that are important in helping fight the ever-increasing high rate of obesity and obesity related diseases (BBC Food, 2021).

Biology Background

DNA or deoxyribonucleic acid is frequently referred to as the blueprint of life as it carries the instructions for building and maintaining an organism. DNA is composed of 4 nucleotides bases which are arranged in a double helix structure. Each base is made up of a sugar molecule, a phosphate group, and a nitrogenous base. The arrangement of the bases, Adenine (A), Thymine (T), Guanine (G), and Cytosine (C), forms a genetic code which determines the development and function of living organisms. These sequences determine an organism's inherited traits such as how an organism's body processes nutrients, metabolizes food, and reactions to different diets (Medshun.com, 2025). DNA can be used in nutrition-based research to identify genetic differences that influence digestion, metabolism, energy usage and intake of nutrients (Saiful Singar et al., 2024).

Nature's Secret Code Shaping Our Diets

No longer will individuals need a trial-and-error approach or experience years of yo-yo dieting in the fight against obesity or simply maintain a healthy weight. People won't be wasting time, effort and money on whatever the latest diet fad is to achieve that ideal weight. With the recent advancements in DNA sequencing a greater understanding has allowed the use of a DNA test genetic marker to identify and indicate what diet suits an individual based on key factors such as metabolism, food intolerances and nutritional intake (Kirkpatrick, 2020). For example, individuals will not have to experiment with gluten free, mediterranean, vegan, vegetarian, lactose free, paleo, ketogenic, no sugar, low carbohydrates, liquid and juice diets, or high protein diet supplements to find the best

outcome for them. Just like finding that perfect recipe to pass down from generation to generation, discovering their unique secret DNA code will give individuals a fail proof ingredient list and step by step method to achieve the best results for healthy weight range. This will greatly reduce the increasing number of obesity related diseases that is estimated to cost Australia $21 billion in 2025 (Pages, 2018).

Benefits of Personalised Nutrition

Society can use DNA testing knowledge to potentially revolutionize the way obesity and related health conditions are reduced and treated. By integration of advanced technologies such as DNA tests, the genetic results provided can be used to create a personalized diet plan based on information that has the potential for improved health outcomes. Components of health that can be bettered are, improved digestion by avoiding foods that cause bloating, enhance energy levels through the understanding of how different foods align with one's metabolism and aid in prevention of chronic illnesses such as diabetes and be able to take proactive measures. Society can make progress with a more efficient and accurate way of dieting and healthy lifestyle that's backed by scientific evidence (Singar et al., 2024).

Considerations Before Taking a DNA Test

Despite DNA based diets being a promising prospect in the future of nutrition, there are some limitations to consider. It's important to remember that scientific evidence supporting the effectiveness and interaction of gene-based diets is still evolving (Saiful Singar et al., 2024). Acknowledging that genes are only one part of the recipe when it comes to dieting and identifying health issues. Just like the quality of ingredients, oven type and care needed to make an outstanding meal, and other factors such as sleep, exercise and stress of an individual also have a large effect on the diets and overall individual health outcomes. The type of test matters, too. Companies such as, 23inme, have DNA tests that are authorized by the FDA to be sold directly to consumers are able provide data on ancestry, wellness, carrier status and genetical traits, but to clarify the tests do not provide nutritional guidance or diagnostic information (Saiful Singar et al., 2024). Nutrigenomics tests are specifically designed for nutrition and diet. The tests are ordered online, and the customer sends back a sample of saliva or cheek swab, and the DNA is than assessed for genetic variation that might have links to conditions such as coeliac disease and lactose intolerance and sensitivity to food groups, coffee and alcohol. The results vary, but most

suggest foods to avoid, aiding weight loss and management and personal requirements involving nutrients and vitamins (BBC Food, 2021). Ethically the implications of nutritional counsel based genetic profiling opens discussion about informed consent, DNA privacy and viable psychological effects genetic information may have (Saiful Singar et al., 2024).

DNA Based Nutrition into the Future

DNA-based nutrition will continue to evolve as research progresses. Already further improvements such as custom meal planning, AI driven nutrition by enabling large datasets with personal and clinical results, as well as wearable mobile sensors that monitor nutritional status on a molecular level that work in real-time to offer dietary information based on nutritional balance (Singar et al., 2024). Despite challenges that may arise from these advancements in clinical and public health systems, these technologies that assist DNA-based nutrition can potentially reshape the dietary advice given and work towards improving population health through personalized nutrition guidelines (Singar et al., 2024).

Conclusion

As mentioned, obesity and obesity related diseases are negatively impacting our society and the quality of life for people. Individuals are experimenting with numerous diets and diet supplements that are often expensive, dangerous, and simply do not work. Excessive amounts of money are being used in Australia to reduce and treat obesity and related diseases. However, by unlocking and utilising natures secret code embedded in our DNA, greater success and long-term outcomes can be achieved by using scientific researched dietary plans that are catered to the individual needs and ensuring success towards reaching that healthy weight range we all inspire too.

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