

How does the substitution algorithm work?

How HCA combines target playing time with preferred lines, positions and logical substitution timing.

Goal of V2

The algorithm first tries to match the desired total playing time as closely as possible. It then distributes that time across valid preferred lines and - when selected - preferred positions. The goalkeeper is excluded from the regular fairness comparison.

Three substitution methods



Within lines only

Every player stays in one fixed substitution pool. Playing time is balanced within that line, but the overall difference between lines may exceed 7%.



Preferred lines

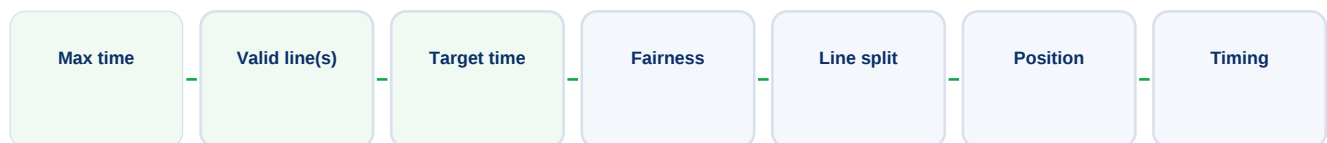
Players with multiple valid lines may rotate across those lines. This gives V2 more freedom to equalise total playing time.



Preferred positions

HCA additionally uses specific position preferences. If an exact position is not feasible, the valid preferred line remains leading.

The core in one line



Playing time and fairness

1. Target playing time

- Every outfield player receives a target for total playing time.
- With equal rating and equal maximum playing time, equal total playing time is the starting point.
- A higher rating/playing priority can deliberately result in more playing time; a lower rating in less.

2. Maximum playing time

- Maximum playing time is a hard upper limit.
- A player capped at 60%, for example, is not planned above 60% even if doing so would make the rest of the distribution look better.

3. Multiple preferred lines

- A player may have multiple valid lines, for example DEF + MID.
- Configured percentages guide the desired split across those lines, for example 70/30.
- The valid line is a hard condition; the exact position within that line is a preference.

4. The 7% rule

- For players with equal rating and equal maximum playing time, V2 aims for no more than a 7 percentage-point difference between the highest and lowest projected outfield playing time.
- This applies when the available players and valid lines make it feasible.
- The goalkeeper is excluded from this comparison.

≤ 7 pp

Target for equal rating + equal maximum playing time, when line coverage makes it feasible.

Timing and exceptions

5. Substitution timing

- The configured substitution interval is a guideline, not a hard boundary.
- An individual substitution may be moved slightly earlier or later if that improves the overall distribution.
- Players therefore do not all need to substitute at exactly the same moment.

6. Cards and injuries

- Time missed because of a green or yellow card is not made up later.
- Time missed because of a temporary injury also does not need to be compensated.
- Statistics always continue to show the actual minutes played.
- A red card removes the player for the rest of the match.

7. Priority order

- 1. Hard maximum playing time.
- 2. Valid preferred line(s).
- 3. Stay as close as possible to target total playing time.
- 4. For equal targets: minimize the playing-time spread.
- 5. Preferred-line percentage distribution.
- 6. Preferred position.
- 7. Logical substitution timing around the configured interval.

Important

Important: with Within lines only, the overall spread may exceed 7% because players cannot move between DEF/MID/ATT pools.