**Data Extraction Guide**

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| **Study/Population Characteristics** | |
| PMID | Pubmed ID |
| doi | Digital Object Identification |
| author | Surname initials, for multiple authors separate by semi-colon e.g., First AB;Second CD (note, no space) |
| journal | Journal name |
| year | Year of publication |
| study\_code | Numerical code for study level |
| arm\_code | Numerical code for arm level; note explicit nesting to be used |
| es\_code | Numerical code for effect level; note explicit nesting to be used |
| randomisation | Were participants stated as explicitly randomised to the arm from the sample? If yes then “Y”, if unclear exactly how variation occurred then “Y”, otherwise “N”. |
| group | Either “RT” for an intervention arm, or “CON” for a non-training control arm. |
| age | Mean age of group |
| sex\_proportion\_male | Proportion (0-1) of sample as male |
| weight | Mean weight of group |
| bmi | Mean BMI of group |
| train\_status | If no prior training experience then “untrained”. If any prior training experience then “trained”. |
| training\_years | If “trained” then the mean training experience in years. |
| population | If population are otherwise healthy adults then “healthy”. Otherwise use appropriate coding, matching existing coding if possible. |
| aerobic\_training | If aerobic training performed with resistance training then “Y”. |
| caloric\_restriction | If caloric restriction (i.e., dieting) performed with resistance training then “Y”. |
| protein\_g | Mean absolute intake of protein over the duration of the intervention. |
| protein\_percent | Mean percentage of calories as protein over the duration of the intervention |
| carb\_g | Mean absolute intake of carb over the duration of the intervention. |
| carb\_percent | Mean percentage of calories as carb over the duration of the intervention |
| fat\_g | Mean absolute intake of fat over the duration of the intervention. |
| fat\_percent | Mean percentage of fat as protein over the duration of the intervention |
| supplementation | If supplementation performed with resistance training then note what (i.e., “protein”, “creatine” etc.), if unclear exactly how variation occurred then “Y”, otherwise “N”. |
| other\_intervention | If other intervention performed with resistance training then note what (determine categories inductively from study reporting). |
| weeks | Duration of training intervention up to time point of measurement |
| freq | Frequency in days per week of training. If different frequencies performed over the course of the intervention, then calculate the weighted average based upon the amount of time spent training at different frequencies. |
| freq\_varied | If frequency varied over the duration of the intervention then note whether this was “PROGRESS“ i.e., increasing over the intervention, “REGRESS” i.e., decreasing over the intervention, “WAVED” i.e., undulating over the intervention, if unclear exactly how variation occurred then “Y”, otherwise “N”. |
| exercise\_no | Number of exercises performed per training session. If different numbers of exercises performed over the course of the intervention, then calculate the weighted average based upon the amount of time spent training with different numbers of exercises. |
| exercise\_no\_varied | If number of exercises varied over the duration of the intervention then note whether this was “PROGRESS“ i.e., increasing over the intervention, “REGRESS” i.e., decreasing over the intervention, “WAVED” i.e., undulating over the intervention, if unclear exactly how variation occurred then “Y”, otherwise “N”. |
| sets\_exercise | Number of sets of exercises performed per training session per exercise. If different numbers of sets of exercises performed over the course of the intervention, then calculate the weighted average based upon the amount of time spent training with different numbers of sets of exercises. |
| sets\_exercise\_varied | If number of sets of exercises varied over the duration of the intervention then note whether this was “PROGRESS“ i.e., increasing over the intervention, “REGRESS” i.e., decreasing over the intervention, “WAVED” i.e., undulating over the intervention, if unclear exactly how variation occurred then “Y”, otherwise “N”. |
| reps | Number of repetitions performed per set of exercise. If different numbers of repetitions performed over the course of the intervention, then calculate the weighted average based upon the amount of time spent training with different numbers of repetitions. |
| reps\_varied | If number of repetitions varied over the duration of the intervention then note whether this was “PROGRESS“ i.e., increasing over the intervention, “REGRESS” i.e., decreasing over the intervention, “WAVED” i.e., undulating over the intervention, if unclear exactly how variation occurred then “Y”, otherwise “N”. |
| relative\_load | Relative load (i.e., %1RM, %MVC) performed per set of exercise. If different relative loads performed over the course of the intervention, then calculate the weighted average based upon the amount of time spent training with different relative loads. If not directly reported, estimated from [NSCA loading chart](https://www.nsca.com/contentassets/61d813865e264c6e852cadfe247eae52/nsca_training_load_chart.pdf), or using Landers equation directly  𝑙𝑜𝑎𝑑=1.013−0.0267123 𝑅𝑇𝐹 |
| relative\_load\_varied | If relative loads varied over the duration of the intervention then note whether this was “PROGRESS“ i.e., increasing over the intervention, “REGRESS” i.e., decreasing over the intervention, “WAVED” i.e., undulating over the intervention, if unclear exactly how variation occurred then “Y”, otherwise “N”. |
| CON\_rep\_duration | Concentric repetitions duration performed per repetitions. If different concentric repetition durations performed over the course of the intervention, then calculate the weighted average based upon the amount of time spent training with different concentric repetition durations. |
| ECC\_rep\_duration | Eccentric repetitions duration performed per repetitions. If different eccentric repetition durations performed over the course of the intervention, then calculate the weighted average based upon the amount of time spent training with different eccentric repetition durations. |
| Isometric\_rep\_duration | If isometric repetitions, duration performed per repetition. If different isometric repetition durations performed over the course of the intervention, then calculate the weighted average based upon the amount of time spent training with different isometric repetition durations. |
| rep\_duration\_varied | If repetition durations varied over the duration of the intervention then note whether this was “PROGRESS“ i.e., increasing over the intervention, “REGRESS” i.e., decreasing over the intervention, “WAVED” i.e., undulating over the intervention, if unclear exactly how variation occurred then “Y”, otherwise “N”. |
| contraction\_type | Either “CON”, “ECC”, “CON\_ECC”, or “isometric”. For most studies where contraction type was not compared or varied, it is assumed that CON\_ECC was used as standard. |
| contraction\_type\_varied | If contraction type varied over the duration of the intervention then note whether this was “PROGRESS“ i.e., increasing over the intervention, “REGRESS” i.e., decreasing over the intervention, “WAVED” i.e., undulating over the intervention, if unclear exactly how variation occurred then “Y”, otherwise “N”. |
| full\_partial\_rom | Either “FULL\_ROM”, “PART\_ROM”, or “FULL\_PART” (for varied ROMs). For most studies where ROM was not compared or varied, it is assumed that full ROM was used as standard. |
| full\_partial\_rom\_varied | If contraction type varied over the duration of the intervention then note whether this was “PROGRESS“ i.e., increasing over the intervention, “REGRESS” i.e., decreasing over the intervention, “WAVED” i.e., undulating over the intervention, if unclear exactly how variation occurred then “Y”, otherwise “N”. |
| task\_failure\_y\_n | If training performed to either momentary failure, or a repetition maximum, or used maximal effort such as maximal loads or maximal isometric tasks, based on authors description then “Y”. If author instructions make clear task failure was not achieved then “N”. Otherwise, “unclear”. Note, this should be coded as “y” if at least one set reached failure. |
| sets\_failure | Number of sets which were performed to failure per exercise. |
| task\_failure\_varied | If reaching task failure or not varied over the duration of the intervention then note whether this was “PROGRESS“ i.e., increasing over the intervention, “REGRESS” i.e., decreasing over the intervention, “WAVED” i.e., undulating over the intervention, if unclear exactly how variation occurred then “Y”, otherwise “N”. |
| full\_body | If the training was performed using a full body routine (i.e., both upper and lower body exercises included in a single session) then “Y”, otherwise “N” |
| split\_routine | If the training was performed using a split routine (i.e., upper and lower body exercises included in separate sessions) then “Y”, otherwise “N” |
| modality | Predominant modality of training (e.g., “free\_weights”, “weight\_stack\_machines”, “bands”, “isokinetic” etc.) |
| modality\_varied | If modality of training varied over the duration of the intervention then “Y”, if unclear exactly how variation occurred then “Y”, otherwise “N”. |
| outcome | General outcome grouping as “hypertrophy”, “strength”, “power”, or “sport\_performance” (e.g., sprint speed, jump height etc.) |
| measure | Specific operationalisation of outcome. For example, for strength either “XRM” where X is the number of repetitions, “isometric”, or “isokinetic”, or if repetitions to failure then MF. For hypertrophy either “biopsy (type X)” where X is the fiber type, “US”, “MRI”, “CT”, “DXA”, “circumference” etc. |
| region | Either “upper”, “lower”, or “total” (i.e., where a combined outcome score of multiple exercises for strength, or a whole body lean mass for hypertrophy). |
| specific\_region | Specific muscle group, or exercise used for outcome. If “total” then recode as “total” again. |
| Increase\_decrease | Note whether the outcome measure change shows improvement when an “increase” or a “decrease” occurs e.g., 1RM would be increase, but submaximal VO2 would be decrease (lower oxygen consumption is better). |
| outcome\_freq | Frequency in days per week of training specific to outcome measure if strength or hypertrophy. For example, if outcome is a strength, then specific frequency performed for the exercise tested. Or if outcome is hypertrophy, then specific frequency for the muscle group tested.  If different frequencies performed over the course of the intervention, then calculate the weighted average based upon the amount of time spent training at different frequencies |
| outcome\_sets | Number of sets of exercises performed per training session per exercise if strength or hypertrophy. For example, if outcome if a strength, then specific sets performed for the exercise tested. Or if outcome is hypertrophy, then specific sets for the muscle group tested.  If different set numbers performed over the course of the intervention, then calculate the weighted average based upon the amount of time spent training at different frequencies |
| outcome\_reps | Number of repetitions performed per set of exercise if strength or hypertrophy. For example, if outcome if a strength, then specific repetitions performed for the exercise tested. Or if outcome is hypertrophy, then specific repetitions for the muscle group tested.  If different numbers of repetitions performed over the course of the intervention, then calculate the weighted average based upon the amount of time spent training with different numbers of repetitions. |
| outcome\_load | Relative load (i.e., %1RM, %MVC) performed per set of exercise if strength or hypertrophy. For example, if outcome if a strength, then specific loads performed for the exercise tested. Or if outcome is hypertrophy, then specific load for the muscle group tested.  If different loads performed over the course of the intervention, then calculate the weighted average based upon the amount of time spent training with different loads. |
| specific\_volume | If region specific measures (i.e., not “total”) then determine the total volume (freq \* sets \* reps) performed for that muscle group/exercise specifically. |
| strength\_outcome\_trained | If a strength outcome, was the specific exercised included in the training intervention. If yes, then “Y”, if unclear exactly how variation occurred then “Y”, otherwise “N”. |
| n | Sample size for the group. |
| pre\_m | Pre-intervention mean for outcome. |
| post\_m | Post-intervention mean for outcome. |
| delta\_m | Mean for pre-post delta for outcome. |
| pre\_se | Pre-intervention standard error for outcome. |
| post\_se | Post-intervention standard error for outcome. |
| delta\_se | Standard error for pre-post delta for outcome. |
| pre\_sd | Pre-intervention standard deviation for outcome. |
| post\_sd | Post-intervention standard deviation for outcome. |
| delta\_sd | Standard deviation for pre-post delta for outcome. |
| delta\_CI\_lower | Lower limit of 95% CI for pre-post delta for outcome. |
| delta\_CI\_upper | Upper limit of 95% CI for pre-post delta for outcome. |
| delta\_t\_value | T statistic for pre-post delta for outcome. |
| delta\_p\_value | P value from t-test for pre-post delta for outcome. |
| Notes | Any notes here relevant to the data extraction. For example, if data extracted using webplotdigitizer from plots then note here. |