

No.	Study	S	A	M	5	10	O
1	Hjeltnes et al., 1984	?	?	?	N	Y	N
2	Edlund et al., 1986	?	?	?	N	Y	N
3	Marcotte et al., 1986a	Y	?	?	Y	Y	?
4	Marcotte et al., 1986b	Y	?	?	Y	Y	?
5	Stanghelle et al., 1986	Y	Y	?	N	N	N
6	Versteegh et al., 1986	?	?	?	?	?	?
7	Browning et al., 1990	Y	?	?	N	Y	N
8	Versteegh et al., 1990	?	?	?	?	?	?
9	Heijerman et al., 1991	Y	Y	Y	N	Y	N
10	Regnis et al., 1991	?	?	?	?	?	?
11	Heijerman et al., 1992	Y	Y	Y	N	Y	N
12	Nixon et al., 1992	?	?	?	?	?	?
13	Williams et al., 1992	Y	?	?	Y	Y	?
14	Freeman et al., 1993	Y	?	?	Y	Y	?
15	Henke et al., 1993	?	?	?	?	?	?
16	Kaplan et al., 1996	Y	?	?	Y	Y	?
17	Alison et al., 1997	Y	Y	Y	N	N	N
18	Evans et al., 1997	Y	?	N	N	Y	N
19	Moorcroft et al., 1997a	Y	?	?	N	Y	N
20	Moorcroft et al., 1997b	Y	?	?	N	Y	N
21	Oelberg et al., 1998	?	?	?	N	N	N
22	Pellegrino et al., 1998	?	?	?	?	?	?
23	Tuzin et al., 1998	?	?	?	?	?	?
24	Boas et al., 1999	?	?	?	N	Y	N
25	Bradley et al., 1999	?	?	?	?	?	?
26	McKone et al., 1999	Y	?	?	N	N	N
27	Schwaiblmair et al., 1999	?	?	?	Y	Y	?
28	Boas et al., 2000a	?	?	?	N	Y	N
29	Boas et al., 2000b	?	?	?	N	Y	N
30	Fink et al., 2000	?	?	?	?	?	?
31	Moser et al., 2000	Y	?	?	?	?	?
32	Frangolias & Wilcox, 2001	Y	?	?	N	N	N
33	Karlia et al., 2001	Y	?	?	N	Y	N
34	Pouliou et al., 2001	?	?	?	?	?	?
35	Blau et al., 2002	?	?	?	?	?	?
36	Hutler et al., 2002 (1)	?	?	?	N	Y	N
37	Hutler et al., 2002 (2)	Y	?	?	N	Y	N
38	McKone et al., 2002	Y	?	?	?	?	?
39	Thin et al., 2002	Y	?	?	N	Y	N
40	Frangolias et al., 2003a	Y	?	?	N	N	N
41	Frangolias et al., 2003b	Y	?	?	N	N	N
42	Klijn et al., 2003a	Y	?	Y	N	N	N
43	Klijn et al., 2003b	Y	?	Y	N	N	N
44	Sexauer et al., 2003	Y	?	?	N	N	N
45	Klijn et al., 2004	Y	?	Y	N	N	N
46	Moorcroft et al., 2004	Y	?	?	N	N	N
47	Pinet et al., 2004	?	?	?	N	N	N
48	Dodd et al., 2005	Y	?	?	N	N	N
49	Fournier et al., 2005	?	?	?	?	?	?
50	Hebestreit et al., 2005	Y	?	?	N	N	N
51	McKone et al., 2005	Y	?	?	N	N	N
52	Moorcroft et al., 2005	Y	?	?	N	N	N
53	Dodd et al., 2006a	Y	?	?	N	N	N
54	Dodd et al., 2006b	Y	?	?	N	N	N
55	Hebestreit et al., 2006	Y	?	?	N	N	N
56	Reinsma et al., 2006	?	?	?	?	?	?
57	Barry & Gallagher, 2007	Y	?	?	N	N	N
58	Barry et al., 2008	Y	?	?	N	N	N
59	Dodd et al., 2008	Y	?	?	N	N	N
60	Hubert et al., 2009	Y	?	?	Y	Y	?
61	Ruf & Hebestreit, 2009	Y	?	?	N	N	N
62	Troosters et al., 2009	Y	?	?	N	N	N
63	Zavorsky et al., 2009	Y	Y	Y	N	N	N
64	Groen et al., 2010	Y	?	Y	N	N	N
65	Gruet et al., 2010	?	?	?	?	?	?
66	McBride et al., 2010	Y	Y	Y	N	N	N

No.	Study	S	A	M	5	10	O
67	Nguyen et al., 2010	?	?	?	Y	N	N
68	Bartels et al., 2011	?	?	?	?	?	?
69	Dwyer et al., 2011 (1)	Y	Y	Y	N	N	N
70	Dwyer et al., 2011 (2)	Y	Y	Y	N	N	N
71	Dwyer et al., 2011 (3)	Y	?	Y	N	N	N
72	Gruber et al., 2011	Y	?	?	N	N	N
73	Hulzebos et al., 2011	?	?	?	?	?	?
74	Leroy et al., 2011	?	?	Y	N	N	N
75	Tejero Garcia et al., 2011	?	?	?	?	?	?
76	Traylor et al., 2011	?	?	?	?	?	?
77	Vallier et al., 2011	Y	?	?	N	N	N
78	Vivodtzev et al., 2011	?	?	?	?	?	?
79	Werkman et al., 2011 (1)	?	?	?	N	N	N
80	Werkman et al., 2011 (2)	?	?	?	N	N	N
81	Wheatley et al., 2011	?	N	?	N	N	N
82	Armstrong et al., 2012	Y	Y	Y	N	N	N
83	Bongers et al., 2012	?	Y	Y	Y	Y	?
84	Manika et al., 2012	?	?	?	?	?	?
85	Nguyen et al., 2012	?	?	?	?	?	?
86	Ruf et al., 2012	Y	?	?	N	N	N
87	van de Weert-van Leeuwen et al., 2012	Y	?	Y	N	N	N
88	Armstrong et al., 2013	?	?	?	?	?	?
89	Ledger et al., 2013	?	?	?	?	?	?
90	Moco et al., 1999	Y	Y	N	N	N	N
91	Poore et al., 2013	?	?	?	?	?	?
92	Prevotat et al., 2013	?	?	?	?	?	?
93	Savi et al., 2013	?	?	?	?	?	?
94	Sovtic et al., 2013	?	?	?	?	?	?
95	Vivodtzev et al., 2013	?	?	?	?	?	?
96	Barry & Horsley, 2014	?	?	?	?	?	?
97	Brun et al., 2014	?	?	?	?	?	?
98	Cohen & Orenstein, 2014	?	?	?	?	?	?
99	Hebestreit et al., 2014	Y	?	?	N	N	N
100	Hulzebos et al., 2014	Y	Y	Y	Y	Y	Y
101	Pastre et al., 2014	?	?	?	N	N	N
102	van de Weert-van Leeuwen et al., 2014	Y	?	Y	N	N	N
103	Armstrong et al., 2015	?	?	?	?	?	?
104	Bongers et al., 2015	?	?	?	Y	Y	?
105	Erickson et al., 2015	?	?	?	?	?	?
106	Fielding et al., 2015	?	?	?	?	?	?
107	Quon et al., 1988	Y	?	?	N	N	N
108	Savi et al., 2015	Y	Y	Y	N	N	N
109	Stevens et al., 2015	?	?	?	?	?	?
110	Van Iterson et al., 2015	?	N	?	N	N	N
111	Visschers et al., 2015	?	?	?	?	?	?
112	Wheatley et al., 2015a	?	N	?	N	N	N
113	Wheatley et al., 2015b	?	N	?	N	N	N
114	Avramidou et al., 2016	Y	?	?	N	N	N
115	Gruet et al., 2016a	Y	?	?	N	N	N
116	Gruet et al., 2016b	?	?	?	?	?	?
117	Hatziagorou et al., 2016	Y	?	?	N	N	N
118	Radtke et al., 2016	?	?	?	N	N	N
119	Rodriguez-Miguel et al., 2016	?	?	?	?	?	?
120	Tomlinson et al., 2016	Y	Y	Y	Y	Y	Y
121	Vallier et al., 2016	?	?	?	?	?	?
122	Van Iterson et al., 2016a	?	N	?	N	N	N
123	Van Iterson et al., 2016b	?	?	?	?	?	?
124	Decorte et al., 2017	Y	?	?	N	N	N
125	Dwyer et al., 2017	?	?	?	?	?	?
126	Edvardsen et al., 2017	?	?	?	?	?	?
127	Layton et al., 2017	?	?	?	?	?	?
128	Radtke et al., 2017 (1)	?	?	?	N	N	N
129	Radtke et al., 2017 (2)	Y	?	?	N	N	N
130	Tucker et al., 2017	?	?	?	?	?	?
131	Vandekerckhove et al., 2017	Y	?	?	Y	Y	?
132	Weir et al., 2017	?	?	?	N	N	N

No.	Study	S	A	M	5	10	O
133	Avramidou et al., 2018	Y	?	?	N	N	N
134	Causer et al., 2018	Y	?	?	N	N	N
135	Chelabi et al., 2018	Y	?	Y	N	N	N
136	Chen et al., 2018	?	?	?	?	?	?
137	Foster et al., 2018 (1)	Y	?	?	N	N	N
138	Foster et al., 2018 (2)	Y	Y	Y	N	N	N
139	Gruet et al., 2018	Y	Y	Y	N	N	N
140	Puppo et al., 2018	Y	Y	Y	N	N	N
141	Radtke et al., 2018 (1)	Y	?	?	N	N	N
142	Radtke et al., 2018 (2)	Y	Y	Y	N	N	N
143	Savi et al., 2018	Y	Y	Y	N	N	N
144	Stevens, 2018	Y	?	?	N	N	N
145	Stevens & Neyedli, 2018	Y	?	?	N	N	N
146	Tomlinson et al., 2018	Y	?	Y	Y	Y	?
147	Tucker et al., 2018	?	?	?	?	?	?
148	Bar-Yoseph et al., 2019	?	?	?	?	?	?
149	Di Paolo et al., 2019	?	?	?	?	?	?
150	Dwyer et al., 2019	?	?	?	?	?	?
151	Hebestreit et al., 2019 (1)	Y	?	?	N	N	N
152	Hebestreit et al., 2019 (2)	Y	?	?	N	N	N
153	Kampouras et al., 2019a	Y	?	?	?	?	?
154	Kampouras et al., 2019b	Y	?	?	?	?	?
155	Rodriguez-Miguel et al., 2019	?	?	?	?	?	?
156	Ruf et al., 2019	?	?	?	?	?	?
157	Savi et al., 2019	?	?	?	?	?	?
158	Tucker et al., 2019	?	?	?	?	?	?
159	Boutou et al., 2020	?	?	?	?	?	?
160	Burghard et al., 2020 (1)	?	?	?	N	Y	N
161	Burghard et al., 2020 (2)	Y	Y	Y	Y	Y	Y
162	Causer et al., 2020	Y	?	?	N	N	N
163	Di Paolo et al., 2020	?	?	?	?	?	?
164	Sawyer et al., 2020	?	?	?	?	?	?
165	Torvanger et al., 2020	Y	?	Y	N	Y	N
166	Ulvestad et al., 2020a	Y	Y	Y	N	Y	N
167	Ulvestad et al., 2020b	Y	Y	Y	N	Y	N
168	Du Berry et al., 2021	?	?	?	N	N	N
169	Kampouras et al., 2021	Y	?	?	N	N	N
170	Rodriguez-Miguel et al., 2021	?	?	?	?	?	?
171	Saez-Gimenez et al., 2021	?	?	?	?	?	?
172	Sawyer et al., 2021	Y	Y	Y	N	N	N
173	Vendrusculo et al., 2021a	?	?	?	?	?	?
174	Vendrusculo et al., 2021b	?	?	?	?	?	?
175	Willmott et al., 2021	Y	?	?	N	N	N
176	Curran et al., 2022	?	?	?	N	N	N
177	Hebestreit et al., 2022	Y	?	?	N	N	N
178	Reuveny et al., 2022	?	?	?	N	N	N
179	Revuelta-Iniesta et al., 2022	?	?	?	?	?	?

Supplemental File 3: Risk of bias for individual studies.

Where studies utilise more than one reference equation, these are provided in parentheses and the order matches with that provided in Supplemental File 1 (Table of Studies).

S: sex-match; A: age-match; M: modality-match; 5: equation published within 5 years or less of study; 10: equation published within 10 years or less of study.

Yes/Green = Yes, this is an appropriate match.

?/Yellow = This is either: a) partial match, b) unknown (insufficient information from author or source equation); c) assumed as a match, but cannot be verified.

No/Red = No, this is not an appropriate match.

Explanation and examples of RoB scoring provided in table below.

Category	Explanation	Example
Sex	This category assesses whether the sex of participants in the study is the same as that within the NRV publication.	<ul style="list-style-type: none"><li>• If a study contains both men and women, and the NRV equation has either separate equations for men and women, a sex-offset within equation, or equation applicable to both sexes, this would be awarded ‘Yes’ for RoB.</li><li>• If a study contains both men and women, and the NRV equation is based upon only males, this would be awarded ‘Unknown’ for RoB, as this partially matches on the basis of sex – males match, but females do not.</li><li>• If a study NRV does not detail the sex of participants, this would be awarded ‘Unknown’, unless the NRV provides either separate equations for men and women, a sex-offset within equation, or equation applicable to both sexes, in which case a ‘Yes’ would be awarded.</li><li>• If a study contains only females, and the NRV equation is based upon only males, this would be awarded ‘No’ for RoB.</li></ul>
Age	This category assesses whether the age of participants in the study is the same as that within the NRV publication.	<ul style="list-style-type: none"><li>• If a study contains both participants aged from 20-40 years of age, and the NRV equation is based upon people from 18-50 years of age, this would be awarded ‘Yes’ for RoB.</li><li>• If a study contains both participants aged from 20-40 years of age, and the NRV equation is based upon people from 30-50 years of age, this would be awarded ‘Unknown’ for RoB, as this partially matches on the basis of age – those 30-40 years match, but those from 20-29 years do not.</li><li>• If either a study or NRV do not detail the age of participants/source population, this would be awarded a ‘Unknown’ status, unless an age component is built into equations that is applicable to all ages, in which case this would be awarded a ‘Yes’ for RoB.</li><li>• If a study contains participants aged 10-18 years of age, and the NRV equation is based upon people aged from 20-50 years of age, this would be awarded ‘No’ for RoB.</li></ul>
Modality	This category assesses whether the modality used in the study is the same as that used in the NRV publication.	<ul style="list-style-type: none"><li>• If a study utilised cycle ergometry, and the NRV used cycle ergometry, this would be awarded a ‘Yes’ for RoB.</li><li>• If a study utilised cycle ergometry, and the NRV used treadmill exercise, this would be awarded a ‘No’ for RoB.</li><li>• If either a study, or NRV, did not stipulate any modality, this would be awarded a ‘Unknown’ for RoB.</li></ul>
≤5 years	This category assesses whether the study was published within 5 years or less of the NRV publication.	<ul style="list-style-type: none"><li>• If a study was published in 2020, and the NRV cited was published in 2013, this would be awarded ‘No’ for RoB.</li><li>• If a study was published in 2020, and the NRV cited was published in 2015, this would be awarded ‘Yes’ for RoB.</li><li>• If no NRV was cited, and therefore no date available, this would be awarded ‘Unknown’ for RoB.</li></ul>
≤10 years	This category assesses whether the study was published within 10 years or less of the NRV publication.	<ul style="list-style-type: none"><li>• If a study was published in 2020, and the NRV cited was published in 2013, this would be awarded ‘Yes’ for RoB.</li><li>• If a study was published in 2020, and the NRV cited was published in 2010, this would be awarded ‘Yes’ for RoB.</li><li>• If no NRV was cited, and therefore no date available, this would be awarded ‘Unknown’ for RoB.</li></ul>
Overall	This category assigns an ‘overall’ RoB based upon prior categories.	<ul style="list-style-type: none"><li>• The lowest score achieved from the prior categories is carried forward as the ‘overall’ score, thus identifying the ‘maximum’ bias possible within a study.</li></ul>

NRV: normal reference value; RoB: risk of bias.