

INPLASY PROTOCOL

To cite: Rebelo et al. Rating of Perceived Exertion in Professional Volleyball: A Systematic Review. Inplasy protocol 202280034. doi: 10.37766/inplasy2022.8.0034

Received: 09 August 2022

Published: 09 August 2022

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Support: N/A.

Review Stage at time of this submission: Data extraction.

Conflicts of interest:
None declared.

Rating of Perceived Exertion in Professional Volleyball: A Systematic Review

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Review question / Objective: The purpose of the current review was to systematically and critically evaluate the use RPE-based methods in professional volleyball.

Condition being studied: Monitoring athlete load is better understood through sub-dividing load into two groups – internal and external. Internal training load (ITL) refers to the physiological stress that a training session induces in the athlete. Rating of perceived exertion (RPE) has become the most common method of monitoring ITL. The RPE method was originally developed by Borg, and Foster et al. created a simple technique to quantify ITL using a modification of this scale. This technique is known as the session RPE (sRPE) and is derived by multiplying the overall RPE obtained at the end of a training session (or match), using the Borg Category-Ratio 10 scale (BORG-CR10) by the total duration (in minutes) of the training session, to provide a modified training impulse (TRIMP) score.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 09 August 2022 and was last updated on 09 August 2022 (registration number INPLASY202280034).

INTRODUCTION

Review question / Objective: The purpose of the current review was to systematically and critically evaluate the use RPE-based methods in professional volleyball.

Rationale: The rating of perceived exertion (RPE) has become the most common

method of monitoring internal training load (ITL). However, RPE data can be collected without following specific procedures and across a range of methods (e.g., different RPE scales and/or different operational questions). Consequently, practitioners working in professional volleyball can use this information in various ways with

different assessment standards between them.

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METHODS

Search strategy: Articles were systematically identified via four electronic databases (PubMed, SPORTDiscus, Scopus, and Web of Science). The search string for each variable (rating of perceived exertion and volleyball) was used independently, after which both were combined in the complete search strategy. RPE variable - ('internal training load' OR 'workload' OR 'training impulse' OR 'training response' OR 'TRIMP' OR 'internal load' OR 'exposure' OR 'RPE' OR 'rating of perceived exertion' OR 'summated-heart-rate-zone' OR 'SHRZ' OR 'PlayerLoad' OR 'BodyLoad') volleyball variable - 'volleyball athlete' OR 'volleyball player'.

Participant or population: Professional volleyball athletes.

Intervention: N/A.

Comparator: N/A.

Study designs to be included: Observational studies.

Eligibility criteria: Articles considered for inclusion in the review were those

examining professional volleyball athletes and reporting RPE outcomes within, at least, one phase of the season (i.e., off-season, pre-season, or competitive period). The sample of participants were made up of volleyball athletes who were part of a professional team. Therefore, collegiate and young volleyball athletes were excluded from the present systematic review. Including experimental studies that implemented an intervention may have misrepresented the results, so the review was restricted to cross-sectional or longitudinal observational study designs. Studies where player monitoring data were reported only during competitive games or during a portion of a phase of the season (e.g., one week) were excluded as they did not represent the complete workloads experienced by players during a specific period of the annual training plan.

Information sources: Articles were systematically identified via four electronic databases (PubMed, SPORTDiscus, Scopus, and Web of Science). Authors will be contacted everytime an outcome is not reported in their study.

Main outcome(s): The following data, where possible, were extracted from each article: (1) participants' characteristics (sample size, sex, age, body height, and body mass); (2) monitoring period (i.e., seasonal phase(s) and duration); (3) objective measures (e.g., heart rate, time motion analysis); (4) RPE scale methods (e.g., scale, operational question).

Quality assessment / Risk of bias analysis: Methodological quality was assessed using a modified version of the Downs and Black checklist for assessing the methodological quality of healthcare interventions. This checklist has been validated for use with observational study designs and has been previously used to assess methodological quality in systematic reviews assessing cross-sectional and longitudinal studies.

Strategy of data synthesis: Data not provided or presented non-numerically were identified as "not reported". The following data, where possible, were

extracted from each article: (1) participants' characteristics (sample size, sex, age, body height, and body mass); (2) monitoring period (i.e., seasonal phase(s) and duration); (3) objective measures (e.g., heart rate, time motion analysis); (4) RPE scale methods (e.g., scale, operational question).

Subgroup analysis: N/A.

Sensitivity analysis: N/A.

Language restriction: The search was restricted to original peer-reviewed studies published in English, Spanish, and Portuguese.

Country(ies) involved: Portugal.

Keywords: volleyball; injury prevention; periodization; workload; rating of perceived exertion; heart rate; wellness; countermovement jump.

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