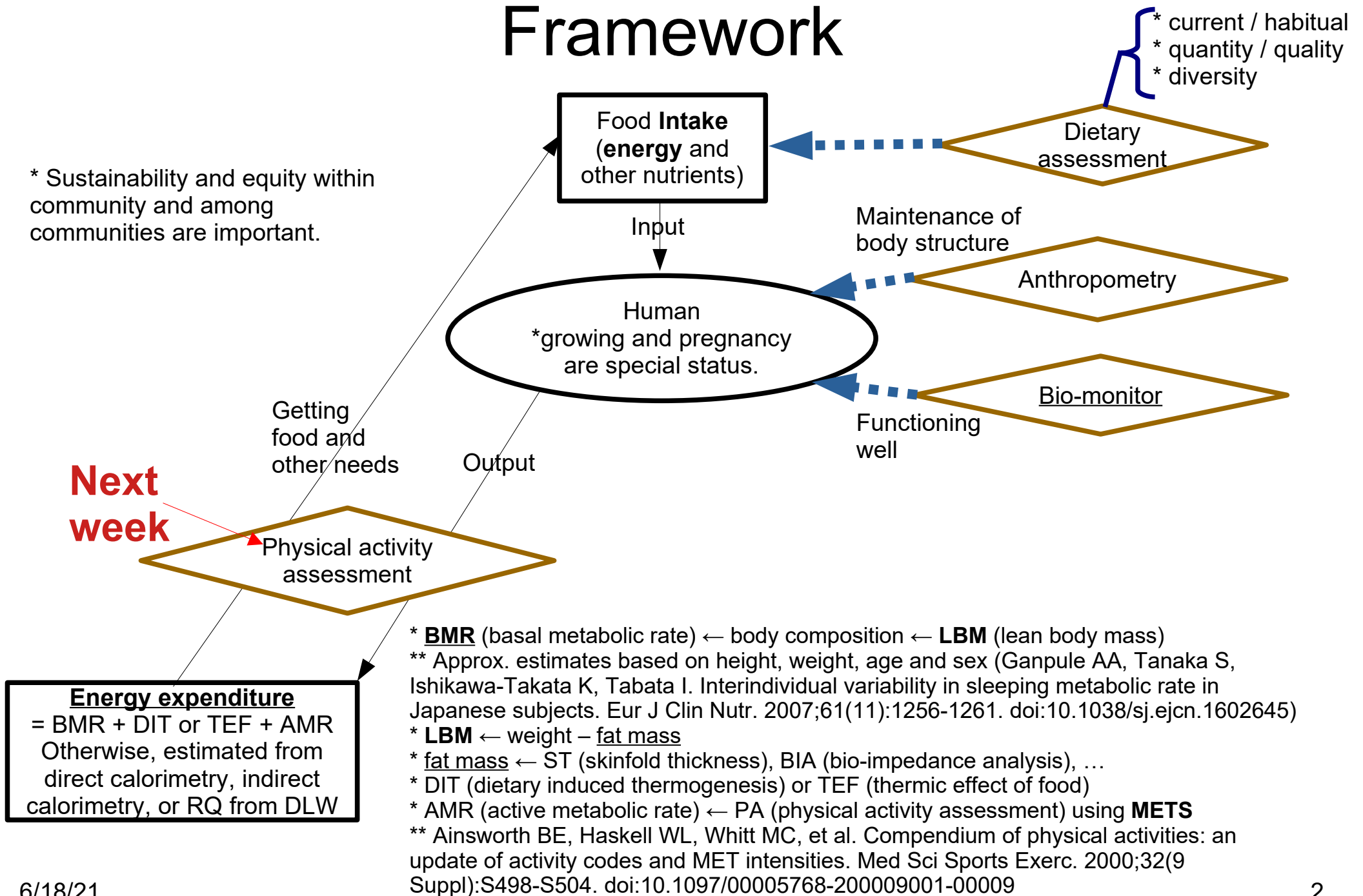


# Community Nutritional Assessment (1)

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# Framework



# Dietary Intake Research

<https://www.nutritools.org/tools>

<http://www.fao.org/3/i9940en/I9940EN.pdf>

- Dietary Diversity
  - FAO's DD (2012) <http://www.fao.org/3/i1983e/i1983e00.htm>
    - For Women <http://www.fao.org/3/i5486e/i5486e.pdf>
  - FDSK-11 (2008) <http://yumik-fn.sakura.ne.jp/whats-fn/>
- FFQ (Food Frequency Questionnaire)  
<https://www.birmingham.ac.uk/Documents/college-les/gees/inflame/consortium/atcs/food-frequency-question-brantsaeter.pdf>
  - NHANES (USA) <https://epi.grants.cancer.gov/diet/usualintakes/ffq.html>
  - BDHQ/DHQ (Japan) <http://ebnjapan.org/bdhqdhq/>  
<https://webpark1505.sakura.ne.jp/english/dhq/dhq.html>
- 24 hours dietary recall  
<https://dapa-toolkit.mrc.ac.uk/diet/subjective-methods/24-hour-dietary-recall>
  - ASA24 <https://epi.grants.cancer.gov/asa24/>
    - (For research) <https://asa24.nci.nih.gov/researchersite/>
    - (Demonstration) <https://asa24.nci.nih.gov/demo/>
- Food diary
  - Weighed diary <https://dapa-toolkit.mrc.ac.uk/diet/subjective-methods/weighed-food-diaries>
  - Estimated diary <https://dapa-toolkit.mrc.ac.uk/diet/subjective-methods/estimated-food-diaries>
- Technology-assisted methods <https://dapa-toolkit.mrc.ac.uk/diet/subjective-methods/technology-assisted>
- Direct weighing of duplicated diets  
<https://dapa-toolkit.mrc.ac.uk/diet/objective-methods/duplicate-diets>  
(For contaminants exposure) <https://www.researchgate.net/project/Total-Diet-Studies-duplicates-meals>

# Anthropometry

<http://www.fao.org/3/y4249e/y4249e0b.htm>

- Direct measurements
  - [https://www.cdc.gov/nchs/data/nhanes/nhanes\\_07\\_08/manual\\_an.pdf](https://www.cdc.gov/nchs/data/nhanes/nhanes_07_08/manual_an.pdf)
  - <https://www.fantaproject.org/tools/anthropometry-guide>
    - Height: Using stadiometer (eg. Seca 213)  
[https://www.seca.com/en\\_ee/products/all-products/product-details/seca213.html](https://www.seca.com/en_ee/products/all-products/product-details/seca213.html)
    - Weight: Using digital scale (eg. Withings Body+)  
<https://www.withings.com/jp/en/body-plus>
    - Mid-Upper Arm Circumference: Using tape measure
    - Skinfold thickness: Using skinfold caliper (eg. Harpenden <http://www.harpenden-skinfold.com/>)
    - Waist circumference: Using tape measure (eg. Seca 201/203)  
[https://www.seca.com/en\\_ee/products/all-products/product-details/seca201.html](https://www.seca.com/en_ee/products/all-products/product-details/seca201.html)
    - Hip circumference: Using tape measure (eg. Seca 201/203)
- Calculated indices
  - BMI = Weight (kg) / Height · Height (m<sup>2</sup>)
  - Z scores based on **the standards (below)**: (Values – Standard) / SD of Standard  
[http://conflict.lshtm.ac.uk/page\\_125.htm](http://conflict.lshtm.ac.uk/page_125.htm)  
HAZ (for stunting), WAZ (for underweight), WHZ (for wasting)  
<https://www.cdc.gov/nccdphp/dnpa/growthcharts/resources/growthchart.pdf>
    - CDC [https://www.cdc.gov/nchs/data/series/sr\\_11/sr11\\_246.pdf](https://www.cdc.gov/nchs/data/series/sr_11/sr11_246.pdf)
    - WHO <https://www.who.int/tools/child-growth-standards/standards>
  - Waist-to-hip ratio = Waist circumference / Hip circumference

# Biomonitoring

- Measure nutrients and its metabolites in biological specimen
  - <https://www.cdc.gov/biomonitoring/videos/Biomonitoring-teaches-about-nutrition.html>
  - <https://dapa-toolkit.mrc.ac.uk/diet/objective-methods/biomarkers>
  - <https://www.biomedcentral.com/collections/bfmr>
  - <https://academic.oup.com/jn/article/133/3/873S/4688049>
  - <https://dx.doi.org/10.3390%2Fnu11051092>
  - <http://www.ph.ucla.edu/epi/faculty/zhang/courses/epi242/reading%20week%204-2d.pdf>
- Blood
  - <https://magazine.baze.com/blood-testing/>
  - [https://ajph.aphapublications.org/doi/pdf/10.2105/AJPH.63.11\\_Suppl.28](https://ajph.aphapublications.org/doi/pdf/10.2105/AJPH.63.11_Suppl.28)
- Urine (non-invasive, frequently used for salt and iodine intake)
  - <https://doi.org/10.3164/jcbrn.16-50>
  - <https://doi.org/10.1017/S136898002000097X>
  - <https://www.nature.com/articles/ejcn201362>
- Feces for gut microbiota
  - <https://doi.org/10.1093/jn/nxaa285>
  - <https://doi.org/10.1136/bmj.k2179>
- Stable isotope in hair and nail
  - <https://doi.org/10.1073/pnas.1914087117>
  - <https://doi.org/10.1371/journal.pone.0184921>