CONSULTING ROOM | VOLUME 5: ISSUE 4 | NOVEMBER - DECEMBER 2022

CONSULTING ROOM

Your Aesthetic Partner

IN THIS ISSUE: WEIGHT MANAGEMENT SPECIAL

ESTABLISHED IN 2003, CONSULTING ROOM BRINGS TOGETHER EVERYTHING YOU NEED TO DEVELOP AND GROW A SUCCESSFUL CLINIC BUSINESS IN AN INCREASINGLY DIFFICULT UK AND IRELAND MARKETPLACE.

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TIME FOR CHANGE

Tania Malan, founder and clinical director of Uniskin, discusses why we have got it wrong when it comes to weight management and shares why she believes it's time for a change

Why are we so preoccupied with weight management? Body "fatness" has been an essential psychosocial issue among humans throughout the world. Thinness or a favoured figure type dominates fashion and media advertising. The media and medical professionals are prolific about weight and quote obesity as an epidemic with related health risks, such as stroke, hypertension, cardiac disease, and cancer.[1]

A global study across 30 countries found that 45% of people are trying to lose weight[2] and the main reasons, in order of priority, are health, appearance, mood, and fitness.[3]

It is no wonder that the weight loss market valuations were at $192.2 billion in 2019, with projections reaching $295.3 billion by 2027.[4]

With Ketogenic diets and intermittent fasting hitting over ten billion views. Weight management evolved into an economic market where the human population spends excessive amounts on fat loss treatments, pills, books, videos, weight loss, and fitness classes; bariatric surgery, liposuction, and reduction surgery.

It has become a minefield of treating consequences but not the cause. More frustrating is that mainstream media claims that these various diet programs are "highly recommended by doctors because of their health benefits," hoping it might give it validity and sell more.

Sadly 97% of those who manage to lose weight gain it back within three years to buy the next gimmick.[5] It has been millennia, and we still haven't solved the complexity of weight.

The reasons are that obesity is complex and requires a multifaceted approach. Furthermore, the reliance on inaccurate and outdated tools such as BMI (Body Mass Index) and the view that one size fits all heighten the problem.

Much money and attention are focused on reducing weight because it is believed to cause chronic disease. This view, too, is outdated. Weight is not the cause of chronic disease, ageing is. The key takeaway is that ageing is the leading cause of suffering and bodily decay, resulting in chronic disease and not obesity. Obesity is a contributing factor but not the main reason.

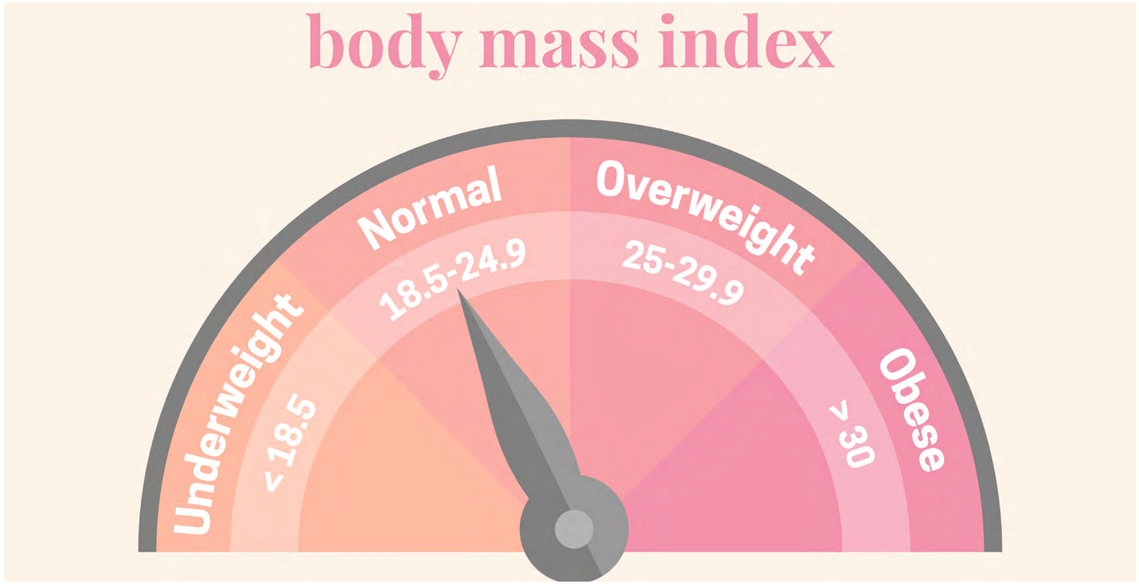
In 2013, scientists developed a list of characteristics as a framework to draw conceptual clarity and guide research into ageing.[6]

10 characteristics that manifest ageing

Genome instability	DNA integrity and stability are challenged by external (UV, environmental, chemical, biological) and internal (oxidative stress and DNA replication errors).
Telomere attrition	Increased cell division and chromosome copy result in telomere shortening leading to cell senescence.
Epigenetic alterations	Diet, chemicals, drugs, sunlight, heat, cold, and exercise activates various enzymatic responses. These include methylation and oxidative stress leading to the alteration of our DNA. In addition, the loss of epigenetic information disrupts youthful gene expression patterns, leading to cellular dysfunction and senescence.
Loss of proteostasis	Proteins are abundant in our cells, and their purpose is to activate genes that carry out most tasks in our bodies. Proteostasis is the cell's process of bringing order to individual proteins focusing on their specific goal. Various treatments exist to ensure adequate protein folding.
Dysregulated nutrient sensing	Cells have mechanisms that alter their behaviour to make most of the nutrients available when required to generate and provide energy from raw materials for growth. These mechanisms rely on sensors that relay signals about the body's nutrient status.
Mitochondrial dysfunction	Mitochondria provide energy to cells and are present in large numbers in all mammalian cells except mature red blood cells. Their primary purpose is to take nutrients from the cell and break them into reproducible energy. Oxidative stress, DNA methylation, and muscle loss lead to dysfunction.
Cellular senescence	Cells can only divide a finite amount of time and are measured by shortening telomeres. They then enter senescence and behave like zombie cells, changing their behaviour and causing inflammageing.
Stem cell exhaustion	Stem cell reserves reduce due to the body constantly maintaining and repairing over time, leading to exhaustion.
Altered intercellular communication	This is caused by primarily chronic, low-grade inflammation of the tissues.
Extracellular matrix stiffening and dysregulation	Extracellular matrix (ECM) stiffening builds cross-links between long-lived collagen and elastin. ECM stiffening is caused by non-enzymatic chemical reactions – glycation, carbamylation, and carbonylation. In addition, it causes cell senescence upstream, and changes can cause inflammation, fibrosis, circadian rhythm impairment, and stem cell ageing.

The colours indicate the following: Light pink is the cause of cellular damage, darker pink depicts the body's response to that damage, and very dark pink leads to phenotype. Phenotype is a set of observable characteristics or traits of an organism. It refers to the organisms physical form and structure, its behaviour and the result of that behaviour.

There should be an eleventh characteristic that manifests ageing: unbalanced hormones and decline causing cellular damage and phenotype. Declining hormones account for age-related diseases such as osteoporosis, cardiovascular disease, cancers, increased body fat, and cognitive defects such as Alzheimer's. The drop in oestrogen and progesterone leads to muscle loss, which leads to sarcopenia, causing reduced energy and energy production, affecting metabolism and gut health, and leading to mitochondrial dysfunction. In addition, it affects everything from hair, skin, metabolism, weight, mind, and beyond.



Is BMI an outdated concept?

- Furthermore, the use of BMI is erroneous. It is conventionally held up as the best way to screen and assess nutrition, obesity, and supposed healthy body composition and predict mortality risk.[7]
- BMI has some severe flaws. First, it categorises people into different obesity groups for the convenience of epidemiologists.[8]
- Second, it does not differentiate between lean or body fat mass or distinguish that a person can have a high BMI but a low-fat mass.[9-10] BMI does not consider gender, age, ethnic group, leg length, or location of body fat and sadly disregards the fact that after puberty, boys accumulate lean mass and women fat mass.[11]
- Third, women overall have 40% larger lower body segments compared to men, and one of the reasons for expanding body fat is due to pregnancy and, later in life, decreased testosterone/oestrogen ratio[12], including a larger pelvis compared to men.[13] Men also have fast-twitch muscle fibres, whereas most women have slow-twitch fibres[14,] a genetic difference where slow-twitch fibres lead to obesity.[15]
- BMI cannot capture the impact of hormones in age and gender groups which are all essential variables. The EPIC observational study concluded that BMI has minimal effect on morbidity and mortality prediction.[8]
- So why are we still using BMI to develop and design weight management regimens? Furthermore, no two people are the same, and many factors contribute to obesity.

Multiple factors contribute to obesity	
Genetics	Gut microbiome
Ageing	Adipocyte differentiation
Environmental exposure/toxins	Insulin signalling
Hormone imbalance	Lipid metabolism
Nutrient sensing and digestion	Muscle biology
Liver biology	Metabolic status
Nutrient preference	Response to exercise interventions
Circadian rhythms	Energy homeostasis
Inflammation	

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The complexity of weight management necessitates a person-centred approach and innovation. The revolution in nutrigenomics and nutrigenetics is finally here and is a powerful tool that offers precision medicine opportunities. Nutrigenomics is how a nutrient, diet component and lifestyle affect gene expression, which in turn effects health status and weight, leading to a phenotype. Nutrigenetics modifies the effects of gene variants on micronutrient uptake and metabolism and these effects on health.

Precision stems from sequencing the human genome, allowing for individualised diagnosis and treatment, knowing the exact cause, and treating the individual instead of the average. It accounts for variations in our genes, environment, and lifestyle, including microscopic organisms in each of us. In addition, it gives us the exact information of our predisposition to the cause of disease, metabolic differences, enzymatic responses, and myriad other information on how our genetic variations influence our health and behaviour. You cannot get more accurate than when working with an individual's code. However, the complexity means that there are several routes to the summit, and it will need a combination of approaches.

A summary of health and well-being approaches is tabled below. Where to start is down to the individual patient and practitioner, but it is available for anyone from age 16 upward. Many patients want it all, but it depends on cost and information overload. It is a journey with much information, and it makes sense to scale one problem at a time.

	Patient-centric testing for weight management and well-being
dnadiet®	Analyses genes related to weight management and reports on responsiveness to diet and lifestyle interventions: carbohydrates and saturated fat responsiveness, eating behaviours, and effects of circadian rhythms. It also includes a recommendation for exercise intensity and metabolic equivalent unique to that individual.
Gut microbiome	GI-Map measures pathogens, normal bacterial flora, the health of crucial bacteria, opportunistic bacteria (which needs eradication), intestinal health, especially absorption and enzyme activity, inflammation, and permeability. It includes b-Glucoronidase, which affects oestrogen and leads to weight gain. In addition, a healthy gut ensures adequate absorption of nutrients, immunity, and reduced inflammation. In addition, an unhealthy gut contributes to weight issues, mental health, autoimmune disorders, and various other chronic diseases. A key bacteria (Akkermansia Muciniphila) in low levels are associated with metabolic disorders and obesity.
Hormone balancing	DUTCH (dried urine test for comprehensive hormones) offers the most extensive profile of sex and adrenal hormones and their metabolites. It identifies the root cause of chronic illness, hormonal imbalance, and hormone replacement therapy for men and women. Cortisol increases weight and increased weight further increases cortisol.
Metabolomics	Metabolomics is an extensive test that looks at different body systems and the nutrients that drive the metabolic pathways. It measures the cellular activity and physiological status of the human metabolome. It looks at energy production, dysbiosis, neurotransmitter metabolism, fatty acids, amino acids, oxidative stress, nutrient and toxic elements, and detoxification. In addition, it measures our daily recommended needs in antioxidants, B vitamins, minerals, and amino acids and suggests recommended doses – optimising our patients.
Fatty Acids	Testing fatty acids is becoming one of the most critical nutritional modifiers for overall health. It measures acids obtained from diet but also created endogenously, and imbalances are implicated in many conditions, including metabolic syndrome, autoimmune diseases, cognitive decline, and much more. In addition, fatty acids require co-enzymes in Vit, B's, C, Zinc, and magnesium, which is crucial to optimise patients and ensure their gut microbiome is healthy.

Furthermore, dnahealth® is an equally important test. The reason is that patients mostly want to lose weight for health reasons. This test will highlight and prioritise the critical areas that impact their health with further treatment advice.

	Patient-centric testing for weight management and health
dnahealth®	It reports on genes involved in lipid metabolism, bone health, methylation, insulin sensitivity, detoxification, inflammation and oxidative stress, vitamin requirements, gluten, and lactose intolerance, caffeine metabolism, salt sensitivity, and iron overload disorders.

For the more serious patient who is an athlete and wants the edge or the ordinary patient that takes an interest in their sport, two further tests known as dnasport® and dnaactive® can support them.

	Patient-centric testing for weight, health, and activity
dnasport®	Analyses genes significantly associated with soft tissue injury risk, recovery, power potential, endurance potential, caffeine metabolism, salt sensitivity, and peak performance time.
dnaactive®	It is a combination of dnasport and dnadiet created for personal trainers and fitness coaches in designing unique and practical training and nutrition programs, optimises to assist clients in accomplishing their performance and weight management goal.

Finally, there are two further tests about mindset and resilience. First, both tests provide insight into mood, stress response, and addictive behaviour.

	Patient-centric testing for mind and resilience
dnamind®	It gives insight into the function of biological areas that influence neurodegenerative disorders, including cognitive decline and addictive behaviour (alcohol, food, drugs); mood regulation, such as stress response.
dnaresilience®	Reports on seven key areas have the most significant influence on stress and resilience. This test determines one's genetic resilience and provides nutrient and lifestyle strategies to amplify intrinsic strengths and reduce weaknesses.

Weight management is much more complex than weighing, measuring, and nutritional food. It requires a multidimensional approach. Ensuring a healthy gut microbiome ensures healthy digestion capacity, optimised immune response, and reduction of inflammation while guaranteeing adequate absorption of nutrients and no toxins leaking into the bloodstream.

Many diseases such as IBS, IBD, fibromyalgia, chronic fatigue syndrome, obesity, atopic illness, colic, and cancer are associated with microflora imbalance. Testing metabolomics gives a complete nutrient overview, including antioxidants, B-Vitamins, minerals, and amino acids. In addition, it provides patient-specific supplementation with the recommended dose, often above the daily requirements but ensures adequate mitochondrial function (responsible for energy and oxidative damage) and methylation, necessary for redox defence and epigenetic maintenance, and amino acid homeostasis.

The DUTCH test is the Rolls Royce of tests measuring a patient's hormonal levels and implicated for various weight-related and health issues. Finally, the test will advise treatment modalities to improve health and weight outcomes.

Testing fatty acids gives insight into conversion into energy, storage, incorporation into cell membranes, and production of other fatty acids and how they may influence each other and can lead to pro-inflammatory or anti-inflammatory responses within the body. The various DNA tests further support dietary intervention, lifestyle changes, and supplementation necessary for weight loss and exercise without further oxidative damage to the cells. If patients struggle, it is worth exploring their DNA, mind, and resilience to improve their outcomes by identifying stress response, anxiety, and addiction.

Using various tests described allows us to be specific and patient-centric, identify risks early and be more proactive. It is prescriptive regarding the correct treatments at the right times (circadian rhythm). It treats the individual instead of the average. It is much more sophisticated than BMI and weight management. It works beautifully with aesthetic medicine and other modalities such as liposuction, constructive surgery interventions, and daily aesthetic treatments. Best and most important, it provides the opportunity to influence the expression of genetics, change patient outcomes, and reduce age-related illnesses and chronic diseases.

Therefore, move from extending life span to extending health span and an opportunity towards agelessness from the inside out.

As a final thought: Achieving cellular agelessness lifts the burden on the NHS, society, and the economy. It is worth pursuing; we only have one life, and it needs to be our best life.

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