

USING THE INTERNET TO INCENTIVIZE HEALTHY LIFESTYLE CHOICES IN UGANDA

Background: Awareness, knowledge, and application of approaches to mitigate Non-Communicable Disease (NCD) risk in Uganda are low¹²³. Furthermore, evidence-based, user-friendly, and easily accessible information about NCDs tailored to our setting is scarce, with a growing trend of misinformation via social media. At the same time, the burden of NCDs is growing in Uganda, NCDs contribute 33% of the annual hospital deaths as the State Minister of Health in Charge of Primary Health Care highlighted in a press statement on April 15, 2021. Notably, urban residence, higher education, and wealth status are associated with a higher risk of NCDs⁴⁵⁶. Personal, household and national healthy lifestyles can reduce the risk of NCDs. The Internet presents an opportunity for health promotion; however, we are yet to leverage the Internet in this way in Uganda. To address this gap, a team comprising Makerere University faculty and members of the Nutrition Society of Uganda (NSU) were awarded a grant from the Government of Uganda through Makerere Research and Innovations Fund (MakRIF) for the project, *Using the Internet to Incentivize Healthy Lifestyle Choices in Uganda*.

Aim: To inform, educate and communicate about NCDs to the general public.

Methodology: Through the medium of a website, we shall provide well-researched, unbiased evidence-based information to motivate, empower and support readers to make healthy lifestyle choices. The information talks about healthy weight, healthy eating, fitness, and generally healthy lifestyles, to prevent NCDs. The information will be provided in a style that is user-friendly and understandable by the public while maintaining its authenticity, with links to accessible source publications. Supportive information such as recipes and links to relevant and reliable online resources (e.g. Presidential Initiative On Healthy Eating & Healthy Lifestyle) will also be provided. The website will be regularly updated to ensure the information and data are up-to-date and accurate. With time, the scope will be expanded to include nutrition throughout the lifecycle. Profiles of the Core Team and contributors will be provided on the website for accountability, and authenticity and to engender public confidence in the information.

Relevance: This innovation supports the human capital development program area of NDPIII under the health sector to reduce development of NCDs among persons aged 18+ years: to integrate nutrition services in prevention, control and management of Diet-Related Non-Communicable Diseases (DRNCDs). In addition to supporting “health starts at home”, this innovative platform will support the health sector to increase utilization of Nutrition-Specific services and enhance the prevention, management and control of DRNCDs through education of the Ugandan population. Furthermore, it will demonstrate how information and communication technology (ICT) can support the health sector to increase awareness about NCDs – a health and lifestyle problem of public health importance. Technology empowers consumers to manage their education and health, using solutions such as wearable devices, trackers for food and nutrition intake and tech-powered water bottles that monitor water intake. Thus, the use of ICTs to co-contextualize diet and nutrition with consumers via a web-based educational platform will be transformational in the field of health and nutrition in Uganda.

¹ Ndejjo R. et al. (2020) BMC Public Health 20, 1151. <https://doi.org/10.1186/s12889-020-09264-6>.

² Mayega RW. et al. BMC Public Health 14, 864 (2014). <https://doi.org/10.1186/1471-2458-14-864>.

³ Mayega RW. et al. BMC Public Health 18, 1409 (2018). <https://doi.org/10.1186/s12889-018-6249-0>.

⁴ Guwatudde D. et al. (2015). PLoS ONE 10(9): e0138991. doi:10.1371/journal.pone.0138991.

⁵ Uganda Bureau of Statistics (UBOS) and ICF. 2018. Uganda Demographic and Health Survey 2016.

⁶ Guwatudde, D. et al. (2016). Journal of Physical Activity and Health, 13(9), 938-945.

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Beneficiaries: Based on the Uganda National NCD Risk Factor Survey (2014) and the Uganda Demographic and Health Surveys, NCD risk is higher in those with higher education status, those with a higher wealth index, and in urban dwellers due to adoption of sedentary lifestyles and Western dietary patterns amidst an on-going nutrition transition. These are the primary target for the website. Secondly, the website can be used as an education tool by service providers e.g. the Ministry of Health, Ministry of Education and Sports, Private and Public Institutions e.g. schools, and NGOs doing health-related work, hospitals, and nutrition extension workers to educate vulnerable groups in both rural and urban areas. Ultimately, the goal is to have content that addresses the whole lifecycle.

Approach: The Core Team is ultimately responsible for the content on the website and will review and authorize any content before it is uploaded. The website has been registered using the domain: www.eresourcesforhealth.org

1. Content has been developed and uploaded with the Core Team taking the lead. Guest contributors have been invited from stakeholders including the NSU, Universities, and civil society. Content will continue being updated, new content developed and uploaded in response to the needs of users. A list of articles that will be available on the website at launch is attached.
2. An online survey will be carried out to further identify knowledge gaps and needs using the Nutrition Knowledge for Ugandans tool.
3. Webinars will be used to create awareness of NCD risk factors so that by the time the website is launched the public will already be sensitized and motivated to use the website. Guest panelists will be invited from stakeholders including the Ministry of Health, NSU, Universities, and civil society. A list of webinars that have already taken place is attached.
4. Once the website is ready to go live, the launch will be advertised mainly through social media. The launch event will include an exercise session, health talks, wellness checks (BMI, blood pressure, random blood glucose), free counselling services, and demonstrations of the website.

Sustainability: Two factors are key to the sustainability of a website: the hosting or home of the website with routine backend maintenance, and the content. We anticipate that based on the success and effectiveness of the website, it will find a permanent home on the website of Makerere University thus contributing to the University's portfolio of outreach, community service/social responsibility activities. Teams made up of professionals from Makerere and other Universities, NSU will continue being responsible for the content on the website.

Core Team:

1. Rhona Baingana, Ph.D. (PI) Department of Biochemistry and Sports Science, College of Natural Sciences, Makerere University; member NSU.
2. Hedwig Acham, Ph.D. (Co-PI) Department of Food Technology and Nutrition, College of Agricultural and Environmental Sciences, Makerere University; member NSU.
3. Florence Tushemerirwe, MPH (Team Member), Ag. President, NSU and Research Associate, School of Public Health, College of Health Sciences, Makerere University.
4. Barbara Nerima, Ph.D. (Team Member) Department of Biochemistry and Sports Science, College of Natural Sciences, Makerere University.
5. Carmella Kemigisha, MPH Nutrition, (Project Assistant/Coordinator), School of Public Health, College of Health Sciences, Makerere University.

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Website content at launch

1. About
2. NCDs
3. What is a healthy lifestyle?
4. Balanced diet
5. Does restrictive eating align with a healthy lifestyle?
6. Healthy Lifestyle Don'ts: Alcohol
7. Carbohydrates: The Good and the Bad
8. Adolescent behaviour and alcohol
9. Meat and cancer
10. Water
11. Proteins
12. Dairy products
13. Fruits
14. Vegetables
15. Energy drinks
16. Physical activity guidelines
17. The structure and components of a proper training program
18. Strength training muscles to target
19. Strength training basics Part 1
20. Strength training basics Part 2
21. Stress and weight
22. Sleep and weight management
23. Sleep hygiene
24. Healthy weight
25. Waist size matters
26. Mindful eating
27. Are you sitting too much?
28. Aerobic fitness
29. Food intolerance and allergy
30. Pre and post exercise nutrition

Content in development

	Food groups not yet covered		
31	Legumes and nuts	38	The elderly
32	Fats, spreads and oils	39	Menopause
33	Cereals, starchy roots and tubers	40	Nutrition in chronic infection
	Healthy lifestyle through the life-cycle:	41	Nutrition and HIV
34	Breast feeding	42	Nutrition and Cancer
35	Complementary feeding	43	Food and wellness myths
36	Adolescents		Major micronutrients
37	Pregnancy		Fortified foods

Webinar details

Date	Topic	Panelists	Attendance
31/01/2023	Lifestyle Diseases: What is the status in Uganda	<ul style="list-style-type: none"> Dr Oyoo Akiya, Commissioner NCDs, MoH Hon. Dr Nicholas Kamara, Chairperson, Parliamentary Alliance on NCDs Moderator: Ms. Florence Tushemerirwe, Ag President, Nutrition Society of Uganda	54
09/02/2023	What is a healthy lifestyle anyway	<ul style="list-style-type: none"> Mr Douglas Bamweyana, Sports Scientist, Department of Biochemistry and Sports Science, Makerere University Ms Yvonne Zabu, Clinical Psychologist, Wellness Psychological Services Uganda Moderator/Presenter Dr. Rhona Baingana, PI/Department of Biochemistry and Sports Science, Makerere University	78
23/02/2023	Dietary patterns: Why we eat what we eat	<ul style="list-style-type: none"> Dr Joyce Nankumbi, Lecturer, Department of Nursing, Makerere University Ms. Carmella Kemigisha, Nutritionist, School of Public Health (MPHN) Project Coordinator Moderator: Dr Barbara Nerima, Department of Biochemistry and Sports Science, Makerere University	62
28/02/2023	Lifestyle Diseases: Food and Nutrition Policies and Programs in Uganda	<ul style="list-style-type: none"> Mrs Samalie Namukose Banura, Assistant Commissioner, Nutrition Division, Department of Community Health, Ministry of Health. Moderator: Ms. Florence Tushemerirwe, Ag President, Nutrition Society of Uganda	88
10/03/2023	Nutrition and Weight Management	<ul style="list-style-type: none"> Mr. Phillip Baguma, Lead Dietician/Nutritionist, Nella Organics Moderator: Dr. Hedwig Acham, Department of Food Technology and Nutrition, Makerere University	90
23/03/2023	Physical activity and weight management	<ul style="list-style-type: none"> Mr Douglas Bamweyana, Sports Scientist, Department of Biochemistry and Sports Science, Makerere University Moderator: Dr. Rhona Baingana, PI/Department of Biochemistry and Sports Science, Makerere University	91

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