Supplemental material 1  Details of the electronic searches for the databases EMBASE, CINAHL, and COCHRANE

EMBASE via Ovid
1  beverage/
2  drinking/
3  drinking behaviour/
4  (1 or 2 or 3) not (alcohol*.ti. or alcohol*.ab.)
5  drinking water/ or mineral water/ or carbonated beverage/
6  beverag*.tw.
7  (fluid* adj1 (consum* or intake* or drink* or drank)).tw.
8  (liquid* adj1 (consum* or intake* or drink* or drank)).tw.
9  (water* adj1 (consum* or intake* or drink* or drank)).tw.
10  mineral water*.tw.
11  or/4-10
12  body weight/ or lean body weight/ or liveweight gain/ or weight change/ or weight control/ or weight fluctuation/ or weight reduction/
13  obesity/ or abdominal obesity/ or morbid obesity/
14  anthropometric parameters/ or body fat/ or body height/ or body mass/ or body size/ or waist circumference/ or waist hip ratio/
15  adipose tissue/ or abdominal fat/ or body fat/ or body fat distribution/ or fat body/ or subcutaneous fat/ or white adipose tissue/
16  body mass index.tw.
17  quetelet inde*.tw.
18  body size.tw.
19  BMI.tw.
20  hip circumference.tw.
21  obesity.tw.
22  body weight.tw.
23  bodyweight.tw.
24  body size.tw.
25  waist.tw.
26  adipos*.tw.
27  obes*.tw.
28  or/12-27
29  11 and 28
30  29 not (exp exercise test/ or exp exercise test/ or exercise/ae or (marathon* or ultramarathon* or triathlon* or athlet*).tw.)
31  30 not case report/
32  limit 31 to human
33  limit 31 to animals
34  33 not 32
35  31 not 34
36  35 not (mice or mouse or rat? or animal? or rodent?).tw.
37  36 and (adolescent/ or exp child/ or embryo/ or fetus/ or exp newborn/)
38  36 and (adult/ or middle aged/ or exp aged/)
39  37 not 38
40  36 not 39
41  limit 40 to (english or french or german or spanish)
42  remove duplicates from 41

The COCHRANE Library
Limited on reviews and clinical trials
1  MeSH descriptor Beverages, this term only
2  MeSH descriptor Drinking, this term only
Online Supplemental Material

MeSH descriptor Drinking Behaviour, this term only
1 OR 2 OR 3
alcohol:ti
(4 AND NOT 5)
MeSH descriptor Mineral Waters, this term only
MeSH descriptor Carbonated Beverages, this term only
beverage*:ti,ab,kw
(fluid* consum*):ti,ab,kw OR (fluid* intake*):ti,ab,kw OR (fluid* drink*):ti,ab,kw OR (drink*
fluid*):ti,ab,kw OR (drink* liquid*):ti,ab,kw
(mineral water*):ti,ab,tw
(6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12 OR 13)
MeSH descriptor Body Weight, this term only
MeSH descriptor Body Weight Changes explode all trees
MeSH descriptor Obesity explode trees 2, 3 and 4
MeSH descriptor Thinness, this term only
MeSH descriptor Overweight, this term only
MeSH descriptor Body Weights and Measures, this term only
MeSH descriptor Body Fat Distribution explode all trees
MeSH descriptor Body Mass Index, this term only
MeSH descriptor Body Size, this term only
MeSH descriptor Waist Circumference, this term only
MeSH descriptor Skinfold Thickness, this term only
MeSH descriptor Waist-Hip Ratio explode all trees
MeSH descriptor Adipose Tissue, White explode all trees
body mass inde*:ti,ab,tw OR quetelet inde*:ti,ab,tw OR body size:ti,ab,tw OR BMI:ti,ab,tw OR
hip circumference:ti,ab,tw OR obes*:ti,ab,tw OR bodyweight:ti,ab,tw OR body weight:ti,ab,tw
OR body size:ti,ab,tw OR waist:ti,ab,tw OR adipos*:ti,ab,tw
(15 OR 16 OR 17 OR 18 OR 19 OR 20 OR 21 OR 22 OR 23 OR 24 OR 25 OR 26 OR 27 OR
28)
(14 AND 29)
(marathon* OR ultramarathon* OR triathlon* OR athlet*):ti,ab,kw
(30 AND NOT 31)
MeSH descriptor Adult explode all trees
MeSH descriptor Child explode all trees
MeSH descriptor Adolescent explode all trees
MeSH descriptor Infant explode all trees
(32 AND 33)
(32 AND ( 34 OR 35 OR 36 ))
(38 AND NOT 37)
(32 AND NOT 39)

CINAHL via EBSCO
1 (MH "Beverages")
2 (MH "Drinking Behaviour")
1 OR 2
3 not (TI alcohol*)
(MH "Mineral Water")
(TX "beverag*")
(TX "fluid* consump*") OR (TX "fluid* intake*") OR (TX "fluid* drink*")
Expanders - Also search within the full-text of the articles Search modes - Boolean/Phrase
"drink* fluid*" OR (TX "drank* fluid")

8 (TX "liquid* consump*" OR (TX "liquid* intake*" OR (TX "liquid* drink*" OR (TX "drink* liquid*" OR (TX "drank* liquid*")) OR TX "water* consump*" OR (TX "water* intake*" OR (TX "water* drink*" OR (TX "drink* water*" OR (TX "drank* water*")))) OR TX "mineral water*")

Expanders - Also search within the full-text of the articles

Search modes - Boolean/Phrase

9 (4 or 5 or 6 or 7 or 8 or 9 or 10)

Search modes - Boolean/Phrase

10 (MH "Body Weight") OR (MH "Body Weight Changes")

Search modes - Boolean/Phrase

11 (MH "Obesity") OR (MH "Obesity, Morbid") OR (MH "Thinness")

Search modes - Boolean/Phrase

12 (MH "Body Weights and Measures") OR (MH "Anthropometry") OR (MH "Body Mass Index") OR (MH "Body Height") OR (MH "Body Size") OR (MH "Waist-Hip Ratio") OR (MH "Hydrodensitometry")

Search modes - Boolean/Phrase

13 (TX "water* consump*" OR (TX "water* intake*" OR (TX "water* drink*" OR (TX "drink* water*" OR (TX "drank* water*"))))) OR (TX "mineral water*")

Expanders - Also search within the full-text of the articles

Search modes - Boolean/Phrase

14 (TX "body* drink*" OR (TX "quetelet inde*" OR (TX "bmi") OR (TX "hip circumference") OR (TX "obes") OR (TX "bodyweight") OR (TX "body weight") OR (TX "body size") OR (TX "waist") OR (TX "adipos")))

Search modes - Boolean/Phrase

15 12 or 13 or 14 or 15 or 16

Search modes - Boolean/Phrase

16 11 AND 17

Search modes - Boolean/Phrase

17 18 not (TX "marathon*" or TX "ultramarathon*" or TX "triathlon*" or TX "athlet")

Search modes - Boolean/Phrase

18 19 not (MH "Case Studies")

Search modes - Boolean/Phrase

19 20 not (TX mouse OR TX mice OR TX rat? OR TX animal? OR TX rodent?)

Search modes - Boolean/Phrase

20 21 Limiters - Age Groups: Fetus, Conception to Birth, Infant, Newborn: birth-1 month, Infant: 1-23 months, Child, Preschool: 2-5 years, Child: 6-12 years, Adolescent: 13-18 years

Search modes - Boolean/Phrase

21 22 Limiters - Age Groups: All Adult

Search modes - Boolean/Phrase

22 23 Limiters - Language: English, French, German, Spanish

Search modes - Boolean/Phrase

23 24 Narrow by TypePublication - journal article
### Supplemental material 2 Quality of the interventional studies evaluated by using the CASP criteria for randomized controlled trials (RCTs) (1) including comments

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>1 Did the trial address a clearly focused issue?</td>
<td>yes, but different from our research question of the present systematic review</td>
<td>yes, but different from our research question of the present systematic review</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>2 Was the assignment of patients to treatments randomized?</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>no, participants were randomly allocated in a previous trial</td>
</tr>
<tr>
<td>3 Were all of the patients who entered the trial properly accounted for at its conclusion?</td>
<td>no, 27 of 32 analyzed</td>
<td>yes</td>
<td>no, 41 of 48 analyzed</td>
<td>no, 39 of 40 analyzed</td>
</tr>
<tr>
<td>4 Were patients, health workers and study personnel ‘blind’ to treatment?</td>
<td>no: participants: unclear: study personnel</td>
<td>no: participants: unclear: study personnel</td>
<td>no: participants, but blinded to study aim: unclear: study personnel</td>
<td>unclear: participants were blinded to study personnel, but single-blinded study</td>
</tr>
<tr>
<td>5 Were the groups similar at the start of the trial?</td>
<td>yes, cross-over design</td>
<td>unclear, but cross-over design</td>
<td>yes</td>
<td>no, participants differed in previous weight loss body fat and water consumption, randomized, but from different interventions groups of a previous interventional trial</td>
</tr>
<tr>
<td>6 Aside from the experimental intervention, were the groups treated equally?</td>
<td>yes</td>
<td>yes</td>
<td>no, intervention group was provided with a daily tracking form to record their pre-meal water consumption</td>
<td>yes</td>
</tr>
<tr>
<td>7 How large was the treatment effect? (on body weight outcomes)</td>
<td>no intervention effect on body weight</td>
<td>no intervention effect on body weight</td>
<td>intervention effect: decrease in body weight and total fat mass; no effect on percent of initial body weight loss, percent body fat, BMI, and waist circumference</td>
<td>intervention effect: decrease in self-reported body weight; no effect on laboratory-measured body weight, BMI, waist circumference, percent body fat, and total fat mass</td>
</tr>
<tr>
<td>------------------------------------------------------</td>
<td>----------------------</td>
<td>-------------------</td>
<td>------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>8 How precise was the estimate of the treatment effect?</td>
<td>unclear</td>
<td>unclear</td>
<td>unclear</td>
<td>unclear</td>
</tr>
<tr>
<td>9 Can the results be applied to the local population?</td>
<td>yes, but only male volunteers were studied</td>
<td>yes, but only healthy students were studied</td>
<td>yes, but primarily white, overweight, middle-aged and older adults were studied</td>
<td>yes, but primarily white, overweight, middle-aged and older adults were studied</td>
</tr>
<tr>
<td>10 Were all clinically important outcomes considered?</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>11 Are the benefits worth the harms and costs?</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
</tbody>
</table>

1 Specification in brackets set by the study authors
CASP=critical appraisal skills programme
Supplemental material 3 Quality of the observational longitudinal and cross-sectional studies evaluated by using the CASP criteria for cohort studies (6) including comments

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>1 Did the study address a clearly focused issue?</td>
<td>yes</td>
<td>yes, but explorative</td>
<td>yes</td>
<td>yes, but different from our research question of the present systematic review</td>
<td>yes, but different from our research question of the present systematic review</td>
<td>yes, but only consumption of tap water measured</td>
<td>yes, but only consumption of mineral water analyzed</td>
</tr>
<tr>
<td>2 Did the authors use an appropriate method to answer their question?</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>3 Was the cohort/study population recruited in an acceptable way?</td>
<td>yes, primarily through media advertisement</td>
<td>yes, national representative sample</td>
<td>yes, national representative sample</td>
<td>yes, area probability sample</td>
<td>yes, via email</td>
<td>yes, national representative sample</td>
<td>yes, convenience sample from study staff and referrals to densitometry</td>
</tr>
<tr>
<td>4 Was the exposure accurately measured to minimize bias? (water consumption)</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>5 Was the outcome accurately measured to minimize bias? (body weight outcome)</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
</tbody>
</table>
### CASP question / study (first author, publication year)

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>6A Have the authors identified all important confounding factors?</strong></td>
<td>yes</td>
<td>no, because association of interest was not main research question</td>
<td>yes</td>
<td>no, because association of interest was not main research question</td>
<td>no, because association of interest was not main research question</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td><strong>6B. Have they taken account of the confounding factors in the design and/or analysis?</strong></td>
<td>yes</td>
<td>no, because association of interest was not main research question</td>
<td>yes</td>
<td>no, because association of interest was not main research question</td>
<td>no, because association of interest was not main research question</td>
<td>no, adjustment unclear, not adjusted for body height</td>
<td>yes</td>
</tr>
<tr>
<td><strong>7A Was the follow up of subjects complete enough?</strong></td>
<td>yes</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td><strong>7B Was the follow up of subjects long enough?</strong></td>
<td>yes</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td><strong>8 What are the results of this study? (on body weight outcomes)</strong></td>
<td>drinking ≥1 l of water per day associated with decrease in body weight, waist circumference, and percent body fat</td>
<td>water consumption lower in normal weight adults than obese: significant in survey 1999-2004, but not significant in survey 2005-2006</td>
<td>no difference in water consumption by body weight status</td>
<td>no association between body mass index and water consumption</td>
<td>direct association between tap water consumption and body weight</td>
<td>inverse association between mineral water consumption and body weight or body mass index</td>
<td></td>
</tr>
<tr>
<td><strong>9 How precise are the results?</strong></td>
<td>body weight: -2.3 (SE: 0.4) kg, waist circumference: -2.3 (SE: 0.3) cm, percent body fat: -1.1 (S: 0.2)</td>
<td>unclear</td>
<td>unclear</td>
<td>unclear</td>
<td>unclear</td>
<td>unclear</td>
<td>unclear</td>
</tr>
<tr>
<td>-----------------------------------------------------</td>
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<td>--------------</td>
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<td>-------------------</td>
<td>-------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>10 Do you believe the results?</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>11 Can the results be applied to the local population?</td>
<td>yes, but only to premenopausal women dieting for weight loss with a water consumption of &lt;1 l/day</td>
<td>yes, representative for the US</td>
<td>yes, representative for the US</td>
<td>yes, representative for the African American and white population of lower income</td>
<td>yes, but only female students</td>
<td>yes, representative for France</td>
<td>no, only study staff, friends, and referrals to densitometry</td>
</tr>
<tr>
<td>12 Do the results of this study fit with other available evidence?</td>
<td>yes</td>
<td>unclear²</td>
<td>unclear²</td>
<td>unclear²</td>
<td>unclear²</td>
<td>unclear²</td>
<td>unclear²</td>
</tr>
</tbody>
</table>

1 Specification in brackets set by the study authors  
2 Available evidence in this general population of subjects not dieting for weight management too inconclusive  
CASP=
| critical appraisal skills programme, n.a.=not applicable, SE=standard error |
**Supplemental material 4** Quality of the systematic reviews evaluated by using the CASP criteria for systematic reviews (14) including comments

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Did the review address a clearly focused question?</td>
<td>yes, but included also the effect of other beverages on body weight and on energy intake</td>
<td>yes, but included also the effect of water compared to other beverages and on energy intake, and studies in children</td>
</tr>
<tr>
<td>2 Did the authors look for the appropriate sort of papers?</td>
<td>yes</td>
<td>yes, but inclusion criteria regarding study design was not defined</td>
</tr>
<tr>
<td>3 Do you think the important, relevant studies were included?</td>
<td>yes, but no cross-sectional studies were included note: authors did not call their review systematic themselves despite an electronic search strategy</td>
<td>yes, but search strategy included only screening of cross-references</td>
</tr>
<tr>
<td>4 Did the review’s authors do enough to assess the quality of the included studies?</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>5 If the results of the review have been combined, was it reasonable to do so?</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>6 What are the overall results of the reviews? (on body weight outcomes) (^1)</td>
<td>1 preliminary interventional and 1 observational study suggest that encouraging water consumption may facilitate weight management, but long term studies are needed to confirm this possibility.</td>
<td>2 interventional and 3 observational studies adult studies weight status suggest an inverse relationship of water drinking with weight status, but literature is very sparse, thus, conclusions are difficult.</td>
</tr>
<tr>
<td>7 How precise are the results?</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>8 Can the results be applied to the local population?</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>9 Were all important outcomes considered?</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>10 Are the benefits worth the harms and costs?</td>
<td>yes</td>
<td>yes</td>
</tr>
</tbody>
</table>

\(^1\) Specification in brackets set by the study authors
CASP=critical appraisal skills programme, n.a.=not applicable
References of the online supplemental material


