**Population:** Healthy adult populations (>18). Free from factors that impact physical movement.

**Intervention:** activity monitors + all research grade accelerometers (must be wearable on wrist or arm)

**Comparison:** Validated method: metabolic cart, DLW, DC, all IC systems,

**Outcome:** validity of energy expenditure (kcal/kj/met/correlation),

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **P** | **I** | **C** | **O** |
| **Key concepts** | **ADULTS** | **ACTIVITY MONITORS** | **VALIDATED METHOD** | **ENERGY EXPENDITURE** |
| **Related terms** |  | FITNESS TRACKERS (CINHAL)  ACCELEROMETRY (MESH)  ACCELEROMETER  AMBULATORY  MONITOR\*  FITBIT  ACTIVITY MONITOR | VALID\*  COMPAR\*  TEST | ENERGY METABOLISM (MESH)  CALORIES  ENERGY EXPENDITURE  CALORIC EXPENDITURE  TOTAL DAILY ENERGY EXPENDITURE  TDEE  AEE |
| **Terms to include in search** |  | 1. Activity tracker 2. Activity Monitor 3. Health tracker 4. Health monitor 5. Fitness tracker 6. Fitness monitor 7. Physical activity tracker 8. Physical activity monitor 9. Exercise tracker 10. Exercise monitor 11. Electronic tracker 12. Electronic monitor 13. acceleromet 14. Step tracker 15. Wearable | 1. Doubly labelled water 2. Dlw 3. Indirect caliomet\* 4. Caliomet\* 5. Direct caliomet\* 6. Metabolic chamber 7. Metabolic cart 8. Gold standard 9. Criterion | Energy expenditure   1. Energy metabolism 2. Calori\* 3. Calori\* expenditure 4. Total energy expenditure 5. Activity energy expenditure 6. AEE 7. TDEE |

(Tracker AND EE) AND Validation

1. Activity tracker
2. Activity Monitor
3. Health tracker
4. Health monitor
5. Fitness tracker
6. Fitness monitor
7. Physical activity tracker
8. Physical activity monitor
9. Exercise tracker
10. Exercise monitor
11. Electronic tracker
12. Electronic monitor
13. acceleromet
14. Step tracker
15. Wearable

**AND**

1. Energy expenditure
2. Energy metabolism
3. Calori\*
4. Calori\* expenditure
5. Total energy expenditure
6. Activity energy expenditure
7. AEE
8. TDEE

**AND**

1. Doubly labelled water
2. Dlw
3. Indirect caliomet\*
4. Caliomet\*
5. Direct caliomet\*
6. Metabolic chamber
7. Metabolic cart
8. Gold standard
9. Criterion

|  |  |  |
| --- | --- | --- |
| **Database** | **Search** | **Results** |
| **Sport discus** | **( activity tracker or activity monitor or health tracker or health monitor or fitness tracker or fitness monitor or physical activity tracker or physical activity monitor or exercise tracker or exercise monitor or electronic tracker or electronic monitor or acceleromet\* or step tracker or wearable tracker ) AND ( energy expenditure or energy metabolism or calori\* or calori\* expenditure or total energy expenditure or activ\* energy expenditure or AEE or TDEE ) AND ( doubly labelled water or DLW or indirect caliomet\* or caliomet\* or direct caliomet\* or metabolic chamber or metabolic cart or gold standard or criterion )** | **154** |
| **Pubmed** | *((((((((((((((((((activity tracker) OR activity monitor) OR health tracker) OR health monitor) OR fitness trackers) OR fitness monitor) OR physical activity tracker) OR physical activity monitor) OR exercise trained) OR exercise monitor) OR electronic trackers) OR electronic monitor) OR acceleromet\*) OR step tracer) OR wearable trackers)) AND ((((((((energy expenditure) OR energy metabolism) OR calori\*) OR calori\* expenditure) OR total energy expenditure) OR activ\* energy expenditure) OR AEE) OR tdee))) AND (((((((((doubly labelled water) OR DLW) OR indirect caliomet\*) OR caliomet\*) OR direct caliomet\*) OR metabolic chamber) OR metabolic cart) OR gold standard) OR criterion)*. | **605** |
| **MEDLINE** | ((activity tracker or activity monitor or health tracker or health monitor or fitness tracker or fitness monitor or physical activity tracker or physical activity monitor or exercise tracker or exercise monitor or electronic tracker or electronic monitor or acceleromet\* or step tracker or wearable tracker).mp. **AND** (energy expenditure or energy metabolism or calori\* or calori\* expenditure or total energy expenditure or activ\* energy expenditure or AEE or TDEE).mp.  **AND** (doubly labelled water or DLW or indirect caliomet\* or caliomet\* or direct caliomet\* or metabolic chamber or metabolic cart or gold standard or criterion).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word] | **228** |
| **Psycinfo** | ((activity tracker or activity monitor or health tracker or health monitor or fitness tracker or fitness monitor or physical activity tracker or physical activity monitor or exercise tracker or exercise monitor or electronic tracker or electronic monitor or acceleromet\* or step tracker or wearable tracker).mp. **AND** (energy expenditure or energy metabolism or calori\* or calori\* expenditure or total energy expenditure or activ\* energy expenditure or AEE or TDEE).mp.  **AND** (doubly labelled water or DLW or indirect caliomet\* or caliomet\* or direct caliomet\* or metabolic chamber or metabolic cart or gold standard or criterion).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word] | **26** |
| **Embase** | ((activity tracker or activity monitor or health tracker or health monitor or fitness tracker or fitness monitor or physical activity tracker or physical activity monitor or exercise tracker or exercise monitor or electronic tracker or electronic monitor or acceleromet\* or step tracker or wearable tracker).mp. **AND** (energy expenditure or energy metabolism or calori\* or calori\* expenditure or total energy expenditure or activ\* energy expenditure or AEE or TDEE).mp.  **AND** (doubly labelled water or DLW or indirect caliomet\* or caliomet\* or direct caliomet\* or metabolic chamber or metabolic cart or gold standard or criterion).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word] | **317** |
| **CINHAL** | **( activity tracker or activity monitor or health tracker or health monitor or fitness tracker or fitness monitor or physical activity tracker or physical activity monitor or exercise tracker or exercise monitor or electronic tracker or electronic monitor or acceleromet\* or step tracker or wearable tracker ) AND ( energy expenditure or energy metabolism or calori\* or calori\* expenditure or total energy expenditure or activ\* energy expenditure or AEE or TDEE ) AND ( doubly labelled water or DLW or indirect caliomet\* or caliomet\* or direct caliomet\* or metabolic chamber or metabolic cart or gold standard or criterion )** | **142** |
| **Obtained from reference lists** |  | **63** |
|  |  | **AFTER REMOVAL OF DUPLICATES: 825** |

**Exclusions:**

**1 = not comparison to criterion**

**2 = not comparison to accelerometer**

**3 = not healthy adult population**

**4 = review**

**5 = not kcal/kj**

**6= duplicate**