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HANDICAP REVIEW APPENDIX
PORTUGUESE GOLF FEDERATION

INTRODUCTION

The handicap committee of a handicapping authority must perform a handicap review at least once a year.

The main objective is to assess whether the scoring performance of players is representative of the player's ability as indicated by their current EGA Handicap. The handicap review is an essential procedure within the EGA Handicap System. For general (introductory) information on *Handicap Review* (HR in this appendix), refer to section 3.15 of the EGA Handicap System.

The review procedures have been developed in order to incorporate two levels of analytics on the handicap records of the players, the handicap review itself and an additional layer regarding the best scores of the players. Supplementary summary analytical information and tools are also provided, to support handicap committees on their decisions.

Please find bellow the **instructions as well as guidance notes** from the Handicap & Course Rating Committee of the Portuguese Golf Federation.

The Annual Handicap Review must be performed in January, as soon as possible in the beginning of the year.

We recommend that the process is performed during a period when players are not playing too frequently, to avoid changes on the handicaps reviewed during the period between making the calculations and finishing the review. Therefore, the process should be completed as quickly as possible. If the review process is done quickly the handicap committee avoids having to recalculate/review handicaps that have changed since the beginning of the calculations.

For any further information regarding this subject please contact the Handicap & Course Rating Committee, through the Algarve Delegation office (handicaps@fpg.pt ; 289 39 14 15).

SUMMARY OF THE ALGORITHM STEPS

- The eligible scores for review are collected;
- The scores are standardised (Standard Gross Differentials - SGD), which shows to which *EGA Handicap* the score was "played to" in each round; The SGD scores are fully comparable against the player's *EGA Handicap* at the revision date.
- The expected range of the player's *EGA Handicap* is calculated (based on the mean of the SGD scores, how they are spread and the review formula);
- The player's current handicap is compared with the limits of that range, and if necessary a proposal of adjustment is provided:
  - If the player's *EGA Handicap* is above the upper Index limit a reduction is proposed
  - If the player's *EGA Handicap* is below the lower Index limit an increase is proposed
    (if the player has a lower handicap at the end of the review period than the initial handicap, no handicap increase is showed, and the handicap committee needs to evaluate the situation)
- An additional analytical tool is included, looking specifically to the average of the players best (SGD) scores and a reduction is proposed if that value is considerably better than the current handicap.
- The handicap committee considers the proposal and applies the final decision (to maintain or adjust the handicap, and the final value of the adjustment).

CONSIDERATIONS WHEN EVALUATING THE ADJUSTMENT RECOMENDATIONS

The handicap committee must evaluate the handicap of all players, taking into consideration all information available about the players' ability. In order to assist handicap committees to make informed decisions, and with the aim of promoting consistency and uniformity, a handicap review report is available. The vast majority of players require no adjustment under the handicap review.

The analytical tools are advisory in the sense that they suggest a selection of handicaps which players should be considered for adjustment and propose a number of strokes. The handicap committee must then evaluate the proposal and all other pertinent data and, after approval, make the final adjustment.

The handicap committee should take in consideration factors like:

- Number of scores during the year
- Percentage of 18 holes rounds and 9 hole rounds
- Percentage of competition rounds and EDS
- The player's best and worse (SGD) scores
- Frequency of No Returns
- The player's performance profile, age and general trend, such as beginners, improvers or performance decliners
- Possible reviews or general play adjustments during the year
- How far the player's handicap is from the Expected Handicap Range, and what are the upper and lower limits
- Any other evidence regarding the player's ability (namely from non-qualifying competitions)

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ANNUAL REVIEW PROCEDURES WITHIN THE SOFTWARE

1. Calculate the Review

Datagolf -> Players/Members -> Annual Handicap Review -> Calculate Review

Through the button "Calculate Review", the system will calculate the proposed handicap for each player, and an annual handicap review list is showed. The list incorporates the general handicap review and the review of the best scores formulas.

a) Preview: it's possible to view summary data for each player, clicking the "+" icon, or selecting preview with details.
b) Print: it's possible to print the list, with/without details, for analysis by the handicap committee.
c) Access to player's data: the preview with details gives access to the players' record on the central system web interface, and through that, to the handicap record and handicap charts.
The SGD handicap evolution chart is particularly useful for the handicap review analysis.

The Handicap Committee has the final decision in what concerns the proposals presented, either in the alteration of the handicap and the value of the adjustment or in the confirmation of the existing handicap.

2. Register the Review for the Flagged Handicaps

Players with a proposed handicap alteration need to be the first to be reviewed. They are identified in red for increases and purple for reductions.

On the handicap review list –> write the "Reviewed Handicap" for all players flagged in red or purple -> Save

3. Register other handicap changes

If the handicap committee has decided to change the handicap of players that were not flagged by the handicap review calculations:

On the handicap review list –> write the "Reviewed Handicap" for players selected by the handicap committee -> Save

4. Recalculate changed handicaps

If some handicaps have changed since the beginning of the review calculation, the handicap committee will have to redo the calculation of those specific handicaps:

On the handicap review list –> message "Do you want to recalculate now?" -> Yes -> Review according to the proposal (as point 2 or 5 of these instructions)

5. Confirm no changes for all other players

The list shows in blue the handicaps that were not flagged for change, and the ones that don't have the minimum eligible number of scores to be evaluated by the review formulas. From the moment the handicaps mentioned on points 2 and 3 are recorded and saved, the button "Confirm all the rest" becomes available.

On the handicap review screen –> Button "Confirm all the rest"

6. Finalise the Review

As a final step, use the button "Conclude Review", in order to confirm the alterations and to finish all the process. Only after this procedure the handicap review is concluded. The handicaps will be updated on the handicap central system and a new line is added to each player's handicap record.
The handicap review process will be concluded, and it won't be possible to reinitiate it.

On the handicap review screen –> Button "Conclude Review"

Button "print": it is possible to print a list with review status as "concluded" to publish and inform the players.

Note for Category 1: the handicap alterations proposed by the handicap committee for players in handicap category 1, different from the suggested by the algorithm, will show a provisional status, and the handicap committee should contact the HCRC of the FPG, with additional information for analysis, in order to request ratification.

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HANDICAP REVIEW FORMULA

ELIGIBLE SCORES

1. All individual *qualifying scores* are eligible scores for *HR,* with the following exceptions:
   - rounds where CBA was -2&RO
   - rounds cancelled by the committee

STANDARD GROSS DIFFERENTIAL (SGD) CALCULATION

1. For every eligible round over 18 holes, calculate the SGD using the formula:

$$SGD = EGA\ HDCP + ND * \frac{113}{SR}$$

Where:
ND: 36 – (StablefordScore – CBA)

2. For every eligible round over 9 holes, calculate the SGD using the formula:

$$SGD = EGA\ HDCP + 2 * ND * \frac{113}{SR}$$

Where:
ND: 36 - StablefordScore

Note: National Associations can include the SGD value in the Handicap Record Sheet.

REVIEW PROCESS

1. All players with 8 eligible scores in the last 12 months are included in the HR. If a player does not have 8 scores, take enough scores from the previous 12 months, in chronological order (latest first), to add up to a total of 8 eligible scores.
   Note: Regarding provisions for players with 4 to 7 eligible scores, see Addendum below.
2. Calculate the mean of all SGD ($\overline{SGD}$)calculated previously.
3. Calculate the Standard Deviation (Bessel's corrected[1]) of all the SGD (σSGD).
4. Calculate the Degrees of Freedom (DF) adding to the total number of 18-hole rounds, the number of 9-hole rounds divided by 2 (0.5 rounded up), and subtract one:

$$DF = N_{18} + \frac{N_9}{2} - 1$$

Where:
DF: number of degrees
N_{18}: number of 18-hole rounds
N_9: number of 9-hole rounds

5. Calculate the factor “a” using the two tails t-Student table[2] for an error of 0,01 and the Degrees of Freedom (DF) calculated in the previous point.
6. Calculate the factor “b” using the two tails t-Student table[2] for an error of 0,05 and the Degrees of Freedom (DF) calculated in the previous point.
7. Calculate the upper and lower estimated SGD using the formulas:

$$_{upper}eSGD = \overline{SGD} + a * \frac{\sigma SGD}{\sqrt{(DF+1)}}$$

$$_{lower}eSGD = \overline{SGD} - b * \frac{\sigma SGD}{\sqrt{(DF+1)}}$$

8. Convert both upper and lower eSGD into upper and lower Index limits using the formula:

$$_{upper}INDEX = \frac{(_{upper}eSGD - 2.1)}{1.13}$$

$$_{lower}INDEX = \frac{(_{lower}eSGD - 2.1)}{1.13}$$

9. If the player's *EGA Handicap* falls between the upper and lower Index limits ($[_{lower}INDEX, _{upper}INDEX]$) no adjustment is proposed by the algorithm.
10. If the player's *EGA Handicap* is below the lower Index limit $<_{lower}INDEX$, such limit will be the Reviewed Handicap. Calculate the adjustment by subtracting the *EGA Handicap* from the Reviewed Handicap, rounding the positive difference up to the next integer (away from zero).
11. If the player's *EGA Handicap* is above the upper limit $>_{upper}INDEX$, such limit will be the Reviewed Handicap. Calculate the adjustment by subtracting the *EGA Handicap* from the Reviewed Handicap, rounding the negative difference up to the next integer (towards zero).
12. For each *handicap category,* the following maximum adjustments must be applied:

CATEGORY	1	2	3	4	5
MAXIMUM	±1	±2	±3	±3	±3

    Note: see Addendum below.
13. Calculate the Proposed Handicap adding to the *EGA Handicap* the adjustment calculated, taking into account the maximum adjustments provided in table 12.
14. For any player whose initial *EGA Handicap* is higher than the final *EGA Handicap* no adjustment is proposed by the algorithm.
    Note: In this situation, *handicap committees* must carefully study the player's scoring evolution before adjusting up the player's handicap.

Addendum:

For players with less than 8 scores on the last 24 months, an additional analysis is done for players with 4 to 7 eligible scores on the on the last 24 months. The analysis uses the same calculations as the handicap review algorithm, but since there is less evidence of the player's performance, the maximum adjustments proposed are up to 1 stroke.

For players on *handicap category* 6, the *handicap category* 5 maximum adjustments are applied.

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REVIEW OF THE BEST SCORES FORMULA

The HCRC of the FPG makes available the following supplementary analytical tool:

1. The supplementary analytical tool applies to players not already flagged for adjustment by the handicap review formula, within handicap categories 2 – 6.
2. The same eligible scores, as per the handicap review formula, are used, standardised as SGD.
3. The mean of the best 25% of the player's SGD scores is calculated, with a minimum of 2 scores.
   Note: The number of scores used is 25% round down.
4. The mean of the best 25% of the player's SGD is compared to the player's current EGA handicap, with a margin of 2 strokes.
   Note: for analysis purposes this is equivalent to consider 38 Stableford points in relation the player's current EGA Handicap.
5. If the mean of the best 25% of the player's SGDs is more than 2 strokes higher than the player's current EGA Handicap, a handicap reduction is proposed.
6. The following limits apply to the reduction proposals:
   a. The reduction proposals resulting from this analysis are limited to 1 stroke.
   b. The reduction proposals are limited to the lower limit of the *handicap category* 2.
   c. No reduction is proposed if it would take the handicap below the lower Index of the handicap review formula.

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