HSRU
Promoting Excellence in Health Services Research

Checking the integrity of published biomedical research

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No conflicts of interest declared

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CHIEF SCIENTIST OFFICE

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Things to consider first

- Always consider what you read may have compromised integrity
- Check the author(s) for other publications, study registries, conference abstracts
- Look for correspondence on papers by citation searching, e.g. Web of Science, Scopus
- Check out Retraction Watch and its database of retractions

https://retractionwatch.com/retraction-watch-database-user-guide/

- Check out PubPeer and use its Plugin extension
- Use current Reference packages linked to RW's database:

  Edifix, EndNote, LibKey, Papers, and Zotero

What is the focus of your assessment?

- Peer review?
- Deciding whether to include a study in evidence synthesis/systematic review?
- Investigating the integrity of research, e.g. for a journal publication?
- Investigating whether there was misconduct?
  - What level of detail do you need?

What expertise do you need?

- Depends on focus of assessment
- Consider that you may need expertise in methods and subject content

Resources

Checklists/tools for Randomised controlled trials (RCTs):

TRACT: https://doi.org/10.1186/s41073-023-00130-8

RIA: https://doi.org/10.1002/jrsm.1599

CPC-TST: https://onlinelibrary.wiley.com/doi/10.1002/cesm.12037

INSPECT-SR: https://bmjopen.bmj.com/content/14/3/e084164

Checklist/tool for Biomedical research including RCTs:

REAPPRAISED: https://doi.org/10.1038/d41586-019-03959-6

RIA - Research Integrity Assessment

Received: 16 May 2022 | Revised: 28 July 2022 | Accepted: 11 August 2022

DOI: 10.1002/jrsm.1599

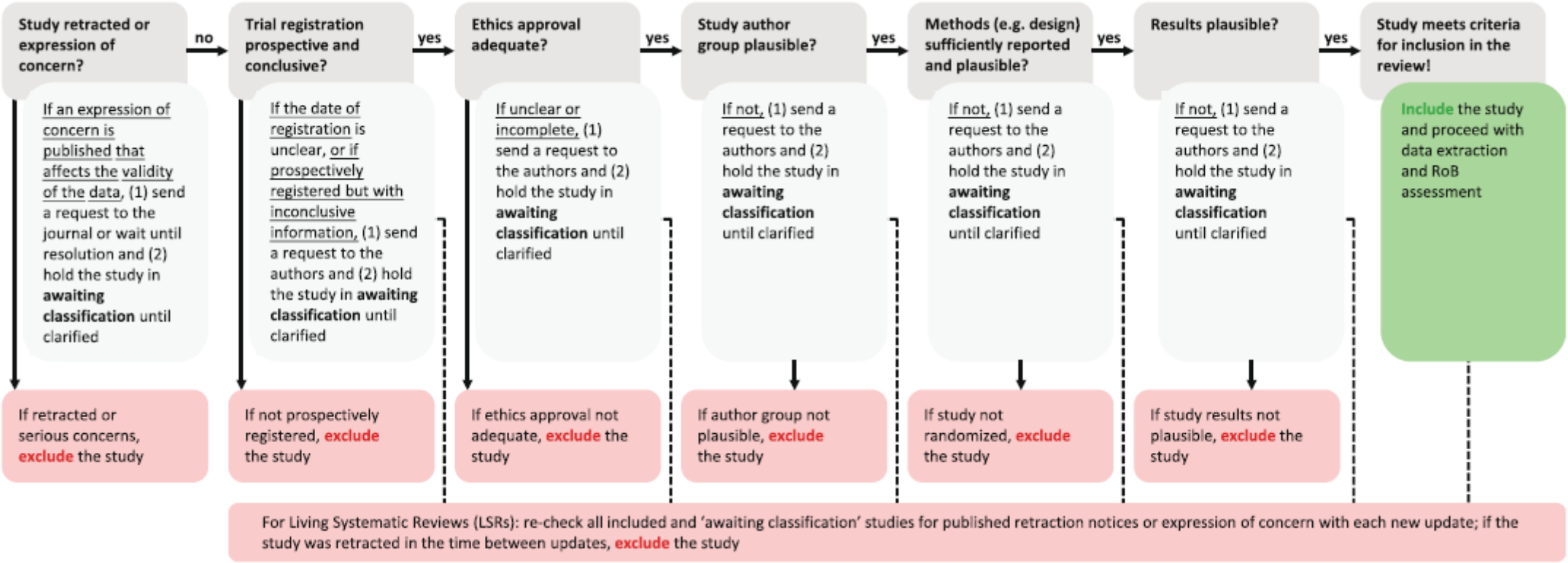
RESEARCH ARTICLE

Research Synthesis Methods WILEY

- **Tool developed by iterative discussion, piloting**
- **Focus on drug RCTs**

Identifying and managing problematic trials: A research integrity assessment tool for randomized controlled trials in evidence synthesis

Stephanie Weibel[1] | Maria Popp[1] | Stefanie Reis[1] | Nicole Skoetz[2] | Paul Garner[3] | Emma Sydenham[4]



CPC - TST Cochrane Pregnancy and Childbirth - Trustworthiness Screening Tool

Version 3.0

Cochrane
Pregnancy and Childbirth

Identifying and handling potentially untrustworthy trials – Trustworthiness Screening Tool (TST) developed by the Cochrane Pregnancy and Childbirth Group

Alfirevic Z, Kellie FJ, Weeks J, Stewart F, Jones L, Hampson L, on behalf of the Pregnancy and Childbirth Editorial Board

The Cochrane Pregnancy and Childbirth Group developed a process for identifying and handling untrustworthy (potentially fraudulent) trials in the group's Cochrane Reviews.

Items:

1. **Research governance**
2. **Baseline characteristics**
3. **Feasible**
4. **Results plausible**

CPC - TST Cochrane Pregnancy and Childbirth - Trustworthiness Screening Tool

Received: 14 September 2023 | Accepted: 17 November 2023

DOI: 10.1002/cesm.12037

Cochrane Evidence Synthesis and Methods

RESEARCH ARTICLE

Trustworthiness assessment as an inclusion criterion for systematic reviews—What is the impact on results?

Jo Weeks | Anna Cuthbert | Zarko Alfirevic

25% of trials in Cochrane reviews in Pregnancy and Childbirth removed

One third of reviews' clinically important findings needed updating

TRACT – Trustworthiness in RAndomised Controlled Trials

Mol *et al. Research Integrity and Peer Review* (2023) 8:6
https://doi.org/10.1186/s41073-023-00130-8

Research Integrity and Peer Review

RESEARCH Open Access

Checklist to assess Trustworthiness in RAndomised Controlled Trials (TRACT checklist): concept proposal and pilot

Ben W. Mol[1,2], Shimona Lai[1], Ayesha Rahim[1], Esmée M. Bordewijk[3], Rui Wang[1], Rik van Eekelen[3,4], Lyle C. Gurrin[5*], Jim G. Thornton[6], Madelon van Wely[3,4,7] and Wentao Li[1]

Screening tool developed by:

1. **Defining scope**
2. **Review of evidence base**
3. **List of items for piloting**
4. **Consensus meeting**

Items:

1. **Governance**
2. **Author Group**
3. **Plausibility of intervention usage**
4. **Timeframe**
5. **Drop-out rates**
6. **Baseline characteristics**
7. **Outcomes**

Development of the Individual Participant Data (IPD) Integrity Tool for assessing the integrity of randomised trials using individual participant data

KE Hunter, M Aberoumand, S Libesman, JX Sotiropoulos, J Williams, W Li, J Aagerup, BW Mol, R Wang, A Barba, N Shrestha, AC Webster, AL Seidler

doi: https://doi.org/10.1101/2023.12.11.23299797

Tuesday 10.30-12.00
Oral presentation session 17

INSPECT-SR - INveStigating ProblEmatic Clinical Trials in Systematic Reviews

Open access Protocol

BMJ Open

Protocol for the development of a tool (INSPECT-SR) to identify problematic randomised controlled trials in systematic reviews of health interventions

Jack Wilkinson [1], Calvin Heal,[1] George A Antoniou,[2,3] Ella Flemyng,[4] Zarko Alfirevic,[5] Alison Avenell [6], Ginny Barbour,[7] Nicholas J L Brown,[8] John Carlisle,[9] Mike Clarke [10], Patrick Dicker,[11] Jo C Dumville,[12,13] Andrew Grey [14], Steph Grohmann,[4] Lyle Gurrin,[15] Jill Alison Hayden [16,17] James Heathers,[18] Kylie Elizabeth Hunter [19], Toby Lasserson,[4] Emily Lam,[20] Sarah Lensen [21], Tianjing Li,[22] Wentao Li [23], Elizabeth Loder,[24,25] Andreas Lundh,[26,27] Gideon Meyerowitz-Katz,[28] Ben W Mol [29], Neil E O'Connell,[30,31] Lisa Parker [32], Barbara K Redman,[33] Lene Seidler,[19] Kyle A Sheldrick,[34] Emma Sydenham [35], David Torgerson,[36] Madelon van Wely,[37,38] Rui Wang [29], Lisa Bero [39], Jamie J Kirkham [1]

Tuesday 10.30-12.00

Oral presentation session 17

Development:

1. **Survey**
2. **Delphi survey**
3. **Feasibility and impact of applying checks to systematic reviews**
4. **Consensus meeting**
5. **Prospective testing of the draft tool in the production of new health systematic reviews**

Setting the agenda in research

Comment

Check for publication integrity before misconduct

Andrew Grey, Mark J. Bolland, Alison Avenell, Andrew A. Klein & C. K. Gunsalus

A tool that focuses on papers – not researcher behaviour – can help readers, editors and institutions assess which publications to trust.

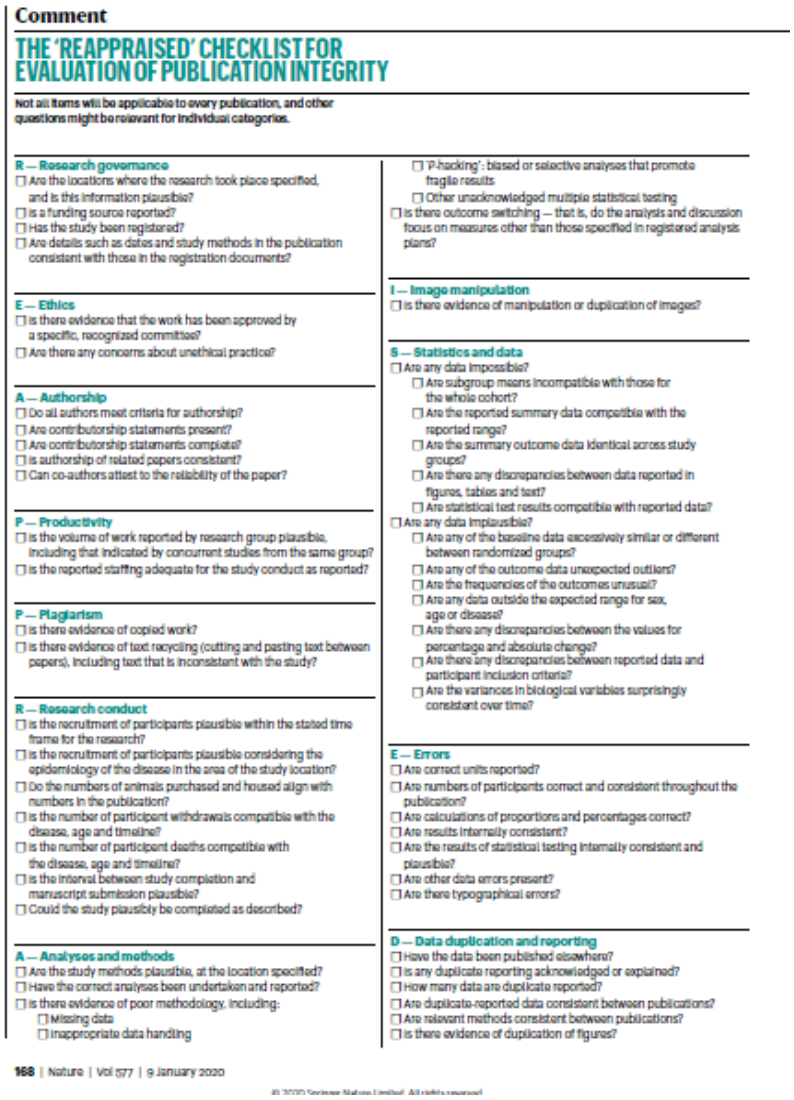
If it is published in the scientific literature, can you trust it? All too often, that question gets lost, sidetracked or buried. Even when serious, credible concerns are sent to a journal, decisions over whether to correct or retract are more likely to take years than months – time during which potentially harmful misinformation can spread. Delays and inaction often happen because enquiries tend to focus on the thorny question of whether a researcher acted deliberately to deceive. The more important issue, however, is the integrity

structuring of complex procedures in health care and other industries. One of us (C.K.G.)

should, be applied independently of whether misconduct is suspected. Its use can help to

Nature 2020; 577:167-169. Grey A et al.
doi: https://doi.org/10.1038/d41586-019-03959-6

REAPPRAISED checklist



Comment

THE 'REAPPRAISED' CHECKLIST FOR EVALUATION OF PUBLICATION INTEGRITY

Not all items will be applicable to every publication, and other questions might be relevant for individual categories.

R — Research governance
- ☐ Are the locations where the research took place specified, and is this information plausible?
- ☐ Is a funding source reported?
- ☐ Has the study been registered?
- ☐ Are details such as dates and study methods in the publication consistent with those in the registration documents?

E — Ethics
- ☐ Is there evidence that the work has been approved by a specific, recognized committee?
- ☐ Are there any concerns about unethical practice?

A — Authorship
- ☐ Do all authors meet criteria for authorship?
- ☐ Are contributorship statements present?
- ☐ Are contributorship statements complete?
- ☐ Is authorship of related papers consistent?
- ☐ Can co-authors attest to the reliability of the paper?

P — Productivity
- ☐ Is the volume of work reported by research group plausible, including that indicated by concurrent studies from the same group?
- ☐ Is the reported staffing adequate for the study conduct as reported?

P — Plagiarism
- ☐ Is there evidence of copied work?
- ☐ Is there evidence of text recycling (cutting and pasting text between papers), including text that is inconsistent with the study?

R — Research conduct
- ☐ Is the recruitment of participants plausible within the stated time frame for the research?
- ☐ Is the recruitment of participants plausible considering the epidemiology of the disease in the area of the study location?
- ☐ Do the numbers of animals purchased and housed align with numbers in the publication?
- ☐ Is the number of participant withdrawals compatible with the disease, age and timeline?
- ☐ Is the number of participant deaths compatible with the disease, age and timeline?
- ☐ Is the interval between study completion and manuscript submission plausible?
- ☐ Could the study plausibly be completed as described?

A — Analyses and methods
- ☐ Are the study methods plausible, at the location specified?
- ☐ Have the correct analyses been undertaken and reported?
- ☐ Is there evidence of poor methodology, including:
  - ☐ Missing data
  - ☐ Inappropriate data handling
  - ☐ 'P-hacking': biased or selective analyses that promote fragile results
  - ☐ Other unacknowledged multiple statistical testing
- ☐ Is there outcome switching — that is, do the analysis and discussion focus on measures other than those specified in registered analysis plans?

I — Image manipulation
- ☐ Is there evidence of manipulation or duplication of images?

S — Statistics and data
- ☐ Are any data impossible?
  - ☐ Are subgroup means incompatible with those for the whole cohort?
  - ☐ Are the reported summary data compatible with the reported range?
  - ☐ Are the summary outcome data identical across study groups?
  - ☐ Are there any discrepancies between data reported in figures, tables and text?
  - ☐ Are statistical test results compatible with reported data?
- ☐ Are any data implausible?
  - ☐ Are any of the baseline data excessively similar or different between randomized groups?
  - ☐ Are any of the outcome data unexpected outliers?
  - ☐ Are the frequencies of the outcomes unusual?
  - ☐ Are any data outside the expected range for sex, age or disease?
  - ☐ Are there any discrepancies between the values for percentage and absolute change?
  - ☐ Are there any discrepancies between reported data and participant inclusion criteria?
  - ☐ Are the variances in biological variables surprisingly consistent over time?

E — Errors
- ☐ Are correct units reported?
- ☐ Are numbers of participants correct and consistent throughout the publication?
- ☐ Are calculations of proportions and percentages correct?
- ☐ Are results internally consistent?
- ☐ Are the results of statistical testing internally consistent and plausible?
- ☐ Are other data errors present?
- ☐ Are there typographical errors?

D — Data duplication and reporting
- ☐ Have the data been published elsewhere?
- ☐ Is any duplicate reporting acknowledged or explained?
- ☐ How many data are duplicate reported?
- ☐ Are duplicate-reported data consistent between publications?
- ☐ Are relevant methods consistent between publications?
- ☐ Is there evidence of duplication of figures?

168 | Nature | Vol 577 | 9 January 2020

- **R**esearch governance
- **E**thics
- **A**uthorship
- **P**roductivity
- **P**lagiarism
- **R**esearch conduct
- **A**nalyses and methods
- **I**mage manipulation
- **S**tatistics and data
- **E**rrors
- **D**ata duplication and reporting

R - Research governance

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R – Research governance

Bahmani F, et al. Effect of selenium supplementation on glycemic control and lipid profiles in patients with diabetic nephropathy. Biol Trace Elem Res 2016; 172: 282-289.

Subjects and Methods

Participants

In this randomized double-blind placebo controlled clinical trial, we included patients with DN, with a proteinuria level of >0.3 g/24 h, aged 45–85 years old who were referred to Akhavan Clinic in Kashan, Iran from March 2015 to June 2015. We defined DN as diabetic renal disease with proteinuria, with or without elevation of serum creatinine

R – Research governance

Bahmani F, et al. Effect of selenium supplementation on glycemic control and lipid profiles in patients with diabetic nephropathy. Biol Trace Elem Res 2016; 172: 282-289.

Trial registration:

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2015060622562N1**

Registration date: **2015-08-02, 1394/05/11**

Recruitment status

Recruitment complete

Expected recruitment start date

2015-07-11, 1394/04/20

Expected recruitment end date

2015-08-11, 1394/05/20

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

1

Ethics committee

Name of ethics committee

Ethics Committee of Kashan university of medical sciences and health services

Street address

kashan university of medical sciences and health services, Ravand road

City

Kashan

Country

Iran (Islamic Republic of)

Postal code

Approval date

2015-05-24, 1394/03/03

Ethics committee reference number

IR.KAUMS.REC.1394.22

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E - Ethics

Sato Y, et al. Risedronate therapy for prevention of hip fracture after stroke in elderly women. Neurology 2005; 64: 811-6

Methods. Written informed consent was obtained from each participant. The study protocol was approved by the local ethics committee.

The subjects studied were women admitted to the stroke care unit of the Mitate Hospital, between April 2003 and July 2003, on

Patients were assigned to one of the two study groups by computer-generated random numbering. Starting on the third day after onset, patients received a 2.5 mg of an oral risedronate tablet (Actonel, Aventis Pharma, Tokyo, Japan) (n = 187) or a placebo tablet (n = 187) daily for 1 year. Patients were instructed to take the tablet with water (180 mL), 30 to 60 minutes before breakfast. Patient assignment was performed by a chairman of the Human Clinical Study Committee of the Mitate Hospital who was blind to patients' information and follow-up. No dose adjustments were made at any time during the study.

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- ☐ Can co-authors attest to the reliability of the paper?

A - Authorship

Chandra RK. Effect of vitamin and trace-element supplementation on immune responses and infection in elderly subjects. Lancet 1992;340:1124-7

Effect of vitamin and trace-element supplementation on immune responses and infection in elderly subjects

RANJIT KUMAR CHANDRA

Ageing is associated with impaired immune responses and increased infection-related morbidity. This study assessed the effect of physiological amounts of vitamins and trace elements on immunocompetence and occurrence of infection-related illness. 96 independently living, healthy elderly individuals were randomly assigned to receive nutrient supplementation or placebo. Nutrient status and immunological variables were assessed at baseline and at 12 months, and the frequency of illness due to infection was ascertained.

Subjects in the supplement group had higher numbers of certain T-cell subsets and natural killer cells, enhanced proliferation response to mitogen, increased interleukin-2 production, and higher antibody response and natural killer cell activity. These subjects were less likely than those in the placebo group to have illness due to infections (mean [SD] 23 [5] *vs* 48 [7] days per year, p = 0·002).

Supplementation with a modest physiological amount of micronutrients improves immunity and decreases the risk of infection in old age.

Lancet 1992; **340**: 1124–27.

ADDRESS Memorial University of Newfoundland, and World Health Organisation Centre for Nutritional Immunology (Prof R. K. Chandra, FRCPC) Correspondence to Prof R. K. Chandra, Center for Human Nutrition, School of Hygiene and Public Health, Johns Hopkins University, 615 North Wolfe Street, Baltimore, Maryland 21205, USA.

A - Authorship

Chandra RK. Effect of vitamin and trace-element supplementation on immune responses and infection in elderly subjects. Lancet 1992;340:1124-7

The help provided by Bay Area Laboratory, Dr Leele Sudhakaran, Dr Bekal Shidhara, Dr Gurkipal Singh, Mrs Theckla Lundin, and Miss Maryanne Baker is gratefully acknowledged. Dr David Bryant and Mr Pritam Cheema gave statistical advice. This study was supported in part by the Nutrition Research Education Foundation and the University Research Professorship Award of Memorial University of Newfoundland.

A - Authorship

International Committee of Medical Journal Editors
https://www.icmje.org/

- **Who is an author?**
- Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND
- Drafting the work or reviewing it critically for important intellectual content; AND
- Final approval of the version to be published; AND
- Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

One person did everything with nobody as a co-author. Why was that?

P - Productivity

P — Productivity

- ☐ Is the volume of work reported by research group plausible, including that indicated by concurrent studies from the same group?
- ☐ Is the reported staffing adequate for the study conduct as reported?

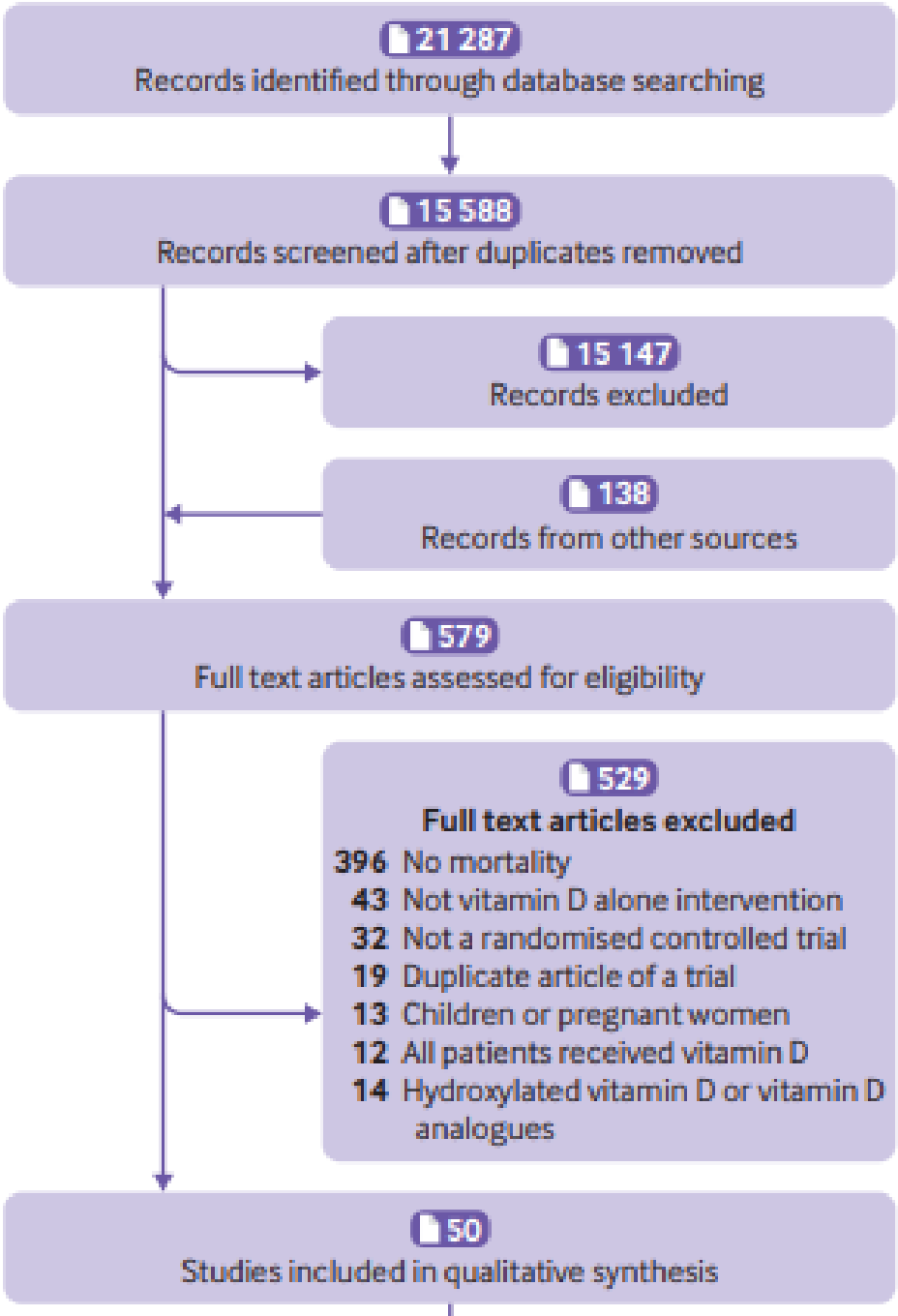
P - Productivity

Zhang Y et al. Association between vitamin D supplementation and mortality: systematic review and meta-analysis. BMJ 2019;366:l4673.

Search strategy

One of the authors (PX) conducted the search of several databases: Medline (Ovid), Embase (Ovid), the Cochrane Central Register of Controlled Trials (CENTRAL), from inception to 26 December 2018. We also searched ClinicalTrials.gov and the World Health Organization International Clinical Trials Registry Platform to identify ongoing or unpublished eligible trials. To maximise the search for relevant articles, we reviewed reference lists of identified trials and systematic reviews. We did not apply language restrictions. Supplemental eTable 2 presents the search strategy.

P - Productivity



P - Productivity

Information from BMJ, PROSPERO database for registration of systematic reviews:

Review started 1 November 2018

Protocol registered 13 December 2018

Literature searches run in databases 26 December 2018

15,588 abstracts and titles to check over

Anticipated completion of review 1 January 2019

Submitted manuscript 18 February 2019

P - Plagiarism

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P - Plagiarism

Alendronate and Vitamin D2 for Prevention of Hip Fracture in Parkinson's Disease: A Randomized Controlled Trial

Yoshihiro Sato, MD,[1]* Jun Iwamoto, MD,[2] Tomohiro Kanoko, BSc,[3] and Kei Satoh, MD[4]

(BMD). The objective of this study was to address the possibility that treatment with alendronate and vitamin D2 may reduce the incidence of hip fractures in elderly women with PD.

who had been examined at the Mitate Hospital. Patients with impairment of renal, hepatic, cardiac, or thyroid function or those who had known causes of osteoporosis, such as primary hyperparathyroidism or renal osteodystrophy, were excluded from this study. Patients were excluded if they had been treated with corticosteroids, estrogens, calcitonin, bisphosphonate, calcium, or vitamins D and K for 3 months or more during the 12 months

P - Plagiarism

Risedronate and ergocalciferol prevent hip fracture in elderly men with Parkinson disease

Yoshihiro Sato, MD; Yoshiaki Honda, MD; and Jun Iwamoto, MD

review of medical charts. Patients with impairment of renal, hepatic, cardiac, or thyroid function or those who had known causes of osteoporosis, such as primary hyperparathyroidism or renal osteodystrophy, were excluded from this study. Patients were excluded if they had been treated with corticosteroids, estrogens,

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P - Plagiarism

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R - Research conduct

R — Research conduct

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- ☐ Is the recruitment of participants plausible considering the epidemiology of the disease in the area of the study location?
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- ☐ Is the number of participant withdrawals compatible with the disease, age and timeline?
- ☐ Is the number of participant deaths compatible with the disease, age and timeline?
- ☐ Is the interval between study completion and manuscript submission plausible?
- ☐ Could the study plausibly be completed as described?

R - Research conduct

British Journal of Nutrition (2016), **116**, 1394–1401
doi:10.1017/S0007114516003457

The effects of synbiotic supplementation on markers of insulin metabolism and lipid profiles in gestational diabetes: a randomised, double-blind, placebo-controlled trial

Shahnaz Ahmadi[1,2], Mehri Jamilian[3]*, Maryam Tajabadi-Ebrahimi[4], Parvaneh Jafari[5] and Zatollah Asemi[6]*†

[1]*Department of Gynecology and Obstetrics, School of Medicine, Iran University of Medical Sciences, PO Box 83121625, Tehran, Iran*
[2]*Department of Gynecology and Obstetrics, School of Medicine, Bushehr University of Medical Sciences, Bushehr, Iran*
[3]*Department of Gynecology and Obstetrics, School of Medicine, Endocrinology and Metabolism Research Center, Arak University of Medical Sciences, PO Box 6618634683, Arak, Iran*
[4]*Science Department, Science Faculty, Islamic Azad University, Tehran Central Branch, PO Box 83121625, Tehran, Iran*
[5]*Department of Microbiology, Science Faculty, Islamic Azad University, Arak Branch, PO Box 6618634683, Arak, Iran*
[6]*Research Center for Biochemistry and Nutrition in Metabolic Diseases, Kashan University of Medical Sciences, PO Box 8715988141, Kashan, Iran*

(Submitted 6 June 2016 – Final revision received 16 July 2016 – Accepted 24 August 2016 – First published online 29 September 2016)

R - Research conduct

Methods

Trial design

The present study was a 6-week prospective, randomised, double-blind, placebo-controlled clinical trial.

Participants

In the present study, we included seventy women with GDM aged 18–40 years without previous diabetes, who were diagnosed with GDM by 'one-step', 2-h, 75-g oral glucose tolerance test (OGTT) at 24–28 weeks of gestation, referred to Kosar Clinic in Arak, Iran, from March 2016 to May 2016. We diag-

R - Research conduct

Methods

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Participants

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A - Analyses and methods

A — Analyses and methods

- ☐ Are the study methods plausible, at the location specified?
- ☐ Have the correct analyses been undertaken and reported?
- ☐ Is there evidence of poor methodology, including:
  - ☐ Missing data
  - ☐ Inappropriate data handling
- ☐ '*P*-hacking': biased or selective analyses that promote fragile results
- ☐ Other unacknowledged multiple statistical testing
- ☐ Is there outcome switching — that is, do the analysis and discussion focus on measures other than those specified in registered analysis plans?

A – Analyses and methods

Bahmani F et al. The effects of selenium supplementation on biomarkers of inflammation and oxidative stress in patients with diabetic nephropathy: a randomised, double-blind, placebo-controlled trial. Br J Nutr 2016;116:1222-8

Table 1. General characteristics of the study participants (Numbers and percentages; mean values and standard deviations

	Placebo group (*n* 30)		Se group (*n* 30)	
	n	%	*n*	%
Smoking status	4	13·3	4	13·3
Type of diabetes				
Type 1	3	10·0	3	10·0
Type 2	27	90·0	27	90·0
Duration of DM (years)				
Mean	15·8		16·2	
SD	2·8		2·5	
Insulin therapy	22	73·3	21	70

Bahmani F et al. Effect of selenium supplementation on glycemic control and lipid profiles in patients with diabetic nephropathy. Biol Trace Elem Res 2016; 172:282-9

	Placebo group ($n=30$)	Selenium group ($n=30$)
Gender (%)		
Male	15 (50.0)	15 (50.0)
Female	15 (50.0)	15 (50.0)
Type of diabetes (%)		
Type 1	3 (10.0)	3 (10.0)
Type 2	27 (90.0)	27 (90.0)
Duration of DM (year)	15.8 ± 2.8	16.2 ± 2.5
Age (y)	61.4 ± 9.3	63.1 ± 12.6
Height (cm)	160.1 ± 10.1	160.4 ± 9.0
Weight at study baseline (kg)	77.2 ± 10.1	79.5 ± 15.1
Weight at end-of-trial (kg)	77.3 ± 10.2	79.6 ± 15.0
Weight change (kg)	0.1 ± 0.4	0.1 ± 0.4
BMI at study baseline (kg/m^2)	30.4 ± 4.9	29.8 ± 5.8
BMI at end-of-trial (kg/m^2)	30.4 ± 4.9	29.8 ± 5.8
BMI change (kg/m^2)	0.03 ± 0.1	0.01 ± 0.2
Insulin therapy (%)	22 (73.3)	21 (70)

Are these the same trial?

A – Analyses and methods

Bahmani F et al. The effects of selenium supplementation on biomarkers of inflammation and oxidative stress in patients with diabetic nephropathy: a randomised, double-blind, placebo-controlled trial. Br J Nutr 2016;116:1222-8

Bahmani F et al. Effect of selenium supplementation on glycemic control and lipid profiles in patients with diabetic nephropathy. Biol Trace Elem Res 2016; 172:282-9

→ Primary outcome variables were markers of insulin metabolism in the current study. In our study, secondary outcome variables

reference laboratory. In the current study, the primary outcome ← variables were pro-inflammatory and inflammatory markers.

I - Image manipulation

I — Image manipulation

☐ Is there evidence of manipulation or duplication of images?

I – Image manipulation

Sato Y et al. Abnormal bone and calcium metabolism in immobilized Parkinson's disease patients. Movement Disorders 2005; 20: 1598–1603

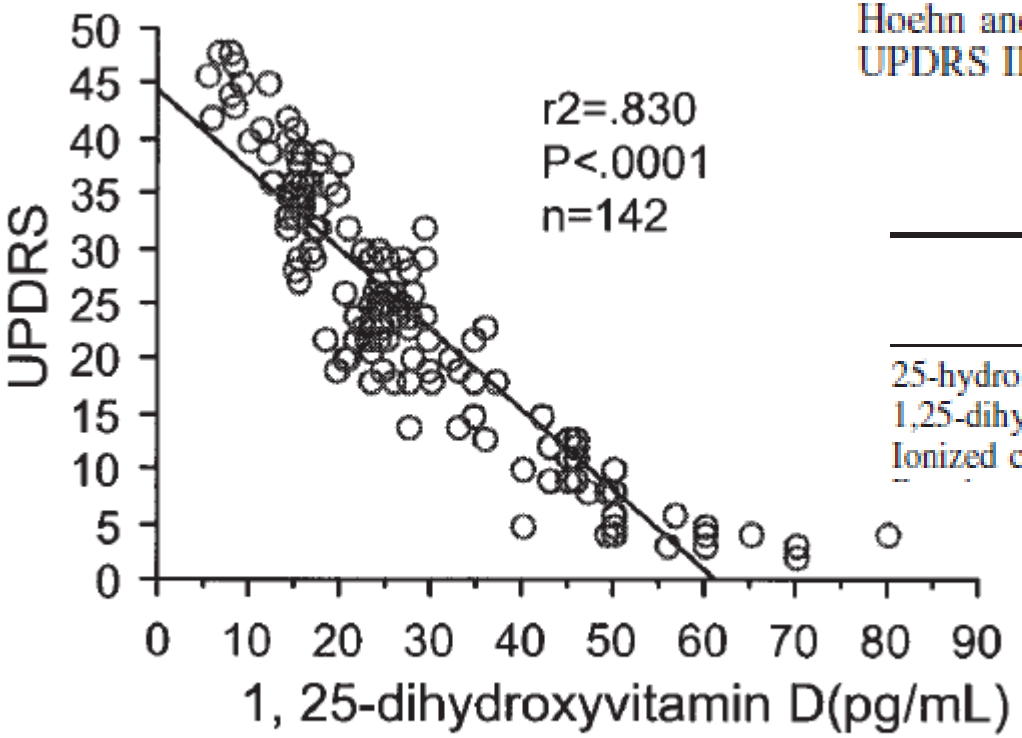

FIG. 1. UPDRS versus 1,25-dihydroxyvitamin D demonstrated a negative correlation by linear correlation analysis.

TABLE 1. *Clinical characteristics of the study subjects*

Variable	Control (n = 99)	Parkinson's disease (n = 142)
Age (yr)	68.8 ± 3.4	69.9 ± 7.7
Gender (M/F)	42/57	64/78
Duration of illness (yr)		6.2 ± 3.7
Hoehn and Yahr stage[b]		3.3 ± 1.1
UPDRS III (motor function)		47.4 ± 22.5

TABLE 2. *Indexes of bone metabolism and bone mineral density in and patients with Parkinson's disease*

Variable	Control (n = 99)	Parkinson's disease (n = 142)
25-hydroxyvitamin D (nmol/L)	83.2 ± 7.7	29.7 ± 16.3
1,25-dihydroxyvitamin D (pmol/L)	133.3 ± 24.8	88.7 ± 34.5
Ionized calcium (mmol/L)	1.220 ± 0.039	1.270 ± 0.042

I – Image manipulation

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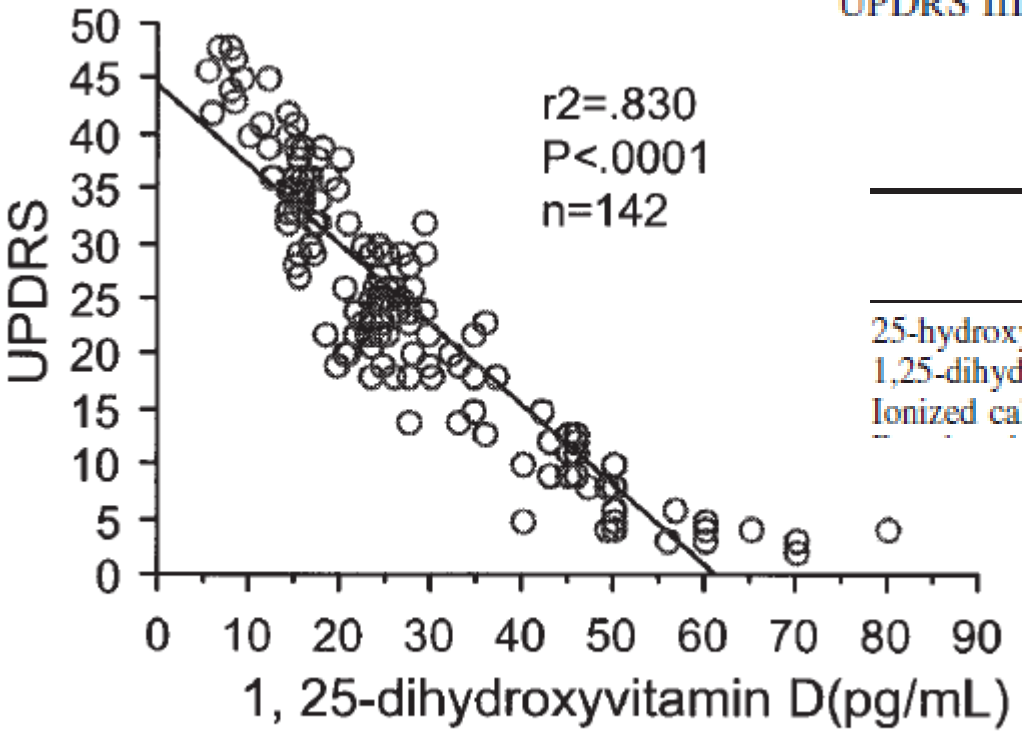

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UPDRS does not match.
1,25 vit D different units, graph mean ~30pg/ml ≈ 75pmol/L

S - Statistics and data

S — Statistics and data

- ☐ Are any data impossible?
  - ☐ Are subgroup means incompatible with those for the whole cohort?
  - ☐ Are the reported summary data compatible with the reported range?
  - ☐ Are the summary outcome data identical across study groups?
  - ☐ Are there any discrepancies between data reported in figures, tables and text?
  - ☐ Are statistical test results compatible with reported data?
- ☐ Are any data implausible?
  - ☐ Are any of the baseline data excessively similar or different between randomized groups?
  - ☐ Are any of the outcome data unexpected outliers?
  - ☐ Are the frequencies of the outcomes unusual?
  - ☐ Are any data outside the expected range for sex, age or disease?
  - ☐ Are there any discrepancies between the values for percentage and absolute change?
  - ☐ Are there any discrepancies between reported data and participant inclusion criteria?
  - ☐ Are the variances in biological variables surprisingly consistent over time?

S – Statistics and data

Derosa G et al. Effects of orlistat, simvastatin, and orlistat + simvastatin in obese patients with hypercholesterolemia: a randomized, open-label trial. Curr Ther Res 2002;63:621-33.

Table I. Baseline demographic characteristics of all study patients (N = 83).*

	Group O (n = 28)		Group S (n = 29)		Group OS (n = 26)	
Characteristic	Women (n = 14)	Men (n = 14)	Women (n = 15)	Men (n = 14)	Women (n = 13)	Men (n = 13)
Age, y	55 (9)	56 (10)	56 (9)	56 (10)	54 (10)	55 (10)
Body weight, kg	96 (9)	95 (10)	96 (8)	97 (10)	95 (9)	94 (8)
Height, cm	172 (9)	174 (7)	170 (7)	172 (8)	170 (7)	172 (9)
Waist circumference, cm	99 (7)	96 (5)	98 (5)	97 (4)	100 (6)	98 (6)

O = orlistat; S = simvastatin; OS = orlistat + simvastatin.
*Values are expressed as mean (SD). There were no significant differences within or between groups.

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Age, y	55 (9)	56 (10)	56 (9)	56 (10)	54 (10)	55 (10)
Body weight, kg	96 (9)	95 (10)	96 (8)	97 (10)	95 (9)	94 (8)
Height, cm	172 (9)	174 (7)	170 (7)	172 (8)	170 (7)	172 (9)
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Body weight, kg	96 (9)	95 (10)	96 (8)	97 (10)	95 (9)	94 (8)
Height, cm	172 (9)	174 (7)	170 (7)	172 (8)	170 (7)	172 (9)
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O = orlistat; S = simvastatin; OS = orlistat + simvastatin.
*Values are expressed as mean (SD). There were no significant differences within or between groups.

Average height for Italian men and women (www.worlddata.info)
Men 1.74m
Women 1.61m

E - Errors

E — Errors

- ☐ Are correct units reported?
- ☐ Are numbers of participants correct and consistent throughout the publication?
- ☐ Are calculations of proportions and percentages correct?
- ☐ Are results internally consistent?
- ☐ Are the results of statistical testing internally consistent and plausible?
- ☐ Are other data errors present?
- ☐ Are there typographical errors?

E - Errors

Table 3 Numbers of falls and fractures among 242 study participants treated with either calcium mono or calcium + vitamin D over a 12 month period and a blinded follow-up without treatment until month 20 (intention-to-treat analysis)

	Calcium mono (N=120)	Calcium + vitamin D (N=122)	
Subjects who fell	75	49	p<0.001
Falls per group	169	106	p<0.001
Subjects with 1 fall	37	24	
Subjects with 2 falls	18	13	
Subjects with 3 falls	7	3	
Subjects with >3 falls	9	13	
Subjects with fractures	12	7	p=0.08
Fractures per group (N)	19	12	p=0.12

Pfeifer M et al. Effects of a long-term vitamin D and calcium supplementation on falls and parameters of muscle function in community-dwelling older individuals. Osteoporos Int 2009; 20:315-322.

E - Errors in basic arithmetic

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Subjects with >3 falls	9	13	
Subjects with fractures	12	7	p=0.08
Fractures per group (N)	19	12	p=0.12

Calcium group number who fell total = 71

Calcium and vitamin D group number who fell = 53

Pfeifer M et al. Effects of a long-term vitamin D and calcium supplementation on falls and parameters of muscle function in community-dwelling older individuals. Osteoporos Int 2009; 20:315-322.

D - Data duplication and reporting

D — Data duplication and reporting

- ☐ Have the data been published elsewhere?
- ☐ Is any duplicate reporting acknowledged or explained?
- ☐ How many data are duplicate reported?
- ☐ Are duplicate-reported data consistent between publications?
- ☐ Are relevant methods consistent between publications?
- ☐ Is there evidence of duplication of figures?

D - Data duplication and reporting

Table 3. Urinary calcium, phosphorus, creatinine, fecal calcium, and calcium intake

Group	Urinary calcium mg/day	Urinary phosphorus mg/day	Urinary creatinine mg/day	Fecal calcium mg/day	Food intake g/day	Calcium intake mg/day
NC (n = 8)	1.63±0.39	6.75±0.52	9.69±0.66	48.04±3.19	13.52±0.93	67.59±4.64
NCD (n = 8)	20.2±0.43	11.14±3.71	10.12±1.08	42.17±2.31	13.65±0.66	68.26±3.29
One-way ANOVA	p< 0.01	p< 0.01	ns	p< 0.01	ns	ns
LC (n = 8)	0.34±0.11**	16.96±4.51**	8.00±1.69**	1.58±0.22**	12.32±0.73**	12.32±0.73**
LCD (n = 8)	0.78±0.06**	20.59±1.28**	9.58±0.58	1.08±0.19**	13.02±0.18	13.02±0.18**
One-way ANOVA	p< 0.01	ns	p< 0.05	p< 0.01	p< 0.05	p< 0.05

Data are expressed as mean ± SD. One-way analysis of variance (ANOVA) was used to compare the data among the groups.
** Significantly different from NC.
NC = Normal calcium diet; NCD = normal calcium diet + vitamin D supplementation; LC = low calcium diet; LCD = low calcium diet + vitamin D supplementation.

Iwamoto J et al. Horm Res 2004;61:293–299

Table 5
Urinary calcium, phosphorus, creatinine, fecal calcium, and calcium intake

Group	Urinary calcium (mg/day)	Urinary phosphorus (mg/day)	Urinary creatinine (mg/day)	Fecal calcium (mg/day)	Food intake (g/day)	Calcium intake (mg/day)
NC (n = 8)	1.63 ± 0.39	6.75 ± 0.52	9.69 ± 0.66	48.04 ± 3.19	13.52 ± 0.93	67.59 ± 4.64
LC (n = 8)	0.34 ± 0.11[b]	16.96 ± 4.51[b]	8.00 ± 1.69[b]	1.58 ± 0.22[b]	12.32 ± 0.73[b]	12.32 ± 0.73[b]
LCK (n = 8)	0.21 ± 0.11[b,c]	20.09 ± 1.25[b,c]	8.91 ± 0.89	1.53 ± 0.19[b]	12.55 ± 0.40[b]	12.55 ± 0.40[b]
LCD (n = 8)	0.78 ± 0.06[b,c,d]	20.59 ± 1.28[b,c]	9.58 ± 0.58[c]	1.08 ± 0.19[b]	13.02 ± 0.18[c]	13.02 ± 0.18[b]
LCKD (n = 8)	0.40 ± 0.06[b,c]	34.74 ± 1.30[b,c,de]	9.73 ± 1.24[c]	1.12 ± 0.21[b]	13.33 ± 0.33[c,d]	13.33 ± 0.33[b]
Two-way ANOVA						
K	$P < 0.001$	$P < 0.001$	ns	ns	ns	ns
D	$P < 0.001$	$P < 0.001$	$P < 0.05$	$P < 0.001$	$P < 0.01$	$P < 0.001$
Interaction	$P < 0.01$	$P < 0.001$	ns	ns	ns	ns

Note. Data are expressed as mean ± SD. ANOVA with Fisher's PLSD test was used to compare the data among the groups.
[a] Significantly different from NC.
[b] Significantly different from LC.
[c] Significantly different from LCK.
[d] Significantly different from LCD.

Iwamoto J et al. Bone 2003;33:557–66

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One-way ANOVA	p< 0.01	p< 0.01	ns	p< 0.01	ns	ns
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One-way ANOVA	p< 0.01	ns	p< 0.05	p< 0.01	p< 0.05	p< 0.05

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Two-way ANOVA						
K	$P < 0.001$	$P < 0.001$	ns	ns	ns	ns
D	$P < 0.001$	$P < 0.001$	$P < 0.05$	$P < 0.001$	$P < 0.01$	$P < 0.001$
Interaction	$P < 0.01$	$P < 0.001$	ns	ns	ns	ns

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Iwamoto J et al. Bone 2003;33:557–66

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Comments please

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