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FINAL REPORT
Engaging Canadians about Nutrigenomics:
Results of the Telephone Survey

Prepared for the Public Health Agency of Canada

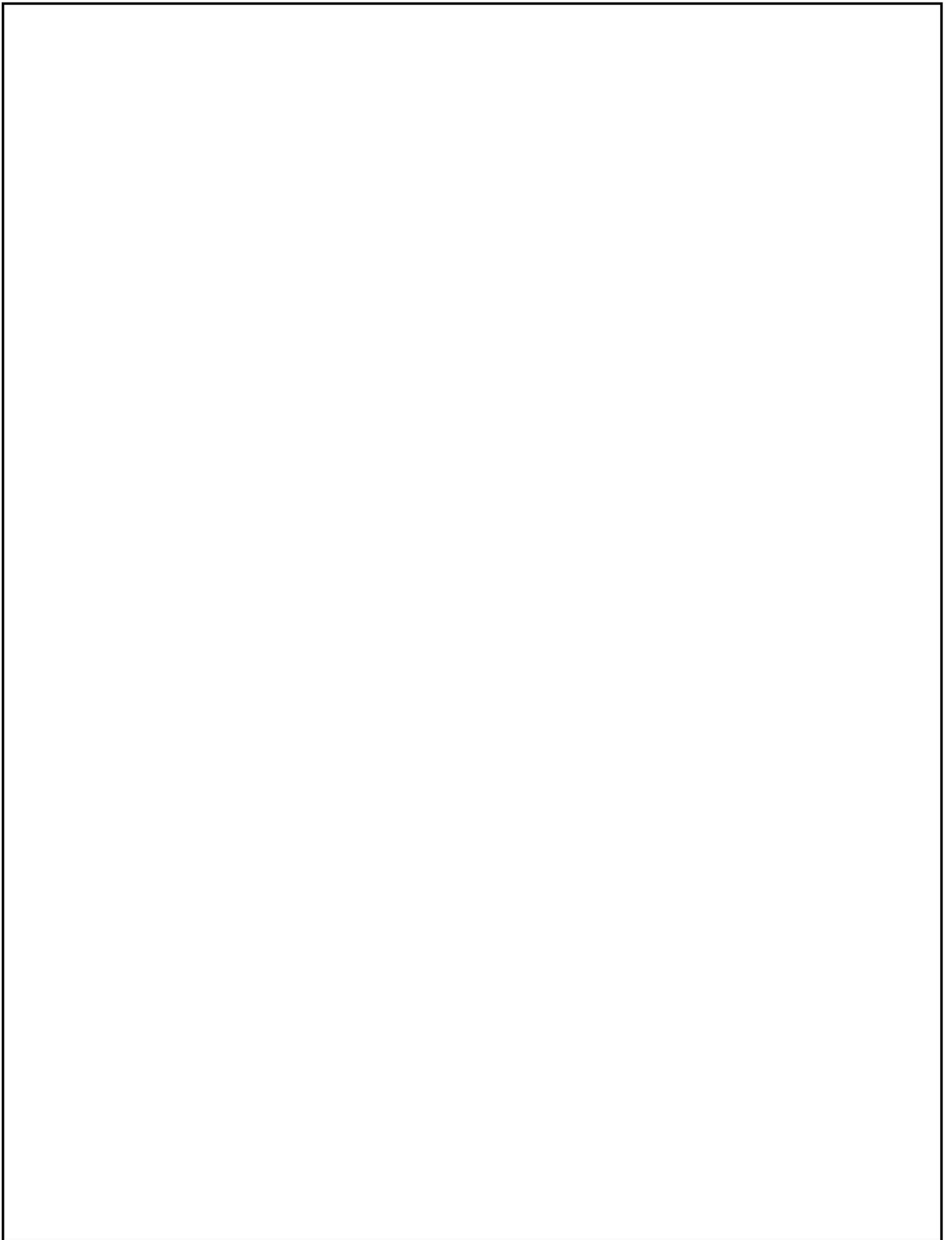
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Ce rapport est également disponible en français.

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EXECUTIVE SUMMARY

Phoenix SPI conducted research for the Public Health Agency of Canada (PHAC) related to nutrigenomics. The objective of this research was to explore awareness and perceptions of nutrigenomics and related issues. The research program included both qualitative and quantitative elements. The focus of this report is on the quantitative research, which involved a telephone survey. The qualitative research is reported under separate cover. The telephone survey was administered to 827 Canadian residents, 18 years of age and older from March 4-12, 2008. Based on a sample of this size, the overall results can be considered to be accurate to within +/- 3.4%, 19 times out of 20.

Health & Nutrition – Knowledge, Interest & Behaviour

Food and nutrition was identified (45%) as the top factor that has an impact on personal health, cited nearly twice as often as any other factor. Following at a distance was exercise, mentioned by 29% of surveyed Canadians. Beyond this, respondents were most likely to point to lifestyle-type factors, including not smoking (13%), lifestyle in general (13%), stress and stress levels (7%), and limiting alcohol consumption (3%).

Given that food, nutrition and exercise were the top factors volunteered by respondents as having an impact on personal health, it comes as no surprise that everyone thought these factors play a role in terms of maintaining or improving overall health. Fully 84% think food and nutrition play a big role vis-à-vis health, while a further 15% believe the impact is moderate. Similarly, three-quarters (74%) believe that exercise plays a big role, and 24% a moderate one. In addition, almost all surveyed Canadians think that levels of stress and family health history play a role in overall health. Fewer respondents, however, thought these factors have a big impact – 64% felt this way about stress and 43% about family health history. In fact, those surveyed were more likely to think that family health history has a moderate (49%) as opposed to a big (43%) impact.

There was widespread interest in and knowledge about the link between personal health and nutrition. Four in five (79%) Canadians expressed clear interest in this, with 44% saying they are *very* interested in the subject. Turning to knowledge, 71% claimed to be well informed about the topic, although only 28% rated themselves as *very* knowledgeable.

Echoing professed interest and knowledge, 79% have looked for information on personal health and nutrition in the previous two years. The top type of information sought was information on balanced eating (24%). In addition, Canadians sought an array of food-related information, including information on healthy recipes and meals (13%), food and medication (9%), the nutritional content of food (8%), diet and nutrition (7%), and cholesterol, sodium and fat (6%). The importance that Canadians attribute to food and nutrition as a factor affecting personal health is underscored by their interest in obtaining this type of information.

Knowledge of Genetics & Health

Turning to knowledge of genetics and health, virtually everyone surveyed thought that a person's genetic make-up affects their health – just 1% of respondents said it has no impact. Of those who think genetics is a factor, the vast majority think that genetics has a moderate (52%) to big (40%) impact. Only 6% believe that the influence is small. As well, three-quarters (74%) think genetic make-up can make people much more likely to experience certain health situations. Although most correctly link genetics to health outcomes, many have no clear idea what genetic make-up actually refers to – 37% think a family's medical history is the same thing as its genetic make-up. However, identical proportions (30% each) disagreed with this or were neutral or uncertain. In addition, 62% disagreed that there is little they can do to prevent certain diseases or illnesses because of their genetic make-up (31% *strongly* disagreed).

Nearly two-thirds (64%) think that environmental factors are more important than genetic make-up in terms of their impact on someone's health. More specifically, 36% said such factors are *much* more important, while 28% said *moderately* more important. Relatively few (16%) think that genetic make-up is more important, while a similar number (17%) volunteered that environmental and genetic factors are about the same in terms of their impact on health.

When the focus shifts to their health, 52% claimed to be knowledgeable about how genetics affects their health or the health of members of their family. However, only 16% claimed to be *very* knowledgeable about this. Additionally, 34% characterized themselves as somewhat knowledgeable in this area. Taken together, then, 86% of respondents claim to have at least a low level of knowledge about how genetics affects their health.

Awareness & Perceptions of Nutrigenomics

Awareness of nutrigenomics is very low among surveyed Canadians. Only 7% claimed to have heard the term 'nutrigenomics', and just 2% are aware of companies offering nutrigenomics testing in Canada.

Lack of awareness notwithstanding, three-quarters felt there are potential benefits that could result from nutrigenomics testing¹. Heading the list was living a healthier life (28%), followed by preventing or lowering the risk of acquiring certain diseases/illnesses (21%), and helping people to follow a healthy diet (17%). Slightly less than one-third (31%) think there are potential risks or harm that could result from nutrigenomics testing (59% did not consider there to be any risks). All of the risks identified, however, were mentioned by small numbers only. Fifteen percent pointed to the validity of the test results, that they could be unreliable, while 10% each suggested that people may neglect other health aspects in favour of this testing, that genetic profiles may be incorrect, and that privacy-related issues may be a concern. Notably, respondents who thought there are benefits and/or risks associated with nutrigenomics testing were inclined to think that the benefits outweigh the risks. Fully 77% said the potential benefits probably (47%) or definitely

¹ Respondents were read a description of nutrigenomics after being asked if they had heard the term. See page 16 for the description given to respondents. All subsequent questioning about nutrigenomics took place after the description had been provided.

(30%) outweigh the risks of this type of testing. Relatively few (14%) disagreed, thinking that the risks or potential for harm outweigh the benefits.

In addition to thinking that the benefits of testing outweigh potential risks, respondents offered moderately positive perceptions of nutrigenomics testing. Most (61%) felt that a personalized diet based on such testing could improve their overall health more than any other type of diet. Moreover, only 17% agreed that tailoring diet to genetic make-up will do little to prevent or delay the onset of disease (58% disagreed). Fewer than half the surveyed Canadians (41%) felt that testing would only be useful for people who are at a higher risk for certain diseases.

Despite these relatively favourable attitudes towards nutrigenomics, the majority (71%) are not interested in testing for themselves or their family if the tests cost \$250-300. In fact, half (52%) were categorical saying that they are not at all interested in this kind of testing (27% expressed some degree of interest). By a wide margin, the top reason for not considering nutrigenomics testing was the perception that it is expensive (36%). As well, 14% said they would need to know more about it before they made a decision, while 13% felt that the testing and related advice is simply unnecessary. Fewer than one in ten pointed to other reasons – concern that the results cannot be trusted, lack of interest, lack of comfort purchasing these services online, and the perception that they do not need this type of additional information. Nearly two-thirds (64%) think testing should be regulated by the government.

Communications Issues

Three-quarters of surveyed Canadians expressed at least some interest in learning more about nutrigenomics, and 70% felt that the government should provide information to facilitate informed decision making about nutrigenomics testing. Turning to the type of information respondents consider important, 82% attributed importance to information about privacy and confidentiality issues, with 64% viewing this as *very* important. Smaller, and similar proportions, think that all of the other types of information are important: information about the potential benefits and risks (69%), government regulations (66%), and the types and number of conditions that can be tested for in nutrigenomics (66%). For each, respondents were more likely to consider the information *very* as opposed to *moderately* important.

In terms of information sources, exactly half pointed to family physicians when asked to identify who they would trust to provide them with accurate information about nutrigenomics. Beyond this, respondents were most likely to point to government, including government in general (12%), and specifically Health Canada or the Public Health Agency of Canada (10%). Some respondents mentioned other health-related sources – medical professional associations (5%), nutritionists (5%), dietitians (4%), and health care professionals in general (3%).

Conclusions and Implications

These conclusions and implications draw on the findings from both the qualitative and quantitative elements of this research.

The findings from the survey and focus group research point to a general public that is largely unaware of the emerging field of nutrigenomics. Very few Canadians have been exposed to nutrigenomics, either the science itself or the commercial aspect, the testing. However, this lack of awareness or exposure should be placed within a context of widespread interest in and knowledge about the link between personal health and nutrition. Moreover, the large majority of surveyed Canadians have acted on this interest to increase their knowledge by looking for information on personal health and nutrition in the previous two years. Likewise, most focus group participants' interest in the link between personal nutrition and health has translated into searches for information in this area. As well, nearly all the focus group participants indicated that they have taken action to improve the health of themselves and/or their family through personal nutrition or diet.

In short, while there is very limited awareness of nutrigenomics, Canadians are attentive to and interested in the subject matter that nutrigenomics is closely related to – the link between nutrition and personal health. This offers a solid foundation upon which to build communications. The new element that nutrigenomics brings to the table is genetics.

While survey respondents displayed a modest level of general knowledge about the relationship between genetics and health, they appear to have a genuine interest in learning more about nutrigenomics and expressed relatively positive views vis-à-vis nutrigenomics testing. They may not be interested in nutrigenomics testing at this point, mainly because of the cost, but they do see potential benefits to be derived from the testing and are inclined to believe that those benefits outweigh any potential risks or harm that may result.

Focus group participants also had generally favourable reactions to what they read and heard about nutrigenomics, although they tended to have more questions/concerns about nutrigenomics after being exposed to the different types of information on the topic. This is not surprising because the design of the groups requires participants to probe deeply into, and critically examine, the issues. Most people, in fact, became somewhat more critical of nutrigenomics after reviewing a mock-up of a website modelled on those of firms that offer this service. Criticism related primarily to the marketing or commercial aspect of testing, not to the science itself. Some, however, were not disturbed by the commercial dimension of the website.

Questions and concerns about nutrigenomics notwithstanding, focus group participants' perceptions of the perceived benefits and risks of nutrigenomics over the course of the discussion remained relatively constant. This was especially the case regarding perceived benefits, which remained virtually unchanged from start to finish. The overall result of participants' exposure to information about nutrigenomics, then, was to foster a healthy scepticism. And, like survey respondents, most focus group participants were uninterested in taking a test. They first would like more information about testing.

Turning to the actors believed to have a role to play in nutrigenomics, the survey research suggests that Canadians would like to see the government actively involved – both as regulator of the testing and supplier of nutrigenomics-related information to facilitate informed decision making on the part of Canadians. Among the health care professionals who took part in the focus groups, there was unanimity that nutrigenomics testing should not be left exclusively to the marketplace. In terms of outreach efforts, health care professionals felt that numerous players have a supporting role to play in helping them provide information about nutrigenomic testing to Canadians. These include Health Canada, the community of professionals involved in providing health care, associations representing health care professionals, university researchers and medical schools, and regulatory bodies responsible for creating guidelines governing health-related practices. The Public Health Agency of Canada may want to consider consulting these types of individuals and organizations, if it has not already done so, when working to develop a strategy to communicate information about nutrigenomics to Canadians.

While Canadians want government to disseminate information, the survey findings make it clear that family physicians are a trusted, primary source of information for most Canadians when it comes to nutrigenomics. That said, the focus group research suggests that many Canadians would have significant doubts about the degree of knowledge their family physician would have about nutrigenomics once they consider this more closely. This concern is not unfounded given that most doctors and pharmacists who took part in the focus groups had never heard the term ‘nutrigenomics’ prior to the study (although most intuited that it refers to a link between diet or nutrition and genetics). These doctors and pharmacists, moreover, said they would most likely refer patients or clients to geneticists, nutritionists, and dieticians for further information about nutrigenomics.

Focusing specifically on information needs, survey respondents are looking for practical information, including information on privacy and confidentiality issues, the potential benefits and risks, government regulations, and the types and number of conditions that can be tested for in nutrigenomics. Among focus group participants, there was a virtual consensus that information about the ‘pros and cons’ of nutrigenomics was important. As well, participants pointed to proof that nutrigenomics works, and information about whether the government will get involved in regulating/overseeing nutrigenomics, Health Canada’s stand on nutrigenomics, whether the medical community will get involved in nutrigenomics and/or whether nutrigenomics will become part of the health care system. Information that addresses these issues will help Canadians make informed decisions about nutrigenomics testing.

Finally, when it comes to making information about nutrigenomics available to Canadians, focus group participants most frequently suggested the use of pamphlets or brochures in doctors’ offices/clinics and health care facilities. Certainly, this represents a useful starting point for outreach efforts, especially given Canadians preference for turning to their family physicians for accurate information about nutrigenomics.

More Information:

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To obtain more information on this study, please email por-rop@hc-sc.gc.ca.

SOMMAIRE

Phoenix SPI a réalisé pour l'Agence de la santé publique du Canada (ASPC) une recherche sur la nutriginomique. Cette recherche avait pour but d'examiner la sensibilisation et l'opinion en ce qui concerne la nutriginomique et des questions connexes. Le programme de recherche prévoyait des éléments aussi bien qualitatifs que quantitatifs. Le présent rapport porte sur l'aspect quantitatif de la recherche qui consistait en un sondage téléphonique. La recherche qualitative fait l'objet d'un rapport distinct. Le sondage téléphonique s'est déroulé auprès de 827 résidents canadiens âgés de 18 ans et plus, entre le 4 et le 12 mars 2008. Un échantillon de cette taille produit des résultats qu'on peut considérer comme exacts à $\pm 3,4$ points de pourcentage, 19 fois sur 20.

Connaissances, intérêt et comportement en matière de santé et de nutrition

De tous les facteurs qui influent sur la santé, celui de l'alimentation et de la nutrition occupe la première place (45 %) en termes d'importance et il est mentionné presque deux fois plus souvent que tout autre facteur. Il est suivi de l'exercice, mentionné par 29 % des personnes interrogées. Les autres facteurs que les répondants sont ensuite le plus susceptibles de signaler se rapportent au mode de vie, comme le fait de ne pas fumer (13 %), de mener une vie saine en général (13 %), d'éviter le stress et d'abaisser son niveau de stress (7 %), de même que de réduire sa consommation d'alcool (3 %).

Étant donné que l'alimentation, la nutrition et l'exercice sont les principaux facteurs qui viennent spontanément à l'esprit des répondants quant à leur importance pour leur santé personnelle, on ne saurait s'étonner que tous leur attribuent un rôle dans le maintien ou l'amélioration de la santé en général. En effet, ils sont 84 % à penser que l'alimentation et la nutrition jouent un rôle très important en matière de santé et 15 % encore à penser que ce rôle est plutôt important. De même, les trois quarts (74 %) sont d'avis que l'exercice joue un rôle très important et 24 %, un rôle plutôt important. En outre, presque tous les Canadiens et les Canadiennes sondés sont persuadés que le niveau de stress et les antécédents familiaux en matière de santé jouent un rôle dans l'état de santé général. Les répondants sont toutefois moins nombreux à penser que ces facteurs exercent un rôle très déterminant – 64 % le croient pour ce qui est du stress et 43 %, pour ce qui est des antécédents familiaux. En fait, les personnes sondées étaient plus portées à croire que les antécédents familiaux en matière de santé ont un effet plutôt important (49 %) et non très important (43 %).

Les répondants sont nombreux à s'intéresser au lien entre l'alimentation et la santé, et à se dire renseignés à cet égard. Quatre sur cinq (79 %) expriment nettement de l'intérêt pour le sujet, dont 44 % qui se disent *très* intéressés. Du point de vue de leurs connaissances, 71 % s'estiment bien renseignés dans ce domaine, mais ils ne sont que 28 % à se considérer comme *très* renseignés.

Comme preuve à l'appui de leur déclaration d'intérêt et de connaissance, 79 % ont cherché de l'information sur l'alimentation et la santé personnelle au cours des deux années précédentes. Le sujet principal sur lequel ils ont voulu se renseigner est celui d'une alimentation équilibrée (24 %). Les Canadiens ont en outre recherché de l'information sur toute une gamme de sujets liés à l'alimentation, par exemple, de l'information sur des recettes et des repas santé (13 %), des aliments et des médicaments (9 %), la composition

nutritionnelle des aliments (8 %), les régimes alimentaires (7 %), ainsi que le cholestérol, le sodium et les gras (6 %). L'importance que les Canadiens et les Canadiennes accordent à l'alimentation et à la nutrition en tant que facteur qui influe sur leur santé personnelle est encore soulignée par leur intérêt à obtenir ce genre d'information.

Connaissances sur la génétique et la santé

En ce qui concerne les connaissances sur la génétique et la santé, à peu près toutes les personnes interrogées pensent que le patrimoine génétique a une incidence sur la santé – seulement 1 % des répondants disent qu'il n'a aucune incidence. Parmi ceux pour qui la génétique a une incidence, la majorité estime que celle-ci varie de moyenne (52 %) à importante (40 %). Ils ne sont que 6 % à trouver que l'incidence de la génétique est minime. De même, les trois quarts des répondants (74 %) sont persuadés qu'une personne pourrait être plus susceptible d'avoir certains problèmes médicaux en raison de son patrimoine génétique. Bien que la plupart établissent à juste titre un lien entre la génétique et ses effets sur la santé, ils sont nombreux à ne pas savoir ce qu'on entend au juste par « patrimoine génétique » – 37 % croient que les antécédents médicaux d'une famille sont essentiellement équivalents au patrimoine génétique. Cependant, dans des proportions identiques (30 %), les répondants sont soit en désaccord avec cette idée, soit neutres ou incertains. De plus, 62 % ne sont pas d'accord pour dire qu'en raison de leur patrimoine génétique, ils ne peuvent pas faire grand-chose pour prévenir certaines maladies (31 % sont *entièrement* en désaccord).

Près des deux tiers des répondants (64 %) pensent que les facteurs environnementaux ont une plus grande incidence que le patrimoine génétique sur la santé d'une personne. Plus précisément, 36 % affirment que ces facteurs ont une incidence *beaucoup* plus grande alors que 28 % croient que leur incidence est *un peu* plus grande. Ils sont relativement peu nombreux (16 %) à penser que le patrimoine génétique a une plus grande incidence, et à peu près le même nombre (17 %) à affirmer spontanément que les facteurs environnementaux et génétiques ont une incidence à peu près égale sur la santé.

Quand ils sont personnellement mis en cause, 52 % des répondants se disent renseignés sur la façon dont la génétique influe sur leur santé ou celle de leur famille. Toutefois, ils ne sont que 16 % à se dire *très* renseignés en la matière. Ils sont encore 34 % à se dire assez bien renseignés. Donc dans l'ensemble, ces résultats révèlent que 86 % des répondants affirment avoir un certain degré de connaissance sur la façon dont la génétique influe sur leur santé.

Connaissance de la nutrigenomique et opinion sur le sujet

La connaissance de la nutrigenomique est très faible parmi les Canadiens ayant fait l'objet du sondage. En effet, ils ne sont que 7 % à dire qu'ils ont déjà entendu l'expression « nutrigenomique » et seulement 2 % connaissent des entreprises qui offrent des analyses nutrigenomiques au Canada.

Le manque de connaissance mis à part, les trois quarts des répondants estiment que l'analyse nutriginomique pourrait être avantageuse². La réponse la plus fréquente est celle de vivre en meilleure santé (28 %), suivie par la prévention de la maladie ou la réduction des risques de contracter certaines maladies (21 %) et l'aide en vue de suivre un régime alimentaire sain (17 %). Ils sont un peu moins du tiers (31 %) à penser que l'analyse nutriginomique peut comporter des risques (59 % sont d'avis qu'elle ne comporte aucun risque). Tous les risques mentionnés ne le sont, cependant, que par de petits nombres de répondants. Ils sont 15 % à s'interroger sur les résultats des analyses et sur leur validité, tandis qu'à raison de 10 % dans chaque cas, on pense que les gens pourraient négliger les autres aspects de leur santé pour ne s'en remettre qu'à l'analyse, que les profils génétiques pourraient présenter des erreurs et que la protection des renseignements personnels pourrait être compromise. Fait à signaler, les répondants qui voient dans l'analyse nutriginomique aussi bien des avantages que des risques sont portés à croire que les avantages l'emportent sur les risques. Ils sont 77 % à affirmer que les avantages potentiels l'emportent probablement (47 %) ou certainement (30 %) sur les risques associés à une analyse de ce genre. Relativement peu de répondants (14 %) se disent en désaccord et pensent que les risques l'emportent sur les avantages.

Outre leur impression que les avantages l'emportent sur les risques, les répondants ont une opinion assez positive de l'analyse nutriginomique. Pour la plupart (61 %), un régime alimentaire établi en fonction d'une analyse de ce genre pourrait être plus avantageux pour leur santé que tout autre type de régime alimentaire. De plus, seulement 17 % sont prêts à dire qu'ils ne croient pas que la modification du régime alimentaire d'une personne en fonction de son patrimoine génétique puisse vraiment prévenir ou retarder une maladie (58 % sont en désaccord). Moins de la moitié des personnes sondées (41 %) pensent que l'analyse ne serait utile qu'aux individus dont le risque de maladie est plus élevé.

Malgré ces attitudes plutôt favorables à la nutriginomique, la majorité des répondants (71 %) ne souhaiteraient pas passer une analyse ou la faire passer aux membres de leur famille si cela devait coûter entre 250 \$ et 300 \$. En fait, la moitié (52 %) répondent catégoriquement que la chose ne les intéresse pas du tout (27 % expriment un certain degré d'intérêt). La raison invoquée le plus souvent, et de loin, pour ne pas envisager de demander une analyse nutriginomique est l'impression qu'elle coûte cher (36 %). Ils sont encore 14 % à dire qu'ils auraient besoin de renseignements additionnels avant de prendre une décision de ce genre, tandis que 13 % jugent que l'analyse et les conseils connexes sont tout bonnement inutiles. Ils sont moins d'un répondant sur dix à mentionner d'autres raisons, comme le fait de ne pas savoir si les résultats seraient fiables, le manque d'intérêt, le malaise touchant l'achat de services en ligne et l'impression de ne pas avoir besoin de renseignements de ce genre. Près des deux tiers (64 %) pensent que le gouvernement doit réglementer les analyses nutriginomiques.

² Après leur avoir demandé s'ils avaient déjà entendu l'expression, on lisait aux répondants une définition de la nutriginomique. Cette définition est reproduite à la p. 16 ci-après. Toutes les autres questions portant sur la nutriginomique leur étaient posées après la lecture de cette définition.

Questions de communication

Les trois quarts des Canadiens et des Canadiennes qui ont fait l'objet du sondage se disent au moins quelque peu intéressés à en savoir davantage sur la nutriginomique, et 70 % croient que le gouvernement devrait fournir de l'information pour faciliter la prise de décisions éclairées touchant l'analyse nutriginomique. Quant aux genres de renseignements que les répondants jugent importants, 82 % attribuent de l'importance au domaine des renseignements personnels et de la confidentialité, ce que 64 % jugent *très* important. Dans des proportions semblables, mais inférieures, on estime importants tous les autres genres de renseignements : les avantages et les risques potentiels (69 %), la réglementation gouvernementale (66 %) ainsi que les genres et le nombre de problèmes de santé pouvant être dépistés par l'analyse nutriginomique (66 %). Dans chaque cas, les répondants étaient plus susceptibles de juger ces renseignements *très* importants plutôt que *moyennement* importants.

À propos des sources d'information, la moitié des répondants accorderaient leur confiance aux médecins de famille pour ce qui était d'obtenir des informations exactes sur la nutriginomique. Vient ensuite, comme réponse la plus probable, le gouvernement, incluant le gouvernement en général (12 %), et spécifiquement Santé Canada ou l'Agence de la santé publique du Canada (10 %). Quelques répondants mentionnent d'autres sources du secteur de la santé, comme les associations médicales professionnelles (5 %), les nutritionnistes (5 %), les diététiciens (4 %) et les professionnels de la santé en général (3 %).

Conclusion et incidences

Les résultats de la recherche laissent entendre que le grand public est très peu au courant de la discipline émergente qu'est la nutriginomique. Très peu de Canadiens et de Canadiennes y sont sensibilisés, qu'il s'agisse de la science elle-même ou de son dérivé commercial, l'analyse nutriginomique. Toutefois, il convient de situer ce manque de sensibilisation ou d'exposition dans le contexte tant d'un vaste intérêt pour tout ce qui relie l'alimentation et la santé que dans celui des connaissances étendues en la matière. En outre, la majorité des Canadiens ayant fait l'objet du sondage ont mis leur intérêt en application et ont voulu, au cours des deux années précédentes, accroître leurs connaissances en cherchant à se renseigner davantage sur la santé et l'alimentation. L'intérêt de la plupart des participants des discussions de groupe pour le lien entre leur alimentation et leur santé s'est traduit, lui aussi, par une recherche de renseignements dans ce domaine. De plus, presque tous les participants aux discussions de groupe ont affirmé avoir pris des mesures au sujet de la nutrition ou de leur régime alimentaire afin d'améliorer leur santé et celle de leur famille.

En somme, même s'ils connaissent très peu la nutriginomique, les Canadiens et les Canadiennes sont attentifs à la question à laquelle est associée la nutriginomique, soit le lien entre l'alimentation et la santé, et ils s'y intéressent. Cela procure une base solide sur laquelle asseoir les communications. Le nouvel ingrédient que la nutriginomique apporte sur la table est celui de la génétique.

Bien que les répondants du sondage témoignent d'un degré de connaissances générales plutôt moyen sur la relation entre la génétique et la santé, ils semblent vraiment souhaiter mieux connaître la nutriginomique et expriment des points de vue assez positifs au sujet de l'analyse nutriginomique. S'ils ne souhaitent peut-être pour l'instant faire passer une analyse nutriginomique à cause, surtout, de son coût, ils pressentent leurs avantages éventuels et tendent à penser que ces avantages l'emportent sur les risques que cette analyse pourrait comporter.

Les participants aux discussions de groupe ont, de façon générale, réagi favorablement à ce qu'ils ont pu lire ou entendre au sujet de la nutriginomique, même s'ils étaient enclins à avoir plus de questions à poser sur la nutriginomique ou de préoccupations à son propos après avoir été exposés à des renseignements de diverses natures sur le sujet. Cela n'a rien d'étonnant parce que c'est le propre des discussions de groupe d'amener les participants à approfondir une question et à la considérer d'un œil critique. En réalité, la plupart se sont montrés plus critiques de la nutriginomique après avoir pris connaissance d'une maquette de site Web inspirée des sites d'entreprises qui offrent des analyses de ce genre. Leurs critiques portaient surtout sur le marketing ou l'aspect commercial de l'analyse et non sur les données scientifiques en soi. Il y a toutefois des participants que la dimension commerciale du site Web n'a pas rebutés.

Quoi qu'il en soit, des questions et des préoccupations concernant la nutriginomique, l'opinion des participants quant aux avantages et aux risques pouvant être associés à la nutriginomique est demeurée relativement constante tout au long de la discussion. Il en est particulièrement ainsi en ce qui concerne les avantages perçus, lesquels n'ont à peu près pas changé du début à la fin. L'exposition des participants à de l'information sur la nutriginomique a eu globalement pour effet de susciter un sain scepticisme. Comme les répondants du sondage, la plupart des participants des discussions de groupe ne souhaitaient pas passer une analyse. Ils voudraient au préalable être mieux informés en la matière.

À propos de ceux qui auraient un rôle à jouer en matière de nutriginomique, il ressort du sondage que les Canadiens voudraient que le gouvernement intervienne activement, aussi bien comme régisseur des analyses que fournisseur de renseignements sur la nutriginomique afin d'aider la population à prendre des décisions éclairées. Parmi les professionnels de la santé qui ont pris part aux discussions de groupe, l'unanimité s'est faite sur la nécessité de ne pas laisser l'analyse nutriginomique aux seuls aléas du marché. Les professionnels de la santé sont persuadés que de nombreux intervenants peuvent les soutenir dans leurs efforts de sensibilisation visant à procurer aux citoyens de l'information sur l'analyse nutriginomique. Ceux-ci comprennent Santé Canada, le milieu des professionnels appelés à fournir des soins de santé, les diverses associations de professionnels de la santé, les chercheurs universitaires, les facultés de médecine et les organismes de réglementation chargés d'établir les lignes directrices qui régissent les pratiques du domaine de la santé. L'Agence de la santé publique du Canada voudra sûrement, si ce n'est déjà fait, consulter ces personnes et ces organismes au moment de mettre au point une stratégie visant à transmettre à la population de l'information sur la nutriginomique.

Bien que les Canadiens et les Canadiennes souhaitent voir le gouvernement diffuser de l'information, les résultats du sondage montrent de toute évidence que les médecins de famille constituent aux yeux de la majorité une source d'information principale et digne de confiance en ce qui concerne la nutriginomique. Cela dit, les observations émanant des discussions de groupe laissent entendre qu'un grand nombre de Canadiens et de Canadiennes auraient, à bien y penser, de graves doutes quant au degré de connaissance de leur médecin de famille en matière de nutriginomique. Cette préoccupation n'est pas sans fondement puisque la plupart des médecins et des pharmaciens qui ont pris part aux discussions de groupe n'avaient jamais entendu parler de nutriginomique avant la tenue de l'étude (même si la plupart ont pensé intuitivement qu'il s'agissait d'une corrélation entre le régime alimentaire ou la nutrition et la génétique). Ces médecins et ces pharmaciens ont de plus affirmé qu'ils recommanderaient fort probablement à leurs patients ou à leurs clients de consulter des généticiens, des nutritionnistes ou des diététiciens afin de se renseigner davantage sur la nutriginomique.

En ce qui concerne leurs besoins précis en matière d'information, les répondants du sondage mentionnent des renseignements d'ordre pratique, portant entre autres sur la protection des renseignements personnels et la confidentialité, les avantages et les risques potentiels, la réglementation gouvernementale ainsi que les genres et le nombre de problèmes de santé pouvant être dépistés par l'analyse nutriginomique. Les participants aux discussions de groupe ont atteint un quasi-consensus quant à l'importance d'une information sur le pour et le contre de la nutriginomique. Ils ont dit également souhaiter avoir des preuves de l'efficacité de la nutriginomique, de même que savoir si le gouvernement interviendra afin de réglementer ou de contrôler la nutriginomique, connaître la position de Santé Canada touchant la nutriginomique, savoir si le milieu médical se préoccupera de nutriginomique et/ou si la nutriginomique en viendra à faire partie du système de soins de santé. Une information portant sur ces enjeux aidera la population à prendre des décisions éclairées touchant l'analyse nutriginomique.

Enfin, comme moyens de mettre de l'information sur la nutriginomique à la disposition des Canadiens et des Canadiennes, celui que les participants aux discussions de groupe mentionnent le plus souvent consisterait à placer des dépliants ou des brochures dans les cabinets de médecin, les cliniques et les centres de santé. Il s'agirait assurément d'un bon départ en matière de sensibilisation, surtout si l'on tient compte du fait que les Canadiens préfèrent s'adresser à leur médecin de famille s'ils veulent des informations exactes sur la nutriginomique.

Renseignements supplémentaires :

Nom du fournisseur : Phoenix Strategic Perspectives Inc.

N° du contrat avec TPSGC : HT344-070003-001/CY

Date d'attribution du contrat : 17 septembre 2007

Pour de plus amples renseignements, prière d'adresser un courriel à por-rop@hc-sc.gc.ca.

INTRODUCTION

Phoenix Strategic Perspectives was commissioned to undertake research for the Public Health Agency of Canada (PHAC) related to nutrigenomics.

Background and Objectives

Nutrigenomics is an emerging field of research that offers innovative approaches to addressing the aetiology and progression of complex chronic diseases by investigating how genes and nutrition interact to affect human health. A joint effort to engage the Canadian public about nutrigenomics is being undertaken by researchers in the Network of Centres of Excellence for Advanced Foods and Materials Network (AFMNet) based at the University of Ottawa and the University of Alberta and the Biotechnology, Genomics and Population Health group within the Public Health Agency of Canada.

Nutritional genomics has already ‘gone public’ in the sense that there are commercial providers of nutrigenomic services and associated products operating chiefly via the Internet in the United States. In the U.S., concern has been raised by the Government Accountability Office regarding the extent to which nutrigenomics is, or ought to be, regulated. These concerns have put pressure on the Food and Drug Administration (FDA) to not only examine more thoroughly the composition of the genetic tests that are being distributed direct-to-consumer (DTC), but also to study the validity of so-called *in vitro* multivariate diagnostic index assays (IVDMIAs) – the principal form of test offered DTC. As the FDA shores up its regulation of supplement health claims, the effect on the early nutrigenomics market might be decisive: some companies will make it over the regulatory bar and may end up with approved tests and claims while others might not.

There are four research themes in the AFMNet-supported project, *Social Issues in Nutritional Genomics: The Design of Appropriate Regulatory Systems and Issues of Public Representations and Understanding*. These themes are: 1) media portrayal; 2) public understanding and acceptance; 3) regulation; and 4) professional development. The two streams of AFMNet-funded research relevant to the collaboration with the PHAC concern public understanding and the regulation of nutrigenomics.

AFMNet researchers are conducting an international comparative legal analysis of the regulations that apply to nutrigenomics. Canadian regulations will be compared with those in other jurisdictions, including the U.S., in order to understand the extent to which Canadian consumers and patients have regulated access to nutrigenomics products and services. In research on the public understanding and acceptance of nutritional genomics, the issue is how the public perceives nutrigenomics from the standpoint of assessing how media representations of nutrigenomics are interpreted. Equally, public understanding and acceptance of nutrigenomics will stimulate change in the education of health care professionals who must communicate with the public about nutritional genomics. For example, research on the impact of nutrigenomics for dietitians in Canada is underway.

Given the rapidity with which the science of nutrigenomics is making advances and gaining a foothold, and given that commercial applications exist in several jurisdictions, it is time to consider how these developments will affect Canadian consumers, patients, and

the public more generally. Important questions include whether Canadians have any knowledge of nutrigenomics, and if so, what is their level of knowledge, what are their perceptions regarding the relevance of nutrigenomics to them, and what risks and benefits do they consider.

In what is termed “the Information Age”, it is not surprising that people want as much information as possible about risks to their health. The desire to be informed about disease prevention, control and treatment options, and the risks associated with each is great. No matter what course of action a person may embark upon – with or without the guidance of a health professional – results will be sub-optimal if the available information is difficult to interpret/understand, biased, misleading or simply incorrect. The concept of easy-to-understand, complete and useful layperson’s communications materials about health and various risk management options is not a novel one. However, the area of nutrigenomics is so new that work has not yet been undertaken on risk communications in this field.

The overall objective of this research was to investigate how Canadians perceive genomics and to establish a basic understanding of “genomic literacy” and “nutrigenomic literacy” among Canadians. The findings from this research will inform future efforts to raise awareness and understanding of nutrigenomic research among Canadians, and support related health promotion and disease prevention communications tailored to meet the varying needs of Canadians.

More specifically, this research had the following objectives:

- To investigate previous knowledge or exposure to information on nutrigenomics and how this affects understanding of the subject.
- To understand how people respond to terms and concepts related to this topic (e.g. ‘predisposition’, ‘genetic make-up’, ‘personalized nutrition’).
- To understand specific barriers to understanding key concepts of nutrigenomics and how these barriers could be overcome.
- To explore different means of raising the awareness of Canadians and educating them on this topic.
- To solicit information on current gaps in health professionals’ capacity — knowledge, skills, resources, political will, etc.
- To test potential communications material that may be used to raise awareness of this issue.
- To provide baseline information on the general population’s knowledge of, attitudes towards, and interest in this subject.

The purpose of the survey, therefore, was to determine public awareness of nutrigenomics and perceptions of related issues.

Research Design

To address the research objectives, a mixed-method approach using both qualitative and quantitative research was undertaken. This report presents the findings from the quantitative phase of the research – a telephone survey of the general public. The findings from the qualitative phase – a set of focus groups – are presented in a separate report.

In total, 827 interviews were conducted with Canadian residents, 18 years of age and older. A sample of this size can be considered to be accurate within +/- 3.4%, 19 times out of 20. Data collection took place March 4-12, 2008. The specifications applied to the survey are presented in the Detailed Methodological Note at the end of the report.

Note to Readers

- At times, the number of respondents (i.e. not the percentage) who answered certain questions or answered in a certain way is provided in the text or graphs. The following method is used to denote this: $n = 100$, which means the number of respondents, in this instance, is 100.
- Some of the graphs do not sum to 100% due to rounding.
- Where appropriate, non-demographic subgroup differences are identified in the body of the report in shaded boxes. Demographic variations are presented in the final section of this report.

Appended to this report are copies of the questionnaire in English and French.

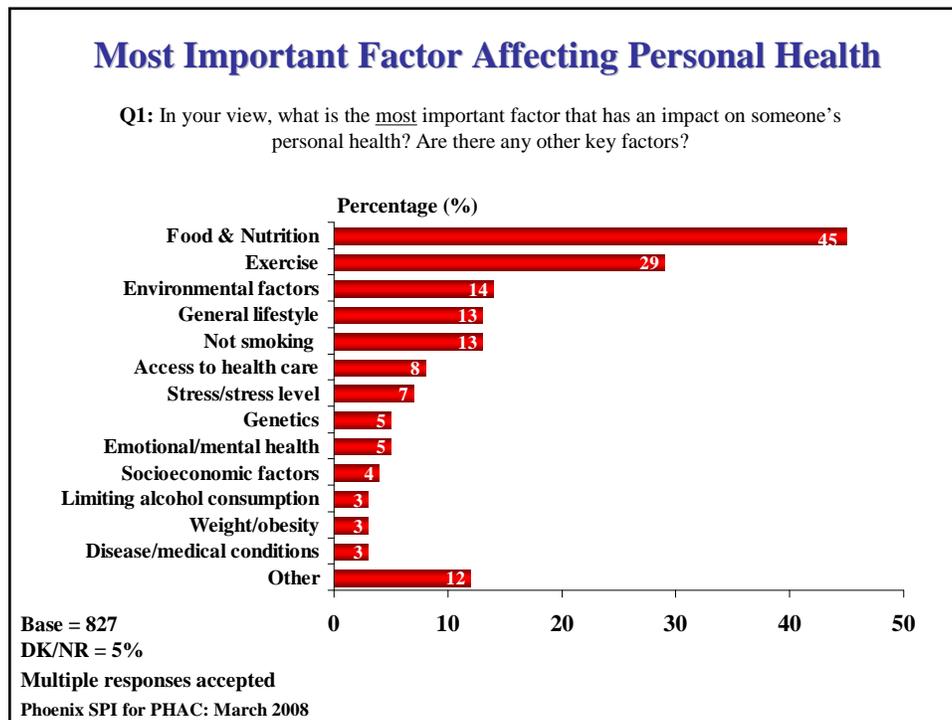
HEALTH & NUTRITION – KNOWLEDGE, INTEREST & BEHAVIOUR

This section reports on respondents’ levels of knowledge and interest, as well as their related behaviours, with respect to health and nutrition.

Food & Nutrition – Top Factor Affecting Personal Health

Canadians pointed to a variety of different factors that they think have an impact on personal health. However, food and nutrition led the way, identified nearly twice as often as any other factor (45%). Food and nutrition, moreover, was the factor that tended to be top-of-mind for many, with 44% mentioning this before any other factors (multiple responses accepted).

Following at a distance, 29% pointed to exercise as an important factor when it comes to personal health. Beyond this, numerous factors were cited by much smaller numbers.



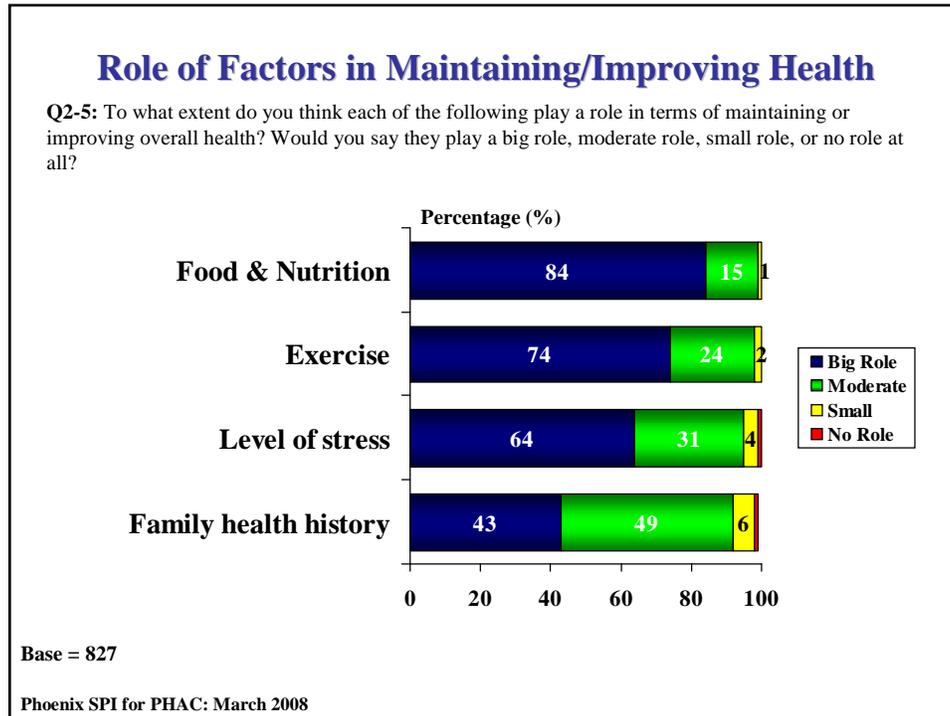
Many respondents pointed to lifestyle-type factors, including not smoking (13%), lifestyle in general (13%), stress and stress levels (7%), and limiting alcohol consumption (3%). Other factors tended to focus on external things, like environmental (14%) and socioeconomic (4%) factors, as well as access to health care services (8%). Health-related factors viewed to have an impact on personal health include genetics (5%), emotional and mental health (5%), weight and obesity (3%), and disease and medical conditions (3%).

In addition, numerous factors have been included in the ‘other’ category – for example, family history, getting enough sleep, taking vitamins, supplements or herbs, work and leisure balance, and hygiene and cleanliness.

Multiple Factors Seen to Play Role in Personal Health, Family History Less So

Virtually everyone surveyed believe that food, nutrition and exercise play a role in terms of maintaining or improving overall health. More specifically, 84% of respondents said food and nutrition play a big role vis-à-vis health, while a further 15% believe the impact is moderate (only 1% said small). Similarly, three-quarters (74%) agreed that exercise plays a big role, and 24% a moderate one (2% said small). This is not surprising given that food, nutrition and exercise were the top factors volunteered by respondents as having an impact on personal health.

In addition, almost all surveyed Canadians think that levels of stress and family health history play a role in overall health, albeit a more moderate role. Looking first at stress, 95% said this plays a moderate (31%) to big (64%) role in terms of maintaining and improving health (4% felt the role is small). As well, 92% agreed that family health history is a factor. That said, respondents were divided in terms of the degree of this impact: 43% said big and 49% moderate. Six percent thought the role is small. Only 1% of respondents felt that these factors do not play a role.

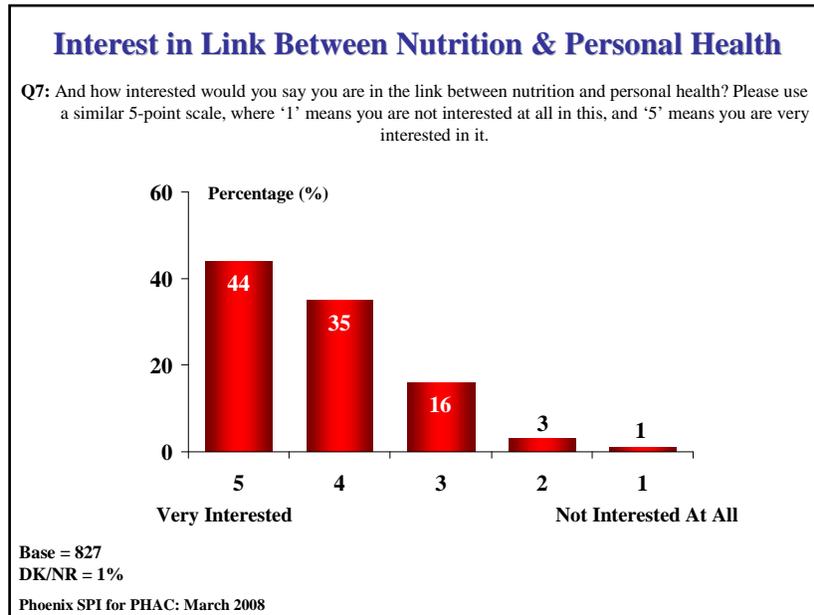


Compared to 2004, there are two noteworthy changes in perceptions. While the proportion of people attributing a big role to exercise (74% vs. 73% in 2004) and family health history (43% vs. 42%) remains unchanged, Canadians are more likely to consider food and nutrition and level of stress to have a big impact compared to 2004 – food and nutrition (84% vs. 77% in 2004) and level of stress (64% vs. 49%)³.

³ Note that the 2008 question wording differs somewhat from the 2004 version.

Widespread Interest in Link Between Nutrition & Personal Health

Four in five (79%) Canadians expressed *clear* interest in the link between nutrition and personal health. Interest, moreover, tended to be strong, with 44% saying they are *very* interested in this. A further 16% said they are somewhat interested in the topic (i.e. scores of '3'), which means that 95% of respondents have at least some interest in the link between nutrition and health. Very few (4%) expressed no interest.

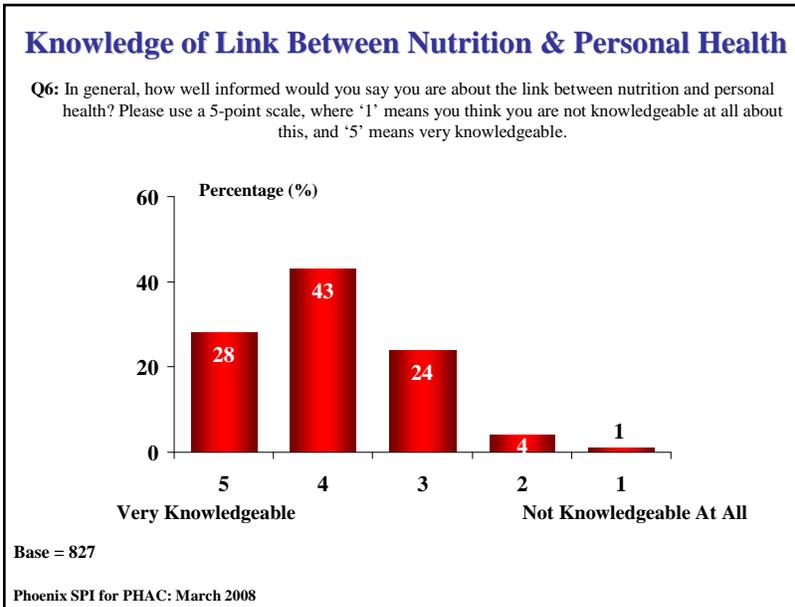


The likelihood of expressing *clear* interest in the link between nutrition and personal health was highest among:

- Those who have looked for information on these topics (85% vs. 55% of those who have not).
- Those who believe the potential benefits of nutrigenomics testing outweigh the risks (83% vs. 76% of those who do not).

Majority Knowledgeable about Link Between Nutrition & Personal Health

Turning to knowledge, 71% claimed to be knowledgeable about the link between nutrition and personal health, although only 28% rated themselves as *very* knowledgeable. One-quarter (24%) placed themselves at the mid-point of the scale, suggesting a relatively low level of knowledge. Only 5% said clearly that they are not knowledgeable about this topic.

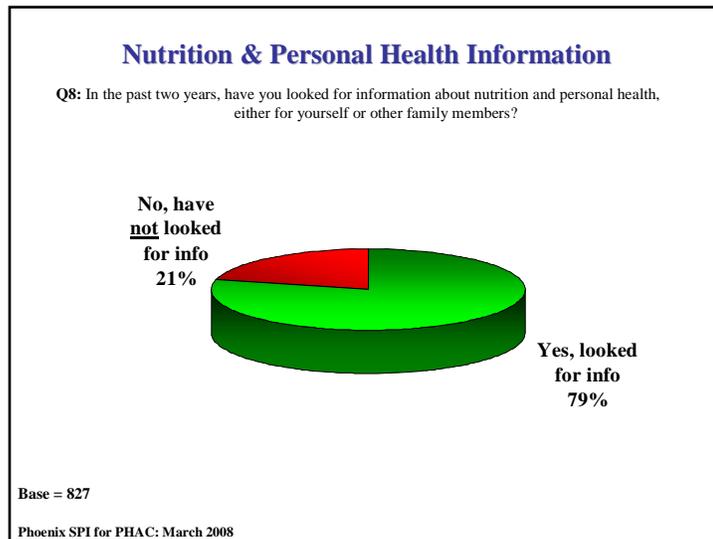


The likelihood of claiming to be knowledgeable about the link between nutrition and personal health was highest among:

- Those who have looked for information about these topics (77% vs. 47%).
- Those who had heard the term 'nutrigenomics' (87% vs. 70% of those not aware).

Most Sought Nutrition & Personal Health Information in Past 2 Years

More than three-quarters of surveyed Canadians (79%) said they have looked for information about nutrition and personal health, either for themselves or for other family members, in the past two years. Conversely, one in five (21%) have not done this.



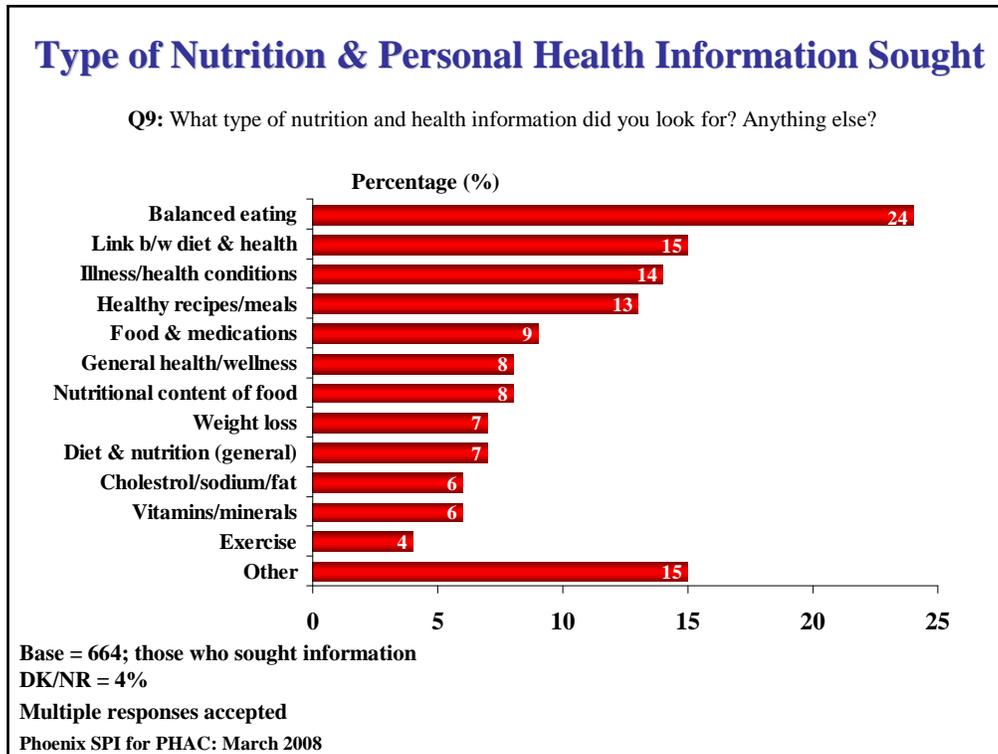
The following subgroups were most likely to have looked for information:

- Those who think genetics has a big-to-moderate impact on health (80% vs. 58% of those who think it has little-to-no impact).
- People aware of nutrigenomics (89% vs. 78%).

- Those who think a personalized diet based on their genetic make-up will improve their health (82% vs. 69% of those who do not).

Balanced Eating – Top Type of Information Sought

Those who sought nutrition and personal health information in the past two years (n = 664) looked for information on a wide range of topics. Leading the way was information on balanced eating, with 24% of respondents saying they have looked for this type of information.



In addition to information on balanced eating, Canadians sought an array of food-related information, including information on healthy recipes and meals (13%), food and medication (9%), the nutritional content of food (8%), diet and nutrition in general (7%), and cholesterol, sodium and fat (6%). The importance Canadians attribute to food and nutrition as a factor affecting personal health is underscored by their interest in obtaining this type of information.

Other types of nutrition and health-related information include the link between health and diet (15%), weight loss (7%), and information on vitamins, minerals, antioxidants, fibre and supplements (6%). Notably, only 4% said they looked for information about exercise, although this was the second most cited factor affecting personal health (that said, the focus of the question was on nutrition and health).

A small number of respondents pointed to information on specific illnesses, diseases and health conditions (14%), general health and wellness (8%),

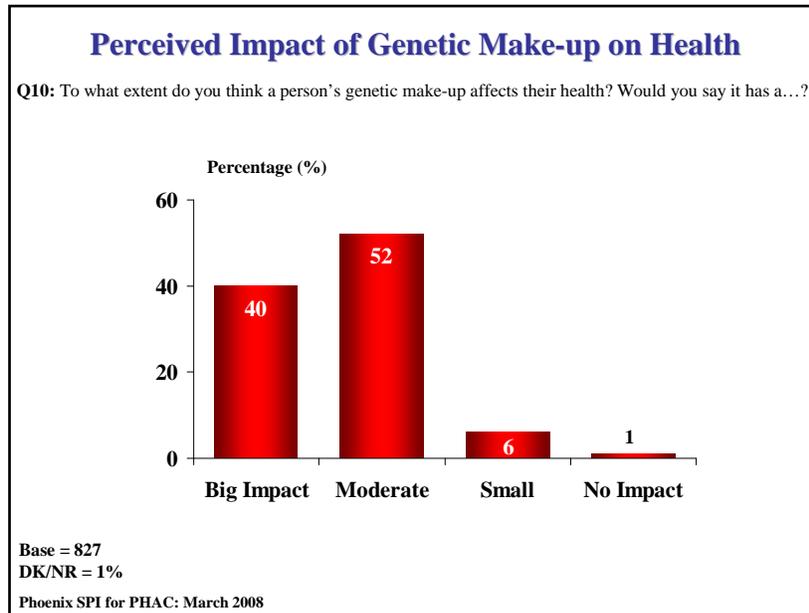
Included in the 'other' category are information about pregnancy and nutrition, food allergies, caloric intake and carbohydrates, organic food, and holistic, alternative health choices, among other things.

KNOWLEDGE OF GENETICS & HEALTH

This section explores respondents' knowledge of genetics and health.

Everyone Agrees that Genetic Make-up Affects Health

Virtually everyone surveyed thought that a person's genetic make-up affects their health – just 1% of respondents said it has no impact. The vast majority, moreover, think that genetics has a moderate (52%) to big (40%) impact. Only 6% believe that the influence is small.



Modest Level of General Knowledge of Genetics & Health

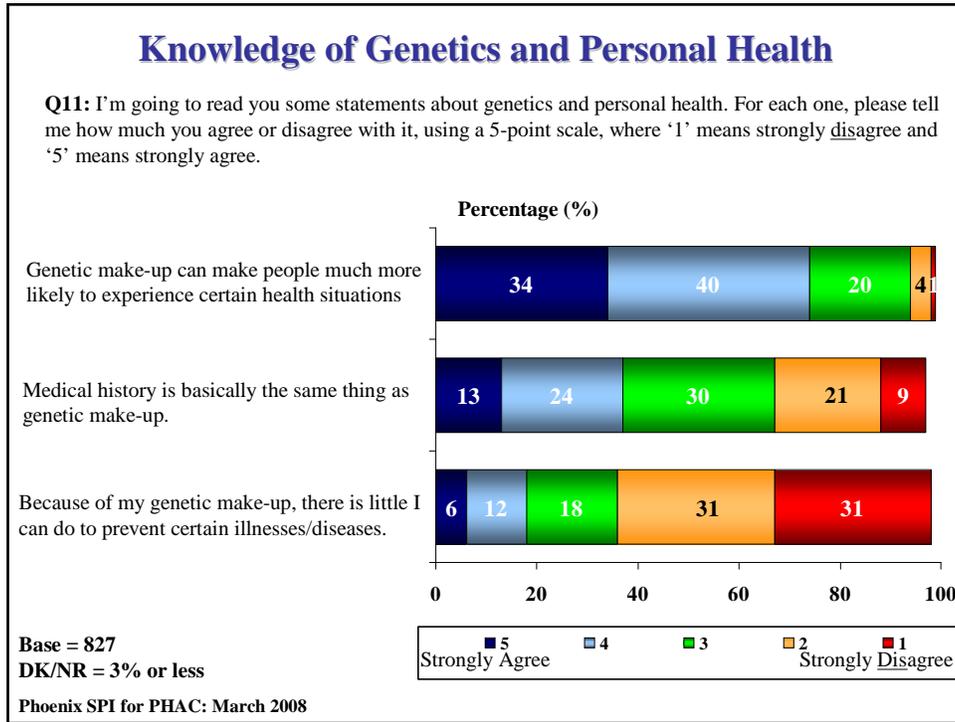
Respondents were asked to rate how much they agree or disagree with three statements about genetics and personal health, using a 5-point scale (1 = strongly disagree, 5 = strongly agree). The statements were:

- Someone's genetic make-up can make them much more likely to experience certain health situations, such as getting some diseases or living longer.
- A family's medical history is basically the same thing as its genetic make-up.
- Because of my genetic make-up, there is little I can do to prevent certain illnesses or diseases.

Surveyed Canadians think genetic make-up affects health, so it comes as no surprise that three-quarters (74%) believe that someone's genetic make-up can make them much more likely to experience certain health situations (34% *strongly* agreed). The rest were more likely to be neutral (20%) than to express disagreement with this statement (5%).

The impact of genetics notwithstanding, most respondents feel they still have the ability to influence their own health outcomes. Fully 62% disagreed that there is little they can do to

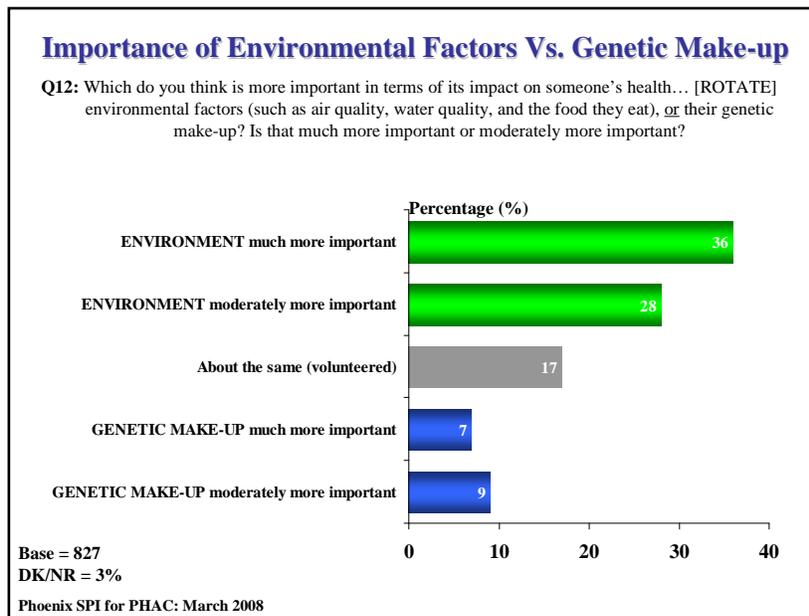
prevent certain diseases or illnesses because of their genetic make-up (31% *strongly* disagreed). Fewer than one in five (18%) agreed with this statement (an equal number were neutral).



Opinion was divided when it came to what constitutes 'genetic make-up'. Almost four in ten (37%) think a family's medical history is the same thing as its genetic make-up. Of the rest, identical proportions (30% each) disagreed with this or were neutral or uncertain. Although most people correctly linked genetics to health outcomes, many respondents had no clear idea what genetic make-up actually refers to.

Environmental Factors More Important Than Genetics

Nearly two-thirds (64%) think that environmental factors are more important than genetic make-up in terms of their impact on someone's health. More specifically, 36% said such factors are *much* more important, while 28% said *moderately* more important. The perceived importance of external factors is underscored by the fact that only 18% of respondents felt there is little they can do to prevent diseases or illnesses because of their genetic make-up (see above).



Relatively few (16%) think that genetic make-up is more important, while a similar number (17%) volunteered that environmental and genetic factors are about the same in terms of their impact on health.

Not surprisingly, those who think genetics has little-to-no impact on health were *far* more likely to say that the environment is much more important (59% vs. 34% of those who think the impact is moderate to big).

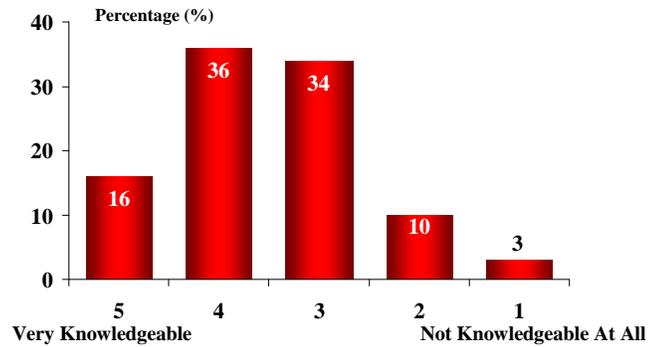
Most Claim to be Knowledgeable About Impact of Genetics on *Their* Health

The majority of respondents (52%) said they are knowledgeable about how genetics affects *their* health or the health of members of their family. However, only 16% claimed to be *very* knowledgeable about this. Additionally, 34% characterized themselves as somewhat knowledgeable in this area. Taken together, then, 86% of respondents claim to have at least a low level of knowledge about how genetics affects their health.

Conversely, 13% think they are not knowledgeable about these type of things.

Knowledge of Impact of Genetics on *Your* Personal Health

Q13: Focusing specifically on you and your family, how knowledgeable do you think you are about how genetics affects your health or the health of family members? Please use a 5-point scale, where '1' means you are not knowledgeable at all about this, and '5' means very knowledgeable.



Base = 827

Phoenix SPI for PHAC: March 2008

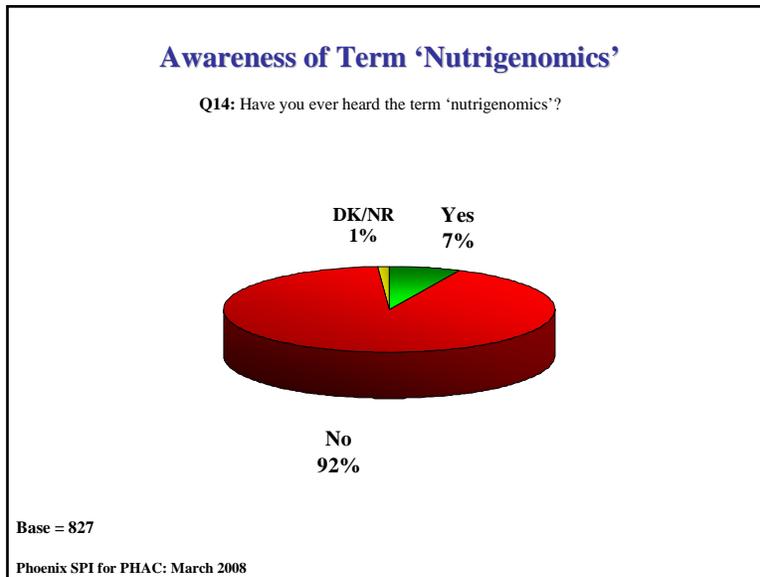
The likelihood of claiming to be knowledgeable was highest among those who think genetics has a moderate-to-big impact on health (54% vs. 39%) and those respondents previously aware of nutrigenomics (75% vs. 50%).

AWARENESS & PERCEPTIONS OF NUTRIGENOMICS

This section reports on levels of awareness and perceptions of nutrigenomics.

Very Few Aware of Term ‘Nutrigenomics’

Awareness of the term ‘nutrigenomics’ is very low among surveyed Canadians. Only 7% of respondents claimed to have heard the term. Conversely, the vast majority (92%) had not heard of nutrigenomics.



Those aware of nutrigenomics (n = 61) were asked to explain what the term means to them. While some noted the link between genetics and nutrition, others focused on either nutrition or genetics when explaining their understanding of nutrigenomics. The following descriptions were offered:

- It refers to the relationship between nutrition/diet and genetics/heredity
- It involves nutrition/diet and health and the impact of nutrition/diet/food on health
- It is the study of genetics/genetic testing, heredity, and family genetics
- It is the study of diet and nutrition.

Notably, almost one-third of these respondents were not able to provide a response, saying that they did not know what the term means. Of those who provided an explanation, most pointed to the first or second descriptions: the relationship between nutrition/diet and genetics/heredity or the perception that it involves nutrition/diet and health and the impact of these factors on health.

At this point in the interview, respondents were read the following description of nutrigenomics:

Nutrigenomics is a new, developing science that studies the way our genetic make-up affects how our bodies respond to what we eat and drink. For example, three people that drink coffee can experience three different health effects because of their genetic make-up:

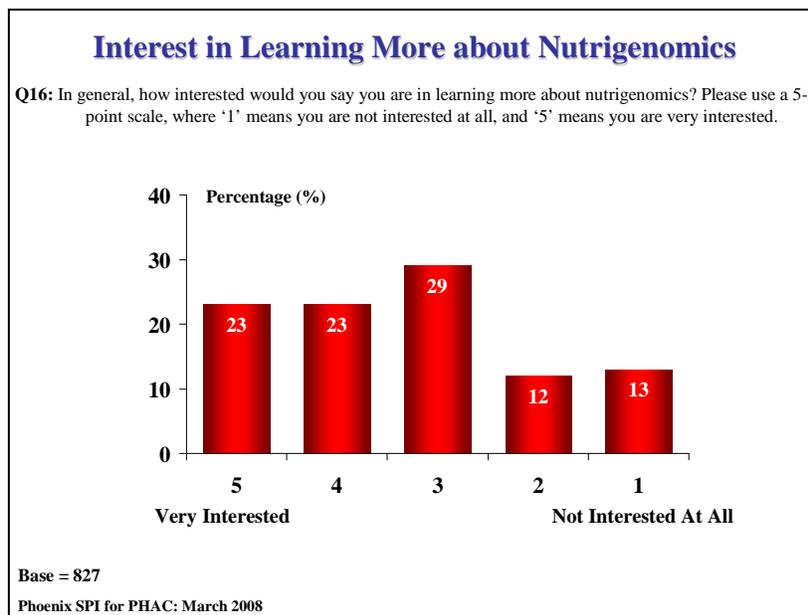
- One person may not be affected at all
- Another person may be at greater risk for heart disease, and
- The third person may reduce their risk of heart disease.

Nutrigenomics testing, often done by taking a sample of saliva, examines people's genetic make-up and then provides them with nutrition and diet-related information – a kind of personalized nutrition plan – to potentially help them improve their health and reduce their risk of certain diseases.

A number of companies offer nutrigenomics testing, usually through the Internet. A person orders a test kit to take a sample of their DNA, usually a cheek swab. The sample is mailed back to the company for analysis, and the company sends them a report with the results, including health and nutrition recommendations based on their genetic make-up.

Moderate Interest in Learning More about Nutrigenomics

After having heard the description of nutrigenomics, three-quarters of respondents expressed at least some interest in learning more about it. In total, 46% expressed clear interest (23% were *very* interested), with 29% saying they are somewhat interested. At the other end of the spectrum, 25% were not very (12%) or not at all (13%) interested in nutrigenomics.



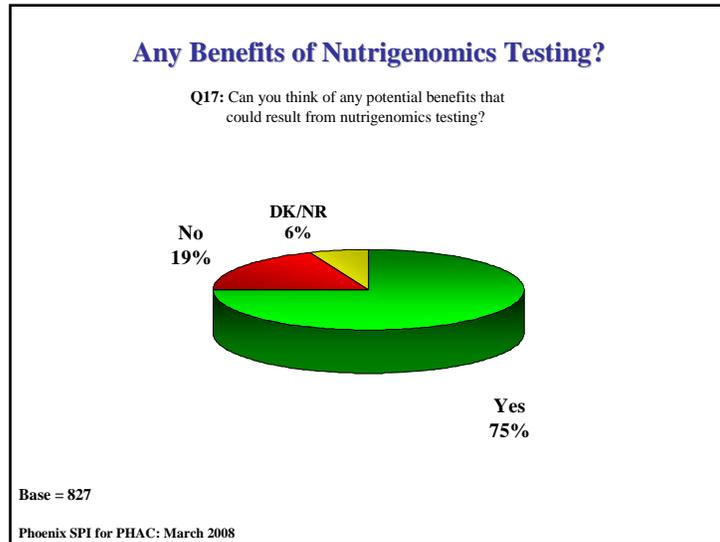
Interest in nutrigenomics is lower than interest in the link between nutrition and health, with 95% of respondents claiming to have at least a low level of interest in the latter (compared to 75% for nutrigenomics).

The likelihood of expressing clear interest in learning more was highest among:

- Those who have looked for information about nutrition and health (51% vs. 31%).
- Those who think the benefits of nutrigenomics outweigh the risks (60% vs. 30%).
- Those who agree that a personalized diet could improve their health (59% vs. 18%).

Three-Quarters Think There Are Potential Benefits of Nutrigenomics Testing

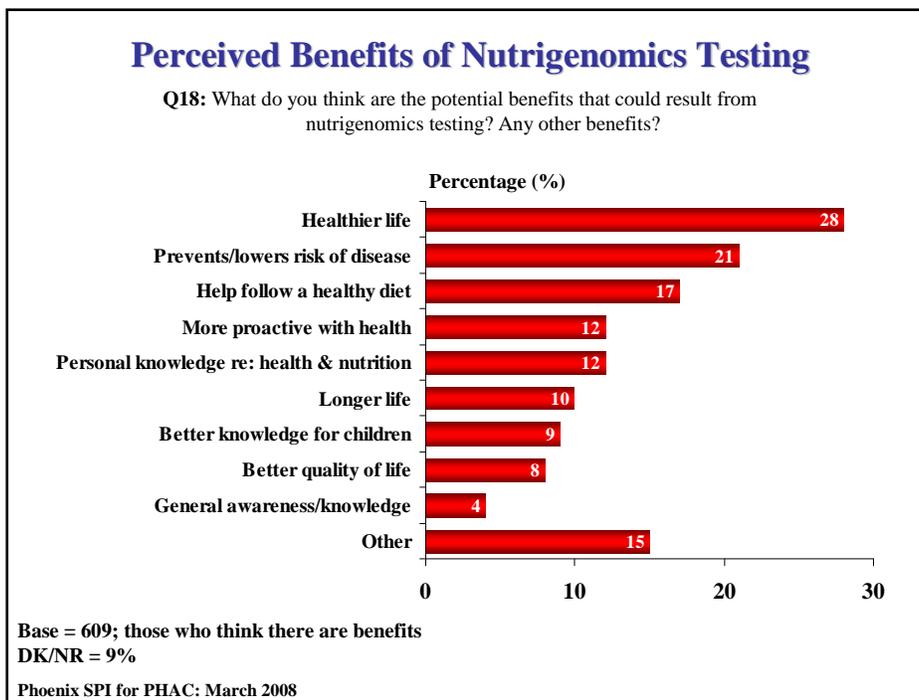
Three-quarters of surveyed Canadians (75%) think there are potential benefits that could result from nutrigenomics testing. Nearly one in five (19%), however, did not think this was the case (6% were uncertain).



The likelihood of saying there are benefits of testing was highest among those who think the impact of genetics on health is moderate-to-big (76% vs. 66%) and those who have looked for information about nutrition and health (78% vs. 61%).

Healthier Life, Reduced Risk of Disease/Illness – Top Perceived Benefits of Testing

Those who perceived there to be benefits resulting from nutrigenomics testing (n = 609) pointed to a number of potential benefits. Heading the list was living a healthier life (28%), followed by preventing or lowering the risk of acquiring certain diseases and illnesses (21%). Seventeen percent thought that nutrigenomics testing would help people to follow a healthy diet.

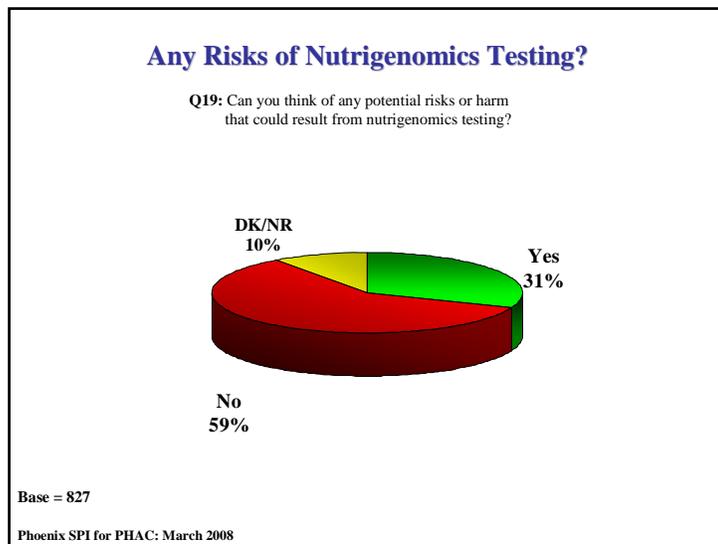


Just as the more frequently cited responses focused on health matters, so too did most of the other potential benefits identified by Canadians. Twelve percent each said that testing could result in people being more proactive with their health and increasing personal knowledge of health and nutrition. Smaller numbers viewed a longer (10%) and better quality (8%) life as potential benefits of nutrigenomics testing.

Other benefits included better knowledge for their children and general awareness and/or knowledge. Benefits grouped in the 'other' category include lower health care costs for Canada, general financial and societal benefits, the prevention or reduction of food allergies, a healthier population in Canada, the reduction of obesity, and increased awareness of environmental factors, among other things.

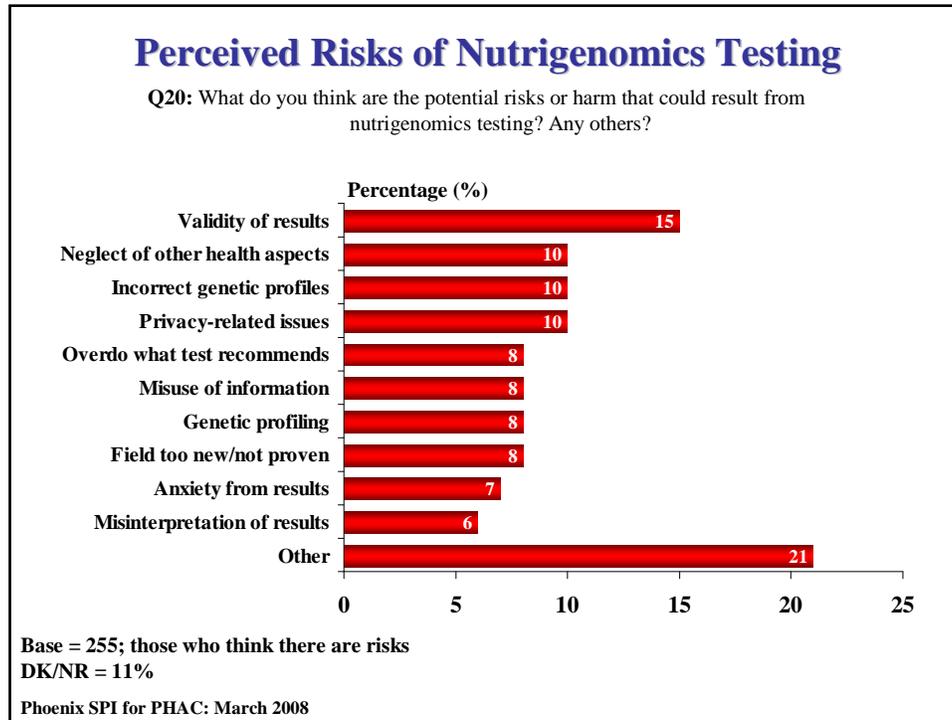
Almost One-Third Perceive Potential Risks to Nutrigenomics Testing

Slightly less than one-third (31%) think there are potential risks or harm that could result from nutrigenomics testing. Conversely, more than half (59%) did not consider there to be any risks. Notably, 10% were uncertain about whether testing presents any risks.



Variety of Perceived Risks, But None Dominates – Validity of Results Tops List

Those who perceived there to be potential risks or harm associated with nutrigenomics testing (n = 255) cited a variety of concerns. That said, all of the risks identified were mentioned by small numbers of respondents. Fifteen percent pointed to the validity of the test results, that they could be unreliable, while one in ten each suggested that people may neglect other health aspects in favour of this testing, that genetic profiles may be incorrect, and that privacy-related issues may be a concern.



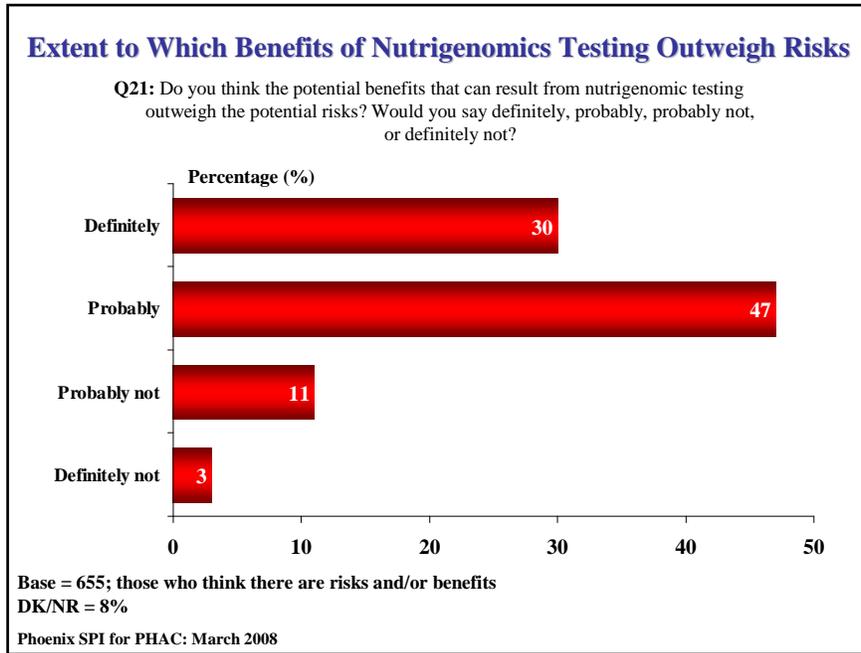
Eight percent each said that people may overdo or carry too far the test recommendations, misuse the information, or engage in genetic profiling. The same proportion think the field itself is too new and the science not proven.

Other perceived risks included that people may experience anxiety from the test results and that the results may be misinterpreted. The types of risks grouped in the ‘other’ category include concern about learning negative health-related news, the general risk of illness or health problems resulting from the testing (e.g. heart attack, allergic reaction), the potential for fraud, the possible infringement on rights/beliefs, the inaccessibility of the tests, and the lack of regulations covering nutrigenomics testing.

In total, 11% of surveyed Canadians were not able to identify any perceived risks despite thinking that there is a potential for risks or harm to result from nutrigenomics testing.

Majority Feel Benefits Outweigh Risks of Nutrigenomics Testing

Canadians who thought there are risks and/or benefits associated with nutrigenomics testing (n = 655) were asked whether the benefits outweigh the risks. Fully 77% said the benefits probably (47%) or definitely (30%) outweigh the potential risks associated with this type of testing. Relatively few (14%) disagreed, saying that the risks or potential for harm outweigh the benefits.



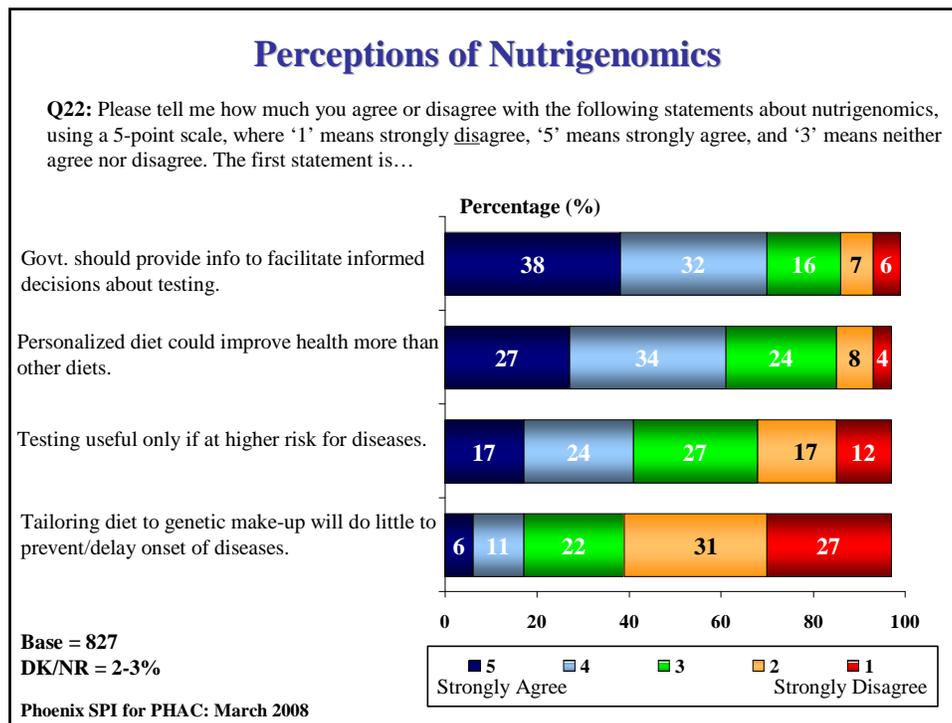
Those who think that a personalized diet can improve their health were more likely to believe that the benefits *definitely* outweigh the risks (36% vs. 11%).

Perceptions of Nutrigenomics

Respondents were asked to indicate their level of agreement with a number of statements about nutrigenomics, using a 5-point scale (1 = strongly disagree, 5 = strongly agree). The statements were:

- The government should provide information to Canadians to enable them to make informed decisions about whether nutrigenomics testing is something they should consider for themselves or their family.
- A personalized diet based on my own genetic make-up could help improve my overall health more than other types of diets.
- Genetic testing like this would only be useful if someone is at a higher risk for certain diseases because of their family history.
- I don't think tailoring someone's diet to their genetic make-up would do very much to prevent or delay the onset of diseases.

In total, 70% agreed that the government should provide information to facilitate informed decision making about nutrigenomics testing, with 38% *strongly* agreeing with this. Conversely, just over one in ten (13%) disagreed that government has a role to play in this regard; slightly more were neutral (16%). In addition, 61% felt that a personalized diet could improve their overall health more than any other type of diet. Among the rest, 24% did not voice an opinion and 12% disagreed that this type of diet would be more helpful.

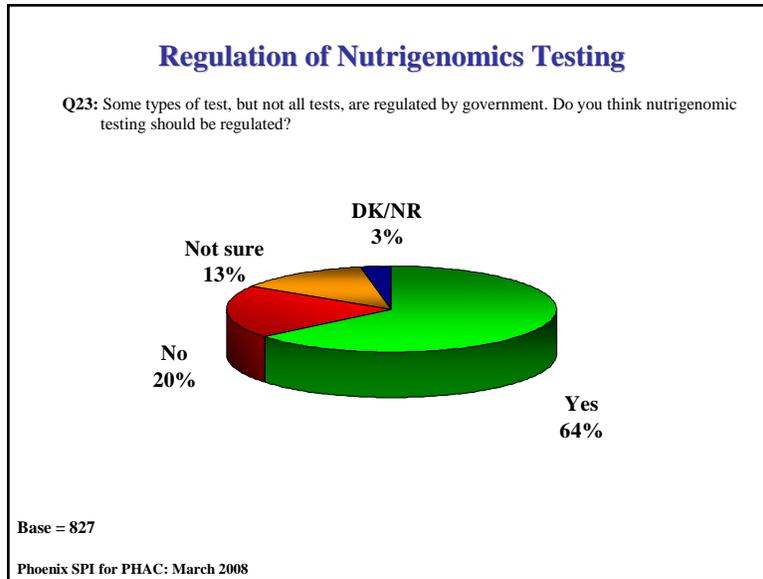


Fewer than half the surveyed Canadians (41%) felt that testing would only be useful for people who are at a higher risk for certain diseases. Almost three in ten (29%) expressed disagreement with this, and 27% offered no opinion one way or the other. The majority

(58%) disagreed that tailoring diet to genetic make-up will do little to prevent or delay the onset of disease. Only 17% felt that this was true (22% were neutral).

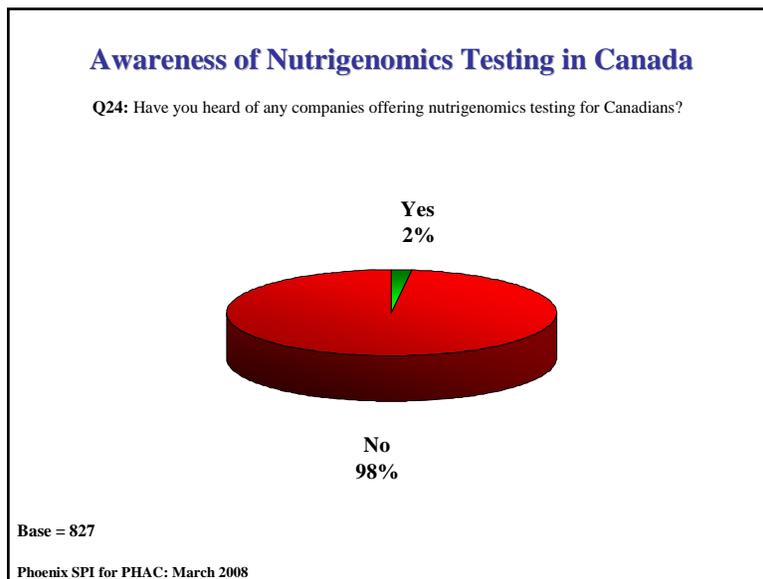
Nearly Two-thirds Think Nutrigenomics Testing Should be Regulated

Almost two-thirds of Canadians (64%) think nutrigenomics testing should be regulated by the government. Conversely, one in five do not think this type of testing should be regulated, and 16% were not sure or provided no response.



Virtually No One Aware of Nutrigenomics Testing in Canada

Only 2% of respondents claimed to have heard of companies offering nutrigenomics testing in Canada. Everyone else (98%) has not.

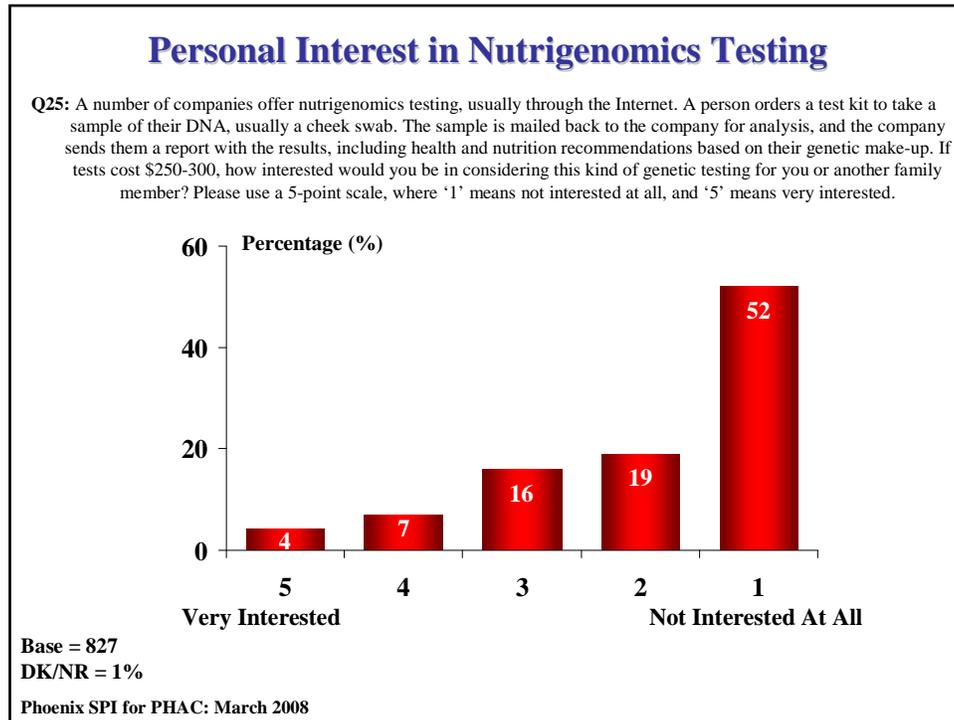


Most Not Interested in Nutrigenomics Testing

Respondents were read the following information before being asked to consider whether they would be interested in considering nutrigenomics testing for themselves or a family member if the tests cost \$250-300⁴:

A number of companies offer nutrigenomics testing, usually through the Internet. A person orders a test kit to take a sample of their DNA, usually a cheek swab. The sample is mailed back to the company for analysis, and the company sends them a report with the results, including health and nutrition recommendations based on their genetic make-up.

With cost in mind, fully 71% of Canadians are not interested in nutrigenomics testing for themselves or another member of their family. In fact, half (52%) were categorical – that is, they said they are not at all interested in this kind of testing if it costs \$250-300. Slightly more than one-quarter (27%) expressed some level of interest – 11% would be definitely interested and 16% somewhat interested in the testing for themselves or their family at this price.



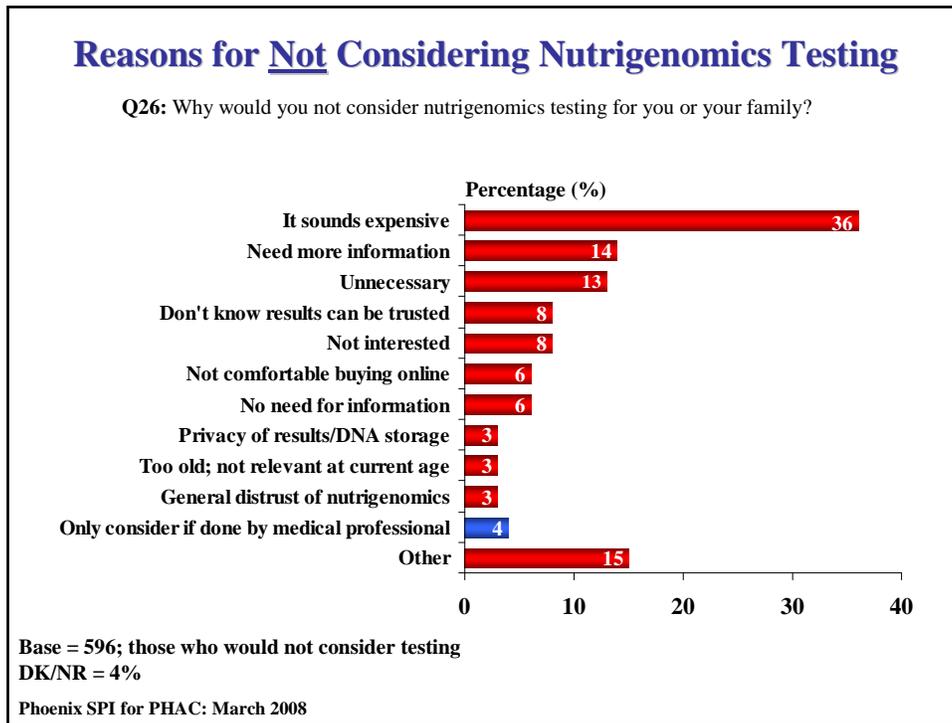
Those who felt that the benefits of testing outweigh the risks were somewhat more likely to express clear interest in testing (14% vs. 10%).

⁴ These costs were based on the range of prices for this type of testing found on the websites of companies offering this service.

Cost – Top Reason for Lack of Interest in Testing

Those who would not consider nutrigenomics testing (n = 596) were asked to explain why not. By a wide margin, the reason cited most often was the perception that it will be expensive. Just over one-third (36%) attributed their lack of interest to the cost. Beyond this, a number of reasons were mentioned, each by small numbers of people.

Fourteen percent said they would need to know more about nutrigenomics testing before they made a decision, while 13% felt that the testing and related advice is simply unnecessary. Fewer than one in ten pointed to other reasons – concern that the results cannot be trusted, lack of interest, lack of comfort purchasing these services online, and the perception that they do not need this type of additional information.



A host of reasons were mentioned infrequently and have been included in the ‘other’ category, such as not wanting to know about the future, the lack of regulation, distrust of private sector involvement, distrust of testing methodologies, and perceptions that there is no benefit or that those who undergo the testing probably will not make the suggested diet changes.

COMMUNICATIONS ISSUES

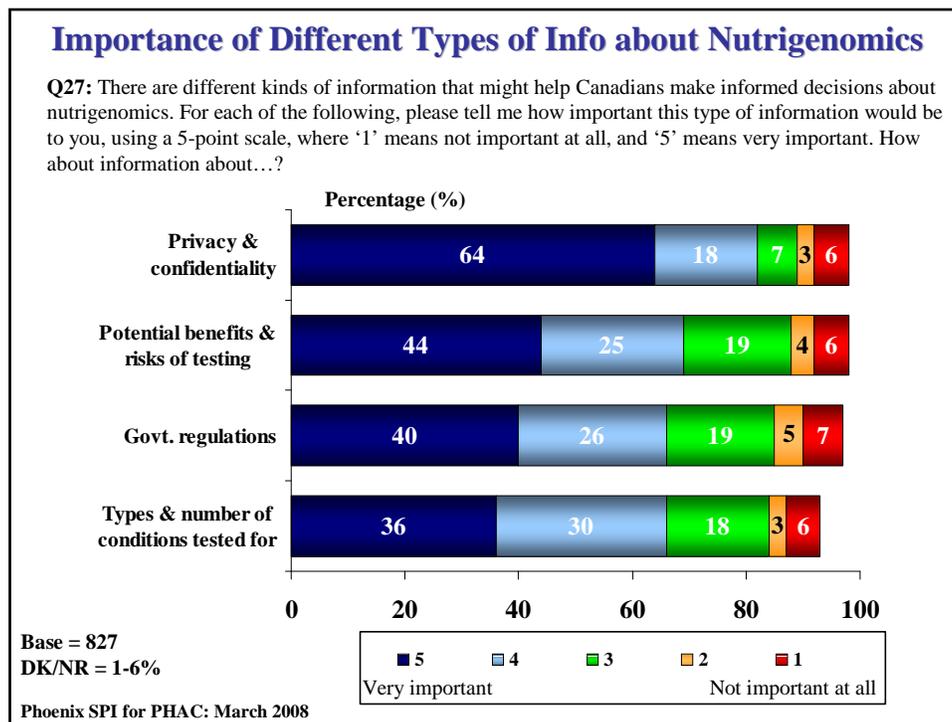
This section explores communications issues, including the type of information that respondents feel is important to know about nutrigenomics and who they would trust to provide them with this information.

All Information About Nutrigenomics Important, Privacy & Confidentiality Top List

Respondents were asked to rate the importance of different kinds of information that might help Canadians make informed decisions about nutrigenomics. The information included:

- Privacy and confidentiality issues related to nutrigenomics.
- The potential benefits and risks of nutrigenomics testing.
- Government regulations covering nutrigenomics testing.
- The types and number of conditions that can be tested for in nutrigenomics.

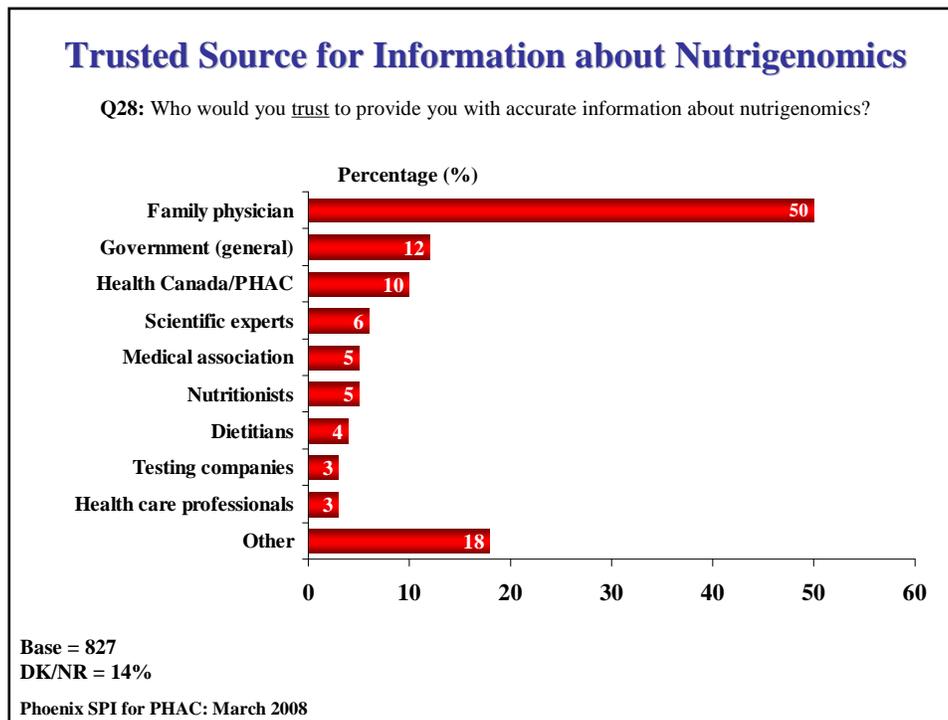
Majorities viewed all four types of information about nutrigenomics as important. Leading the way, 82% of surveyed Canadians attributed importance to information about privacy and confidentiality issues, with 64% saying this is *very* important. Smaller, and similar proportions, think that all of the other types of information are important: information about the potential benefits and risks (69%), government regulations (66%), and the types and number of conditions that can be tested for in nutrigenomics (66%). For each, respondents were more likely to consider the information *very* as opposed to *moderately* important. Relatively few (9-12%) felt that these types of information are not important (i.e. scores of 1-2).



The following sub-groups were more likely to attribute importance to all four types of information: those who have looked for information about nutrition and personal health, those who think the benefits of testing outweigh the risks, and those who think nutrigenomics should be regulated by the government. These same groups were also more apt to agree that the government should provide information to Canadians to enable them to make informed decisions about nutrigenomics testing.

Family Physician – Most Trusted Source of Information

Exactly half the surveyed Canadians pointed to family physicians when asked to identify who they would trust to provide them with accurate information about nutrigenomics. Beyond this, 22% of respondents pointed to government, including government in general (12%), and then specifically Health Canada or the Public Health Agency of Canada (PHAC) (10%). No other source was mentioned with any real frequency.



Some respondents mentioned other health-related sources – medical professional associations (5%), nutritionists (5%), dietitians (4%), and health care professionals in general (3%). Additionally, 6% said they would trust scientific experts, and 3% the nutrigenomics testing companies to provide them with accurate information.

Sources included in the ‘other’ category are scientific and medical journals, friends and family members, health associations, such as the Heart and Stroke Foundation, universities/academic institutions, geneticists and specialists in the field, pharmacists, nurses, laboratory professionals/technicians, and media sources, such as the news media and the Internet.

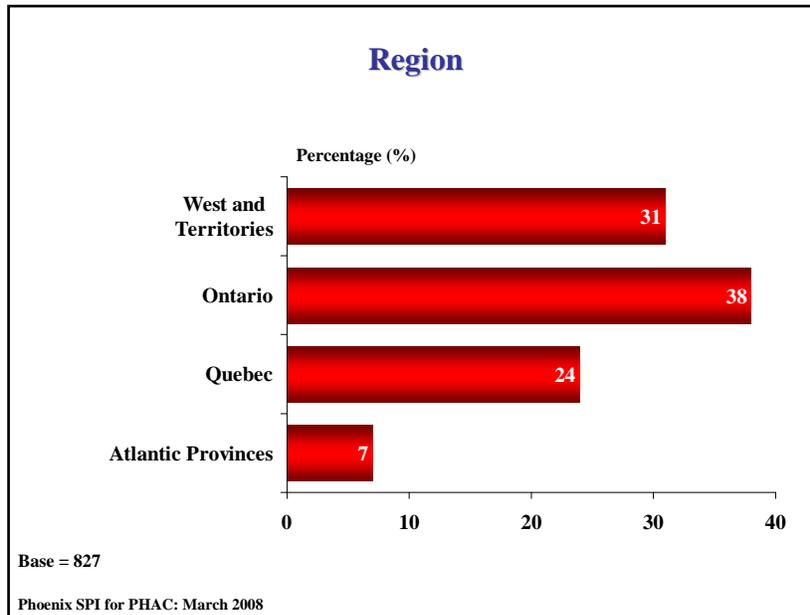
The likelihood of pointing to government in general was highest among those who looked for information about personal health and nutrition (14% vs. 4%), those who think the benefits of testing outweigh the risks (14% vs. 10%), and those who think the government should regulate nutrigenomics (15% vs. 4%).

PROFILE OF RESPONDENTS

This graphs in this section describe the characteristics of the survey respondents (based on weighted data).

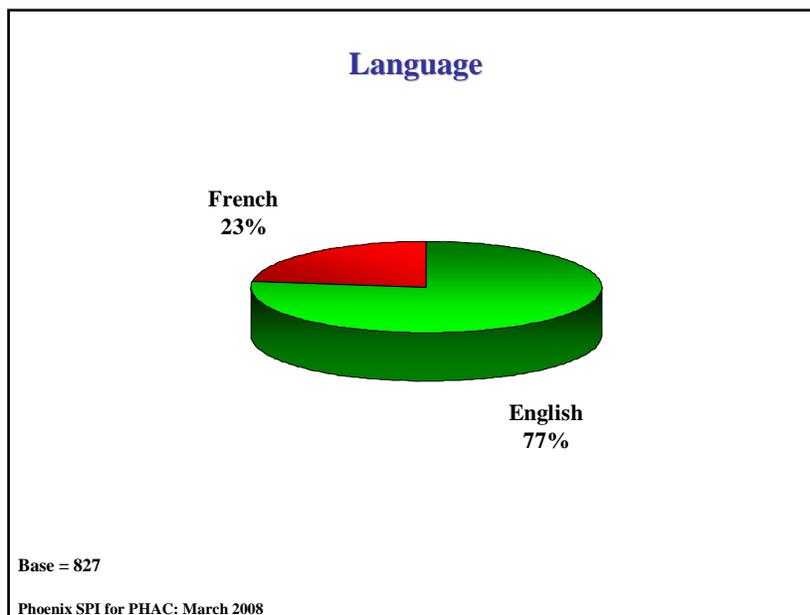
Region

Respondents were most likely to be located in Ontario, followed by Western Canada and the Territories, Quebec and Atlantic Canada.



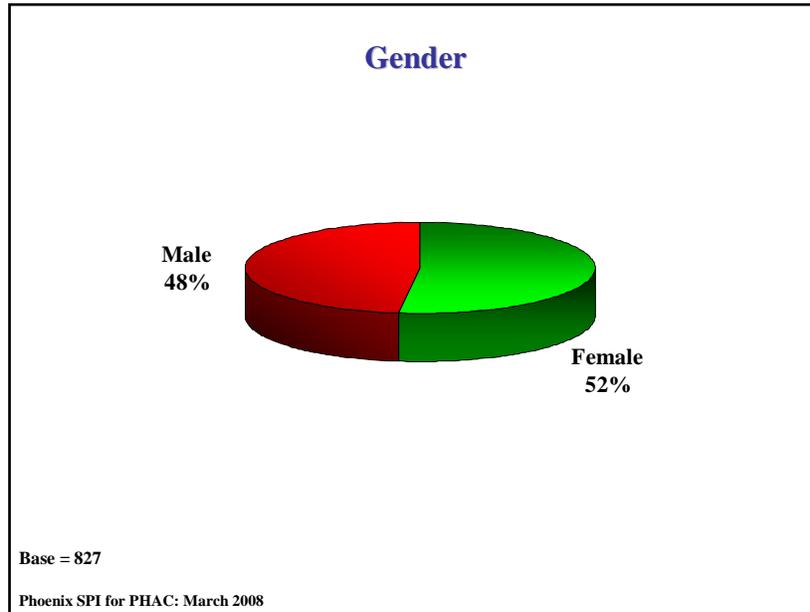
Language

Almost one-quarter (23%) completed the survey in French. The rest did so in English.



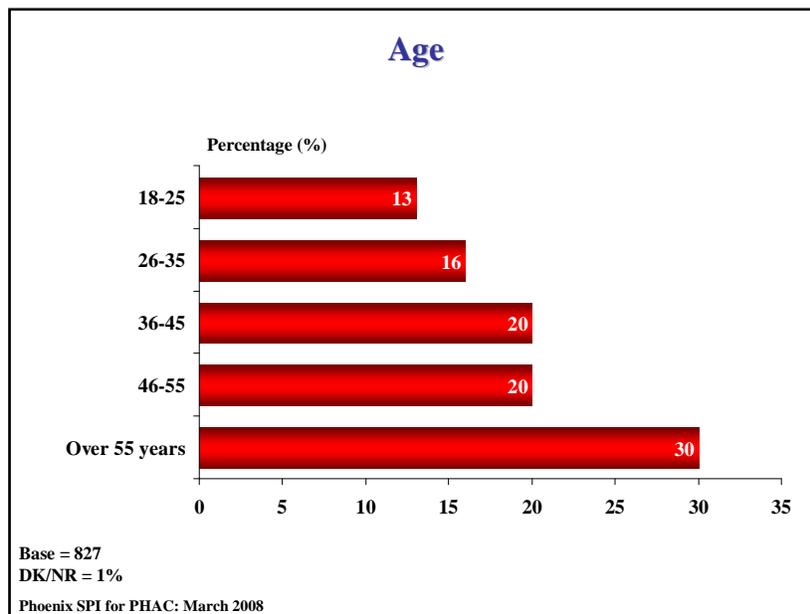
Gender

The sample was split almost evenly between male (48%) and female (52%) respondents.



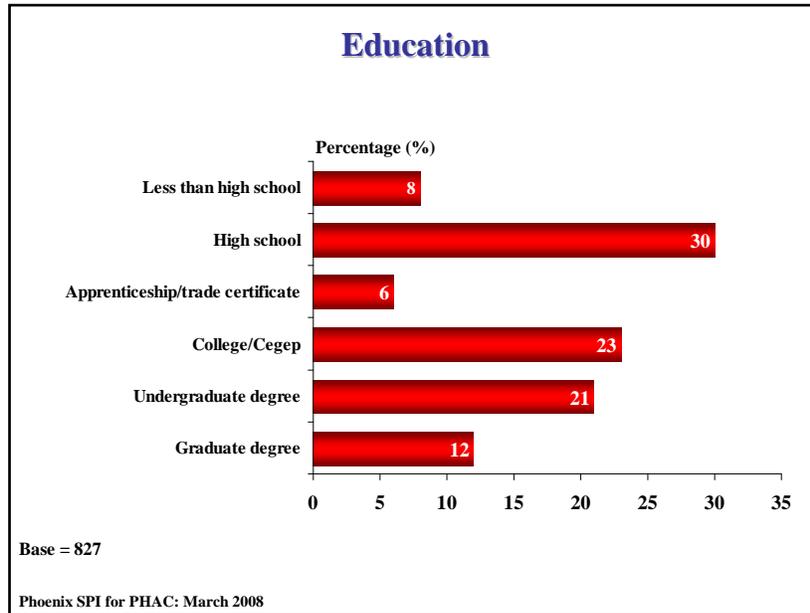
Age

Respondents represented a range of age groups, but the single largest proportion was over 55 years.



Education

The majority of those surveyed (62%) completed some form of post-secondary education.



DEMOGRAPHIC VARIATIONS

This section presents demographic differences for key issues explored in this survey. This includes variations based on age, education, gender, region and language.

Overview

Overall, the subgroup analysis revealed a number of significant demographic variations in terms of knowledge and perceptions of nutrition, genetics and nutrigenomics. That said, there were no significant differences vis-à-vis awareness of nutrigenomics, although the likelihood of having heard the term increased with education. And, when it came to the benefits and risks of nutrigenomics, with the exception of region, there were no noteworthy demographic differences.

Additionally, several patterns emerged, most notably for region and gender, but also to a lesser degree, for education and age. Looking first at region, differences were widespread and often pronounced, in particular in relation to health and nutrition, genetics, and nutrigenomics. Differences, moreover, followed a fairly consistent pattern, with Quebec often different from the rest of the country in terms of perceptions. Turning to gender, women were more apt to consider themselves knowledgeable about the link between nutrition and health, and about how genetics affects their family, to express interest in this link, and in learning more about nutrigenomics, and to have looked for information about nutrition and health.

To the extent that there were differences based on education, variations tended to be most prominent between respondents with a university education and with high school or less. Those with high school or less were least likely to describe themselves as knowledgeable about, and interested in, the link between nutrition and health. Respondents with a university education, however, were much more likely to consider themselves knowledgeable about how genetics affects their health and the health of their family. Likewise, differences based on age were most distinct between the youngest and oldest respondents. Younger Canadians were less likely to view themselves as knowledgeable about, and interested in, the link between nutrition and health. Respondents over 55 years, on the other hand, were more apt to rate themselves as knowledgeable when it comes to how genetics affects them and their family.

Region

For the purposes of this analysis, respondents were grouped as follows:

- West and territories
- Ontario
- Quebec
- Atlantic Canada

Overview

Quebeckers were less inclined to describe themselves as knowledgeable about the link between nutrition and personal health, and to have searched for this type of information. In addition, Quebeckers were less, and Ontarians more, apt to see themselves as being knowledgeable about how genetics affects their health. As well, Quebeckers were less likely to express interest in learning more about nutrigenomics. Atlantic Canada residents were more likely to have heard of companies offering nutrigenomics testing, although those living in western Canada were more apt to consider this type of testing for them.

Looking first at factors that have an impact on personal health, Quebeckers were more, and Ontarians less, likely than respondents in other regions to attribute importance to food and nutrition (60% vs. 38%) and exercise (40% vs. 24%). When the focus shifted to specific factors, Quebec respondents were less apt (37%) to think family health history has a *big* role in maintaining or improving overall health. As well, Quebeckers were less inclined to characterize themselves as knowledgeable about the link between nutrition and personal health (65%) and to have searched for this type of information (70%). Quebeckers who had sought information were more apt to have looked for information on balanced eating (44%), healthy recipes (18%), and food and medication (15%). Conversely, they were less likely than respondents from other regions to have sought information on illness and health conditions (7%).

Differences in terms of knowledge of genetics and health followed a distinct pattern, with Quebec again set apart from other regions. Quebeckers were less likely than others to think that genetic make-up affects the likelihood of experiencing certain health conditions (60%). On the other hand, they were more apt to think that a family's medical history is the same as its genetic make-up (43%), that there is little they can do to prevent certain illnesses (24%⁵), and that environmental factors are much more important than genetics when it comes to health (43%). In addition, Quebeckers were less (37%), and Ontarians (60%) more, apt to see themselves as being knowledgeable about how genetics affects their health.

Turning to nutrigenomics, there were no pronounced differences in awareness of the term. When it came to interest, Quebeckers were less likely than respondents in other regions to express clear interest in learning more about nutrigenomics (39%). They were also more apt to offer no response when asked about the potential benefits (13%) and risks (22%) of testing. Even among those who did think there are benefits and/or risks, Quebeckers were more likely to not be able to identify any benefits (21%) or risks (22%). Among those who did identify benefits, the following variations are significant:

- Quebeckers were more likely to point to being proactive in terms of health (23%).
- Those in the West were more apt to think testing will help people follow a healthy diet (22%).
- Atlantic Canadians were more likely to cite general awareness (13%).

⁵ 24% of Atlantic Canadians also agreed that there is little they can do. However, due to the small sample size, this difference is not statistically significant and therefore is not reported as a noteworthy regional variation.

- Ontarians were more inclined to mention personal knowledge of health and nutrition (18%).

When it came to risks, Quebeckers were more likely than others to think that overdoing testing recommendations could be a potential risk (16%), those from the West to express concern about the potential for fraud (8%), and Ontarians to mention privacy-related concerns (15%). Of those who cited benefits and/or risks, Atlantic Canadians were more likely than respondents from other regions to think that benefits *probably* do not outweigh the risks (20%).

Focusing on perceptions of nutrigenomics, Quebeckers were less likely to think that a personalized diet could improve their health (52%) and that testing would *only* be useful for people at a higher risk for certain diseases (34%). On the other hand, they were more apt to think that tailoring diets to genetic make-up will do little to prevent or delay the onset of diseases (22%) and to offer a neutral response when asked whether the government should provide information to Canadians on nutrigenomics testing (21%).

Compared to respondents from elsewhere in the country, Atlantic Canada residents were more likely to have heard of companies offering nutrigenomics testing (8%). Those living in western Canada, however, were more apt to consider this type of testing (15%). In terms of reasons for not considering the testing, Quebeckers were more apt to point to a number of the most frequently-cited reasons, including the perception that the results cannot be trusted (13%), that they are generally not interested (15%), that it sounds expensive (45%), and that they are not comfortable buying this service online (10%). Respondents living in the West were more (25%), and those in Quebec (15%) less, apt to think that the government should not regulate nutrigenomics testing.

In terms of information needs, Ontarians were more, and Quebeckers less, likely to attribute importance to information on government regulations (71% vs. 56%) and privacy and confidentiality issues (88% vs. 71%). Quebeckers were also much less likely than Canadians elsewhere to say they would trust their family physician to provide them with accurate information about nutrigenomics (33%).

Language

Differences based on language followed the same pattern reflected in the regional analysis above. That is, where Quebeckers stood out among the other regions, so too did Francophones set themselves apart from Anglophones. In fact, differences in perceptions and behaviour between Quebeckers and Francophones did not exceed 2%.

Gender

Overview

Women were more apt to consider themselves knowledgeable about the link between nutrition and personal health, express interest in this, and have looked for this type of information. In addition, they were more likely to say they are knowledgeable about how genetics affects their health and that of their family, and to express interest in learning more about nutrigenomics. That said, women were more inclined to feel that there are potential risks associated with nutrigenomics testing.

Overall, women appear to be more engaged than men in the area of personal health and nutrition. When it comes to factors that affect personal health, they were more likely to think that food and nutrition (87% vs. 81%), level of stress (71% vs. 56%) and family health history (47% vs. 39%) play a *big* role in overall health. In addition, women were more apt to consider themselves knowledgeable about the link between nutrition and personal health (78% vs. 63%), to express interest in this (87% vs. 70%), and to have looked for this type of information (87% vs. 69%).

Engagement in health and nutrition did not necessarily translate into knowledge about genetics and health. While women were more likely to agree that genetic make-up makes people more susceptible to certain health situations (77% vs. 71%), men were more apt to disagree that a family's medical history is the same thing as its genetic make-up (35% vs. 25%). In addition, women were more likely to feel that environmental factors and genetics have about the same affect on health (20% vs. 14%) and that they are knowledgeable about how genetics affects their own family (58% vs. 46%).

While there were several notable differences in terms of interest, behaviour and knowledge related to nutrition, genetics and health, awareness of nutrigenomics was equally low among women and men. That said, just as women expressed interest in the link between nutrition and health, they were also more likely to express interest in learning about nutrigenomics (50% vs. 43%).

Focusing on perceptions of nutrigenomics, women were more apt to agree that a personalized diet could improve their health (65% vs. 58%). They were also more inclined to feel that there are potential risks associated with the testing (34% vs. 27%). Of the risks cited, women were more concerned that people might neglect other aspects of their health (14% vs. 5%) and men about privacy-related issues (15% vs. 6%). As for benefits, women were more apt to point to being proactive (16% vs. 7%) and men to living a longer life (13% vs. 7%).

Finally, looking at information needs, there were no significant gender-based differences in terms of the type of information deemed important. However, women were more likely to say they would trust their family physician to provide them with accurate information about nutrigenomics (54% vs. 45%).

Age

For the purposes of this analysis, respondents were grouped as follows:

- 18 to 35 (younger Canadians)
- 36 to 55
- Over 55

Overview

Younger Canadians were less likely to view themselves as knowledgeable about, and interested in, the link between nutrition and personal health. Age was not a factor in the likelihood of searching for information in this area. Turning to genetics and health,

respondents over 55 years were more apt to rate themselves as knowledgeable when it comes to how genetics affects them and their family. In addition, they were less apt to think there are benefits that could result from nutrigenomics testing, but more likely to say there are no potential risks and to not be interested in learning about nutrigenomics.

In terms of personal health and nutrition, 18-35 year olds were more likely to view as important the following health-related factors: food and nutrition (51%), exercise (38%), and not smoking (19%). As well, these respondents were less likely to view themselves as knowledgeable about the link between nutrition and personal health (61%) and interested in this (72%). Those aged 36-55 were somewhat less apt to think that food and nutrition plays a *big* role in overall health (80%), while respondents over 55 were more likely to attribute a *big* role to family health history (50%).

Age was not a factor in the likelihood of searching for information about nutrition and personal health. In terms of the types of information sought, however, younger Canadians were more likely to have looked for healthy recipes (17%) and those over 55 for information on illnesses and health conditions (20%).

Focusing on genetics and health, respondents over 55 years were more likely to think that genetics has a *big* impact in terms of health (46%) and that there is little they can do to prevent certain illnesses because of their genetic make-up (24%). That said, they were more apt to suggest that genetics and environmental factors have about the same impact on health (23%) and to rate themselves as knowledgeable when it comes to how genetics affects them and their family (62%). Respondents 18-35 years were less inclined to agree that genetic make-up makes people more susceptible to certain health conditions (66%) and more likely to disagree that a family's medical history is basically the same thing as its genetic make-up (37%).

Age did not have an impact on awareness of the term 'nutrigenomics' or of the availability of this type of testing in Canada. In terms of interest, those over 55 years were more likely to say they are not interested in learning about nutrigenomics (32%) or in considering this type of testing (81%). Of the reasons offered for not considering testing, respondents over 55 were less apt to say it sounds expensive (26%), while younger Canadians were more inclined to think the testing is unnecessary (24%).

Additionally, the oldest respondents were less apt to think there are benefits that could result from nutrigenomics testing (67%), but they were also more apt to say there are no potential risks (64%). When it came to specific perceived benefits and risks, age was not a factor. However, there were age-related differences in perceptions of nutrigenomics. The youngest group was less apt to agree that this type of testing would *only* be useful for those at a higher risk for certain diseases (34%) and more inclined to disagree that tailoring diet to genetic make-up will not do much to prevent or delay the onset of diseases (69%). Those over 55 years, on the other hand, were less likely to agree that the government should provide information on nutrigenomics (63%), while those 36-55 years were more apt to think this type of testing should be regulated – 17% said it should not be regulated.

Turning to information needs, 18-35 year olds were more likely to attribute importance to receiving information about the benefits and risks of testing (80%) and about the types and

conditions that can be tested for (72%). On the other hand, those aged 36-55 were more apt to view as important information about government regulations (73%) and about privacy and confidentiality as it pertains to testing (86%). As well, this group of respondents – 36-55 year olds – were more likely than others to consider their family physician to be a trustworthy source of information about nutrigenomics.

Education

For the purposes of this analysis, respondents were grouped as follows:

- High school or less
- College
- University

Overview

Those with high school education or less were less likely to describe themselves as knowledgeable about the link between nutrition and personal health, and to be interested in this. Focusing on knowledge of genetics and health, respondents with a university education were *far* more likely to consider themselves knowledgeable about how genetics affects their health and that of their family. The likelihood of having heard of nutrigenomics increased with education. Interest in learning about nutrigenomics, however, was highest among college-educated respondents. In terms of perceived benefits and risks of nutrigenomics testing, respondents with high school or less were less apt than others to think there are potential benefits and more likely to believe there are no risks or harms.

Looking first at health and nutrition, university-educated respondents were more likely to point to exercise (35%) and general lifestyle (17%) as important factors affecting personal health. As well, this group was more apt to think that food and nutrition plays a *big* role in terms of maintaining or improving overall health (89%) and to have sought information in the area of nutrition and health (84%). In terms of interest and knowledge, those with high school or less were less likely than others to describe themselves as knowledgeable about the link between nutrition and personal health (59%) and to be interested in this (70%).

Turning to knowledge of genetics and health, respondents with a university education were *far* more likely to consider themselves knowledgeable about how genetics affects their health (64%). Not surprisingly, then, university-educated respondents were more apt to agree that genetic make-up can make people more susceptible to certain health situations (80%) and less likely to think medical history is the same thing as genetic make-up (30%). Those with high school or less were more apt to agree that there is little they can do to prevent certain illnesses because of their genetic make-up (25%).

Focusing on nutrigenomics, the likelihood of having heard the term increased with education (from 5% to 10%), although respondents were equally likely not to be aware of any companies offering testing. Awareness aside, interest in learning about nutrigenomics was highest among college-educated respondents (52%). While respondents with high school or less were less apt to think there are potential benefits of nutrigenomics (69%), they were also more likely to believe there are no risks or harms associated with testing

(67%). Among those who identified benefits, college-educated respondents were more likely to point to a healthier life (33%). In terms of perceived risks, respondents with a university education were more apt to cite the potential for fraud (5%) and genetic profiling (12%), while those with high school or less were more likely not to know what risks could result from testing (21%).

When it comes to perceptions of nutrigenomics, university-educated respondents were more likely to disagree that a personalized diet could improve overall health (17%) and less apt to think that government should provide information to help facilitate decision-making (62%). Compared to others, university-educated respondents were more apt to think they would not consider this type of genetic testing for themselves or a family member (76%) and less likely to point to cost as a reason why not (27%).

Finally, in terms of information needs, college-educated respondents were more likely to turn to their family physician for accurate information about nutrigenomics (55%) and to attribute importance to receiving information about the risks and benefits of testing (75%) and privacy and confidentiality (88%). Information about the types and numbers of conditions that can be tested for was less important to those with high school or less (62%).

DETAILED METHODOLOGICAL NOTE

A telephone survey of the general public was undertaken to address the research objectives. In total, 827 interviews were conducted with Canadian residents, 18 years of age and older. A sample of this size can be considered to be accurate within +/- 3.4%, 19 times out of 20. Data collection took place March 4-12, 2008.

The following specifications applied to the telephone survey:

- The sampling method was RDD (random digit dialling).
- No selection criteria were used other than age and the standard exclusions (i.e. representatives of media, market research, and advertising).
- A pre-test was conducted in both official languages (16 in English, 16 in French).
- The survey averaged 17.3 minutes in length.
- The response rate was 19% (calculated using the Marketing Research Intelligence Association's (MRIA) formula).
- The survey was registered with the MRISA's Registration System.
- The data were weighted by region, age and gender.
- Sponsorship of the study was revealed (i.e. PHAC/Government of Canada).

The following table presents information about the call disposition for this survey:

Call Disposition Information		
Total Numbers Accepted		7,803
Total out of scope		2,108
Numbers not in service	1,779	
Duplicates	11	
Business lines	285	
Blocked by Telephone Company	33	
Unresolved		1,958
Busy , no answers, Answering machines	1,958	
Retired, called 10 times without success	0	
In-scope Non-responding		2,655
Unavailable	16	
Household Refusal	2,584	
Break offs	55	
In-scope Responding units		1,082
Completes	827	
Ineligible	39	
Quota Filled	56	
Language disqualified	160	

APPENDIX

Nutrigenomics Study (POR-07-17)
Telephone Survey

Hello, my name is _____. I'm calling on behalf of Phoenix, a public opinion research company. We're conducting a survey for the Public Health Agency of Canada, part of the Government of Canada, on current issues of importance to Canadians. This survey is registered with the national survey registration system.

A. May I please speak to a person in the household, 18 years of age or older? Would that be you? (IF NOT, ASK TO SPEAK TO THAT PERSON AND START AGAIN)

- | | | |
|-----------------------|---|-----------------------------------|
| Yes | 1 | CONTINUE |
| No | 2 | ASK TO SPEAK TO 'ELIGIBLE' PERSON |
| Refused (VOLUNTEERED) | 3 | THANK/DISCONTINUE |

B. Do you or does anyone in your household work for any of the following types of organizations: an advertising or market research firm, or the media?

- | | | |
|-----------------------|---|-------------------|
| Yes | 1 | THANK/DISCONTINUE |
| No | 2 | CONTINUE |
| Refused (VOLUNTEERED) | 3 | THANK/DISCONTINUE |

C. Your participation in this survey is voluntary, but would be extremely helpful. All responses will be kept entirely confidential – no individuals will be identified in any way. Would you be willing to take part in this survey? We can do it now or at a time more convenient for you.

- Yes, now. (CONTINUE)
- Yes, call later. (SPECIFY DATE/TIME) _____
- Refused. (THANK & DISCONTINUE)

INTERVIEWER NOTES:

SURVEY LENGTH: IF RESPONDENT ASKS ABOUT THE LENGTH OF THE SURVEY, INFORM HIM/HER THAT IT AVERAGES LESS THAN 15 MINUTES.

RESEARCH VALIDITY: IF RESPONDENT QUESTIONS THE VALIDITY OF THE RESEARCH, INVITE HIM/HER TO: 1) CALL THE NATIONAL SURVEY REGISTRATION SYSTEM, OR 2) ROSS DUNCAN OF THE PUBLIC HEALTH AGENCY OF CANADA AT 1-613-952-5121 OR HAVE ROSS CALL THE RESPONDENT.

SURVEY REGISTRATION SYSTEM: IF RESPONDENT ASKS ABOUT NATIONAL SURVEY REGISTRATION SYSTEM, SAY:

The registration system has been created by the survey research industry to allow the public to verify that a survey is legitimate, get information about the survey industry or register a complaint. The registration system's toll-free phone number is 1-800-554-9996.

PRIVACY: PARTICIPANTS' COMMENTS WILL BE PROTECTED IN ACCORDANCE WITH THE PROVISIONS OF THE PRIVACY ACT. INDICATE THIS IF RELEVANT. ALSO SAY IF RELEVANT: "YOUR REPOSSES TO THIS SURVEY WILL HAVE NO IMPACT ON YOUR DEALINGS WITH THE FEDERAL GOVERNMENT."

HEADINGS IN BLUE SHOULD NOT BE READ TO RESPONDENTS.

SCALE INSTRUCTIONS: RESPONSE CATEGORIES/INSTRUCTIONS FOR SOME OF THE SCALE QUESTIONS ARE REPETITIVE. ADJUST THE FREQUENCY OF REPEATING THE INSTRUCTIONS TO ENSURE CLARITY BUT AVOID TEDIUM.

UNLESS OTHERWISE SPECIFIED, ALL QUESTIONS IN THE SURVEY WILL ALLOW FOR 'DON'T KNOW/NO RESPONSE' OPTION. DK/NR IS ONLY SPECIFIED WHERE IT RELATES TO SKIP LOGIC.

Section 1: Knowledge, Interest & Behaviour Re: Health and Nutrition

I'd like to start with a few questions about factors related to personal health. By this, we mean the types of things that affect someone's health.

1. In your view, what is the most important factor that has an impact on someone's personal health? Are there any other key factors? [DO NOT READ LIST; RECORD FIRST MENTION; ACCEPT UP TO THREE RESPONSES]

Food/nutrition
Exercise
Family history
Genetics
Getting enough sleep
Stress and stress levels
General lifestyle
Taking vitamins, supplements, herbs etc.
Not smoking
Limiting alcohol consumption
Work/leisure balance
Environmental factors (e.g. air, water quality)
Other (please specify): _____

To what extent do you think each of the following play a role in terms of maintaining or improving overall health? Would you say they play a big role, moderate role, small role, or no role at all? [READ LIST] [TRACKING: DECIMA 2004 – MODIFIED]

2. Food and nutrition
3. Exercise
4. Level of stress
5. Family health history

Thinking about food and nutrition,

6. In general, how well informed would you say you are about the link between nutrition and personal health? Please use a 5-point scale, where '1' means you think you are not knowledgeable at all about this, and '5' means very knowledgeable.
7. And how interested would you say you are in the link between nutrition and personal health? Please use a similar 5-point scale, where '1' means you are not interested at all in this, and '5' means you are very interested in it.
8. In the past two years, have you looked for information about nutrition and personal health, either for yourself or other family members?

Yes	1	
No	2	GO TO Q10

9. What type of nutrition and health information did you look for? Anything else? [DO NOT READ LIST; PROBE FOR SPECIFICS; ACCEPT MULTIPLE RESPONSES.]

Pregnancy and nutrition
Weight loss
Balanced eating
Food allergies
Healthy recipes/meals
Food and medications
Other (please specify): _____

Section 2: Knowledge of Genetics & Health

I'd now like to ask you a few questions about genetics and personal health. By this, we mean the genes that a person was born with, handed down to them from their biological parents.

10. To what extent do you think a person's genetic make-up affects their health? Would you say it has a...? [READ LIST]

Big impact
Moderate impact
Small impact
No impact

11. I'm going to read you some statements about genetics and personal health. For each one, please tell me how much you agree or disagree with it, using a 5-point scale, where '1' means strongly disagree and '5' means strongly agree. [READ; DO NOT ROTATE LIST]
 - a) Someone's genetic make-up can make them much more likely to experience certain health situations, such as getting some diseases or living longer.
 - b) A family's medical history is basically the same thing as its genetic make-up.
 - c) Because of my genetic make-up, there is little I can do to prevent certain illnesses or diseases.

12. Which do you think is more important in terms of its impact on someone’s health... [ROTATE] environmental factors (such as air quality, water quality, and the food they eat), or their genetic make-up? IF RESPONDENT SAYS ‘ENVIRONMENTAL FACTORS’ OR ‘GENETIC MAKE-UP’, SAY “Is that much more important or moderately more important?”

- Environment much more important
- Environment moderately more important
- Genetic make-up moderately more important
- Genetic make-up much more important

VOLUNTEERED: Both about the same

13. Focusing specifically on you and your family, how knowledgeable do you think you are about how genetics affects your health or the health of family members? Please use a 5-point scale, where ‘1’ means you are not knowledgeable at all about this, and ‘5’ means very knowledgeable.

Section 3: Awareness & Perceptions of Nutrigenomics

14. Have you ever heard the term ‘nutrigenomics’⁶?

- Yes 1
- No 2 SKIP NEXT QUESTION

IF YES:

15. What does the term ‘nutrigenomics’ mean to you? [ACCEPT ONE RESPONSE]

Nutrigenomics is a new, developing science that studies the way our genetic make-up affects how our bodies respond to what we eat and drink. For example, three people that drink coffee can experience three different health effects because of their genetic make-up:

- One person may not be affected at all
- Another person may be at greater risk for heart disease, and
- The third person may reduce their risk of heart disease.

Nutrigenomics testing, often done by taking a sample of saliva, examines people’s genetic make-up and then provides them with nutrition and diet-related information – a kind of personalized nutrition plan – to potentially help them improve their health and reduce their risk of certain diseases. [REPEAT IF NECESSARY]⁷

⁶ Pronounce the term as follows: NU-TRI-GEN-OM-ICS.

⁷ If respondent balks at continuing the survey because he/she does not know anything about nutrigenomics, inform him/her that this is the case for most of the people taking this survey. Nevertheless, hearing his/her views on the following questions is still very important.

16. In general, how interested would you say you are in learning more about nutrigenomics? Please use a 5-point scale, where '1' means you are not interested at all, and '5' means you are very interested.

17. Can you think of any potential benefits that could result from nutrigenomics testing?

- | | | |
|-----|---|--------------------|
| Yes | 1 | |
| No | 2 | SKIP NEXT QUESTION |

IF YES:

18. What do you think are the potential benefits that could result from nutrigenomics testing? Any other benefits? [DO NOT READ LIST; RECORD FIRST MENTION; ACCEPT MULTIPLE RESPONSES]

- Be more proactive in terms of health
- Healthier life
- Live a longer life
- Better quality of life
- Helps you follow a healthy diet
- Helps prevent illness or disease/lowers risk
- Better knowledge for children/grandchildren/can pass along genetic knowledge
- Lower health care costs for Canada/society
- More healthy population in Canada
- Societal benefits (general)
- Financial benefits (general)
- Other (specify): _____

19. Can you think of any potential risks or harm that could result from nutrigenomics testing?

- | | | |
|-----|---|--------------------|
| Yes | 1 | |
| No | 2 | SKIP NEXT QUESTION |

IF YES:

20. What do you think are the potential risks or harm that could result from nutrigenomics testing? Any others? [DO NOT READ LIST; RECORD FIRST MENTION; ACCEPT MULTIPLE RESPONSES]

- People could overdo what is recommended
- People could neglect other aspects of their health
- Validity of the tests/results
- Potential for incorrect genetic profiles
- Potential for fraud
- Potential for misuse of information
- Privacy-related concerns
- Lack of regulations covering testing
- Concern about learning negative health items that can do nothing about
- Accessibility of the tests to all Canadians (e.g. no cost barrier)

Other (specify): _____

SKIP NEXT QUESTION IF RESPONDENT DOES NOT IDENTIFY ANY BENEFITS OR RISKS (Qs 17-20):

21. Do you think the potential benefits that can result from nutrigenomic testing outweigh the potential risks? Would you say definitely, probably, probably not, or definitely not?
22. Please tell me how much you agree or disagree with the following statements about nutrigenomics, using a 5-point scale, where '1' means strongly disagree, '5' means strongly agree, and '3' means neither agree nor disagree. The first statement is...[READ/ROTATE LIST]
- a) A personalized diet based on my own genetic make-up could help improve my overall health more than other types of diets.
 - b) Genetic testing like this would only be useful if someone is at a higher risk for certain diseases because of their family history.
 - c) I don't think tailoring someone's diet to their genetic make-up would do very much to prevent or delay the onset of diseases.
 - d) The government should provide information to Canadians to enable them to make informed decisions about whether nutrigenomics testing is something they should consider for themselves or their family.
23. Some types of test, but not all tests, are regulated by government. Do you think nutrigenomic testing should be regulated?

Yes
No
Not sure

24. Have you heard of any companies offering nutrigenomics testing for Canadians?

Yes
No

25. A number of companies offer nutrigenomics testing, usually through the Internet. A person orders a test kit to take a sample of their DNA, usually a cheek swab. The sample is mailed back to the company for analysis, and the company sends them a report with the results, including health and nutrition recommendations based on their genetic make-up. If tests cost \$250-300, how interested would you be in considering this kind of genetic testing for you or another family member? Please use a 5-point scale, where '1' means not interested at all, and '5' means very interested.

ASK THOSE WHO ARE NOT INTERESTED (SCORES OF 1-2):

26. Why would you not consider nutrigenomics testing for you or your family? [DO NOT READ LIST; ACCEPT MULTIPLE RESPONSES]

Need to know more about nutrigenomics before deciding

Don't know if the results can be trusted
Probably wouldn't make the suggested changes to diet
Not comfortable buying service over the Internet
Generally not interested/concerned
Don't want to know about the future/concerned about what I might learn
Concerned about the privacy of results/storage of DNA
It sounds expensive
Other (specify): _____

Section 4: Communications & Related Issues

Turning briefly to a few related communications issues,

27. There are different kinds of information that might help Canadians make informed decisions about nutrigenomics. For each of the following, please tell me how important this type of information would be to you, using a 5-point scale, where '1' means not important at all, and '5' means very important. How about information about...? [READ/ROTATE LIST]

- a) The potential benefits and risks of nutrigenomics testing.
- b) Government regulations covering nutrigenomic testing.
- c) Privacy and confidentiality issues related to nutrigenomics.
- d) The types and number of conditions that can be tested for in nutrigenomics.

28. Who would you trust to provide you with accurate information about nutrigenomics?
DO NOT READ LIST; ACCEPT MULTIPLE RESPONSES

Family physicians
Scientific experts
Government (generic)
Health Canada
Public Health Agency of Canada
Health association (e.g. Heart and Stroke Foundation)
Medical professional association (e.g. Canadian Medical Association [CMA], the College of Physicians and Surgeons, etc.)
Company that provides nutrigenomic testing
Universities/academic institutions
Scientific/medical journals
Dietitians
Nutritionists
Geneticists
Other (specify): _____

Section 5: Demographic Information

I have a few last questions for statistical purposes.

29. Could you please tell me which of the following age groups you fall into? [READ LIST]

18-25
26-35
36-45
46-55
Over 55

30. What is the highest level of education you have completed? [READ LIST IF HELPFUL]

Less than high school diploma
High school diploma and/or some post-secondary
Registered apprenticeship or trades certificate or diploma (vocational school)
College, CEGEP or non-university certificate or diploma
University degree (undergraduate)
Graduate degree or post-graduate studies (Masters, PhD, etc.)

That completes the survey. Thank you very much.

Record by observation/from database:

- Gender
- Language
- Province/region

Étude sur la nutriginomique (POR-07-17)
Sondage téléphonique

Bonjour/bonsoir, je suis _____, de Phoenix, une maison de recherche sur l'opinion publique. Nous réalisons présentement un sondage pour l'Agence de la santé publique du Canada, un organisme du gouvernement du Canada, sur des sujets d'actualité qui touchent les Canadiens et Canadiennes. Ce sondage est enregistré auprès du système national d'enregistrement des sondages.

A. Puis-je parler à un membre de votre foyer âgé d'au moins 18 ans ? Vous peut-être ? (SI NON, DEMANDER À PARLER À CETTE PERSONNE ET REPRENDRE DEPUIS LE DÉBUT)

- | | | |
|---------------------------|---|---|
| Oui | 1 | CONTINUER |
| Non | 2 | DEMANDER À PARLER À LA PERSONNE EN QUESTION |
| Refus (RÉPONSE SPONTANÉE) | 3 | REMERCIER ET METTRE FIN À L'ENTRETIEN |

B. Est-ce qu'un membre de votre foyer, y compris vous-mêmes, travaille pour une agence de publicité, une maison d'études de marché, ou les médias ?

- | | | |
|---------------------------|---|---------------------------------------|
| Oui | 1 | REMERCIER ET METTRE FIN À L'ENTRETIEN |
| Non | 2 | CONTINUER |
| Refus (RÉPONSE SPONTANÉE) | 3 | REMERCIER ET METTRE FIN À L'ENTRETIEN |

C. Vous êtes libre de participer ou non à ce sondage. Votre participation nous serait toutefois extrêmement utile. Les réponses seront traitées en toute confidentialité – nous ne révélerons d'aucune façon l'identité des répondants. Seriez-vous disposé(e) à participer à ce sondage ? Nous pouvons faire l'entrevue maintenant ou à un moment qui vous conviendrait mieux.

- Oui, maintenant. (CONTINUER)
- Oui, plus tard. (PRÉCISER LA DATE ET L'HEURE) _____
- Refus. (REMERCIER ET METTRE FIN À L'ENTRETIEN)

NOTES À L'INTERVIEWEUR :

DURÉE DE L'ENTREVUE : SI LE RÉPONDANT VEUT CONNAÎTRE LA DURÉE DE L'ENTREVUE, DITES-LUI QUE CELLE-CI DURE, EN MOYENNE, MOINS DE 15 MINUTES.

VALIDITÉ DE L'ÉTUDE : SI LE RÉPONDANT MET EN QUESTION LA VALIDITÉ DE L'ÉTUDE, INVITEZ-LE : 1) À COMMUNIQUER PAR TÉLÉPHONE AVEC LE SYSTÈME NATIONAL D'ENREGISTREMENT DES SONDES OU 2) À COMMUNIQUER AVEC M. ROSS DUNCAN, DE L'AGENCE DE LA SANTÉ PUBLIQUE DU CANADA, AU 1-613-952-5121 (OU DEMANDER À M. ROSS DE TÉLÉPHONER AU RÉPONDANT).

SYSTÈME D'ENREGISTREMENT DES SONDES: SI LE RÉPONDANT VEUT DES PRÉCISIONS AU SUJET DU SYSTÈME NATIONAL D'ENREGISTREMENT DES SONDES, DITES :

Le système d'enregistrement a été mis sur pied par l'industrie de la recherche par sondage pour permettre au public de vérifier la légitimité d'un sondage, d'obtenir des renseignements sur cette industrie ou de déposer une plainte. Le numéro sans frais du système d'enregistrement est le 1-800-554-9996.

PROTECTION DES RENSEIGNEMENTS PERSONNELS : LES RÉPONSES SERONT PROTÉGÉES EN VERTU DE LA *LOI SUR LA PROTECTION DES RENSEIGNEMENTS PERSONNELS*. AU BESOIN, DITES CECI AU RÉPONDANT AINSI QUE CE QUI SUIT : « VOS RÉPONSES N'AURONT AUCUNE INCIDENCE SUR VOS RAPPORTS AVEC LE GOUVERNEMENT DU CANADA ».

NE PAS LIRE LES TITRES EN BLEU AUX RÉPONDANTS.

DIRECTIVES SUR LES ÉCHELLES : LES CATÉGORIES DE RÉPONSES ET LES DIRECTIVES RELATIVES À CERTAINES DES QUESTIONS COMPORTANT UNE ÉCHELLE D'ÉVALUATION SONT RÉPÉTITIVES. PAR SOUCI DE CLARTÉ, RÉPÉTEZ LES DIRECTIVES CONCERNANT LES ÉCHELLES D'ÉVALUATION AU BESOIN, MAIS ÉVITEZ LES RÉPÉTITIONS INUTILES.

SAUF INDICATION CONTRAIRE, TOUTES LES QUESTIONS PERMETTENT LE CHOIX DE RÉPONSE « NE SAIT PAS / N'A PAS RÉPONDU ». LE CHOIX « NSP/NPR » EST PRÉCISÉ SEULEMENT DANS LES CAS OU IL A UNE INCIDENCE AU CHAPITRE DU SAUT DE QUESTIONS.

Section 1 : Connaissances, intérêt et comportement en matière de santé et de nutrition

Commençons par quelques questions au sujet des facteurs qui influencent la santé.

1. Selon vous, de tous les facteurs qui influencent la santé, lequel est le plus important ? Y a-t-il d'autres facteurs importants ? [NE PAS LIRE LA LISTE; DISTINGUER LA PREMIÈRE RÉPONSE; ACCEPTER JUSQU'À TROIS RÉPONSES]

Alimentation/nutrition

Exercice

Antécédents familiaux

Génétique

Sommeil suffisant

Stress et niveau de stress

Habitudes de vie en général

Prise de vitamines, de suppléments, de plantes médicinales, etc.

Ne pas fumer

Consommation d'alcool limitée

Équilibre entre le travail et les temps libres

Facteurs environnementaux (comme la qualité de l'air et de l'eau)

Autre (veuillez préciser) : _____

Dans quelle mesure les facteurs suivants jouent-ils un rôle dans le maintien ou l'amélioration de la santé ? Diriez-vous qu'ils jouent un rôle très important, plutôt important, peu important ou qu'ils ne jouent aucun rôle à ce chapitre ? [LIRE LA LISTE] [QUESTION DE SUIVI : DECIMA 2004 – MODIFIÉE]

2. Alimentation et nutrition
3. Exercice

4. Niveau de stress
5. Antécédents familiaux en matière de santé

Parlons maintenant de l'alimentation et de la nutrition.

6. De façon générale, jusqu'à quel point diriez-vous que vous êtes renseigné(e) sur le lien entre l'alimentation et la santé ? Veuillez utiliser une échelle de 1 à 5, où « 1 » signifie que vous n'êtes pas du tout renseigné(e) sur la question et « 5 », que vous êtes très renseigné(e).
7. Et dans quelle mesure diriez-vous que vous êtes intéressé(e) au lien entre l'alimentation et la santé ? Veuillez utiliser de nouveau une échelle de 1 à 5, où « 1 » signifie que vous n'êtes pas du tout intéressé(e) par la question et « 5 », que vous êtes très intéressé(e).
8. Au cours des deux dernières années, avez-vous cherché des informations sur l'alimentation et la santé, pour vous-mêmes ou pour un membre de votre famille ?

Oui	1	
Non	2	ALLER À LA Q10

9. Quels genres d'informations sur l'alimentation et la santé avez-vous cherchés ? Autre chose ? [NE PAS LIRE LA LISTE; OBTENIR DES DÉTAILS; ACCEPTER LES RÉPONSES MULTIPLES.]

Grossesse et alimentation
Perte de poids
Alimentation équilibrée
Allergies alimentaires
Recettes ou plats santé
Aliments et médicaments
Autre (veuillez préciser) : _____

Section 2 : Connaissances sur la génétique et la santé

J'aimerais maintenant vous poser quelques questions sur la génétique et la santé. Par « génétique », j'entends les gènes que vous aviez à votre naissance, hérités de vos parents biologiques.

10. Selon vous, dans quelle mesure le patrimoine génétique d'une personne influence-t-il sa santé ? Le patrimoine génétique a-t-il... [LIRE LA LISTE]

... une grande incidence,
... une incidence modérée,
... une incidence minime,
... ou n'a-t-il aucune incidence sur sa santé ?

11. Je vais vous lire des affirmations sur la génétique et la santé. Veuillez me dire dans quelle mesure vous êtes d'accord ou en désaccord avec chacune d'elles à l'aide d'une échelle de 1 à 5, où « 1 » signifie que vous êtes entièrement en désaccord et « 5 », entièrement d'accord. [LIRE; NE PAS FAIRE LA ROTATION]

- d) Une personne pourrait être plus susceptible de connaître certains problèmes de santé ou de vivre plus longtemps, en raison de son patrimoine génétique.
- e) Les antécédents médicaux d'une famille sont essentiellement la même chose que le patrimoine génétique d'une famille.
- f) En raison de mon patrimoine génétique, je ne peux pas faire grand-chose pour prévenir certaines maladies.

12. Selon vous, lequel des facteurs suivants a une plus grande incidence sur la santé... [FAIRE LA ROTATION] les facteurs environnementaux (comme l'alimentation et la qualité de l'air et de l'eau) ou le patrimoine génétique ? SI LA RÉPONSE EST « FACTEURS ENVIRONNEMENTAUX » OU « PATRIMOINE GÉNÉTIQUE », POSER LA QUESTION SUIVANTE : Ce facteur a-t-il une beaucoup plus grande incidence sur la santé que l'autre ou une incidence un peu plus grande ?

L'environnement a une beaucoup plus grande incidence sur la santé.

L'environnement a une incidence un peu plus grande sur la santé.

Le patrimoine génétique a une incidence un peu plus grande sur la santé.

Le patrimoine génétique a une beaucoup plus grande incidence sur la santé.

RÉPONSE SPONTANÉE : Ces facteurs ont une incidence aussi grande l'un que l'autre.

13. Pensez maintenant à votre propre santé et à celle de votre famille. Jusqu'à quel point êtes-vous bien renseigné(e) sur la **façon** dont la génétique influence votre santé ou celle de votre famille ? Veuillez utiliser une échelle de 1 à 5, où « 1 » signifie que vous n'êtes pas du tout renseigné(e) sur la question et « 5 », que vous êtes très bien renseigné(e) sur cette question.

Section 3 : Connaissance de la nutrigenomique et opinions sur le sujet

14. Avez-vous déjà entendu le terme « nutrigenomique »⁸ ?

Oui 1

Non 2 SAUTER LA PROCHAINE QUESTION

SI A RÉPONDU « OUI » :

15. Qu'est-ce que la nutrigenomique, selon vous ? [ACCEPTER UNE SEULE RÉPONSE]

⁸ Prononcer le mot comme suit : NU-TRI-GÉN-OM-IQUE.

La nutriginomique est une science nouvelle et en plein développement qui s'intéresse à l'influence de notre patrimoine génétique sur la façon dont notre corps réagit à ce que nous mangeons et buvons. Par exemple, trois personnes qui boivent du café pourraient connaître chacune des effets différents en raison de leur patrimoine génétique :

- une personne pourrait ne connaître aucun effet,
- le risque de maladie du cœur pourrait augmenter chez la deuxième personne,
- le risque de maladie du cœur pourrait diminuer chez la troisième.

L'analyse nutriginomique, qui se fait généralement à partir d'un prélèvement de salive, examine le patrimoine génétique de l'individu et permet d'offrir des renseignements en matière de nutrition et de proposer un régime alimentaire – une sorte de régime personnalisé – en vue de l'aider à améliorer sa santé et réduire le risque de développer certaines maladies. [RÉPÉTER AU BESOIN]⁹

16. De façon générale, dans quelle mesure diriez-vous que vous êtes intéressé(e) à en apprendre davantage sur la nutriginomique ? Veuillez utiliser une échelle de 1 à 5, où « 1 » signifie que vous n'êtes pas du tout intéressé(e) et « 5 », que vous êtes très intéressé(e).

17. Selon vous, l'analyse nutriginomique présente-t-elle certains avantages potentiels ?

Oui	1	
Non	2	SAUTER LA PROCHAINE QUESTION

SI A RÉPONDU « OUI » :

18. Selon vous, quels avantages présente l'analyse nutriginomique ? Y en a-t-il d'autres ? [NE PAS LIRE LA LISTE; DISTINGUER LA PREMIÈRE RÉPONSE; ACCEPTER LES RÉPONSES MULTIPLES]

Permet d'avoir une approche plus proactive en matière de santé
Permet d'avoir une meilleure santé
Permet de vivre plus longtemps
Permet d'avoir une meilleure qualité de vie
Aide l'individu à suivre un régime alimentaire sain
Aide à prévenir la maladie ou à réduire les risques de maladie
Connaissance utile pour les enfants ou les petits-enfants / permet de transmettre des renseignements sur le patrimoine génétique
Réduction du coût des soins de santé au Canada / pour la société
Population canadienne en meilleure santé
Bienfaits sociaux (général)
Bienfaits financiers (général)
Autre (préciser) : _____

19. Selon vous, l'analyse nutriginomique comporte-t-elle certains risques ?

⁹ Si le répondant hésite à poursuivre l'entretien parce qu'il ne connaît rien de la nutriginomique, dites-lui que la plupart des autres répondants n'en savent pas plus, que ce manque de connaissance ne change en rien l'importance de leur opinion et que nous tenons à connaître leur point de vue.

Oui	1	
Non	2	SAUTER LA PROCHAINE QUESTION

SI A RÉPONDU « OUI » :

20. Selon vous, quels sont les risques liés à l'analyse nutriginomique ? Y en a-t-il d'autres ? [NE PAS LIRE LA LISTE; DISTINGUER LA PREMIÈRE RÉPONSE; ACCEPTER LES RÉPONSES MULTIPLES]

Les gens pourraient appliquer les recommandations de manière exagérée
Les gens pourraient négliger les autres aspects de leur santé
Validité des analyses/résultats
Le profil génétique pourrait présenter des erreurs
Risque de fraude
Les renseignements pourraient être utilisés de manière abusive
Risques en matière de vie privée
Absence de réglementation concernant ces analyses
Résultats inquiétants concernant un aspect de la santé d'un individu, sans solution possible
Possibilité que certains segments de la population canadienne n'aient pas accès à ces analyses (p. ex., obstacles relatifs au coût)
Autre (préciser) : _____

SAUTER LA PROCHAINE QUESTION SI LE RÉPONDANT NE VOIT AUCUN AVANTAGE NI RISQUE (QUESTIONS 17-20):

21. Croyez-vous que les avantages que comporte l'analyse nutriginomique l'emportent sur les risques qu'elle présente ? Diriez-vous que les avantages l'emportent certainement, probablement, probablement pas ou certainement pas ?

22. Veuillez me dire dans quelle mesure vous êtes d'accord ou en désaccord avec les affirmations suivantes au sujet de la nutriginomique et ce, à l'aide d'une échelle de 1 à 5, où « 1 » signifie que vous êtes entièrement en désaccord, « 5 » que vous êtes entièrement d'accord et « 3 », que vous êtes ni d'accord ni en désaccord. Commençons par... [LIRE / FAIRE LA ROTATION]. Et maintenant...

- e) Un régime alimentaire établi en fonction de mon patrimoine génétique pourrait être plus avantageux pour ma santé que tout autre type de régime alimentaire.
- f) Une telle analyse génétique ne serait utile qu'aux individus dont le risque de maladie est plus élevé compte tenu de leurs antécédents familiaux.
- g) Je ne crois pas que la modification du régime alimentaire d'une personne en fonction de son patrimoine génétique puisse vraiment prévenir ou retarder la maladie.
- h) Le gouvernement devrait renseigner les Canadiens et Canadiennes pour leur permettre de prendre des décisions éclairées en matière de nutriginomique et de déterminer si une telle analyse leur conviendrait ou serait souhaitable pour leur famille.

23. Certains genres d'analyses, mais pas toutes, sont réglementées par le gouvernement. Selon vous, les analyses nutriginomiques devraient-elles être réglementées ?

Oui
Non
Incertain(e)

24. Connaissez-vous des entreprises offrant actuellement, à la population canadienne, ce genre d'analyses ?

Oui
Non

25. Quelques entreprises offrent un service d'analyse nutriginomique, généralement sur Internet. Il suffit de commander une trousse d'analyse, de prélever un échantillon d'ADN à l'intérieure de la joue et de retourner le tout par la poste. L'entreprise fait ensuite parvenir un rapport présentant les résultats de l'analyse, y compris des recommandations en matière de santé et d'alimentation, préparées en fonction du patrimoine génétique de l'individu. Si une telle analyse coûtait de 250 \$ à 300 \$, dans quelle mesure seriez-vous intéressé(e) à demander une analyse nutriginomique pour vous-mêmes ou un membre de votre famille ? Veuillez utiliser une échelle de 1 à 5, où « 1 » signifie que vous ne seriez pas du tout intéressé(e) et « 5 », que vous seriez très intéressé(e).

POSER LA QUESTION SUIVANTE AUX RÉPONDANTS NON INTÉRESSÉS (SCORES DE 1 OU 2) :

26. Pourquoi ne seriez-vous pas intéressé(e) à demander une analyse nutriginomique pour vous-même ou un membre de votre famille ? [NE PAS LIRE LA LISTE; ACCEPTER LES RÉPONSES MULTIPLES]

J'ai besoin de renseignements additionnels sur la nutriginomique avant de prendre une telle décision.

Je ne sais pas si les résultats sont fiables.

Je n'appliquerais probablement pas les recommandations en matière d'alimentation.

Je ne suis pas à l'aise de commander un service sur Internet.

Cette question ne m'intéresse pas / ne me préoccupe pas.

Je ne veux pas connaître l'avenir / je crains d'avoir de mauvais résultats.

La confidentialité des résultats ou la conservation des données génétiques me préoccupe.

C'est trop dispendieux.

Autre (préciser) : _____

Section 4 : Communications et questions connexes

À présent, parlons brièvement de communication.

27. Divers genres d'informations pourraient permettre aux Canadiens et Canadiennes de prendre des décisions éclairées en matière de nutriginomique. Dans quelle mesure trouveriez-vous importants, pour vous, les genres de renseignements suivants, sur une échelle de 1 à 5, où « 1 » signifie que vous ne les trouveriez pas du tout importants et « 5 », que vous les trouveriez très importants. Commençons par... [LIRE / FAIRE LA ROTATION] Et maintenant...

- e) Les avantages et les risques que comporte l'analyse nutriginomique.
- f) La réglementation gouvernementale en matière d'analyse nutriginomique.
- g) Les questions relatives à la vie privée et à la confidentialité.
- h) Les genres et le nombre de problèmes de santé pouvant être dépistés par l'analyse nutriginomique.

28. Selon vous, à qui peut-on se fier pour obtenir des informations exactes en matière de nutriginomique ? NE PAS LIRE LA LISTE; ACCEPTER LES RÉPONSES MULTIPLES.

Médecins de famille
Experts scientifiques
Gouvernement (en général)
Santé Canada
Agence de la santé publique du Canada
Associations du domaine de la santé (comme la Fondation des maladies du cœur)
Association médicale professionnelle (comme l'Association médicale canadienne [l'AMC] et l'Ordre des médecins et chirurgiens)
Entreprise offrant un service d'analyse nutriginomique
Universités / établissements universitaires
Revue scientifique/médicale
Diététistes
Nutritionnistes
Généralistes
Autre (préciser) : _____

Section 5 : Données démographiques

Encore quelques questions, à des fins statistiques, cette fois.

29. Auquel des groupes d'âge suivants appartenez-vous ? [LIRE LA LISTE]

18 à 25 ans
26 à 35 ans
36 à 45 ans
46 à 55 ans
Plus de 55 ans

30. Quel est le niveau de scolarité le plus élevé que vous ayez atteint ? [LIRE LA LISTE AU BESOIN]

N'a pas obtenu un diplôme d'études secondaires

- A obtenu un diplôme d'études secondaires et/ou a fait des études postsecondaires
- A obtenu un certificat ou un diplôme d'apprenti inscrit ou d'une école de métiers (centre de formation professionnelle)
- A obtenu un certificat ou un diplôme d'études collégiales, d'un cégep ou d'un autre établissement non universitaire
- A obtenu un diplôme universitaire (premier cycle)
- A obtenu un diplôme d'études supérieures ou a fait des études supérieures (maîtrise, doctorat, etc.)

Voilà qui conclut l'entrevue. Merci beaucoup.

Consigner selon les observations ou la base de données :

- Sexe
- Langue
- Province/région