Concepts Glossary

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Precision medicine: a term that is used to describe medical treatment/solution to a disease/condition that is personalized to the patient based on genetic testing of that individual.

Personalized medicine: individualizing a treatment toward the patient to meet their specific disease/condition needs.

Benefits of personalized medicine: more informed medical decisions, increasing the chance for improved and desired outcomes, reducing the chance of side effects, disease prevention and prediction, early disease intervention, reducing healthcare costs.

Personalized Nutrition: providing tailored diet advice to individuals based on their diet and lifestyle.

Tier 1 Personalized nutrition: tailor made dietary advice based on an individual dietary intake.

Tier 2 Personalized nutrition: tailor made dietary advice based on an individual's diet, and phenotypic markers (anthropometric and blood biochemical markers)

Tier 3 Personalized nutrition: tailor made dietary advice based on an individual dietary intake (Tier 1), anthropometric & blood biochemical markers (Tier 2), and in addition to genotype information.

Factors that should be considered in a personalized nutrition plan.

- Goals: winning (is the objective to win), personal bests (improved personal best), optimal performance (the best an athlete can perform), making it to the finish line (finish the marathon or the race only), losing weight, health, gaining muscle.
- The Event: training or competition (for example friendly match or world cup match), duration of exercise such as long duration (football match (45x2 min) or a Judo match (4 minutes, etc...), intensity of exercise (low intensity or high

intensity), sport (football, Basketball, Judo, triathlon, wrestling, Tennis etc..), playing position (central defender or forward, etc..),

- The Individual: genetics (for example high percentage of fast twitch muscle fiber (power) or slow twitch muscle fiber (endurance) , body mass (weight, muscle mass, fat mass, etc..), fitness (recreational fit, professional fit, etc..), differences in sweat rates (high rates of sweating or not), differences in metabolism (high metabolic rate or slow metabolic rate), different preferences (preferred foods, food taste, preferred cuisine if any, etc..), different tolerances (any food intolerances or allergies to consider).

- The environment: weather (tropical, Mediterranean, etc...), altitude (high altitude such as La Paz, or low altitude such as Jericho)

Personalized nutrition vs Personalized sports nutrition difference: the main difference between personalized nutrition and personalized sports nutrition is the outcome measured.   In personalized nutrition the primary goal is "health" and in personalized sports nutrition the primary goal is "performance" related.

Responders: individuals who improve with treatment.

Non-responders: individuals who show decrement with treatment or individuals who do not show any difference at all with treatment.

Nutrigenomics: a field that studies the ability of nutrients (macronutrients and micronutrients) to influence disease initiation, development, or progression by altering DNA structure, gene expression, and metabolism.

Genetic polymorphism or haploid pattern: is the differences within a population in the genetic makeup. Genetic polymorphism can either improve response to drug therapy or increase the risk of certain diseases.

Genotype: the genetic makeup of an organism

Phenotype: physical appearance of an organism based on their genotype.

Genetic exceptionalism: an individual knowledge of their genotype that can motivate the individual to make positive changes in their lifestyle that will contribute to reducing their risk of disease (disease prevention) and improve health.

Fatalistic attitude: the individual will receive genotype information and reaches the conclusion that even if they change lifestyle and dietary habits nothing will change because it is genetics, so they will not do any positive change.

Direct To Consumer tests (DTC): genetic tests offered by companies in which the consumer provide a saliva sample using a kit (DTC kit) the consumer orders online. The sample is then sent back to the company for genetic testing which provides ancestry information and more than 200 health report including the risk for several diseases.

Blood type diet (a myth): a diet tailored to individuals based on their blood type, there are four suggested diets

- Type A: for people with blood type A, it is like a vegetarian diet, called the agrarian, or cultivator.   This diet is rich in plants, and completely free of red meat.
- Type B: for people with blood type B, people can eat plants foods, some dairy, and most meats except chicken and pork, and avoid wheat, corn, lentils, tomatoes and a few other foods.
- Type AB: for people with blood type AB, called the enigma. Foods to eat include seafood, tofu, dairy, beans and grains, and food to avoid are kidney beans, corn, beef and chicken.
- Type O: for people with blood type O, called the hunter. It is a high-protein diet based largely on meat, fish, poultry, certain fruits and vegetables, but limited in grains, legumes and dairy. It closely resembles the paleo diet.