

COAST: A Comprehensive Older-Adult Screening Tool¹

Karima Alabasi, Nancy J. Gal, and Wendy J. Dahl²

Malnutrition results from the lack of adequate nutrition to maintain good health (Moreira et al. 2016). Of particular concern in older adults is malnutrition resulting from inadequate protein and energy (calories), which leads to muscle loss (Crichton et al. 2019). Nutrition risk screening is a first step to quickly identify individuals who might be malnourished or at risk of malnutrition. A malnutrition screening tool should be easy to use, quick to administer, and valid—that is, able to correctly identify those at risk of malnutrition. The Comprehensive Older Adult Screening Tool (COAST) is a valid and practical tool to determine if community-dwelling older adults are at risk for malnutrition (Alabasi et al. 2020). For malnutrition screening with COAST, older adults are those individuals over the age of 60 years.

There is a high prevalence of malnutrition among community-dwelling older adults, particularly in rural communities (Crichton et al. 2019). Malnutrition is a significant health concern because it is associated with frailty (Lorenzo-Lopez et al. 2017), reduced quality of life (Rasheed and Woods 2013), and mortality (Shakersain et al. 2016). Older adults receiving congregate and home-delivered meal services are at higher risk of malnutrition than the US older adult population due to their lower health, functional, and financial status (Lloyd and Wellman 2015).

Unintended weight loss results from insufficient calories and may lead to malnutrition. In addition, many older

adults may not consume adequate protein, putting them at risk for malnutrition (ter Borg et al. 2015). A high level of evidence supports poor appetite, hospitalization, eating dependency, poor self-perceived health, and poor physical functioning as determinants of malnutrition (O’Keeffe et al. 2018). A recent study confirmed that risk of malnutrition is increased in older adults with poor appetite and eating difficulties, as well as in those with respiratory and gastrointestinal diseases (Kiesswetter et al. 2020). The COAST was designed to target these risk factors with questions about unintended weight loss, appetite, changes in the kind/amount of food eaten due to illness and health conditions, and intake of protein foods. Although diet quality is not associated with protein-energy malnutrition (Hengeveld et al. 2018), the question “How healthy is your overall diet?” was added as a proxy for diet quality, specifically intake of fruits and vegetables, because this may be a strong indicator of vitamin and mineral intake (Loftfield et al. 2015).

There are many malnutrition screening tools, and some are intended for community-dwelling older adults (Isautier et al. 2019). One such tool, the Malnutrition Screening Tool (MST), has recently been recommended for malnutrition screening in all adults regardless of age and in all settings (Skipper et al. 2020). However, its low specificity in older adults in community settings is a concern (Dwyer et al. 2019). In addition, it relies on an estimate of weight loss that may not be known and offers logistical challenges for measurement in a community setting. In addition, the Mini Nutrition Assessment Short-Form (MNA[®]-SF) is commonly

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used to screen for malnutrition in clinical environments but requires measuring height and weight, or alternatively, calf circumference, which may be time-consuming and challenging to conduct in the community.

The COAST was designed to be brief. It has only five questions and can be administrated by interview or self-screening. The COAST was developed specifically for older adults of lower socioeconomic status at high risk of malnutrition. This contrasts with other screening tools that target the general older adult population (Morrison, Laur, and Keller 2019).

Identifying older adults at risk for malnutrition is needed to ensure they receive appropriate referrals for food and nutrition services. Because the COAST was developed for screening at congregate meal sites and other low socioeconomic groups of older adults, the tool may be ideally suited for longer-term outcome evaluation of Extension nutrition education programs targeted at these populations.

COAST (Interview)

First name: _____ Last name: _____ Date: _____

1. Have you lost weight recently without trying?

0 = Yes

1 = No

2. Have you been eating less food because of a decreased appetite?

0 = Yes

1 = No

3. Do you have an illness or condition that has made you change the kind and/or amount of food you eat?

0 = Yes

1 = No

4. In general, how healthy is your overall diet?

0 = Poor

1 = Good

2 = Very good

5. Do you consume...

- | | | |
|--|-----|----|
| • Dairy products (milk, cheese, yogurt) or soy milk at least once a day? | Yes | No |
| • Meat, poultry (e.g., chicken), fish/seafood, or eggs every day? | Yes | No |
| • Legumes (e.g., beans), soy products, nuts, or seeds at least twice a week? | Yes | No |

0 = If 0 yes response

1 = If one yes response

2 = If two yes responses

3 = If three yes responses

Screening score (subtotal max 8 points)

7–8 points: ☐ At low risk of malnutrition

5–6 points: ☐ At moderate risk of malnutrition

0–4 points: ☐ At high risk of malnutrition

(Ferguson et al. 1999; National Screening Initiative 1994; Loftfield et al. 2015; Vellas et al. 1999)

COAST

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3. Do you have an illness or condition that has made you change the kind and/or amount of food you eat?

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4. In general, how healthy is your overall diet?

Poor

Good

Very good

5. Do you consume...

- Dairy products (milk, cheese, yogurt) or soy milk at least once a day?

Yes

No

- Meat, poultry (e.g., chicken), fish/seafood, or eggs every day?

Yes

No

- Legumes (e.g., beans), soy products, nuts, or seeds at least twice a week? (Vellas et al. 1999)

Yes

No

(Ferguson et al. 1999; National Screening Initiative 1994; Loftfield et al. 2015; Vellas et al. 1999)

References

- Alabasi, K.M., N. J. Gal, W. J. Dahl. 2021. "Validation of an older adult malnutrition screening tool for nutrition education program outcome assessment." *Journal of the National Extension Association of Family and Consumer Sciences*. 15: 17–21. <https://neafcs.memberclicks.net/assets/documents/journal/2020-jneafcs/2020-JNEAFCS-FINAL-Compressed.pdf>
- Crichton, M., D. Craven, H. Mackay, W. Marx, M. de van der Schueren, and S. Marshall. 2019. "A Systematic Review, Meta-analysis and Meta-regression of the Prevalence of Protein-Energy Malnutrition: Associations with Geographical Region and Sex." *Age and Ageing* 48 (1): 38–48. <https://doi.org/10.1093/ageing/afy144>.
- Dwyer, J. T., J. J. Gahche, M. Weiler, and M. B. Arensberg. 2019. "Screening Community-Living Older Adults for Protein Energy Malnutrition and Frailty: Update and Next Steps." *Journal of Community Health* 45: 640–660. <https://doi.org/10.1007/s10900-019-00739-1>.
- Ferguson, M., S. Capra, J. Bauer, and M. Banks. 1999. "Development of a Valid and Reliable Malnutrition Screening Tool for Adult Acute Hospital Patients." *Nutrition* 15 (6): 458–64. [https://doi.org/10.1016/s0899-9007\(99\)00084-2](https://doi.org/10.1016/s0899-9007(99)00084-2).
- Hengeveld, L. M., H. A. H. Wijnhoven, M. R. Olthof, I. A. Brouwer, T. B. Harris, S. B. Kritchevsky, A. B. Newman, and M. Visser. 2018. "Prospective Associations of Poor Diet Quality with Long-Term Incidence of Protein-Energy Malnutrition in Community-Dwelling Older Adults: The Health, Aging, and Body Composition (Health ABC) Study." *American Journal of Clinical Nutrition* 107 (2): 155–164. <https://doi.org/10.1093/ajcn/nqy020>.
- Isautier, J. M. J., M. Bosnic, S. S. Y. Yeung, M. C. Trappenburg, C. G. M. Meskers, A. C. Whittaker, and A. B. Maier. 2019. "Validity of Nutritional Screening Tools for Community-Dwelling Older Adults: A Systematic Review and Meta-analysis." *Journal of the American Medical Directors Association* 20 (10): 1351.e13–1351.e25. <https://doi.org/10.1016/j.jamda.2019.06.024>.
- Kiesswetter, E., M. G. Colombo, C. Meisinger, A. Peters, B. Thorand, R. Holle, K. H. Ladwig, H. Schulz, E. Grill, R. Diekmann, E. Schrader, P. Stehle, C. C. Sieber, and D. Volkert. 2020. "Malnutrition and Related Risk Factors in Older Adults from Different Health-Care Settings: An Enable Study." *Public Health Nutr.* 23 (3): 446–456. <https://doi.org/10.1017/s1368980019002271>.
- Lloyd, J. L., and N. S. Wellman. 2015. "Older Americans Act Nutrition Programs: A Community-Based Nutrition Program Helping Older Adults Remain at Home." *Journal of Nutrition in Gerontology and Geriatrics* 34 (2): 90–109. <https://doi.org/10.1080/21551197.2015.1031592>.
- Loftfield, E., S. Yi, S. Immerwahr, and D. Eisenhower. 2015. "Construct Validity of a Single-Item, Self-Rated Question of Diet Quality." *Journal of Nutrition Education and Behavior* 47 (2): 181–7. <https://doi.org/10.1016/j.jneb.2014.09.003>.
- Lorenzo-Lopez, L., A. Maseda, C. de Labra, L. Regueiro-Folgueira, J. L. Rodriguez-Villamil, and J. C. Millan-Calenti. 2017. "Nutritional Determinants of Frailty in Older Adults: A Systematic Review." *BMC Geriatrics* 17 (1): 108. <https://doi.org/10.1186/s12877-017-0496-2>.
- Moreira, N. C., S. Krausch-Hofmann, C. Matthys, C. Vereecken, E. Vanhauwaert, A. Declercq, G. E. Bekkering, and J. Duyck. 2016. "Risk Factors for Malnutrition in Older Adults: A Systematic Review of the Literature Based on Longitudinal Data." *Adv. Nutr.* 7 (3): 507–22. <https://doi.org/10.3945/an.115.011254>.
- Morrison, J. M., C. V. Laur, and H. H. Keller. 2019. "SCREEN III: Working towards a Condensed Screening Tool to Detect Nutrition Risk in Community-Dwelling Older Adults Using CLSA Data." *European Journal of Clinical Nutrition* 73 (9): 1260–1269. <https://doi.org/10.1038/s41430-019-0411-3>.
- National Screening Initiative. 1994. "The Determine Your Nutritional Health Checklist." *Wash. Nurse* 24 (2): 14–15.
- O'Keeffe, M., M. Kelly, E. O'Herlihy, P. W. O'Toole, P. M. Kearney, S. Timmons, E. O'Shea, C. Stanton, M. Hickson, Y. Rolland, C. Sulmont Rosse, S. Issanchou, I. Maitre, M. Stelmach-Mardas, G. Nagel, M. Flechtner-Mors, M. Wolters, A. Hebestreit, L. C. P. G. M. De Groot, O. van de Rest, R. Teh, M. A. Peyron, D. Dardevet, I. Papet, K. Schindler, M. Streicher, G. Torbahn, E. Kiesswetter, M. Visser, D. Volkert, and E. M. O'Connor. 2018. "Potentially Modifiable Determinants of Malnutrition in Older Adults: A Systematic Review." *Clinical Nutrition* 38 (6): 2477–2498. <https://doi.org/10.1016/j.clnu.2018.12.007>.
- Rasheed, S., and R. T. Woods. 2013. "Malnutrition and Quality of Life in Older People: A Systematic Review and Meta-analysis." *Ageing Research Reviews* 12 (2): 561–6. <https://doi.org/10.1016/j.arr.2012.11.003>.

Shakersain, B., G. Santoni, G. Faxen-Irving, D. Rizzuto, L. Fratiglioni, and W. Xu. 2016. "Nutritional Status and Survival among Old Adults: An 11-Year Population-Based Longitudinal Study." *European Journal of Clinical Nutrition* 70 (3): 320.

Skipper, A., A. Coltman, J. Tomesko, P. Charney, J. Porcari, T. A. Piemonte, D. Handu, and F. W. Cheng. 2020. "Position of the Academy of Nutrition and Dietetics: Malnutrition (Undernutrition) Screening Tools for All Adults." *Journal of the Academy of Nutrition and Dietetics* 120 (4): 709–713. <https://doi.org/10.1016/j.jand.2019.09.011>.

ter Borg, S., S. Verlaan, D. M. Mijnders, J. M. G. A. Schols, L. C. P. G. M. De Groot, and Y. C. Luiking. 2015. "Macronutrient Intake and Inadequacies of Community-Dwelling Older Adults, a Systematic Review." *Annals of Nutrition and Metabolism* 66 (4): 242–255. <https://doi.org/10.1159/000435862>.

Vellas, B., Y. Guigoz, P. J. Garry, F. Nourhashemi, D. Ben-nahum, S. Lauque, and J. L. Albaredo. 1999. "The Mini Nutritional Assessment (MNA) and Its Use in Grading the Nutritional State of Elderly Patients." *Nutrition* 15 (2): 116–22. [https://doi.org/10.1016/s0899-9007\(98\)00171-3](https://doi.org/10.1016/s0899-9007(98)00171-3).