

**Initial
Particles**

```
graph TD; A[Initial Particles] --> B[Fitness Evaluation]; B --> C[Best Positions]; C --> D[Update Velocities]; D --> E[Calculate New Positions]; E --> F[Termination]; B --> B; E --> B;
```

The flowchart illustrates the iterative process of a particle swarm optimization algorithm. It begins with a box labeled 'Initial Particles' at the top. An arrow points down to a large container box. Inside this container, the process continues with four sequential steps: 'Fitness Evaluation', 'Best Positions', 'Update Velocities', and 'Calculate New Positions'. Each step is connected to the next by a downward arrow. A feedback loop is shown on the left side of the container box, with arrows pointing from the 'Fitness Evaluation' and 'Calculate New Positions' steps back to the start of the container. The process concludes with an arrow pointing down from the container box to a final box labeled 'Termination'.

**Fitness
Evaluation**

Best Positions

**Update
Velocities**

**Calculate New
Positions**

Termination

Gbest PSO - New Velocity Construction Example

